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Gender and General Strain Theory: An Examination of the Role of Gendered Strains and Negative Emotions on Crime

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GENDER AND GENERAL STRAIN THEORY: AN EXAMINATION OF THE ROLE OF GENDERED STRAINS AND NEGATIVE EMOTIONS ON CRIME

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One of the predominant issues in the criminological study of gender and crime is the gender gap in crime. Women are much less involved in crime than men and are involved with different types of crimes. By integrating gender-specific theory with General Strain Theory (GST), this dissertation provides an explanation of female crime and the gender gap in crime. Gendered General Strain Theory (gendered-GST) argues that gender differences in negative life events (strains) and differences in negative emotions lead to distinct pathways to criminal offending. This dissertation empirically examines the different propositions of gendered-GST and whether they adequately explain female crime and the gender gap in offending.

Data for this study come from the first three waves of the National Longitudinal Study of Adolescent Health (Add Health), a nationally representative survey of adolescent health and risk behaviors. This dissertation uses a sample of 3,009 respondents from the public-use version of the Add Health. Based upon multivariate analyses, the results provide support for the generalizability of GST to female and male criminal offending. Experiencing negative life events, such as violent victimization, were related to several forms of female and male offending. Negative emotions, especially anger, were related to offending for both females and males. While the results are supportive of the

generalizability of gendered-GST, the results suggest a lack of support for the ability of a gendered version of GST to explain the gender gap in crime. No distinct statistical pathways of strain or negative emotions were indicated in their relationship to crime.

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Chapter 1 – Introduction

Research regarding women who commit crime has been marginalized in criminological and criminal justice research (Chesney-Lind 2000). Specifically, there has been a tendency among criminologists to neglect theoretical explanations that fully explore the intricacies of female crime. Some criminologists choose to ignore the need for explanations of female crime because of the tendency for female crimes to be lower in offense seriousness (Kruttschnitt 1996), which somehow makes it a lesser aspect of crime. Others dismiss the need for research on female crime with the belief that the gender gap is simply a social fact, namely that men commit more crime and this is invariant both historically and culturally (i.e. Gottfredson and Hirschi 1990). Yet others assumed that theories would be gender invariant. All such beliefs ignore the inherent complexities in explanations of crime and the important role gender plays in determining crime.

Although men typically commit more crime than women (Wikström 1990; Rhodes and Fischer 1993; Rantakillio, Myhrman, Koiranen 1995; Heimer and De Coster 1999; Heimer 2000; Steffensmeier et al. 2005; Steffensmeier et al. 2006; Lauritsen, Heimer, and Lynch 2009; Schwartz, Steffensmeier, and Feldmeyer 2009; Zimmerman and Messner 2010; Block et al. 2010), there are variations to this pattern both historically and cross-culturally (Kobayashi, Sharp, and Grasmick 2008). Indeed, women comprise an increasing percentage of offenders, and the gender gap in arrests has narrowed in the past several decades, at least according to some of the data sources (Steffensmeier 1993; Heimer 2000; Steffensmeier et al. 2005; Lauritsen, Heimer, and Lynch 2009). Today, males comprise 73.8% of all arrests compared to females who are 26.2% of all arrests.

The gender ratio is typically the greatest when looking at violent crimes where males comprise the highest percentage of arrestees (Federal Bureau of Investigation 2012a) and offenders (Truman and Planty 2012; see Heimer 2000; Lauritsen et al. 2009). Yet, in some instances the ratio of male to female arrests are nearly equivalent. For example, women made up nearly 47% of the arrests for embezzlement in 2012 (Federal Bureau of Investigation 2012b). There are also instances in which women make up a greater percentage of arrests for particular crimes. One example is prostitution, for which women comprise 58% of reported arrests (Federal Bureau of Investigation 2012b). Whether patterns of women's criminality are representative of a new type of female offender (Simon 1975; Adler 1975) or changes in societal tolerance for minor deviance (see Schwartz et al. 2009), there remains a relative dearth of empirical and theoretical research on the etiology of female crime. This failure to specifically focus on women limits our understanding of crime.

Prior to the 1970's, the sociological study of crime and delinquency focused almost exclusively on male offenders. Male criminality was studied in terms of group level or structural phenomena. Female crime was simply not studied using the same perspectives as male crime. The few explanations that did exist for female crime were typically based upon sexist notions (Daly and Chesney-Lind 1988). Instead of group level or structural explanations, female crime was generally examined as occurring due to individual biological or psychological deficits. Such explanations included theories of female criminality caused by an excess of male chromosomes (Cowie, Cowie, and Slater 1968), individual aberrations (Lombroso and Ferrero 1895), hormonal or menstrual factors (Dalton 1964), deceitfulness due to sexuality (Pollak 1950), and penis envy

(Freud 1933; in Flowers 1995). It was not until the late 1980's that male explanations were seriously applied to see if such theories applied to female delinquency (Smith and Paternoster 1987).

Beginning in the late 1960's and early 1970's there was a rise in feminist critiques of these early theories arguing that criminology should no longer treat gender in such a simplistic or sexist manner. Daly and Chesney-Lind (1988:507) have identified this transitionary period as "the awakening" of criminology to feminism. During this period, scholars began to question the lack of attention paid to women in general theories of crime and to point out androcentric biases in research. Such scholars as Bertrand (1969) and Heidensohn (1968) questioned whether general theories even applied to women. They criticized general theories as being male-centered, designed and developed by men to explain men's crime (Daly and Chesney-Lind 1988).

Such critiques led to a push by feminist scholars to develop gender-specific theories that were able to explain women's involvement in crime. This push for gender-specific theory, however, created a backlash among those criminologists who maintained that gender-neutral theories adequately explained gender differences in crime. They claimed that not only were their theories sufficient in explaining female crime, but separate theories or modifications were simply unnecessary (Smith and Paternoster 1987). These conflicting ideologies led to debates over the merits of both gender-neutral and gender-specific theories. Guiding this debate were two primary questions: whether general theories are applicable to women (generalizability) and whether they can explain why women commit less crime (gender ratio problem) (Daly and Chesney-Lind 1988). Generalizability scholars are proponents of gender-neutral theorizing and expect their

theories to explain male and female crime similarly well. Gender-specific theorists argue that these theories may be applicable to female crime, but they do not necessarily operate in the same way or to the same degree as they do for men. While epistemologically different, the two issues are equally necessary in fully comprehending the intricacies of gender and crime.

Daly (1998) has suggested a middle range approach in which a limited number of themes are pulled together to address a portion of the relationship between gender and crime. Daly's (1998) middle range approach or, in this case, a gendered theory, can provide the framework necessary to more fruitfully compare the etiology of female and male crime. While gender-neutral theories can serve as a foundation for understanding criminality, they fail to identify the gendered aspects of life which produce different patterns of offending. It is, therefore, necessary to integrate gender-specific theories with gender-neutral theories in the pursuit of a theory of the middle range.

One such approach that incorporates gender-specific theory into gender-neutral theory is the gendered expansion of general strain theory. Agnew's (1992) original conception of general strain theory (GST) stated that individual life events create pressure which, in turn, leads to negative emotions; in an attempt to alleviate this pressure, individuals may resort to crime. General strain theory recognizes that people in their daily lives may experience events that create stress or discomfort. Such events range from relatively minor or typical occurrences, such as getting stuck behind slow drivers, to major or severe occurrences, like the death of a loved one or being the victim of a violent crime. These negative occurrences, or strains, create negative emotions such as fear, anger, frustration, or despair. Depending on the magnitude of the strain and resulting

negative emotions, there is an incentive to relieve the negative emotions or to alleviate residual negative emotions built up from prior strains. Individuals with the social or cognitive resources, such as social support or high self-esteem, are able to call upon these resources to deal with the negative emotions through legitimate means. Sometimes the strain is severe enough, or a person's ability to deal with the negative emotions is already taxed or lacking, that an individual may attempt to deal with their negative emotions through illegitimate means (i.e. crime).

Agnew (2009; Broidy and Agnew 1997) recognized that the theory may not be relevant to female criminality without examining gender differences in strain, negative emotions, and coping mechanisms that reduce the impact of strain on crime. Although Agnew believed the processes of GST were already capable of explaining both male and female crime, Broidy and Agnew (1997) proposed that an adjustment to GST was necessary in order to better understand the specific conditions which lead to female criminality. Their adjustment, sometimes called gendered general strain theory (gendered-GST) (Yun, Kim, and Morris 2014), proposed that by integrating gender and gender differences into the processes of GST the theory would be able to explain the gender ratio in crime.

Broidy and Agnew's gendered-GST (1997) posited possible differences in the strain experience, negative emotions, and coping mechanisms. This dissertation draws on gendered-GST to examine the gendered elements that create the gender gap in crime. Specifically, it examines the differences in gendered strains (such as sexual victimization), the differences in negative emotions (such as a tendency to react to strain

with both anger and depression), and the different forms of crime and delinquency (internalized or externalized).

This dissertation primarily draws from GST, gendered-GST, and a "gender-specific" theory in the form of pathways. The pathways perspective is a broad approach that draws from feminist theories which examine the circumstances that put women and girls at risk of offending (Belknap 2015). The pathways approach argues that men and women follow different paths in their entry into crime and that the path for women into crime is often a pathway of victimization and the criminalization of attempts to deal with, or escape, this abuse. While the pathways approach recognizes victimization as an important factor in women's crime, it also provides insight into the different areas, life events, socialization, and other experiences where men and women may differ.

Purpose of Research

This dissertation attempts to identify the elements that have differing influences on crime for males and females through a middle-range approach (Daly 1998). This is done by examining the viability of a middle range approach to the debate between generalizability and gender-specificity in the form of gendered-GST. Drawing from pathways and gendered-GST this research identifies gendered life elements found in the strain process which includes identifying serious strains differentially relevant to men and women, different emotional responses as outcomes of strain, and different criminal and delinquent outcomes. Of primary importance is the role of serious gendered strains including victimization and the role of negative emotions. This dissertation then examines how gender interacts with gendered strains and attempts to identify gender differences at each stage of the strain process. Such an examination aids in the

determination of whether these strain processes provide a reasonable, albeit gendered, explanation of delinquency. Doing so provides insight into the necessary inclusion of gender-specific elements into gender-neutral theory and determines whether gendered-GST provides an appropriate explanation of the gender ratio in crime.

Rationale and Significance (Research Contribution)

There are currently two major contributions of this dissertation research: 1) the longitudinal nature of the study, and 2) the inclusion of gendered strains (victimization and network strains). While other studies have examined gendered strain longitudinally (Kaufman 2009) or included different forms of sexual and physical victimization (Jennings et al. 2009; Jang and Rhodes 2012), no studies, to my knowledge, have conducted a concurrent longitudinal analysis of these serious strains. While Agnew (1992) expects recency to be a key factor in determining deviant outcomes, strains such as childhood sexual victimization contain the characteristics that are most likely to result in crime. Strains which create pressure for criminal coping are high in magnitude and are perceived as unjust (Agnew 2001). Childhood sexual victimization contains these characteristics. Additionally, it is highly gendered and, for women, tends to occur more than once (Belknap and Holsinger 2006). Sexual and physical abuse are further linked to a host of problems such as PTSD (Huang et al. 2012), schizophrenia (see Heim et al. 2010), eating disorders (see Heim et al. 2010), suicide attempts (Huang et al. 2012; Heim et al. 2010), poor grades (Einbender and Friedrich 1989), and lower reading scores in adults (Perez and Widom 1994). Judging from these lifelong effects, a longitudinal examination of abuse creates a more realistic understanding of strains that can overwhelm and destroy legitimate coping mechanisms and lead to criminal coping. As such, this

study offers the opportunity to more fully assess the gendered nature of crime and its explanations over a longer and critical period of the life course, thereby extending the literature on gender and crime.

Research Framework

The data for this dissertation are drawn from the National Longitudinal Study of Adolescent Health (Add Health). The Add Health data are a longitudinal study administered by the National Opinion Research Center (NORC) and the Research Triangle Institute for the National Institute of Child Health and Human Development (NICHD). Add Health is one of the largest and most comprehensive longitudinal surveys of adolescents. The study was designed to investigate the physical and mental health of adolescents and the forces that may influence health and health behaviors. These data include information regarding parental background, school characteristics, peer networks, neighborhood characteristics, and a wealth of information on adolescent behaviors including attitudes, risk taking, academics, and delinquency. This dissertation uses components of the first three waves of the publicly available sample.

The analytic strategy for this dissertation utilizes a variety of regression techniques, including logistic and negative binomial regression, to examine multiple serious forms of crime and delinquency as the final dependent variables. It uses these same techniques to examine the intervening mechanisms of gendered-GST (e.g., negative emotions). Further, I conduct these analyses separately for men and women in order to determine gender differences in the applicability of GST. Separate analyses, along with the Paternoster et al. (1998) test of coefficients, determine whether there are gender differences in the ability of the theory to explain crime. These analyses help unravel the

answer to the complex questions of whether gendered-GST is generalizable, can explain female crime, and can explain the gender gap in crime.

Organization of Remaining Chapters

This dissertation is organized as follows. Chapter 2 – Literature Review of Theories of Female Crime – provides a review of early theories of female crime, the development of sociological theories of female crime, and outlines the generalizability/gender-ratio debate. Chapter 3 – Review of General Strain Theory – details the arguments of general strain theory (GST) and gendered general strain theory (gendered-GST), including the evidence for and against the theory and its expansion. Chapter 4 – Data and Methodology – discusses the background of the Add Health data utilized, the variables examined along with the various analytical methods used to evaluate gendered-GST. Chapter 5 – Results – presents the statistical results of the analytic models. The final chapter, Chapter 6 – Conclusions – includes a discussion of the findings and their implications for gendered-GST, the generalizability issue, and the gender ratio, as well as the study's limitations and suggestions for future research.

Chapter 2 – Literature Review of Theories of Female Crime

Chapter Introduction

This chapter addresses the different theoretical developments concerning female crime and delinquency. To understand the past and present reactions to theories of female crime it is first necessary to examine early scholars' treatment of women and crime. As such, this chapter briefly outlines early explanations of female criminality including theories from Lombroso and Ferrero (1895) and Pollak (1950). It then moves on to sociological explanations of female criminality, such as those given by Simon (1975) and Adler (1975), and a discussion of Simon and Adler's critics. These critiques led to more nuanced approaches to understanding the relationship between gender and crime. Finally, this chapter will outline the gender-ratio and generalizability debate, the pathways approach, and the role both this debate and pathways play in our understanding of gender and crime. The gender ratio and generalizability debates, and the pathways approach, are critical components to this dissertation.

Early theories of the female criminal

Early theories of crime and deviance tended to ignore the female criminal (Belknap 2015). When they did examine female criminals early explanations tended to utilize psychological and biological explanations, rather than sociological ones. Rather than formulating female crime in terms of social structures or social inequalities, as was male crime, female crime was viewed in terms of individual aberrations, deficits, or biological deficits (Belknap 2015). If these theories took an interest in women, it was not a serious examination of female offending but an interest in deviation from an ideal type of sexual purity (Hahn 1998). These included theories such as Pollak's (1950) view,

which claimed women's crime stems from biological differences that enable women's deceitfulness, Lombroso and Ferrero's (1895) catalog of the female offender's physical characteristics, and Freud's penis envy (see Flowers 1995). Views such as Lombroso's (1895) atavistic throwback fell by the wayside for men through the wide acceptance of sociological criminology. Women's criminality, on the other hand, continued to be understood in terms of biological differences compared to her non-criminal sisters, or through biological and social similarities to men (Simon and Ahn-Redding 2005). These views extended into recent memory.

Lombroso and Ferrero (1895) provided a perspective of female crime that reached similar conclusions as Lombroso's (1911: in Cullen and Agnew 2006) study of men. It stated that female criminals have more biological anomalies than non-criminal females including smaller cranial capacities and more cranial anomalies. Additionally, Lombroso and Ferrero (1895) believed that female criminals have fewer abnormalities than male criminals. Lombroso's work is often recounted in introductory courses with nostalgic "fondness" and, although it is considered antiquated from both modern and sociologically criminological perspectives, it still represented an attempt to explain the gender gap. Lombroso and Ferrero (1895) even offered a suggestion as to why they believed women are congenitally less inclined to crime: women take more responsibility for raising the family leading to a sedentary lifestyle. Women are, therefore, less exposed to conditions in the social environment that lead to biological criminal adaptations. In addition to having more biological anomalies than the non-criminal, criminal women were viewed as more masculine and possessing of an abundance of what Lombroso and Ferrero (1895) believed are the worst characteristics in women. They explain that the…

> … female criminal, who is excessively erotic, weak in maternal feeling, inclined to dissipation, astute and audacious, and dominates weaker beings sometimes by suggestion, at others by muscular force; while her love of violent exercise, her vices, and even her dress increase her resemblance to the sterner sex. Added to these virile characteristics are often the worst qualities of woman: namely, an excessive desire for revenge, cunning, cruelty, love of dress, and untruthfulness, forming a combination of evil tendencies which often results in a type of extraordinary wickedness (Lombrosos and Ferrero 1895:187).

These ideas summarize Lombroso and Ferrero's (1895) views on the serious female offender specifically but they later developed a theory regarding the occasional female offender. According to Lombroso and Ferrero (1895), there are two classes of occasional female offender: the milder born-criminal and female offenders who vary little from non-criminal women. Milder born-criminals have fewer of the anomalies, cruelties, or vices described previously and enter crime mainly through suggestion from their male counterparts. The other type of female offender, who appears on the surface to be much like "normal" women, enters into small property crimes due to the "fund of immorality which is latent in every female" which may occur in a moment, or "light of audacity" (Lombroso and Ferrero 1895:215). Overall, Lombroso and Ferrero (1895) painted a picture of women as vain, cruel, wicked creatures who are unable to resist temptation, and therefore, fall into crime.

By current standards, these explanations provide an almost laughable outline of female offenders, relying on a stereotyped understanding of the sexes and drawing heavily on biological anomalies as the driving factor of crime. The concepts of atavism and biological anomalies are no longer accepted criminological doctrine, and they have been widely dismissed (Akers and Sellers 2009). As such, Lombroso's theory typically would not warrant as detailed an examination as has been provided; unfortunately, these

ideas have a tendency to repeat themselves and to appear in more contemporary theories of female criminality.

Lombroso's influence is apparent in Pollak's (1950) sex-based theory of crime. Pollak (1950) attempted to find a synthetic approach to female crime, including socio-cultural and biological factors, but he tended to place a heavier emphasis on women's biology and sexuality. This is evident in his conclusion in which he stated that "the criminality of women reflects their biological nature in a given cultural setting" (Pollak 1950:161). The socio-cultural elements of his hypothesis included the underreporting of female crime, the lack of prosecution, and leniency in the criminal justice system for women's norm violations. He felt that the "female crimes" of shoplifting, exhibitionism, prostitution, lesbianism, theft, and abortion were all relatively unreported (Pollak 1950). Underreporting of these events was due to an ease of concealment and a cultural attitude that women should be protected by men (Pollak 1950). Further, women's crime largely remained undetected and underreported due to social roles which provided women the opportunity to commit crime in a less public forum and in-line with household duties.

Leniency towards women, or the chivalry hypothesis, by the police and courts was seen as common. Police who responded to female deviance were confused by this form of norm violation as it violated the norms which separated the male- from the female-world. Pollak (1950) suggested that this confusion would change if female police officials were employed in detection and apprehension duties (they typically were not at the time). Prosecutors, judges, and juries further engaged in chivalry by sparing women the stigma of a criminal record. Even today, Pollak's (1950) emphasis on the chivalry

hypothesis continues to influence studies debating the gender gap (see Steffensmeir et al. 2005).

Societal practices that produced chivalry and underreporting represent Pollak's (1950) attempt at a socio-cultural explanation of female patterns of crime. In order to explain the etiology of female crime, he resorted to a biological explanation of crime with some minor socially influenced aspect included. Pollak (1950) concluded that female criminality is masked from reporting and detection, not only because men are protecting women, but because women are inherently devious and vengeful. He argued that the biological response to sexual intercourse allows a woman to be more deceitful than a man, since a woman has the ability to participate in sexual intercourse with only the "pretense of sexual response" and lack of orgasm (Pollak 1950:10). He further argued that societal norms that encourage the hiding of menstruation from others and the hiding of conception from children lead to greater concealment and deceitfulness among women (Pollak 1950:10). The greater ability for sexual deceit and concealment allows women to commit crime and successfully escape detection. Pollak also argued that 'generative' phases of menstruation, pregnancy, and menopause lead to mental instability and a psychological split which creates a reduction in inhibitions and, thus, creates crime (Pollak 1950:127; Smart 2013). The theory of the female criminal offered by Pollak (1950) relied heavily on biological and sexual differences and now-dated societal stereotypes regarding the role of women in society and the appropriate level of openness about sexuality.

Pollak has been heavily criticized for perpetuating the chivalry hypothesis and for the focus on sexuality in his theory (Smart 1977). The chivalry hypothesis is largely

critiqued on the grounds that women, because they were breaking such strong gender norms, actually faced harsher treatment by the courts and more intensive supervision (Smart 1977; Adler 1975; Chesney-Lind 1978; Gaardner and Belknap 2002; see Chesney-Lind and Pasko 2004 for a review). The critique of Pollak's (1950) theory is not limited to his acceptance of chivalrous attitudes in the criminal justice system. Smart (1977) critiqued Pollak (1950) as being uncritical and even anti-feminist by relying on dated sexual politics, based on folklore and crude stereotypical perceptions of women, to make authoritative statements about female criminality (Smart 1977). Instead of examining the social norms that supposedly encouraged deceitfulness, Pollak (1950) took such assumptions for granted and perpetuated these stereotypes.

Pollak (1950) is further criticized for ignoring the implications of the private sphere in hiding men's crime (Heidensohn 1985). The fact that the home, or other domestic arenas, can be used by men to hide abuses of their families, such as rape, child battering, or other interpersonal violence, was completely neglected by Pollak (1950). Further, while Pollak (1950) placed the etiology of women's crime solely within the physiological sphere, at no point does he examine the contributions of biology to male crime (Heidensohn 1985).

While most of the biologically determinist components found in Pollak (1950) or Lombroso and Ferrero (1895) were refuted and dismissed by most feminist criminologists, the principles of criminal justice chivalry and social emancipation proved to be more tenacious (see Williams and McShane 1998). Pollak's (1950) particular beliefs in regards to emancipation[1] were that changing social roles led to an increase in

[1] Pollak (1950) was focusing on earlier societal efforts of women in terms of emancipation such as the women's suffrage movement or the entry of women into the public sector during wartime.

female crimes against property but not to a decrease in opportunity in the domestic sphere. When the occupational opportunities for crime increased, male refusal to substitute for women within the domestic sphere left open the opportunities for crime associated with "her more traditional functions" in the home (Pollak 1950). Thus, women had available to them two different fronts on which to commit crime. These arguments appear to have influenced later authors who examined the changing social environment during the 1960's and onward.

The Women's Movement

The second wave of feminism[2] developed alongside other social movements of the 1960's, challenging the status quo which limited racial minorities and women to secondary statuses within the United States. Feminists of the era struggled to bring equality to a broad range of societal and cultural issues including those of sexuality and reproductive rights (Daly and Chesney-Lind 1988). The second-wave of feminism also brought national attention to issues of victimization and violence. During the second-wave, feminist criminologists challenged an androcentric bias in criminology when they questioned the lack of inclusion of women in studies of crime and the stereotypes and assumptions of women as offenders (Daly and Chesney-Lind 1988). This intellectual and political era saw an "awakening" of criminology to feminist thought, and it led to a rise in the number of people studying the topic (Daly and Chesney-Lind 1988). One of the results of this movement was a renewed interest in the changing social roles of women and what that might mean to crime. Specifically, the era saw a greater entry of women into the workplace, and there were concerns that workforce participation would lead to

[2] For a discussion of the various waves of feminism in criminology, see Burgess-Proctor (2006).

exposure of women to masculine gender norms and increase their opportunities for crime. Theories that made a link between female entry into the workforce and crime are known as emancipation, or liberation, hypotheses.

The interest in, and critiques of, social emancipation's relationship to crime coincides with two different feminist philosophies. These two philosophies differ in their understanding of the origin of gender inequality. All feminist groups challenge gender bias in the law and in legal practices founded in patriarchy, but not all share the same underlying assumptions of, or solutions for, gender inequality. As feminist approaches take a variety of stances on the origin of gender inequality and the strategies for social change, Daly and Chesney-Lind (1988:504) outlined the five elements that feminist approaches typically share and that distinguish them from other social or political beliefs. Feminist approaches recognize that:

- Gender is not a natural fact but a complex social, historical, and cultural product; it is related to, but not simply derived from, biological sex differences and reproductive capacities.
- Gender and gender relations order social life and social institutions in fundamental ways.
- Gender relations and constructs of masculinity and femininity are not symmetrical but based on an organizing principle of men's superiority and social and political-economic dominance over women.
- Systems of knowledge reflect men's views of the natural and social world; the production of knowledge is gendered.
- Women should be at the center of intellectual inquiry, not peripheral, invisible or appendages to men.

These five elements take different forms depending on the particular group or scholar in question, as will become apparent in the following discussion. Along with these five elements, Daly and Chesney-Lind (1988) appended a typology of the different feminist and non-feminist perspectives and how these groups specifically approach gender formation, key concepts, and strategies for social change. While the authors were

concerned such a typology would become reified at a time when the typology no longer characterized the current feminism[3], the typology provides a useful framework in understanding feminist approaches (Daly 1997). Their typology outlined liberal, Marxist, radical, and socialist feminism alongside traditional beliefs about gender. Other authors have presented similar typologies with the addition, or removal, of certain schools of thought (see also Simpson 1989; Gelsthorpe 2002; Chesney-Lind and Morash 2013).

Liberal second-wave feminists challenged "separate spheres" assumptions which allowed inequality to arise from the separate roles men and women play in society along with the attitudes and socialization that reinforce these spheres (Simpson 1989; Daly and Chesney-Lind 1988; Belknap 2015). Liberal feminists were characterized by a push for eliminating the very policies and attitudes that created obstacles to women's full access to the public sphere (Simpson 1989; Daly and Chesney-Lind 1988; Belknap 2015). Institutional reforms, such as affirmative action and the Civil Rights Act of 1964, were utilized as ways to bring about a more meritocratic gender order.

Radical or Marxist/socialist feminists were critical of the liberal feminist ideology that placed the origins of gender inequality in a flawed legal system, instead of in the oppression of women founded in patriarchy (Simpson 1989; Belknap 2015; Chesney-Lind and Morash 2013; Schram and Tibbets 2014). The ideology varies by the particular group, but radical feminists are critical of the liberal feminist perspective's assumption that equality is achievable through legal emancipation, instead advocating for the elimination of sexism through expanding reproductive rights, overthrowing sex/gender

[3] It seems that the authors' concerns were justified as their typology is still presented in undergraduate criminology texts (see Schram and Tibbets 2014), with the addition of postmodern feminism and intersectionality.

roles (Simpson 1989; Belknap 2015; Schram and Tibbets 2014), or "obliterating gender differences in power and opportunities" (Chesney-Lind and Morash 2013: 290). The differences in the two forms of feminist thought are an important distinction, as two well-known criminological examinations of women's crime are dependent upon a liberal feminist perspective, while their critiques are based upon a radical feminist perspective.

These two sociological analyses (Adler 1975; Simon 1975) examined the role that the women's liberation movement and entry of mainly white women into the workforce played in women's crime. Writing during this period, Simon (1975) and Adler (1975) employed liberal feminist approaches to the role of emancipation and crime. They viewed the increased freedoms women were experiencing as related to the development of a "new female offender" (Simpson 1989). From this perspective, the removal of legal barriers and greater access to the public sphere would eventually lead to an increased ability for women to commit crime. Where previous work had neglected a sociological explanation of crime, Simon (1975) and Adler (1975) provided one. However, it should be noted that the two works are widely criticized as a derailment of the women's movement, because they link the positive societal shifts of the women's movement with crime and, in some ways, brought about a moral panic regarding a new female offender (Simpson 1989).

The emancipation/liberation hypotheses stated that prior to the women's movement, women's criminality had been kept in check by social circumstances (Adler 1975; Daly and Chesney-Lind 1988). With the women's movement, many of these restrictions were lifted through various legal reforms; however, what this meant to female crime meant slightly different things to these two theorists. Adler (1975) saw increased

freedom as enabling women to behave more like men, allowing women to be more assertive, aggressive and masculine. Increased freedom also allowed for the opening of structural opportunities to commit crime, such as crime in the workplace. Combined, these changes were theorized to lead to an increase in female crime. Simon (1975), on the other hand, viewed this change as increasing solely the *opportunities* for women to commit crime. As societal shifts led to changes in women's routine activities, more women would be in the workforce, resulting in increased opportunities in white collar crime (Daly and Chesney-Lind 1988; Heimer 2000). Simon (1975) believed that, instead of a broad increase in crime, an increase would occur only in areas associated with increased freedom (i.e., economic crimes) and that a decrease in violent crime was possible, since women would potentially experience fewer frustrations. As such, violent crimes (e.g., murder) by women would be expected to decrease with increased equality in the public sphere.

Both Adler (1975) and Simon (1975) recognized that a change in female crime would not solely be due to women's increased access to the public domain. In addition to greater access, they drew upon notions of the chivalry hypothesis and its decline to predict a shift in women's crime. Within Adler's (1975) version of the emancipation/liberation hypothesis, a greater number of women entering criminal justice careers would lead to the elimination of sex differences between criminal justice officials and offenders. The increased presence of women as judges, police, and attorneys would lead to treatment based upon facts and not the "emotional considerations" of men trying to protect women (Adler 1975:251). Simon followed a similar but more cautious direction, noting that while a decline in chivalry is possible, it is probable that the

increase in crime was due to both the decline of chivalry and an actual increase in female crime participation. While the actual role of chivalry in the criminal justice system is debatable, the reaction of those within law enforcement made it clear that the treatment of female criminals, from their perspective, would change. Simon paraphrased her reactions from the police as, "If it's equality these women want, we'll see that they get it," (Simon 1975:17) indicating the police would be more than happy to arrest more women in the name of equality.

While there are differences in the fundamental tenets of the two positions, both predicted an increase in female crime and a narrowing of the gender gap. The emancipation/liberation hypotheses quickly came under criticism based upon both theoretical and empirical grounds. Critiques were wide ranging, citing that occupational structures had changed little since the women's movement, that female offenders were non-feminist and very traditional in their attitudes, and that the data did not support claims of a new female offender or an impact of the women's movement on crime (Daly and Chesney-Lind 1988). Further, there was criticism of the lack of critical reflection regarding the ideological implications of the theory (Smart 1977). Quite simply, the two authors were heavily criticized for not examining what their theory, correct or not, would mean for the progress of the women's movement.

For Weis (1976), the work of Adler (1975) legitimized the popular belief of the new female criminal[4]. It further discredited the women's movement as a "breeding ground" of female criminals and "bad women" (Weis 1976; Daly and Chesney-Lind

[4] A popular view of the female criminal and the women's movement was summarized by the Los Angeles police chief who believed the women's movement created "a crime wave like the world has never seen before" (Weis 1976:17).

1988). Some critics viewed the scholarship of Simon (1975) and Adler (1975) as examples of attempts to keep women subordinate to men by "…threatening those who aspire for equality…" (Chesney-Lind 1980:29).

Empirical examinations of the emancipation/liberation hypotheses have not been supportive of liberation/emancipation, showing little evidence of a relationship between the women's movement and crime (Schwartz et al. 2009). Women are not committing more white-collar crime, as expected by Simon (1975), but continue to commit crimes consistent with traditional notions of female crime such as credit card fraud, writing bad checks, and shoplifting (Steffensmeier 1978; Steffensmeier and Allan 1996). Similarly, Box and Hale (1984) showed little to no consistent relationship between women's crime and emancipation in England.

Instead of the women's movement directly increasing female crime, it has been suggested that net-widening in the criminal justice system has occurred since the 1960's. Through professionalization in the criminal justice system, charging-up of less serious or minor forms of deviance, criminalization of violence in private settings, and less tolerant attitudes towards female delinquency, there is an increased representation of women in official crime statistics (Steffensmeier and Schwartz 2004; Steffensmeier, Zhong, Ackerman, and Agha 2006). Girls' arguments and non-serious fights with parents or siblings have been relabeled from status offenses to violent offenses, leading to an increase in assaults reported to police (Chesney-Lind 2002). Along with these policy changes, the "war on drugs" decreased any tolerance for drug offenders and led to an explosion in the number of women in prison (Chesney-Lind 2000). Official policies, such as mandatory arrest and zero tolerance, have led to an increasing number of arrests of

girls and women (see Chesney-Lind 2002). Chesney-Lind (2002), in a review of various policy shifts, concluded that women are not becoming more criminal or violent. While arrests and court appearances may have increased, there has been a decrease in violence, carrying weapons, and arrests for murder (Chesney-Lind 2002). For the most part, the evidence is against the emancipation hypothesis and in favor of smaller changes in female crime patterns relative to men, or it favors explanations such as the increased economic marginalization of women (Heimer 2000).

Generalizability and the Gender Ratio of Crime Debate

Since the debates surrounding the works of Simon (1975) and Adler (1975), there has been a flurry of feminist and non-feminist research examining women and criminal justice. Topics are wide ranging and cover many divergent areas, including social advocacy surrounding criminal justice issues (Simpson 1989), women as workers in the criminal justice field, and women as offenders and as victims (Britton 2000). Without the activism of feminists, there may not have been a shift in public perceptions surrounding rape or increased attention on victimization. These advances enhanced our understanding of women as victims and offenders (Simpson 1989). The wide variety of paths criminology takes when examining women as offenders is characterized by a conceptual schema differentiating fours areas of theoretical focus of gender and offending (Daly 1998:94-95):

- Gender ratio of crime: What is the nature of the gender gap? What explains the variation in the gender gap? What explains the different offenses in which women and men become involved?
- Gendered Crime: What are the social contexts and qualities of men and women's illegal activity? How are these activities influenced by the social context (e.g. opportunity, offense roles, and street life)?

- Gendered Pathways: How do the biographical and life-course elements organize our daily lives? What trajectories do men and women take to offending? How do these different elements influence these trajectories?
- Gendered Lives: How does gender organize our daily lives? How does gender influence our survival strategies? How do these different elements structure life thematics? This particular area reverses the traditional approach of gender as correlate to crime and examines crime as a correlate of gender.

This schema provides a useful tool in understanding the past and future development of theories inclusive of gender and crime. While Daly (1998) indicated a preference for research on gendered crime, pathways, and lives, the following review focuses on the gender ratio of crime while incorporating elements of the remaining areas.

During the early introduction of feminism into criminology, some of the core assumptions surrounding gender and crime were questioned regarding their implications for criminology (Daly and Chesney-Lind 1988). Critiques of the state of criminology in regards to gender question whether general theories of crime are applicable to women and argue that criminology ignored the gender based structure of crime, while class- race- and age-structures were forming the core of criminology (Daly and Chesney-Lind 1988). Both critiques informed the development and expansion of research on gender and crime, but the debates and questions that characterize the first critique are key to this dissertation.

Whether general theory applies to women appears to be a relatively straightforward issue, but the debate surrounding it identifies two distinct questions. The first question is whether theories that were created to explain men's delinquency can apply to women. This question is commonly identified as the generalizability question or problem (Daly and Chesney-Lind 1988). Generalizability scholars are not necessarily concerned with gender differences in crime rates but want to know whether the same

processes describe inter-gender variability in crime (Daly and Chesney-Lind 1988). The ideas of generalizability are closely tied to the work of gender neutrality, which claims that male-developed theories of crime are sufficient to explain female crime. The second question digs a little more deeply and asks how these processes create a gendered structure whereby women are less involved in crime than men (Daly and Chesney-Lind 1988). This is known as the gender ratio, or gender gap, problem. Gender ratio scholars believe that predictors drawn from classic theories, or gender-neutral theories, have a differential impact on crime based upon gender. Those interested in the gender ratio will also, although not always, take the position that men's and women's crime patterns are sufficiently different to warrant new and gender-specific theories of crime (Daly and Chesney-Lind 1988).

Generalizability and the gender-ratio are two aspects of the same question and tend to be confused, or combined, with each other despite the fact that the two questions represent very different goals and approaches (for example: Daigle et al. 2007). Even though these two dimensions are confused, the confusion is unwarranted as nearly 30 years ago, Daly and Chesney-Lind (1988) provided a clarification of the two issues. Simply stated, generalizability is problematic to gender-ratio scholars, because gender invariant variables, or processes, fail to explain differences. General theories contain processes which may explain female and male crime, but they typically fail to explain why the gender ratio exists. It was expected that the arguments of gender ratio scholars would lead those who examine generalizability to rethink their theories or even to abandon the study of generalizability (Daly and Chesney-Lind 1988).

The theoretical debate regarding the causes of male and female crime continues to cross over the two areas described by Daly and Chesney-Lind (1988). Proponents of gender neutral theory continue to expect these theories to explain crime without understanding any gendered aspects of our lives. Proponents of generalizability have pointed out that while theories such as strain, differential association, or social control may have a male bias in development and testing, there is not sufficient evidence to indicate gender neutral theories should be discarded, nor is there evidence that gender specific theories should even be developed (Smith and Paternoster 1987). Such advocates argue that, even if classic theories were constructed with a male bias, this does not mean that they cannot explain female crime. In fact, they argue that gender neutral theories explain female crime just as well as they do male crime.

This approach misses the opposing point: even if male specific theories have elements which apply to women, they may not be applicable in the same ways or to the same degree (Daly 1998). In fact, Smith and Paternoster (1997:156) identified sex differences in deviance which "…reflect '*differential exposure'* to factors that precipitate deviant behavior among both males and females [emphasis original]." In stating differences in deviance results from "*differential exposure,"* they failed to recognize that a gender specific theory, or at least gendered theory, is required to explain this phenomenon. Instead, they claimed gender-neutral theories are sufficient, and gender-specific theory should not be developed. Smith and Paternoster (1997), and other neutrality supporters, have missed the nuance that gender neutral theory fails to explain difference in exposure. Incorporating the ideas of gender specific theories would provide insight, as such theories are able to recognize the importance of gender in exposure to

elements such as patriarchal social structures, socialization, gender norms, and victimization.

When gender neutral theories are applied to gender differences, the findings tend to be mixed, and the factors that influence delinquency differ by context (Miller and Mullins 2006). Feminist authors, in particular, have critiqued this approach as inadequate and leading to research that treats gender in a manner that is about as complex as making Kool-aid, simply "add women and stir" (Daly and Chesney-Lind 1988). Typically, a dichotomous variable for sex is added to a model and regressions are run, demonstrating the ability of a certain gender neutral theory to explain female crime, at least a little. The oft-neglected point is not only do the empirical effects of certain concepts differ because of gender, but little is known about how exactly those effects differ.

In order to move past a search for a purely gender-neutral theory an important direction may be to "identify variables, factors, or conceptual elements that have similar and different influences on lawbreaking for boys/men and girls/women" (Daly 1998:94). Instead of trying to incorporate gender neutral, gendered crime, lives, etc. into one grand theory, Daly (1998:101) has suggested providing a "partial window" of gender and crime. Others have recognized that, while their theories may apply to both men and women, a gendered examination might be necessary, as they may operate differently through gender (see Cernkovich, Lanctôt, and Giordano 2008; Broidy and Agnew 1997). While factors found in general theories do apply to females and explain some of the gender gap, these theories should be integrated with gendered theories, because alone they fail to explain how gender interacts with the mechanisms that influence crime (Agnew 2009). Drawing from an analysis of detailed offender life histories, Giordano, Deines, and

Cernkovich (2006) suggested a similar middle-ground theoretical framework with the conclusion that some processes associated with crime are generic while others are more heavily gendered. For them, integration of classic explanations of delinquency and contemporary perspectives, which emphasize gendered processes, is needed in order to develop a comprehensive understanding of female and male offending. A middle range approach is appealing and preferable as it avoids throwing out the theoretical developments of both sides. Authors such as Giordano et al. (2006) have found this preferable to the either/or mentality that has dominated discussion. Such an approach can retain elements of gender neutral theory while at the same time beginning to examine how different elements alter the gender gap. It allows for the more detailed examination of the processes that are, more or less, salient for women. This has been described by Giordano et al. (2006) as a multifaceted approach with attention to generic and gendered approaches. One potentially gendered element outlined primarily in the pathways approach is victimization, and it may have a differential role in law breaking.

Gendered Pathways and Crime Approach

The pathways approach has provided insight into the relationship between gender and crime. Developed by Daly (1992), and coming out of gender specific approaches, pathways places particular emphasis on the different biographical and life course developments that influence crime. Pathways is founded on the notion that women and men follow divergent paths into crime and that women's crime is often tied to certain forms of victimization. The pathways approach focuses primarily on the life experiences of girls and women and how those experiences put them at risk of offending (Belknap 2015).

One of the key pathways is the role of experiencing abuse in women's trajectory into crime. While victimization is a common element of explanations of male crime, the focus tends to be on street victimizations more likely to occur to males (e.g., having a knife or gun pulled on one during a physical fight). Pathways brings a focus to the victimizations women are more likely to experience: victimization in the form of physical and sexual abuse at the hands of intimate partners or relatives (Daigle et al. 2007). Sexual and physical victimization and women's attempts at coping are intricately linked to girls'/women's crime (e.g., running away) (Daly 1992). The link between victimization and crime is a connection that is continually highlighted in pathways and feminist literatures (Huebner, Dejong, and Cobbina 2010) and supported in "gender-neutral" research (Smith and Paternoster 1987). The connection between victimization and crime is a foundational element of the pathways approach and is referred to as blurred boundaries. Blurred boundaries recognizes that victimization is closely connected to girls' coping and survival strategies (which usually involve running away) and the resultant attempts to survive on the streets, including through crime (Steffensmeier and Allan 1996; Gilfus 1992; see Herrera and McCloskey 2003). Blurred boundaries and pathways usually describe female offenders whose lives are characterized by years of neglect and abuse and who eventually run away and become involved in the criminal street life in order to survive. This description is so common that Daly (1992:136) described it as "the leading scenario of women's law-breaking."

Narratives of neglect and abuse among female criminals are common in qualitative research on female offenders (see Dehart 2008), and the effects of neglect and abuse are examined in quantitative work (see Simpson et al. 2008). Among women and

women offenders, such abuse is characterized as beginning at a younger age than that of men, involving multiple instances, and occurring over a longer period of time (Chesney-Lind 1989; Fagan 2001; 2005). Clearly, not all abused individuals turn to crime, and it would be wrong to blame the victim (Widom and Ames 1994), but it is necessary to recognize that abuse is a traumatic life experience which has a lasting negative influence on physical and mental health (see Herrera and McCloskey 2003), educational attainment (Boden, Horwood, and Fergusson 2007), and influences involvement in a variety of crimes and delinquency (Lansford et al. 2007; Perez 2000; Herrera and McCloskey 2003; Carson et al. 2008; Shanta et al. 2003; Fagan 2005; Widom and Maxfield 2001; see Gilfus 1992 for a review).

Looking at the correctional population, between 7% and 16% of male offenders under some level of correctional supervision have been abused, and between 40% and 57% of female offenders report that they had been physically or sexually abused prior to their current sentence (Harlow 1999). The rates of abuse in correctional populations are higher than the estimated rates of physical and sexual abuse among the general adult population. Rates of childhood sexual abuse in the general population are estimated to be around 5% to 8% of males and 12% to 17% of females (Gorey and Leslie 1997). The population based prevalence compared to that of the correctional population paints a stark picture of the overrepresentation of victims of abuse in the correctional system.

While pathways provides important insights into the gender ratio and brings attention to victimization, a narrow focus on victimization creates an understanding of female criminals that is little better than those theories which focused on biological contexts. Such an approach has been viewed by Daly (1998:148-150) as one that

"leave(s) little agency, responsibility, or meaning to women's lawbreaking." Gendered pathways and gendered crime approaches need and are able to recognize the variety of factors that influence women's entrance into crime. Research in this area has demonstrated the importance and gendered nature of racial and economic marginality (Simpson 1991; Simpson and Elis 1995; Steffensmeier 1993; Owen and Bloom 1995; Heimer 2000; Richie 2001; see Rettinger and Andrews 2010), romantic partners (Haynie et al. 2005), drug and alcohol use (see Huebner et al . 2010), family and peers (see Rettinger and Andrews 2010; Farrington and Painter 2004; Simpson and Elis 1995), social control (Heimer 1996; Heimer and DeCoster 1999), violent definitions (Heimer and Decoster 1999), and other structural factors (Miller and Mullins 2006). Female offenders are not solely influenced by abuse histories. Instead, they are motivated to violent encounters with others by a broad set of factors including disrespect, jealousy, self-defense, self-help, and victim precipitation (Kruttschnitt and Carbone-Lopez 2006). An inclusive explanation of female crime and the gender gap needs to incorporate the primary pathway of victimization and the variety of gendered elements of social life.

In the next chapter, I outline one such gendered theory in the form of gendered general strain theory (gendered-GST). I believe that the gendered modification to general strain theory provides an opportunity to incorporate elements of gendered reactions and coping mechanisms into an explanation of crime and deviance. Under gendered-GST, it is understood that men and women experience different life stressors and, because of the gendered nature of our lives and social structure, it is possible to gain insight into the gender gap of crime. Through these elements, gendered-GST can also help to explain why female crime remains low. The following chapter describes the original

manifestation of GST and the gendered-GST modification. It outlines the specific theoretical arguments of gendered-GST and includes a discussion of the empirical research demonstrating whether gendered-GST is a viable approach to understanding gender and crime.

Chapter 3 – Literature Review of General Strain Theory

Chapter Introduction

This chapter reviews the relevant statements, critiques, and research on general strain theory (GST) and gendered general strain theory (gendered-GST), the key theoretic framework for this dissertation. First, I outline the basic statements of classic strain theories and Agnew's development of general strain theory. I then outline Broidy and Agnew's (1997) arguments regarding the creation of a gendered version of general strain theory able to address gender ratio and generalizability. After outlining gendered-GST, I describe the empirical support for GST and the different gendered propositions of gendered-GST. I then state the study's hypotheses derived from gendered-GST.

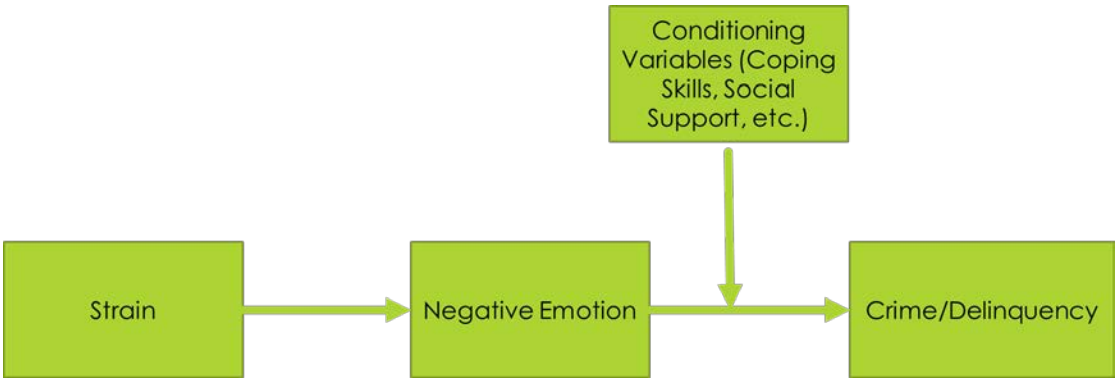
General Strain Theory

General strain theory was proposed by Agnew (1992) in response to criticisms made regarding classical strain theory. Much of the criticism surrounding the classic versions of strain theory proposed by Merton (1938), Cohen (1955), and Cloward and Ohlin (1960), focused on the theories' narrow conceptions of strain. These different versions of strain theory argued that the United States emphasized a culture focused on the pursuit of monetary success and middle-class status. According to classic strain theories, lower socioeconomic status groups are blocked from legitimate opportunities to achieve standards of monetary success and middle-class status. Since they are blocked from these opportunities, youth resort to various illegitimate adaptations to alleviate strain including crime and delinquency. Among the critiques of classic strain, particularly Merton's (1938) and Cohen's (1955) versions, was that it focused on monetary success and had a middle class bias (Thio 1975; Akers and Sellers 2009). Middle class goals

served as a measuring rod of acceptable cultural goals and means to achieve those goals. This middle class emphasis focused exclusively on crimes of the working class or the poor. As the middle class and higher had already, by definition, achieved access to these symbols of success, strain was unable to explain deviance in the middle and upper classes, nor did it seek to do so. The theory was additionally problematic as some delinquents had both low expectations and low aspirations (Kornhauser 1978). Individuals low in expectations and aspirations should not be strained under classic strain as there is no gap or disjuncture to create strain.

Drawing upon the stress literature, Agnew (1992) attempted to overcome these critiques by incorporating three broad forms of strain: the failure to achieve positively valued goals, the removal of positively valued stimuli, and the presentation of negative stimuli. In Agnew's (1992, 1997, 2001) general strain theory (GST), strains create pressure to use crime and delinquency as a way of eliminating the stress caused by those events. These strains may lead to negative emotions such as depression, anger, frustration, and fear which, in turn, create an even greater need to alleviate the pressure of strain. Whether a person attempts to relieve those pressures by criminal behavior is determined by a variety of conditioning factors including self-esteem or deviant peers. A graphical representation of GST is presented below, and each of the effects of the figure is discussed below.

Figure 3.1: Agnew's General Strain Theory



Types of Strain

Failure to Achieve Positively Valued Goals

The primary arguments of early strain theories were primarily subsumed by Agnew (1992) into the failure to achieve positively valued goals. In this form of strain there are three sub-types: 1) strain resulting from a gap between aspirations and expectations, also found in classic strain, 2) strain resulting from a gap between expectations and actual achievements, and 3) strain resulting from a gap between just or fair outcomes and actual outcomes. Under GST, certain strains were deemed to be more conducive to crime than others. The disjuncture between expectations of achievement and actual achievements/rewards was theorized to be more relevant than the aspiration-expectation gap, particularly because aspirations are idealistic notions characterized by "utopian" elements (Agnew 1992:52). Gaps between aspirations and expectations are easier to dismiss since the end result was, in reality, only a hopeful outcome. Expectations, on the other hand, are formed through past experiences and tend to be based upon more realistic outcomes (Agnew 1992). Since expectations are based upon

realistic and desired outcomes, failure to achieve these outcomes tend to be more stressful than gaps between aspirations and expectations.

Another strain subsumed under the failure to achieve positively valued goals is the strain caused by the disjuncture between fair outcomes and actual outcomes. This form of strain presumes humans utilize an equity orientation when they enter interactions. Such an orientation includes the expectation that interactions will be characterized by distributive justice rules and outcomes. In other words, people enter interactions with the expectation that rewards will be distributed fairly based upon their input into a situation. Individuals calculate their input/output ratio and compare their ratio to the ratio of others. When an imbalance in the input/outcome ratio favors the comparison group, whether through their lower exertion or higher reward, an individual experiences strain as a consequence. In order to correct the imbalance of rewards, an individual may turn to crime or delinquency to increase their outcomes by cheating, lowering their inputs, lowering others' outcomes, or increasing the input of others (Agnew 1992).

Loss of Positively Valued Stimuli

One of the other major categories of strain is the removal, or loss of positively valued stimuli. This type of strain can come from a variety of sources including moving away from valued peers or the loss of a significant other. Not only is strain experienced when positive stimuli are actually removed but also when the removal of a valued stimulus is threatened. Crime and delinquency may arise from this type of strain through an attempt to prevent the loss or retrieve the stimulus, to obtain a new valued stimulus, or to seek revenge on those responsible for the loss (Agnew 1992).

Presentation of Negative Stimuli

The third major form of strain is the presentation, or threat thereof, of negatively valued stimuli. Such "noxious stimuli" (Agnew 1992:58) include physical punishment, negative relations with others, and a host of other negative events. These strains create a level of discomfort that pressures individuals to take corrective action and leads to delinquency through different attempts to shed or escape the negative stimuli. Delinquency and aggression may arise in order to escape or avoid the stimuli, to terminate or alleviate the stimuli, or to seek revenge against those responsible as the source of the stimuli. For example, victims of abuse could turn to drugs to escape the feeling created by the abuse or run away to escape the source of strain.

Negative Emotions

While strain creates pressure or discomfort, not all strain will necessarily lead to crime or delinquency. This is, in part, due to the varying nature of the emotional reactions of individuals to strain. Strain increases the likelihood of experiencing negative emotions including depression, disappointment, anger, fear, and others. Two individuals may find the same event equally straining, but they can differ in their emotional reaction. One person may simply be disappointed due to a strain while the other experiences a high degree of anger. These differences in emotional response are important as emotions influence the pressure in a strained individual to take action to alleviate the emotions (Agnew 2001). Alleviation of negative emotions occurs through both pro-social behaviors and self-destructive criminal actions.

While all negative emotions create pressure to alleviate the emotion, anger is viewed as the primary emotion conducive to crime (Agnew 1992, 2001). Anger

encourages outwardly directed responses and usually a desire for retaliation against a target (Agnew 1992; Agnew 2001; Jang and Rhodes 2006). That is, anger, compared to other negative emotions, is more likely to lead to violence. Other negative emotions, such as depression or despair, create a desire to alleviate strain but tend to be inwardly focused (Agnew 1992, 2001, 2006). Thus, individuals experiencing depression or other negative emotions are expected to turn to self-directed behaviors such as drinking, suicide, or drug use in order to alter their negative emotional states.

Coping Strategies

The resulting strains and negative emotions do not necessarily lead to criminal behaviors. In response to strain and negative emotions there are alternative, non-criminal coping mechanisms available. The three types of coping strategies people use to deal with negative emotions include 1) cognitive coping, 2) behavioral coping, and 3) emotional coping (Agnew 1992). Coping strategies are used either to reduce or minimize the strain, in the case of behavioral and cognitive coping, or to reduce the negative emotions related to the strain, in the case of emotional coping (Agnew 1997, 2006). Some negative emotional states, such as anger, are more likely to result in outwardly directed coping strategies, but such a response need not be deviant or criminal. Within each coping strategy a variety of legitimate actions (e.g., talking through the problem) and deviant actions (e.g., violence) are available. Multiple forms of each strategy can be used concurrently, or single strategies can be used in sequence (Agnew 1992). Those strained individuals who are able to alleviate the impact of strain by utilizing non-deviant coping strategies are less likely to turn to crime (Agnew 1997). If access to legitimate coping strategies are blocked or are ineffective in relieving negative emotions, an individual is

more likely to turn to criminal outcomes (Broidy 2001; Agnew 2006). Additionally, an individual can bypass all legitimate forms of coping and turn to criminal or deviant forms of coping.

Cognitive coping strategies allow individuals to shift the burden of strain by reinterpreting strains to minimize the adversity caused by strain. Cognitive coping also can involve ignoring the adversity caused by strain, maximizing positive outcomes relative to the adversity, or by accepting responsibility for adversity. Individuals can further alter their strain by modifying the standard by which their success is measured through downward comparisons, or they can raise their threshold for negative stimuli (Agnew 1992). By accepting responsibility for the strain, or by interpreting it as deserved, the perceived injustice of the strain is lowered.

Behavioral coping strategies are used by strained individuals to maximize the positive outcomes relative to the negative or to seek vengeance upon the source of the strain. Behavioral coping strategies encompass escapist behavior and the modification of the adverse environment. Deviant and criminal actions, such as cheating or stealing, are generally subsumed under behavioral coping strategies as they represent an attempt to maximize output while minimizing input. Other criminal outcomes, like murder, could be conceived as vengeance set to eliminate the source of strain. While behavioral coping does include illegitimate behaviors, legitimate and legal responses, such as formal complaints against an employer, are also available.

Emotional coping focuses on the efforts made to alleviate strain and covers a wide range of potential actions. These actions can range from normative strategies, such as exercise or meditation, to deviant strategies which reduce the negative emotions related

to strain, such as drug and alcohol use. Emotional coping strategies focus on alleviating negative emotions instead of altering, eliminating, or reinterpreting the strain and are more likely to be used when behavioral or cognitive coping are unavailable (Agnew 1992). Emotional and cognitive coping strategies are less effective than behavioral coping in reducing negative emotions, and thus crime, as they do not reduce or eliminate the strain being experienced (Agnew 2006). The response to a strain and negative emotional state are also influenced through the availability of coping resources which alter the impact of strain on an individual.

Coping Skills

Coping skills are somewhat different from coping strategies as they determine the susceptibility of individuals to stress (Agnew 1992; Agnew et al. 2002; Agnew 2006). Coping skills include things such as creativity, intelligence, self-esteem, and self-efficacy (Agnew 1992). These factors have the ability to affect the choice of the aforementioned coping strategies. Those who have high availability or high levels of these resources are more likely to cope through non-deviant methods (Agnew 1992). For instance, take self-esteem: the evaluation of one's sense of worthiness as a person (Schmitt and Allik 2005). Those with high self-esteem are expected to be more resilient to stress and, therefore, resistant to the effects of strain (Agnew 1992). However, while self-esteem increase resilience to stress, it also has the potential to provide the necessary confidence to engage in crime (Broidy and Agnew 2001).

Characteristics of Strain leading to Crime

Despite the ability of coping skills to alleviate the impact of strain and/or negative emotions, the ability of these mechanisms to do so can be overwhelmed. In GST, Agnew

(1992, 2001) sets out the optimal conditions under which strain is more influential in producing a deviant response. The four characteristics of a strain that influence the likelihood of a deviant response include: 1) magnitude, 2) clustering, 3) recency, and 4) duration of strain (Agnew 1992). Each of these characteristics is understood as being equally important in producing crime (Agnew 1992, 2001).

Magnitude has different meanings dependent on which of the three types of strain is being examined. In regards to goal blockage, magnitude refers to the size of the gap between goals and reality or aspirations and expectations. In the presentation of noxious stimuli, magnitude equates to the amount of discomfort caused by the negative stimuli. For the loss of positively valued stimuli, magnitude is the total value attributed to the lost stimuli; the higher the value, the higher the strain. Strains high in magnitude reduce the ability to cope in a non-criminal manner and generate more negative emotions, thus likely resulting in crime (Agnew 1992, 2001). Two strains evaluated in this dissertation, childhood sexual abuse and criminal victimization, are typically viewed as high in magnitude and create strong negative emotions, playing an important role in overwhelming coping mechanisms (Agnew 2001; Broidy and Agnew 2001; Agnew 2006; Agnew 2009).

Recency involves the timing of strain. More recent events are expected to be more important to delinquent coping than older events (Agnew 1992). Older events have a lower impact on strain than do newer events as over time individuals have had the opportunity to cope with the strain, and the associated negative emotions have dissipated (Agnew 1992). However, certain events may produce strains that have a severe lasting

effects. Specifically, “severe childhood strains” may influence later delinquent and criminal behavior (Agnew 2001:334).

Likewise, chronic, or long-term, stressors are expected to have a greater impact on crime when compared to stressors which were short in duration. Chronic stressors undermine an individual’s ability to engage in legitimate coping. A number of stressful events which cluster in time are expected to have a similar impact as chronic stressors as they overwhelm coping resources.

Additional Constraints and Caveats of Strain

GST draws from a diverse set of theoretical traditions in order to create a more comprehensive explanation of deviance, but with its continuous additions and refinements its parsimony suffers. Elements of social control, social learning, and subcultural theories are used to help explain how different coping mechanisms are constrained. Criminal outcomes are dependent on an individual’s disposition to delinquency, social support, delinquent peers, temperament, learning history, beliefs regarding appropriate reactions, macro-level social environment, low constraint, and attributions of the source of adversity (Agnew 1992; Agnew 1997; Agnew 2001; Agnew and Brezina 1997; Agnew et al. 2002; Agnew 2006). For parsimony, the whole of potential constraints are not included in this dissertation. Those additional constraints which are included (e.g., delinquent peers) are understood to operate under the appropriate theoretical orientation (e.g., social learning) and are discussed within the methodology chapter. Following GST (Agnew 1992), the role of social support is examined as a theoretical element of GST and not of social control theory within this

dissertation. Other measures of social control are included as theoretical controls and discussed in Chapter 4.

Angew (1992) included social support as an additional constraint to strain that operates much in the same fashion as coping skills. Social support reduces the susceptibility of a person to the effects of strain and negative emotion. Social support, in strain, has strong overlap with the concept of attachment in social control theory (Hirschi 1969). The difference between support and attachment arises in the arguments of the two theories. Strain argues that social support affects crime through the encouragement of certain coping strategies, while control theory argues that social support alters the costs of crime (Agnew 1992, 2001). Under GST, adolescents with ties to conventional social support systems are less likely to engage in criminal activity, because they can draw on their social support network for emotional or physical support.

In sum, general strain theory outlines three primary types of strain which lead to crime through the strain process: the failure to achieve positively valued goals, the removal of positively valued stimuli, and the presentation of negative stimuli. These three strains create negative affective states that create pressure, the severity of which is due to the recency, magnitude, clustering, and the duration of the strain. The desire to alleviate the strain or the negative emotion creates a response that can either be deviant or normative. Whether a response is deviant or not is partly dependent on the availability of a variety of coping mechanisms and coping skills such as self-esteem. A deviant response is further dependent on a number of elements drawn from other theories including peers, temperament, social control, self-control, socialization, and macro level variables. The

following sections outline the proposed areas in which gender differences can affect strain and lead to the gender gap in crime.

General Strain Theory and Gender

GST is one of the few mainstream criminological theories which addresses both the generalizability problem and the gender ratio of crime (Daly and Chesney-Lind 1988). It provides a fruitful framework for the development of a theory that goes beyond gender neutral criminological theory. GST is able to provide this opportunity to detail the causes of the gender ratio since it does not assume that the sexes are equivalent in experiences or reactions to strain. Broidy and Agnew (1997) recognized this potential for explaining gender differences in offending patterns and outlined the areas where strain might lead to the gender ratio. In their expansion of GST (gendered-GST), Broidy and Agnew (1997) outlined four primary areas where strain theory might be able to account for gender differences in crime: 1) the amount of strain, 2) the type of strains males and females experience, 2) emotional responses to strain, and 4) responses to emotions as conditioned by coping skills.

Gender Differences in the Types of Strain

Although Broidy and Agnew (1997) dismissed gender differences in the *amount* of strain experienced, it is possible that the *types* of strain are different. Men and women do experience different types of strain, as women experience more gender discrimination, lower prestige, excessive family demands, and behavioral restrictions compounded with strains from expectations/aspirations (Broidy and Agnew 1997). Men, on the other hand, may experience more problems with peers (Broidy and Agnew 1997). Further, the subjective interpretation of the type of strain may differ, as some research suggests men

tend to be more concerned with extrinsic achievements while women tend to be more concerned with close relationships (see Broidy and Agnew 1997, Agnew 2001). Experiencing a strain within a more valued domain amplifies the perceived severity of the strain and any resultant negative emotions (Agnew 2001). For example, if indeed female friendships are characterized as "warmer and less competitive," and are more valued (Broidy and Agnew 1997:280), the loss of a friend could create higher levels of strain in female friendship networks than in male friendship networks (see outline of network strains below).

One proposition of gendered-GST states that the different types of strain men and women experience lead to the gender gap in crime through differences in the elements of strain conducive to crime. For example, males may experience more criminal victimization compared to females. Criminal victimization occurs in situations characterized by low social control, is high in magnitude, and create pressures for criminal coping as crime may be the only means to exact vengeance on the perpetrator of victimization. Certain strains, while unjust, may not be as high in magnitude, and could be associated with situations high in social control (Agnew 1992, 2001, 2006). Strains that are unjust, high in magnitude, associated with low social control, and create pressure for criminal coping are more likely connected to crime (Agnew 1992, 2001, 2006). Several of the strains analyzed in this dissertation meet the criteria for being conducive to crime and demonstrate a gender gap in the broader literature (i.e. criminal victimization, sexual victimization, and network strains).

A strain that appears in both gender-specific and gender-neutral theory is criminal victimization. Criminal victimization patterns in the National Crime Victimization

Survey (NCVS), reveal that men experience more violent criminal victimization than women (Truman and Planty 2012). This is reflected in work on the gender gap which shows men comprise a larger share of the victims of homicide, robbery, aggravated assault, and simple assault victimization (Laurtisen and Heimer 2008). In 2012, 29.1 per 1,000 men were victims of violent crime, compared to 23.3 per 1,000 women (Truman, Langton, and Planty 2013). For serious violent crime, which excludes simple assault, 9.4 per 1,000 men were victims compared to 6.6 per 1,000 women. Considering the greater incidence of this particular strain among men than women, experiencing criminal victimization could lead to the higher levels of crime among men.

Male criminal victimization as the primary force for the gender ratio is unlikely when looking at specific forms of victimization, as women experience certain types of victimization more than men. Using a national probability sample, Carbone-Lopez, Kruttschnitt, and Macmillan (2006) found a greater prevalence of interpersonal violence and systematic abuse among women. Among a sample of college students, women were more likely to experience "vicarious victimization, theft, sexual assault, stalking, interpersonal violence, physical assault and family violence (including physical and psychological abuse, neglect, and witnessing family violence)" (Fox, Nobles, and Piquero 2009:34).

While Agnew (2001) did not directly address the strain of sexual victimization, he did address the straining potential of childhood abuse and neglect. Childhood abuse and neglect, including sexual abuse, are strains high in magnitude and are usually seen as unjust as they violate a host of justice norms. Victimization, especially that perpetuated by family members, leads to the weakening of family bonds (Agnew 2006). Sexual

victimization creates an incentive or pressure for criminal instead of non-criminal coping, as the strain is high in magnitude and extraordinarily unjust.

Sexual victimization is also closely tied to girls' coping and survival strategies. Pathways specifically identifies sexual victimization as a path through which females become involved in crime. This path typically involves running away and the resultant attempts to survive on the streets or deal with the trauma of being criminalized (Daly 1992). In their attempt to escape victimization, girls commit a status offense through the act of running away, leading to criminal justice involvement and labeling. Additionally, their coping attempts are further criminalized as some runaways turn to selling sex for food or drugs (Daly 1992; Greenem, Ennett, and Ringwalt 1999). Sexual victimization and running away can play a key component in female paths to crime, a critical revelation of pathways, which is typically neglected within GST. As documented in Chapter 2, the rates of childhood sexual abuse in the general population are estimated to be approximately 5% to 8% of men and 12% to 17% of women were sexually abused as children (Gorey and Leslie 1997). According to the most recent year of the National Incidence Study (NIS) in 2006, an estimated .6 per 1,000 boys experienced sexual abuse compared to 3.0 per 1,000 girls, a statistically significant difference (Sedlak et al. 2010).

Smaller samples have also documented some gender differences in severity and type of trauma experienced. In a study of alcoholic adults, Huang et al. (2012:1100) found a greater prevalence of *"moderate to severe*" levels of sexual abuse among women. They also indicate a greater overall prevalence of exposure to other childhood trauma, including multiple concurrent forms, among females. Similarly, Mexican American males are more likely to report peer and stranger physical abuse than Mexican American

women (Jennings et al. 2009), who are more likely to report sibling and sexual abuse. Among incarcerated youth, Belknap and Holsinger (2006) found very high levels of abuse. Girls and boys reported high levels of abuse over fourteen measures of sexual, physical, verbal, and witnessing abuse, but a significantly greater percentage of girls reported experiencing abuse across most of the fourteen different measures. Taken together, these studies demonstrate that there are gender differences in the amount and types of victimization experienced. While males and females are both subject to a variety of abuses during their youth, females tend to experience higher and more consistent levels of multiple forms of abuse, including sexual victimization.

Network strains are another form of strain in which a gender difference in type and perceived magnitude may occur. Broidy and Agnew (1997) hypothesized that women are more concerned with relationships and, therefore, network strains are more salient for women. Network strains are composed of excessive family demands such as caretaking responsibilities or the loss of family members or friends. Broidy and Agnew (1997:291) indicated that women are more likely to report such strains and are more likely to report being affected by these strains. While this type of strain is not necessarily high in the conditions which promote crime, network strain could still be especially relevant for female crime. Support for a gender difference in networks strains is evident in data from the National Longitudinal Study of Adolescent Health (Add Health) where the proportion of women who reported having a friend/family member attempt suicide was higher than that of men (Kaufman 2009), thus creating more stress within female networks.

Clearly, gender differences in the type of strain can aid in the understanding of the gender gap in crime, but they cannot fully explain the difference. Women experience

more of certain types of strain that are unjust, high in magnitude, and create pressure for criminal coping but do not necessarily result in female crime. As part of gendered-GST, the difference may come from differences in how men and women react emotionally to strain.

Gender Differences in the Emotional Response to Strain

The third area Broidy and Agnew (1997) identified in which a gender gap may arise is a difference between men and women in emotional responses to strain. The role of negative affect in mediating the strain-crime relationship is potentially a key mechanism for explaining the gender gap. Drawing from Mirowsky and Ross (1995), Broidy and Agnew (1997) suggested likely gender differences in emotional responses to strain. While both genders experience anger in response to strain, female anger is accompanied by other negative affective states such as depression, guilt, fear, anxiety, or shame (Broidy and Agnew 1997).

Negative affective states, such as depression or fear, are theorized to reduce the likelihood of externally oriented crimes, such as violent or property crimes, as they are inner-directed emotions. At the same time, they increase the likelihood of self-oriented or escapist behaviors, such as substance abuse, running away during adolescence, or suicide (Broidy and Agnew 1997; Agnew 2006). Depression and guilt, under GST, do not create strong motivations for external retribution, nor do these emotions lower inhibitions in the manner anger does. Further, negative emotions, such as guilt, contain an internal attribution of blame, leaving those who are strained with no external source to blame or seek retribution against. The steps taken to address negative emotions and strain are, therefore, self-directed (Broidy and Agnew 1997).

A gender difference in negative affective states is clear when examining depression. Women typically exhibit higher levels of depressive symptoms than men in reaction to strain (Sigfusdottir et al. 2004; Kaufman 2009; Manasse and Ganem 2009; Piquero et al. 2010; De Coster and Zito 2010). If inner-directed negative emotions are differentially related to strain among males and females, the higher levels of depression among women would influence the gender gap by reducing their other directed actions and increasing self-directed behavior.

The support for a gender difference in depression is quite clear, although evidence for a gender difference in anger is much less stable. Some research indicates that women, in reaction to strain, have higher levels of anger and depression (Mirowskly and Ross 1995; Piquero and Sealock 2004; Sigfusdottir et al. 2004; Jang 2007; Jennings et al. 2009), while other research shows no difference in anger (Hay 2003; Simon and Nath 2003; Kaufman 2009; Piquero et al. 2010; De Coster and Zito 2010). Still another pattern was found by Ngo and Paternoster (2012) such that men experienced higher levels of anger in response to being stalked, but women had higher levels of non-angry emotions such as helplessness and depression. The results of Ngo and Paternoster (2012) are contradictory to the statements of gendered-GST but are in-line with GST as men are responding to strain with anger. In this case, perhaps the authors' choice of stalking provided a subjectively more stressful event for male respondents since stalking victimization violates certain norms of masculinity.

In all of these studies, the patterns regarding depression are consistent with gendered-GST as women generally reported higher levels of depression compared to men. Any gendered pattern with anger is less apparent as research was inconsistent in the

patterns of anger and strain. While the patterns of anger are inconsistent, the research is mostly supportive of the propositions regarding emotional reactions to strain, with women experiencing as much, if not more, anger than men.

Gender Differences in the Availability of Constraints and Coping Skills

The final area in which the gender gap may arise is in differential availability or types of resources that can reduce or increase crime. The differences in coping skills, coping strategies, and other resources and constraints all could be gendered in their impact on the strain → negative emotion → crime connection. Despite an expectation that women have higher levels of coping skills like self-esteem, thereby explaining their lower involvement in crime, Broidy and Agnew (1997) suggested women are less likely to have positive self-esteem and a sense of mastery. Women's lower self-esteem leads not only to an inability to effectively reduce strain, but makes it difficult to deal with strain through crime. Certain levels of self-esteem and self-efficacy are necessary in order to be confident enough to engage in criminal coping, especially if the criminal coping required women to violate gender norms (Steffensmeier and Schwartz 2004). A lack of criminal self-esteem and self-efficacy leads to coping in non-criminal, or at least self-destructive, manners (Broidy and Agnew 1997).

In terms of differences in the usage of coping strategies, Broidy and Agnew (1997) suggested women are more likely than men to try to cope with strain through cognitive or emotional strategies such as ignoring the problem or defining it away (Broidy and Agnew 1997). While greater involvement in "warm" social support networks provides an opportunity for strain these networks also provide the opportunity for support in times of strain, reducing its negative effects. The differential availability of social

support mechanisms could provide a further explanation of gender differences in GST, as conventional social support makes it less likely for women to turn to crime due to the ability to alleviate strain through these networks. Social support further has the potential to explain the gender differential in crime if people who fear the loss of their valued social networks avoid directly confronting their networks. Instead of confrontation with peers, the strained individual turns to using drugs and alcohol to deal with problems (Broidy and Agnew 1997). If women do indeed have greater investment in, and greater availability of, social support, we would expect lower levels of crime from women and more self-directed responses to avoid network harm. We would also expect a greater likelihood of crime among women who do not have access to these resources.

Gendered-GST and Intra-Gender Differences in Crime

Gendered-GST also has the ability to explain why some women turn to crime as a way to alleviate strain while other women do not. Not all women care about relational concerns, nor have they been socialized to solely react with self-oriented behavior. Nor are all men socialized to solely focus on achievement and react to strains with externalized violence. It is probable that women involved in crime experience those strains more conducive to crime compared to other women. Women who commit crime are also more likely to react to strain with anger and to be lower on resources that condition the relationship between strain and crime such as coping skills and social support (Broidy and Agnew 1997). In arguing that criminally involved women differ in exposure to, or reaction to, strain, Broidy and Agnew (1997) have staked a claim that GST is generalizable beyond male crime.

This dissertation attempts to address whether GST indeed explains crime for both males and females, and whether the gendered-GST approach explains the gender gap in crime. This is achieved by documenting the potential gender differences in areas of GST such as coping skills, constraints, and negative affect. From the current interpretation of GST, there are primarily four areas in which gender differences lead to the gender gap in crime. These include gender differences in strain experienced, the strain-crime relationship, the role of negative affect, and coping skills and strategies. The remaining sections of this chapter examine the gendered propositions discussed in GST and the research documenting whether these areas are indeed gendered as well as stating the hypotheses derived from gendered-GST.

Research on General Strain Theory

Since the original formulation of GST, research on strain has been moderately supportive of the proposition that strain directly influences criminal outcomes across a wide variety of strains, criminal/delinquent outcomes, and populations (see Agnew 2006). Some of the initial research on GST examined only this direct link and either did not or was unable to examine the other propositions of Agnew's (1992) general strain theory (for example, Agnew and White 1992; Paternoster and Mazerolle 1994; Mazerolle 1998). Some research demonstrated that the direct strain to crime path did not necessarily operate for women in the same fashion as it did for men, which is important for the gendered arguments of a gendered-GST. In fact, these researchers found no direct link between strain and crime and deviance among women (Agnew and Brezina 1997; Piquero and Sealock 2004; Manasse and Ganem 2009). Although such results appear to be problematic to gendered-GST, the connection between strain and crime is not solely

conceived as a direct influence. Instead, the impact of strain is supposed to be mediated by negative emotions and moderated by coping strategies. Further, there is a body of research that demonstrates some direct connection between strain and criminal outcomes among women (Hay 2003; Jennings et al. 2009; Kaufman 2009).

Regardless of negative emotions or coping skills, Jennings et al. (2009) found a direct connection between strain and their measures of deviant behavior (threatening aggression, using aggression, and property crime). While strains such as parent, sibling, peer, and stranger physical abuse, sexual abuse, and academic problems typically increased male delinquency in Jennings et al.'s (2009) models, there were fewer direct effects for females. Only two strains demonstrated a direct effect on offending where abuse by siblings and abuse by a stranger increased property offending. This is in comparison to men where all of the measures of abuse and experiencing academic problems increased property offending. Two of these direct effects were significantly different between genders, with sexually and peer abused males being more involved in property offending.

Hay (2003) and Kaufman (2009) both demonstrated similar patterns in which there were some direct effects of strain on offending for women and men. Among a sample of Southwestern adults, a cumulative measure of family strains directly increased projected delinquency for both genders but the coefficients were significantly stronger for males (Hay 2003). In Add Health, violent victimization was positively associated with violence for both genders but the effect was again stronger for males (Kaufman 2009). Such results demonstrated that the basic tenet of GST, that strain leads to crime, does apply to women. While some results support this basic idea, these results also

demonstrated that certain concepts may be *more* applicable to women than men. Negative emotions such as anger are, in some cases, bypassed for males, but can be more influential in understanding female crime (Jennings et al. 2009).

There are three important aspects of gendered-GST's argument regarding the role of negative emotions in producing the gender gap in crime: 1) men and women experience different negative emotions, 2) men and women react to strain with different sets of negative emotions, and 3) men and women react to those negative emotions differently. Gender differences in the type of negative emotions have already been previously discussed. The other two aspects of this argument will be discussed below.

The research regarding whether men and women react to strain with similar or different negative emotions appears to be dependent on the negative emotion under question. Examining the influence of neglect, abuse, parental hostility, and goal disjuncture on anger and negative emotional responses, Sharp et al. (2005) demonstrated connections between neglect and parental hostility and anger for males and females. They also demonstrated the influence of parental hostility on a composite measure of negative emotions for both males and females. Further, neglect was associated with negative emotions among males. Despite apparent gender differences in their models, there were no significant differences to indicate a gendered reaction to strain with different emotions. This is in line with Piquero et al.'s (2004) data which demonstrated no significant differences in the role of equity strain nor for a summative measure of negative life events in producing negative emotions.

Other research has demonstrated some gendered links between strain and negative emotions other than anger. Typically, these studies have found gender differences in one

or two measures of strain or negative emotions, but not across all measures of strain. For example, Hay (2003) found that a cumulative measure of family strain was not associated with different levels of anger between genders, but it was predictive of gender differences in guilt. Consistent with statements by Broidy and Agnew (1997), women experienced significantly higher levels of guilt in response to strain (Hay 2003). When this composite strain measure was broken down into the individual strain components, the results were much the same. Individual strains had no gendered influence on anger, but women experienced higher levels of guilt in response to some of these same strains (Hay 2003).

It is apparent that there is not a gendered difference in the response to strain with anger (Hay 2003; Sharp et al. 2005), as males and females appear to react to strain equally with anger. This is consistent with the expectation of similar levels of anger in GST (Broidy and Agnew 1997). While anger drives action, it is other negative emotions, such as depression, that are expected to inhibit actions like crime. Strains such as equity strain were not associated with gender differences in guilt and depression (Piquero et al. 2010), but a variety of strains including victimization (Kaufman 2009), network suicide (Kaufman 2009), academic problems (Jennings et al. 2009), family arguments (Sigfusdottir et al. 2004), and family strain (Hay 2003) were associated with higher levels of female, but not male, guilt and depression. It is, therefore, possible that the gender gap in crime is produced by differences in negative emotions such as guilt or depression. The following section will discuss the existence of differential responses to negative emotions in crime and deviance.

Research investigating negative emotions' impact on crime and deviance has demonstrated an important role of negative emotions in strain, especially anger (Aseltine,

Gore, and Gordon 2000; Agnew et al. 2002; Sigfusdottir et al. 2004; Botchkovar, Tittle, Antonaccio 2012; Sharp, Peck, and Hartsfield 2012). Anger is connected with increases in violent delinquency (Aseltine et al. 2000), general delinquency (Sigfusdottir et al. 2004), interpersonal aggression (Piquero and Sealock 2000), intentions to shoplift or assault (Mazerolle, Piquero, and Capowich 2003), and alcohol or drug use (Sharp et al. 2012). Other negative emotions, such as depression, have been tied to both criminal and non-criminal responses to strain.

In a sample of undergraduates, Broidy (2001) found that a 30-item other negative emotion scale was associated with an increase in legitimate coping and a decrease in criminal coping, while anger was related to an increase in criminal outcomes. Among adults, depression was directly associated with rates of violent offending and property offending (Ostrowsky and Messner 2005). Jang and Rhodes (2012) demonstrated a connection between state depression/anxiety with both marijuana use and property crime. This link between depression and deviant/delinquent outcomes has been supported in a variety of samples including youth (Carson et al. 2008; Manasse and Ganem 2009; Eitle, McNulty, and Eitle 2013), young adults (Huck et al. 2012), and adults (Jang and Johnson 2003; Jang 2007). While depression has been linked to increases in violent offending (Ostrowsky and Messner 2005), the majority of the research on GST and depression is supportive of depression influencing self-directed deviance and crime such as drug use or non-criminal coping (Carson et al. 2008; Eitle et al. 2013; Jang 2007; Jang and Johnson 2003).

Although depression did not typically influence violent behaviors, as might be expected, the research does lend credence to the suggestion that different emotions lead

to different reactions (Agnew 1992; Jang and Johnson 2003). Specifically, emotions like anger, which are outer-directed, are more likely to lead to other-directed reactions in the form of violent crime. Inner-directed emotions, like depression, are more likely to influence inner-directed behaviors, such as drug use or perhaps suicide. Supportive of the need to separate the type of emotion and outcome, Jang and Rhodes (2012) found a connection between trait anger and violent crime. Similarly, they showed that state depression/anxiety increased marijuana use and the outer-directed behavior of property crime. In addition, Broidy (2001), Jang and Johnson (2003), and Jang 2007 supported the connection between negative emotions and the appropriate directed responses. In the case of Jang and Johnson (2003), they found inner- and outer-directed emotions were related to inner- and outer-directed behavior, but the same-directed effects were stronger. The coefficient for inner-directed emotions were stronger for drug use than fighting and the opposite was apparent for outer-directed emotions.

The distinction between inner- and outer-directed emotions is an important aspect of GST, especially in regards to the role of gender. Anger is supposed to be the primary negative emotion predicting crime for men, while the presence of depression among women is expected to reduce other directed violence and increase self-directed behaviors. To some degree, the literature supports a gender difference in the negative emotions experienced in response to strain but not anger. The broad remaining question is whether negative emotions produce different levels and types of crime and delinquency by gender.

While not a key proposition in the formulation of gendered-GST (Broidy and Agnew 1997), the potential for a gendered response to negative emotions is an important

assumption of the theory. The theory claims that males and females differ in their emotional responses to strain which may help explain gender differences in crime. It also proposes that males and females differ in their response to negative emotions with males simply being more likely to respond to any negative emotions with crime (Broidy and Agnew 1997:283). Both of these propositions have been largely understudied with only a handful of studies examining this element at all. Even fewer examine the propositions when linked to complete models of gendered-GST.

Of the handful of studies that have examined gendered responses to negative emotions, the evidence is mixed. Piquero and Sealock (2004) found little evidence that negative emotions influence interpersonal aggression or property offending for either gender. Neither anger nor depression were significant predictors of their outcomes. Jennings et al. (2009), in an extension of Piquero and Sealock (2004), demonstrated mixed evidence of a gendered response to negative emotions. For males and females, anger was associated with the threat and use of interpersonal aggression while depression was not. Both negative emotions were predictive of property offending. While the negative emotions were predictive of their dependent variables, they did not discover any gender differences in the significant effects of anger and depression. They did, however, find a significant reduction in the use of interpersonal aggression by depressed females who were involved in musical coping, an important finding regarding the gendered availability of coping skills. Hay (2003), similarly, failed to find significant differences in the role of anger in delinquency despite the coefficient for anger being about 1.7 times higher among males[5].

[5] Hay did not test for differences in guilt's impact

While they did not test for gender differences in their models, Manasse and Ganem (2009) included separate gender models which looked at the interaction of depression and victimization. From two waves of the National Youth Survey, they demonstrated that for females neither victimization, depression, nor a depression-victimization interaction predicted delinquency. For males, the depression-victimization interaction increased the odds of being involved in delinquency by 50% percent. Therefore, Manasse and Ganem (2009) demonstrated a gendered response to negative emotions, but not in the manner one would necessarily expect in GST.

While the previous studies provided little support for a differential reaction to negative emotions, Kaufman (2009) found some affirmation for this hypothesis. She looked at four different outcomes including suicidal thoughts, weekly drinking, running away, and violence. Her examinations of suicidal ideation, running away, and violence did not show any significant gender differences in response to negative emotions, but there were significant gender differences in weekly drinking. When looking at male weekly drinking, bad temper had a powerful positive effect. For women, depressive symptoms were related to higher levels of weekly drinking. Comparing the two models showed the direct impact of depression on weekly drinking was significantly stronger for women. When the coping mechanisms and theoretical controls were introduced into the model, the effects of negative emotions dissipated, but the significant difference in the effect of depressive symptoms remained.

In summary, very little research has examined gender differences in the role of negative emotions. Those few studies that did examine this relationship either failed to find any gender differences in the effect of negative emotions (Piquero and Sealock 2004;

Jennings et al. 2009), failed to test for differences (Manasse and Ganem 2009), or did not include or test multiple negative emotions (Manasse and Ganem 2009; Hay 2003). One study (Kaufman 2009) found gendered impacts of negative emotions but solely in regards to a measure of weekly drinking. This dissertation improves on these studies by examining an expanded set of criminal and deviant outcomes (Piquero and Sealock 2004; Jennings et al. 2009; Kaufman 2009) and negative emotions (Hay 2003; Manasse and Ganem 2009). While Jennings et al. (2009) did not find significant gender differences in the impact of negative emotions, they did find significant gender differences in the interaction of depression and musical coping which reduced female use of interpersonal aggression. The gender differences in coping strategies, discussed below, is the final area in which gendered-GST potentially explains the gender gap.

Despite propositions of gender differences in coping skills and strategies, very little research has focused on gender and coping within GST. The research on coping has largely focused on gender neutral tests of the theory (for example: Jang and Rhodes 2012). Some of these gender neutral tests examined coping as directly mediating between strain and deviance, whereas later tests moved around a variety of constraints in the ordering of GST. Some research interpreted the different coping mechanisms as mediators between strain and negative emotions (Broidy 2001; Jang and Johnson 2003; Sharp et al. 2005), while others used coping skills to mediate either the strain-crime relationship (Paternoster and Mazerolle 1994; Jang and Johnson 2003) or the negative emotion-crime relationship (Jang and Johnson 2003; Jang 2007; Sharp et al. 2012). This dissertation largely follows the research in which coping strategies and skills are placed logically between negative emotions and behavioral responses, such as crime, because

this particular ordering fits better with the propositions of GST (Agnew 1992; 1997, 2001).

Examining cognitive, behavioral, and emotional strategies among undergraduates, Broidy (2001) demonstrated a link between negative emotions and use of legitimate coping. Experiencing non-angry emotions in response to strain, characterized by a 30 item non-angry emotion factor, increased the use of legitimate coping strategies. A proposed reduction of criminal coping by those who utilized legitimate coping was not evident, nor was there evidence of a link between angry emotions and legitimate coping. There was a gender difference in coping where women were significantly more likely than men to utilize legitimate coping strategies, and men who were more likely to utilize illegitimate coping. Unfortunately, she did not examine whether the use of coping strategies reduced illegitimate outcomes by gender. Expanding on Broidy's (2001) measures of coping, Huck et al. (2012), found that the presence of negative coping, which includes several deviant and criminal measures[6], was significantly related to an increase in criminal outcomes. The "absence of positive coping" (Huck et al. 2012:31), a scale of reverse coded pro-social coping, was not significantly related to their criminality/deviance measure. While research on the gendered aspects of coping strategies is limited, there is a slightly larger body of literature which discusses the effects of coping resources such as self-esteem or self-efficacy.

While there are a number of coping skills available to individuals to deal with the impact of strain, this dissertation focuses on self-esteem as a moderator of negative emotions caused by strain. The empirical evidence directly supportive of self-efficacy or

[6] Huck et al. (2012) included the improper use of OTC medication and the use of illegal drugs in their measure of negative coping strategies.

self-esteem, in either a gender-neutral- or gendered-GST is limited. Agnew (2006) suggested that this is due to the difficulty of detecting conditioning effects in survey research, a conclusion reached due to several studies finding no effect of coping skills (see Sharp et al. 2012). Whether conditioning effects are difficult to detect in survey research, there is some, but limited, support for the role of self-efficacy in both forms of GST (Agnew and White 1992; Paternoster and Mazerolle 1994; Jang and Johnson 2003; Jennings et al. 2009).

In a cross-sectional analysis of adolescents, Agnew and White (1992) found some support for the role of self-efficacy mediating the strain-crime relationship. They demonstrated that strain was most likely to result in delinquency, but not drug use, when self-efficacy was low. The authors believed this finding was not contrary to GST, as anger is expected to lead to outwardly (other directed) behavior such as theft but not to drug use. Unfortunately, conclusions regarding strain are problematic as this study, like many other early tests, did not include negative emotions (Agnew and White 1992; Hoffman and Cerbone 1999; Paternoster and Mazerolle 1994).

Since early tests of GST, negative affect has been included with coping skills in tests of GST. Jang and Johnson (2003) theorized that self-efficacy can condition the relationship between strain-anger and/or the anger-crime relationship, and they did find some support for coping skills. Like Agnew and White (1992), they found that self-esteem reduced participation in general deviance. They also found that self-esteem reduced the impact of a composite measure of inner-directed negative emotions[7] on drug usage, also consistent with GST. Contrary to the propositions of GST, they showed that

[7] The measure of inner-directed emotions was a composite measure which included loneliness and depression.

self-esteem increased the impact of outer directed negative emotions (lost temper) on drug use. They also indicated that people with high self-esteem are more likely to deal with strain by fighting or arguing. Whether or not this finding is supportive of GST is dependent on the interpretation of fighting and arguing. If fighting and arguing are interpreted as legitimate coping strategies, the results show that the predictions of GST hold. Strained individuals with higher levels of self-esteem turn to legitimate forms of coping[8]. From a gender neutral perspective, it appears different coping skills may have some impact on deviance.

Unfortunately, less research has tried to determine whether gender influences the relationship of coping skills to crime, but some studies suggest differences in the effects of coping skills. Piquero and Sealock (2004) and Jenning's et al. (2009) demonstrated gender differences in the use of cognitive and physical coping[9]. In these studies males tended to be higher in cognitive (Jennings et al. 2009), physical (Piquero and Sealock 2004), and athletic coping (Jennings et al. 2009) while females were higher in spiritual coping, musical coping, and extracurricular activities (Jennings et al. 2009). Among detained youth, cognitive coping skills reduced interpersonal aggression for males, while social coping increased aggression (Piquero and Sealock 2004). While coping skills may have the ability to modify aggression among males there were no statistically significant effects in the statistical models for females.

In a similar analysis of Mexican Americans, there are apparent differences between male and female models. In this case, only spiritual coping has a significantly

[8] The fight/argue measure asked respondents "did you fight and argue with other people?" and was not a measure of violence.

[9] These measures of coping resources appear to utilize the language of coping strategies but are more akin to Agnew's description of coping resources.

different impact by gender (Jennings et al. 2009). Spiritual coping had a greater impact in reducing property offending among women compared to men, for whom it did not have a significant impact. Jennings et al. (2009) also indicated a gender difference in the ability of coping skills to mediate the effect of negative emotions on their dependent variables. Women who employed spiritual coping significantly reduced the positive effect of anger on property offending. Similarly, women who utilized musical coping reduced the positive impact of depression on aggression, threatening violence, and property crime. Several other interactions of negative emotions and coping skills (e.g., religiosity) were marginally significant in their effects. Importantly, these interactions of coping, negative emotions, and gender indicated the ability of some coping to reduce the impact of negative emotions on crime for women.

Jang (2007) similarly demonstrated that certain coping skills moderate the impact of negative emotions. When strained, African-American women with higher self-esteem were more likely than African-American men to respond to their anger with prayer. In response to anger caused by strain, African-American women with a higher sense of self-efficacy were more likely than African-American men to participate in escapist coping (i.e., putting the strain out of mind or keeping busy). None of the coping skills impacted the use of drugs/alcohol or reduced the impact of negative emotions on drugs/alcohol. Overall, there is not much research to draw upon to make a clear distinction on the role of coping skills, especially research including gendered-GST. Men and women appear to differ in their availability of these coping skills (Jennings et al 2009), but the impact of these resources on crime or even deviance is unclear. Tentatively, it appears that women

who utilize certain forms of coping are able to reduce the impact of negative emotions, and thus reduce crime, but this connection is largely unexamined.

In summary, the previous sections of empirical research document the ability of GST and gendered-GST to influence criminal behavior. The research on basic versions of gendered-GST (i.e., strain→crime) showed the ability of strain to produce deviant and criminal outcomes for both genders (Hay 2003; Jennings et al. 2009; Kaufman 2009; see Agnew 2006). Negative affect and coping skills are less supported in the literature; regardless, there is evidence that suggests an ability for them to influence crime (Manasse and Ganem 2009; Kaufman 2009). This section further demonstrated the relative dearth of research regarding areas that are likely to produce a gender gap in offending, specifically coping-skills and -strategies. Within this small body of literature, the results are moderately supportive of the propositions of gendered-GST, but they tend to be inconsistent (Broidy 2001; Jang 2007; Kaufman 2009; Jennings et al. 2009; Huck et al. 2012).

Although this dissertation draws heavily upon Kaufman (2009) and Jennings et al. (2009) for inspiration, each of their studies failed to examine key components of gendered-GST. As such, both studies have problems in providing a comprehensive, or generalizable, test of GST's application to gender and crime. Jennings et al. (2009) provide a more comprehensive, but cross-sectional, test of gendered-GST than Kaufman (2009). However, they do so with a very specific target sample, Mexican American adolescents. Jennings et al. (2009) were unable to identify deviant responses to strain outside of interpersonal aggression and property offending, thus ignoring the suggestion that girls and women react with inner-directed behaviors like drug and alcohol use

(Broidy and Agnew 1997; Daly 1998). They also were unable to evaluate the role of running away, a key element found in pathways research describing one of the primary paths to female crime (Daly 1998). Kaufman (2009), on the other hand, provided an interesting analysis of the potential gendered reactions to strain. She examined the role of strain in predicting gendered deviance including suicidal thoughts and running away. Further, Kaufman (2009), unlike Jennings et al. (2009), was able to examine gendered strains in the form of social network disruption. However, although Kaufman (2009) provided an examination of the gendered strains, she did not examine the gendered strain of sexual victimization, often thought to produce female criminality, nor did she evaluate drug use. She also did not examine the proposed conditioning effects of coping skills.

Hypotheses

This dissertation seeks to improve on the previous literature of gendered-GST by a) completing a more comprehensive analysis of the theory through the use of a large national longitudinal data set; b) including relatively neglected strains in the form of childhood sexual abuse and network suicide; c) using an analysis which includes coping resources and strategies; and d) incorporating criminal and deviant outcomes that include theoretically gendered outcomes and inner- and outer-directed outcomes. While not individually unique, these four elements extend the literature, as previous studies have neglected the combination of these four arenas. Based upon these perceived gaps in the testing of gendered-GST and a review of the literature, the following hypotheses were developed and tested regarding gender, strain, and crime/delinquency:

General Strain Theory Hypotheses

Hypothesis 1: Strain at, and prior to, Wave I will be positively associated with delinquency and deviance at Wave II.

Hypothesis 2: Strain will be positively associated with negative emotions (depression and anger).

Hypothesis 3: Negative emotions will be positively associated with delinquent and deviant outcomes. Anger will be positively related to violent delinquency and property offending, while depression and being upset will be positively related to other forms of deviance (drug/alcohol use, running away).

Hypothesis 4: The direct effects of strain will be mediated by negative emotions.

Hypothesis 5: The effects of negative affect on crime and deviance will be moderated by a variety of constraints including self-esteem, cognitive coping, and social support. Specifically, self-esteem, problem solving coping (TRDM), avoidance coping and social support will decrease the positive effects of negative emotions (bad temper, depression, and upset by problems) on crime.

Gendered-GST Hypotheses

Hypothesis 6: Men and women will differ in the types of strains they experience. Specifically, a) men are more likely to experience criminal victimization than women. b) Compared to men, women are more likely to experience abuse at the hands of family and significant others in the form of sexual abuse. c) Women are more likely to experience network strains in the form of a friend or family member who attempted suicide.

Hypothesis 7: Emotional responses to strain are gendered in such a manner that women are more likely than men to experience non-angry negative emotions in response to strain. Men and women are expected to experience similar levels of angry emotions in response to strain.

Hypothesis 8: Women's concurrent experience of depression and other negative emotions will reduce the likelihood of participating in other-directed forms of behavior (violent crime) and increase the likelihood of participation in other deviance.

Hypothesis 9: Levels of coping skills are gendered, with women reporting slightly lower levels of self-esteem.

Hypothesis 10: Self-esteem, cognitive coping styles, and social support are more likely to weaken the positive effects of negative emotions (bad temper, depression, and upset by problems) on crime among women than men.

The next chapter, Chapter 4 - Data and Methodology, outlines the data used in this study from Add Health. This section discusses the original sample, collection techniques, and details of the publicly available data. It then discusses the operationalization of the variables used to analyze gendered-GST. Finally, the chapter provides a description of the statistical procedures used to address missing data and to analyze the effects of gendered-GST.

Chapter 4: Data and Methodology

Chapter Introduction

Within this chapter information is presented on the dataset used in this dissertation is reliant upon, the publicly-available National Longitudinal Study of Adolescent Health data. This chapter first describes the data collection methods, sampling, and intent of the survey. It then outlines the measures utilized to represent the different conceptual aspects of gendered general strain theory. This chapter also describes the statistical procedures that are used to analyze general strain theory and those which were executed to replace missing data.

Data

This study relies on data from the National Longitudinal Study of Adolescent Health (Add Health). The Add Health study was initiated in 1994 through National Institute of Child Health and Human Development (NICHD) grants and administered by the National Opinion Research Center (Waves I and II) and the Research Triangle Institute (Waves III and IV). Add Health was designed to study adolescent health status and behavioral factors that may influence adolescents' health. While Add Health was designed to assess health and the health related behaviors of adolescents, a number of other topics were covered including family, neighborhood, community, school, and crime/delinquency. Currently, four waves of data have been collected for Add Health tracking the youth into adulthood. The four waves were collected during the following years: Wave I from September 1992 through December 1995, Wave II from May 1996 through August 1996, Wave III from July 2001 through April 2002, and Wave IV from January 2008 through February 2009. Add Health is a nationally representative

longitudinal study of American adolescents who were in grades 7 through 12 during the first wave and were aged 24-34 during the most recent wave.

The Add Health researchers utilized a two-stage implicit stratified sampling design for data collection. A sample of 80 high schools was selected from an overall sampling frame of 26,666 high schools. The sampling frame was initially sorted by school enrollment, school type, census region, level of urban development, and percent white. Systematic sampling on the sorted list was then used to select the school sample. Sorting and selecting schools based on probabilities proportional to enrollment led to a nearly self-weighting sample of students (Chantala and Tabor 2010). Of the initial sample, 52 schools were eligible and agreed to participate. Schools which declined to participate were then replaced by similar high schools using the next school that followed the selected one on the sorted list in an attempt to select a school that matched the initial selection in respect to the sorted characteristics.

From the final sample, participating schools were then asked to identify a feeder school, which is a junior high or middle school that was expected to provide at least five students to the incoming class of each high school. A single feeder was selected for each high school with the probability of selection proportional to the percentage of the high school class coming from that feeder school. In some cases (20), the high schools were their own feeder school since their grade ranges included 7^{th} and 8^{th} grades. In Wave I, Add Health collected in-school responses from over 90,000 students which were used to create a sample for in-home interviews.

For the Wave I in-home interview, a total of 27,559 students were selected for inclusion in a combination of either a “core” sample or supplemental samples, 20,745

youth participated. Selection for the in-home sample was based upon strata created from student level data about grade and sex drawn from the in-school data. School level grade by sex strata were created and then sampled using sample quotas for each strata creating roughly equally sized samples drawn from each of the 12 student strata. This sampling was supplemented by two purposively selected schools (PAIRS) where all of the students from these two schools were selected for the in-home questionnaire (n=3,350). These two samples led to an overall "core" sample of 16,044 youth. An additional set of samples were created as part of a restricted-use data set[10] leading to an overall sample of 20,745 (Harris 2013). Add Health researchers created a publicly available version of the data which contains approximately half of the core sample and half of an African-American oversample, n=6,504 (Carolina Population Center *N.d.*). This study utilizes the publicly available data and primarily uses the first two waves of in-home questionnaire data, but draws upon both the third wave for retrospective reports of abuse and the first wave parental survey for reports of bad temper among youths.

The in-home interviews asked students about basic student demographic information including age, sex, race, and ethnicity. The questionnaire also asked about parental background (job, education, country of birth, etc.), household composition, friends, school life, risk taking behavior, and health related information. The interview was conducted through a combination of traditional personal interview and the use of Audio-computer aided self-interview (ACASI) and computer aided self-interview (CASI). ACASI and CASI were utilized for sections considered to contain health status and health-risk behavior questions (Harris 2013). In addition to the in-home interview,

[10] The various design features of Add Health are discussed in Harris (2005) http://www.ssc.wisc.edu/irpweb/initiatives/trainedu/igrfp/readings06/harris1.pdf

parents of participants were asked to participate in a parental questionnaire about topics including household characteristics, health conditions, civic involvement and parent-adolescent interactions.

Add Health's first three waves followed respondents from adolescence into early adulthood. During Wave III respondents were age 18-26, but during Wave II data collection the majority of the sample were still adolescents. The majority of Wave I participants were selected for participation in Wave II and III with several exceptions (e.g., being in 12th grade at Wave I). However, due to drop-out, death, and other reasons for attrition, interviews in the publicly available data were completed for 4,834 of the original 6,500 respondents during Wave II and 4,882 during Wave III, representing response rates of 74.4% and 75.1% respectively. Not all of these respondents participated in either Wave II or III leading to a total probable sample of 3,844 which have valid sample weights for all three waves.

Research on the effect of non-response in Add Health, including attrition, indicates attrition and non-response minimally impacted estimates of a number of health and risk behaviors (Kalsbeek et al. 2002; Chantala et al. 2005; Brownstein et al. 2011). These studies concluded that Wave II (Kalsbeek et al. 2002) and Wave III (Chantala et al. 2005) samples represent the same population as the Wave I sample when sampling weights are used. Combined sampling weights were calculated by Add Health researchers to adjust for the complex sampling design which led to unequal selection probabilities among different subgroups and to correct for non-response (see Tourangeau and Shin 1999). These weights are used throughout the following analyses.

Outside of the attrition issue, there is an issue with missing data within this sample. Parental survey responses account for a large proportion of the missing data as nearly 13% of the parents either did not participate or were not interviewed. Combined with respondent non-response and refusals, nearly 21% of the sample has missing data on at least one of the variables included in the analysis. For the most part, due to the high levels of missing data, listwise deletion was ruled out. Besides the high level of missing data, the use of listwise deletion was avoided as it can produce incorrect standard errors (Chen and Chantala 2014). According to Chen and Chantala (2014), statistical software needs to be able to identify all primary sampling units[11] (PSUs) in order to compute accurate estimates. Listwise deletion would lead to the deletion of these sampling units. Instead of listwise deletion, analysis proceeded following the recommendation to use sub-populations (Chantala and Tabor 2010; Chen and Chantala 2014). Multiple imputation was initially attempted using the Stata 12 *mi impute chained* command, but multiple attempts to impute the data resulted in repeated failure due to missing values in the dependent variables[12]. Instead, two sub-populations (male and female sub-populations with no missing values) were created. The use of sub-populations omitted some respondents from analysis while allowing Stata 12 to access the necessary PSUs. For example, a small number (n=128) of respondents were excluded from the sub-populations because they were either currently not in school or were not in school the previous year, creating missing values on multiple variables. These respondents would have been automatically excluded from analysis during regression analysis by the statistical

[11] The primary sampling unit in the public-use data is CLUSTER2 (Chen and Chantala 2014) not Mex50197 as described in other work.

[12] see Statistical Computing Seminars *n.d.* for suggestions on the imputation of dependent variables

software, but not necessarily during analysis of descriptive statistics. A high number of missing data were present in the following variables: bad temper (n=370), childhood sexual abuse (n=108), friends smoke (n=61), friends drink (n=73), friends smoke marijuana (n=66), and parent receives public assistance (n=44). In order to determine if any of the included demographic variables were related to the missing observations a series of logistic regressions were conducted. These analyses are presented in Appendix A. A binary variable of "missingness" was created to indicate missing data in the sample where a 0 indicated missing data and 1 indicated complete cases. This new missing data variable was then regressed on age, race, gender, Hispanic ethnicity, and parental reception of public assistance. Results from the logistic regression indicated that white youth were more likely than African American and Asian youth to have missing data. Non-Hispanic youth and younger youth were more likely to have missing data values. There were no significant differences in missing data for gender or parents receiving public assistance. These results indicated that subsequent analyses may be biased for younger non-Hispanic whites due to their greater likelihood of missing data and exclusion from subsequent analyses.

After creation of the subsamples the final sample size was n=3,009. This final sample size, representing 78% of the original sample, is in the range, or lower than other research which used the publicly available dataset (Schreck, Fisher, and Miller 2004; Daigle et al. 2007; Savage 2011).

VARIABLES

Dependent Variables: Crime and Delinquency

Following past research using Add Health, crime and delinquency are conceptualized broadly into four different categories: violent crime, property crime, drug use, and running away. The distinction between these types of behaviors is necessary since men and women tend to commit slightly different types of crime (e.g. lower female involvement in violent offenses) (Tracy, Wolfgang, and Figlio 1985; Snell and Morton 1994; Bloom, Owen, Rosenbaum, and Deschenes 2003). Per the pathways literature, distinct forms of crime have different theoretical pathways, and combining delinquency into a general scale would mask these differences. The self-report measures of crime and delinquency found in Add Health meet several of the general guidelines for assessing self-reported deviant behavior set forth in prior research (Elliot and Ageton 1980; Thornberry and Krohn 2000). The crime and delinquency measures capture a wide array of offenses ranging from stealing something less than $50 to assault. The measures include a number of serious offenses including carrying weapons, hurting someone in a fight, and using or threatening someone with a weapon. For a complete list of the measures included in this analysis see Appendix B. While the Add Health delinquency measures meet some of the guidelines for good self-report measures they do not meet Thornberry and Krohn's (2000) suggestion of using frequency scales or the use of follow-ups to elicit differences in the seriousness of offenses (e.g. fighting with a sibling vs. a street brawl).

Crime items were drawn from both Waves I and II. Wave I items are used as controls in order to assess changes in criminal behaviors and to detect the impact due to

strain. Thus, these analyses provide a conservative estimate of general strain theory. For each item, respondents were asked how often they participated in certain forms of crime over the past 12 months. The original responses to these items were “never” (0), “1 or 2 times” (1), “3 or 4 times” (2), “5 or more times” (3), “refused,” “don’t know,” and “not applicable.” Respondents with “refused,” “don’t know,” or “not applicable” responses were recoded to missing. The original response sets are right censored with available responses censored at “5 or more times.” Such censoring has the potential to aggregate occasional offenders with high-rate offenders (Thornberry and Krohn 2000).

One suggestion to overcome the issue of aggregating occasional with high rate offenders is to use variety scales when measuring self-reported anti-social behaviors. Creation of such measures indicates which offenders are involved with a larger variety of crimes compared to those involved in a single criminal act. Some evidence does demonstrate the potential for the superior performance of variety scales when measuring self-reported antisocial behaviors (Bendixen, Endresen, and Olweus 2003). However, initial analysis of the dependent variables while treated as variety scales did not support this suggestion, with scales returning low values for internal consistency (alpha). As such, the final crime measures are recoded as additive indices, as is common in the Add Health research (Hagan and Foster 2003; Demuth and Brown 2004; Vazsonyi, Cleveland, and Wiebe 2006; Guo, Roettger, and Cai 2008; Clinkinbeard et al. 2010).

Violent Crime - The violent crime index is composed of four items from Wave II assessing how often the respondent participated in different violent acts over the past year. These include serious violent acts; such as assault, assault with injury, robbery, and taking part in a group fight. For violent crime, the four specific items used to create the

index included: “get into a serious fight,” “hurt someone badly enough to need bandages or care from a doctor or nurse,” “use or threaten to use a weapon to get something from someone,” “take part in a fight where a group of your friends was against another group.” Responses to these four items were summed together creating an additive index of violent crime using the Stata 12 *generate* command. This command not only creates the scale but, if any of the individual variables contain missing data, Stata creates the output variable with missing values (n=28). Higher values on the scale indicate not only a greater variety of participation in different types of criminal acts, but a greater frequency of those acts. The reliability of the violent crime measure indicated an acceptable level of internal consistency for these four items (α=.7715).

Non-violent Crime - The nonviolent property crime index is composed of five items from Wave II assessing how often the respondent had participated in different property crimes over the past year. For non-violent crime, the five items included: damaging property, shoplifting from a store, stealing something worth >$50, stealing something <$50, and entering a home or building in order to steal something. The exact question wordings can be found in Appendix B. Responses to these five items were summed to create an additive index for non-violent property crime. Again, higher values indicate greater variety and frequency of these acts. The non-violent crime measure demonstrated an acceptable level of internal consistency for the five items (α=.7749).

Marijuana Use – Drug use is included as a self-oriented form of crime in which individuals may participate. A variety of drug usage measures were considered but were rejected due to either low reliability or high levels of missing data. Instead, a single outcome measure of marijuana use during the last 30 days is used (Jang and Rhodes

2012). This recall period was also the only consistent time frame for questions between the two waves. As these were open ended questions, responses ranged from 0 to 800 times used in the past 30 days. Since marijuana use was highly skewed the variable was recoded to a dichotomous indicator of marijuana use in the past 30 days[13](0=No, 1=Yes).

Running Away - Running away is often described as a pathway in which girls' deviance is criminalized and which pushes girls toward further crime. It is simultaneously viewed as an attempt to escape a stressful or abusive home environment. Since it is viewed as an important gendered pathway, I excluded running away from any index of criminal behavior and examined it as a dependent variable at Wave II. Additionally, since running away is often an attempt to escape a negative home environment, running away at Wave I was treated as a moderator of strain in models for drug usage, non-violent crime, and violent crime. The question which addresses running away, like violent and property crime, was asked "In the past 12 months, how often did you run away from home?" Since a small percentage of respondents had run away (approximately 7% Wave I; approximately 6% Wave II), respondents who indicated they had run away in the past 12 months were recoded to Yes (1) while those who had not remained coded No (0).

Independent Variables

Strains

General Strain Theory (GST), along with its gendered version, recognizes three broad categories of strain. These include 1) the failure to achieve positively valued goals, 2) the presentation of negative stimuli, and 3) the removal of positively valued stimuli. A

[13] Logarithmic transformation of the two variables was considered and rejected since the variables had a high number of respondents not using marijuana and log(0) is undefined. Square root transformation was considered as well but continued to yield high skew.

number of sources of strain were assessed in the Add Health Wave I in-home interview covering strains experienced at school or in the home. In an attempt to provide a comprehensive test of gendered-GST, I selected four measures of strain from Wave I that capture the broad types of strain. These strains include violent criminal victimization (presentation of negative stimuli), suicidal behavior by friends and family (loss of positively valued stimuli), the disjunction between college aspirations and expectations (failure to achieve positively valued goals), and childhood sexual abuse (presentation of negative stimuli). Three of these strains (violent criminal victimization, suicidal family or friends, and childhood sexual abuse) were identified as objectively straining and containing the elements of strain necessary to be criminogenic as they are high in magnitude, unjust, and create incentive for criminal coping (Agnew 2006). Agnew (2006) directly identifies childhood abuse and violent victimization as strains most likely to cause crime. The strain caused by the disjunction between college aspirations and expectations, although expected to not be likely to cause crime (Agnew 2006), was included due to its representation of the strain type, failure to achieve valued goals. The selection of these strains provides the ability to examine not only strain theory, but gender differences in the type of strain experienced and their impact on criminal outcomes. Specifically, childhood sexual abuse is a serious strain that females overwhelmingly experience, and suicidal friend or family is a network strain theorized to impact women more so than men (Kaufman 2009). The inclusion of violent criminal victimization allows for further gender comparisons with a gendered strain that men tend to experience more and is connected to their crime (Daigle et al. 2007). All of these strains are considered objective measures of strain and in some shape or form, have been

utilized to evaluate the efficacy of GST, but rarely have they been utilized together or to evaluate gendered-GST. Additionally, while subjective strains might be considered a potential improvement over objective strains, there is evidence that the use of subjective strains does not improve the predictive abilities of GST (Botchkovar et al. 2009).

Violent Victimization – Five items from the in-home survey were chosen to assess the level of violent victimization experienced by respondents. Four of these items covered victimization experienced at the hands of others while the final item assesses witnessing victimization. While GST outlines the importance of experiencing victimization, it is believed that witnessing victimization of others, especially significant others, creates distress and a desire for revenge (Agnew 2002). These strain items include being threatened with a knife or gun, being shot, being cut or stabbed, getting assaulted, and witnessing a stabbing or shooting. Each item was coded Never (0), Once (1), More than once (2). These five items were combined in a summative index with possible values ranging from 0 to 10, following previous research (Schreck, Fisher, and Miller 2004; Daigle et al. 2007). Higher values on the index indicate greater exposure to violent victimization within the past 12 months (α=.6632).

Suicidal Behavior by Friends and Family – Family or friend suicide was originally assessed in Add Health by two separate measures. The first measure asked whether a family member had "tried to kill themselves in the past 12 months," and the second asked whether any friends had done the same. These two questions were followed by questions regarding the outcome of their family or friends' attempt to kill themselves. While the impact of a suicide attempt resulting in death would be objectively greater in magnitude, very few individuals reported a family member or friend's suicide attempt

resulting in death (friends approximately 3%; family approximately 1%). These follow-up questions were therefore excluded from analysis, and the suicidal behavior measure was constructed as a dichotomous indicator of friend and family suicide attempt. While knowing multiple people who attempted suicide potentially creates additional strain on an individual and their social network, very few people (approximately 2%) reported suicide attempts of both family and friends in the past year. Therefore, values of this measure were coded to either knowing no one who attempted suicide (0) or knowing family or friends who attempted suicide (1) in the past 12 months, which is consistent with previous literature (Kaufman 2009; Nanayakkara et al. 2013). "Not Applicable" responses were recoded to No, while other non-responses were recoded as system missing.

Educational Strain – The ability to assess strain caused by the failure to achieve positively valued goals in Add Health is limited. There appear to have been no questions available that evaluate aspiration-achievement strain or strain resulting from an imbalance in just/fair outcomes. The only questions included appear to coincide with classic interpretations of strain through aspiration-expectation gaps. Such an assessment of strain is less desirable as similar measures were widely criticized in early reviews of classic strain and rarely impacted criminal outcomes (Burton et al. 1994). As aspirations contain some element of fantasy, failure to achieve a goal, or simply the *expectation* of failure, is more easily dismissed and less likely to lead to strain (Agnew 1992). Regardless, in order to consider a variety of strains from each strain category, the strain from aspirations-expectations was included in this analysis.

Two questions regarding college education were used to measure the gap between aspirations and expectations. One question asked the respondent to rate their desire to attend college (aspirations) while the other asked how likely it was that they would go to college (expectations). Responses were rated on a scale from one to five where one is low desire or likelihood and five is a high desire or likelihood. In order to assess this strain, the expectation score was subtracted from the aspiration score. Therefore, a positive score on the new measure indicated that there was greater aspiration of attending college than the actual likelihood of attending college. Thus, in this case, it was presumed that the respondent was exposed to educational strain. A score of zero indicates no gap between aspirations and expectations and, thus, less or no educational strain. Higher scores indicate greater gaps between aspirations and expectations and, therefore, greater levels of educational strain.

In a small percentage of cases (approximately 8%) the value of the aspiration-expectation gap resulted in negative values. Such scores indicate a situation where the likelihood of attending college was actually higher than the desire to attend. While this situation could be considered straining for some, it is considered to be a strain lower in magnitude than the counterpart desire to attend with little likelihood of actually attending. Such negative values were recoded to zero in order to be equivalent to experiencing less or no educational strain.

Childhood Sexual Abuse – Indicators of sexual assault within the Add Health data are limited and often criticized (Kaufman 2009). Waves I and II indicators of sexual assault and rape were limited to a two-stage filter question. The filter question asked both males and females “Have you ever had sexual intercourse? When we say sexual

intercourse, we mean when a male inserts his penis into a female's vagina." As part of the follow-up question to those who answered yes to having sexual intercourse, females were asked "Were you ever physically forced to have sexual intercourse against your will?" Males were asked whether they had ever *perpetuated* such an act which prevents any meaningful comparison (see Daigle et al. 2007 for such an analysis). Participants who did not report having prior vaginal intercourse were not asked whether they had been physically forced to have sexual intercourse. This measure assumes a limited view of sexual assault restricted to successfully completed, physically forced, male perpetrated, and vaginal sexual intercourse. It fails to take into consideration the broad range of sexual victimization. Further, as it was asked only of females, such a question is unable to address cross gender differences in sexual victimization or whether this is a prominent female pathway for crime (Daly 1998).

Starting with Wave III, the Add Health data included a more comprehensive measure of sexual victimization which encompassed both male and female victims. This measure is a retrospective item which asks, "By the time you started 6th grade, how often had one of your parents or other-adult caregivers touched you in a sexual way, forced you to touch him or her in a sexual way, or forced you to have sexual relations?" While this question is limited to only parents and other-adult caregivers, the question is not limited to physical force nor is it limited to a solitary form of completed sexual victimization. As such, the question is an improvement over the prior questions regarding sexual victimization. However, as a retrospective measure of trauma, there are concerns over biases and errors in reporting such as reinterpretation or redefinition of the event,

suppression of the memory, or even reporting of a trauma for sympathy (Widom and Ames 1994).

While bias and reporting errors may be a concern, the validity of retrospective measures of abuse has been established, and studies typically find underreporting of abuse instead of over-reporting (Widom and Morris 1997; Hardt and Rutter 2004). In a review of retrospective reports of adverse childhood events, Hardt and Rutter (2004) document a near universal underreporting of serious abuse with nearly one-third of individuals who have a previously documented childhood trauma not reporting the abuse in follow-up surveys and interviews. Hardt and Rutter (2004) conclude that measures of serious trauma are "sufficiently" valid measures, while more subtle or interpretable measures of abuse are more problematic and subject to errors in recall and reporting. As such, the Wave III measure of childhood sexual abuse is considered a conservative, but valid, measure of abuse experience. Further, the Wave III question, with a pre-sixth grade reference, documents a strain that occurs prior to Wave I data collection.

The sexual abuse measure was coded as a count measure censored at "More than 10 times" instances of sexual abuse. Since the majority of youth did not experience sexual abuse (approximately 95%), I recoded the variable as categorical with No Abuse Reported (0) and One or more reported occurrences (1) (Currie and Tekin 2006; Musliner and Singer 2014). A variety of coding schemes were initially examined due to the concern that a dichotomous measure would suppress gender differences considering women, on average, experience both greater incidence and prevalence of sexual abuse than men. After initial examination, these coding schema were dismissed due to data concerns with low or no cell counts when examining sexual abuse by gender.

Negative Emotions

According to GST, negative emotions act as mediators of strain's influence on crime and delinquency. Within Add Health, there were a variety of negative emotions assessed across different waves. During Wave I bad temper, depression, and being upset are the measures of negative emotions available. These measures are considered to be trait based, and not state or situational, measures of negative emotions meaning they are measures of stable temperament rather than a response to strain (Mazerolle et al. 2003). While these measures are trait-based there is evidence that those who are higher in trait-based emotions are more likely to experience situational negative emotions in response to strain (Mazerolle et al. 2003). Additionally, fear is assessed during Wave I as a single item but is a component of the well-established Center for Epidemiologic Studies Depression Scale (CES-D). Other negative emotions are evaluated during later waves of Add Health including the perception of one's self as emotional, which is only available from Wave II onward, and self-reported anger, which is only available during Wave IV. The Wave IV measure of anger is problematic as the majority of the sample is well into adulthood, past the prime offending years.

Depression – The primary measure of depression during Wave I is a modified version of the 20 item CES-D scale (Radloff 1977). The CES-D scale is a popular and freely available screening tool for depression developed by the Center for Epidemiologic Studies (CESD-R.com 2013). The CES-D asks respondents to indicate how often over the previous week they had felt or behaved in a certain manner. These include items such as: not being able to eat, feeling lonely, or being bothered by things that do not usually bother them.

Since its development, the CES-D has been demonstrated to be a highly reliable measure of depression (American Psychological Association 2015). The version of the CES-D contained within Wave I of Add Health is a 19 item version with several modifications. Two items from the CES-D instrument were omitted from Add Health including "I had crying spells" and "My sleep was restless." The CES-D in the Add Health also modified the wording on two of the questions from the original "I could not get going" and "I felt that everything I did was an effort." These were replaced with "It was hard to get started doing things" and "You felt that you were too tired to do things." Perreira et al. (2005) indicate these changes were related to changes in the development of the CES-D instrument for children. Additionally, women were proportionally more likely to indicate they had experienced "crying spells" than men (Cole et al. 2000; Stommel et al. 1993). "I felt that life was not worth living" was added to this version of CES-D to address depression in adolescents (Perreira et al. 2005). The 19-item measure has been shown to be highly reliable and consistent with measures from other studies which use the full CES-D (Perreira et al. 2005).

Responses to the 19-item Add Health index included (0) Never or Rarely, (1) Sometimes, (2) A lot of the time, and (3) Most of the time or all of the time. Four of the questions (see Appendix B), all of which are included in the standard CES-D, were worded in a positive manner, i.e "You were happy." Following past construction of the CES-D these four scores were reverse coded so that fewer reports were equated with higher scores (Schroevers et al. 2000). In the final depression measure higher scores are indicative of greater depressive symptoms. Typically, within the 20 item CES-D, scores of 16 or higher are considered depressed and should be clinically evaluated for major

depressive disorder (Radloff 1977). Constructing a depression dichotomy at the clinical cutoff value could be a valuable assessment of how strain affects clinical depression or depression influences crime. However, instead of a dichotomous variable addressing clinical depression, an additive index is used in this research as it demonstrates a range of a negative emotion as is commonly used in strain research (α=.8625). (Hagan and Foster 2003; Kaufman 2009; Clikinbeard et al. 2010; Savage 2011).

Anger – Anger is captured by the Wave I Parent Survey question that indicates the child has a bad temper. This measure is the only assessment of angry negative emotions available until Wave IV when the survey includes an individually reported anger measure. Unfortunately, bad temper is a trait-based measure of anger rather than a state-based measure of anger, meaning it is a measure of stable temperament rather than a response to strain (Mazerolle et al. 2003). While bad temper is a trait-based measure, there is evidence that those who are higher in trait-based anger, like bad temper, are more likely to experience situational, or state-based, anger in response to strain (Mazerolle et al. 2003). Such a trait-based measure has been common in research and has been demonstrated to mediate the relationship between strain and deviance (Mazerolle et al. 2003). Further, the use of bad temper as a measure for angry emotions is consistent with prior research evaluating strain in the Add Health survey (Kaufman 2009; Savage 2011; Eitle et al. 2013).The question from the Parental Survey asked parents, "Does {Name} have a bad temper?" and was coded No (0) and Yes (1).

Upset by Problems – An additional assessment of state negative emotions available during Wave I is respondents' self-reports that difficult problems make them upset. As of yet, this particular question has not been used as a measure of negative

emotions in strain research. It has been used in several other dissertations as a measure of self-esteem (Savage 2011) or emotional coping (Zhang 2013) as it has a reaction-based element to strain. It is also commonly used as a measure of self-control in Add Health research by Beaver and colleagues (Beaver, DeLisi, Mears, and Stewart 2009; Mears, Cochran, and Beaver 2013). While these interpretations make sense within their particular theories, or uses, such an item equally makes sense as a negative emotion. Being upset typically denotes negative emotions associated with unhappiness, worry, or agitation. Therefore, the question's wording provides insight into another trait-based negative emotion. While the wording indicates "upset" as a trait-based emotion, it also gives some insight into an individual's state-based reactions to strain by connecting it to "difficult problems." For these reasons, being upset was included as a measure of negative emotions. The specific question wording asks whether or not you agree or disagree with the statement, "Difficult problems make you very upset." Responses were allowed along a continuum of Strongly Agree (1) to Strongly Disagree (5). In order to maintain consistency with the other negative emotions, this variable was reverse coded so higher scores indicated a greater presence of negative emotions.

Moderators

Within GST there are a number of factors that condition the impact of strain and negative emotions on behavioral outcomes, thus reducing or increasing delinquent outcomes. Included in this analysis are self-esteem and cognitive coping styles which are expected in GST to be primary moderators of negative emotion's relationship to crime. Thus, high self-esteem or behavioral coping interact with negative emotions to reduce the influence of strain on crime. A number of other factors, such as delinquent peers, peer

and family support, and self-control, are identified as additional constraints in GST. However, as these are aspects of other popular criminological theories, those components that are available in Add Health are treated as theoretical controls which are discussed later.

Self-esteem – The self-esteem measure was created from a six-item version of the Rosenberg Self-Esteem Scale assessed during Wave I (Rosenberg 1965; Waren, Harvey, and Henderson 2010). The Rosenberg Self-Esteem Scale is intended to measure feelings of overall self-worth and acceptance compared to other people. The scale has been shown to have a good deal of reliability in a variety of samples including youth (Warren et al. 2010; Brooks and Noy 2008). The six-items are found in Appendix B and include questions such as respondent "has a lot of good qualities," and, they like themselves "the way they are*."* Responses were on a five-point Likert-type scale from Strongly Agree (1) to Strongly Disagree (5). Following prior research involving the Rosenberg scale (Bachman et al. 2011; Warren et al. 2010; Savage 2011; Eitle et al. 2013), self-esteem is computed as a mean based on the six items. Scores were reverse coded ranged from 1.0 to 5.0, with higher scores representing higher self-esteem (α=.843).

Coping Style – In regards to coping style there are a number of available measures that correspond with Agnew's description of coping skills. Specifically, seven questions relate to a youth's responses to problems and problem solving behavior along with questions about decision making. One of these measures is utilized in this research as a measure of negative emotion (i.e. upset by problems). Unfortunately, these seven have been used and re-used as measures of multiple theoretical constructs found not only in general strain but other theories. These exact measures have alternatively been used in

GST tests as measures of self-efficacy (Savage 2011), impulsivity/constraint/self-control (Eitle et al. 2013; Savage 2011; Daigle et al. 2007), problem- and emotion-focused coping (Zhang 2013), cognitive coping (Meadows 2007), and behavioral coping (Broidy 2001) within both Add Health and other samples.

In order to avoid the theoretical and methodological overlap of these measures I have avoided using certain measures as representations of coping styles (e.g. going with a "gut feeling") and created two different measures of coping styles. Other questions, which have been used to measure self-control (e.g., Daigle et al. 2007), are used here as a measure of cognitive coping (Agnew 1992; 2006). From Wave I, four questions address whether, when faced with problems or decisions, the youth attempts to use problem solving behavior instead of acting on impulse. These questions are highly consistent with the concept of Thoughtfully Reflective Decision Making (TRDM), the tendency to address a problem through the collection of information and the careful and deliberate evaluation of the possible solutions of a problem before acting, coupled with the post-choice reflection upon the processes and outcomes of the decision (Paternoster and Pogarsky 2009). As TRDM takes the form of an overall coping style (Agnew 2005) it has been included as a measure of coping style. Responses were originally scored on a five-point Likert-type scale from Strongly Agree (1) to Strongly Disagree (5). These four variables were reverse coded, and a problem-solving coping index was created through an additive average index, with higher scores indicating greater utilization of TRDM (α=.7463).

While TRDM provides one form of cognitive coping, a separate question regarding problem avoidance addresses an avoidance aspect of coping. One method of

coping is trying to minimize the adversity of negative outcomes (strain) by ignoring or reinterpreting adverse situations (Agnew 1992; 2005). As such, the question of whether respondents "…go out of your way to avoid having to deal with problems in your life" is treated as a form of cognitive coping. Coding of this single item follows that of TRDM with higher scores indicating a greater usage of this form of coping.

Social Support

Consistent with prior work on strain and social support (Eitle and Turner 2003; Piquero and Sealock 2004; Jennings et al. 2009; Kaufman 2009; Harker 2001), social support was constructed as a mean index. This index included seven questions asking about the perceived level that significant others cared about the responding youth (Kaufman 2009). Questions from Wave I included items about how much their friends care about them and perceptions of whether their family pays attention to them. Response options ranged from 1 (not at all) to 5 (very much), and higher scores represent higher levels of perceived support (α=.7869). Social support, and the questions used to represent it, is a construct similar to the concept of attachment in social control theories (Hirschi 1969) and to prior measures of both support and attachment in Add Health (Kaufman 2009; Daigle et al. 2007). Due to the potentially gendered availability of social support and examining social support as a moderating influence on the impact of negative emotions, this analysis treats social support as within the domain of general strain theory and less so within social control. Other measures of social control are used as theoretical controls which are discussed later.

Controls

Several theoretical and demographic variables were included in the analysis as control variables. Socio-demographic controls include age at the time of survey, race of respondent, Hispanic/Latino origin, parental SES, prior crime, and country of birth. Theoretical controls include measures of social learning theory and social control.

Age - Age can be calculated through multiple means from the Add Health data. A straightforward "How old are you?" question was asked in the In-School questionnaire, but nearly 27% of the participants did not mark an answer to this question. In order to avoid dropping over 1,000 cases, I calculated age by following Add Health instructions on calculating age at Wave I for the In-Home Questionnaire (Add Health, *N.d.*). This approach utilizes two age variables, birth month (H1GI1M) and year (H1GI1Y), and the survey completion day (IDAY), month (IMONTH), and year (IYEAR) to calculate age. Stata syntax for this calculation can be found in the Stata 12 .do file in Appendix C. Utilizing this method, there were a significantly lower number of non-responses, with no missing age data after the removal of other missing data.

Race and Ethnic Origin – Race of respondent is generated from a series of separate questions asking respondents to mark their racial background. Researchers asked whether a person considered themselves to be white, African American, American Indian, or Asian/Pacific Islander. Those who marked two or more races through the process were asked a follow-up question about the racial category that best describes their racial background. Using these two variables, plus a variable of interviewer identification for respondent race for missing values, I was able to construct a race measure which included white, African American, American Indian, Asian, Other Race, and two or more races. The primary advantage of this measure is not in any expansion of

racial categories but the reduction of missing values from 341 to 6 system missing. The final variable was recoded to white (0), African American (1), Asian (2), and "Other" where "2 or more races" was combined with "Other Race" (3)[14]. . The syntax which allowed for this process is included in Appendix C.

Hispanic or Latino ethnic origin was addressed by the straightforward question "Are you of Hispanic or Latino background?" Follow-up questions addressed the specific origin country. Responses were coded No (0) and Yes (1).

Parental Socio-Economic Status – Socio-economic status has been evaluated a variety of ways within Add Health. Some measures have included parent reported income (Bellair, Roscigno, and McNulty 2003; Stogner and Gibson 2010), parent reported receipt of public assistance (Daigle et al. 2007), parental education (Kaufman 2009; Jang and Rhodes 2012), a combination of youth/parent reported parental education (Savage 2011), or youth report of parent receipt of public assistance (Kaufman 2009). Most of these measures, especially those reliant on parental reporting, suffer large numbers of missing values. For example, between refusing to answer and parents not responding to the survey, there is missing data for approximately 24% of the parental reported income question. Parental reported education faces similar problems with nearly 14% not reporting their own level of education or that of their partner. In order to overcome these high levels of missing data about SES, this study utilizes a measure of family SES composed of youth responses on whether their residential parent received public assistance. Two questions about receiving public assistance, resident mother or resident father, were combined in a manner which indicates whether or not a youth's resident

[14] Race and other categorical variables were treated in regressions with Stata 12's "i." prefix, which enters categorical variables as indicator (dummy) variables as a series without the additional coding.

parent received assistance. The coding necessary to create the SES variable can be found in Appendix C. The final coding of the variable was “No Public Assistance” (0) or “Receives Public Assistance” (1). While issues regarding youth knowledge of whether their parent received public assistance are probable, the advantage is in that missing data is reduced to about 1%.

Prior Crime and Delinquency – Each Wave I crime and delinquency measure follows the coding described above for the dependent variable and yields similar measures of reliability.

Theoretical Controls – Additional theoretical controls included important aspects of other criminological theories including aspects of social control and social learning/differential association. Social control theory suggests that crime is prevented or reduced by the strong pro-social bonds a youth has to conventional society (Lilly, Cullen, and Ball 2014). Crime occurs when these social bonds are weakened or broken. The principal social bonds of control theory include attachment to others, commitment (stake in conformity), involvement (participation in conventional society), and belief in conventional values and norms. As noted previously, measures of the caring relationships with friends and family (attachment) are treated in this analysis as a moderator of negative emotions and theoretically distinct from social control theory. As an alternative, a measure of school attachment was created from three questions including whether the respondent felt: close to people at school, a part of the school, and happy at school (Bellair et al. 2003; Daigle et al. 2007). These three questions are treated as a mean index with responses ranging from strongly disagree (1) to strongly agree (5). Higher average scores represent greater levels of school attachment (α=.781).

Social learning was measured by replicating previous work with GST and whether adolescents' peers were involved in delinquency (Kaufman 2009; Savage 2011). In this case social learning is an additive measure of the number of a youth's three best friends that: drink alcohol or smoke marijuana more than once a month or smoke at least one cigarette more than once a day. While this measure is capable of addressing peer substance use, it does neglect more serious forms of crime and delinquency. However, previous research has indicated a link between peer substance use and more serious forms of crime and delinquency (e.g. Fergusson, Swain-Campbell, and Horwood 2002; Monahan et al. 2013). Potential responses ranged from 0, indicating that the youth had no friends that participated in any of these behaviors, to 9, which indicates all of the youth's best friends participate in all of these behaviors.

METHOD

In order to test the outlined hypotheses, analyses were conducted utilizing a combination of linear, logistic, and negative binomial regression due to the differing natures of the outcome variables. All analyses were completed using the appropriate sampling weights in order to adjust for the unequal probability of selection into the sample and avoid incorrect estimates and variances (see Chantala and Tabor 2010)[15]. The analyses proceeded in stages examining the different relationships within GST (i.e. Strain → Negative Emotions, Strain → Crime, Strain → Negative Emotions → Crime) and then incorporated the hypothesized moderating effects (e.g. coping styles). Each component of general strain theory is analyzed utilizing separate models for males and females in order

[15] All analyses were completed in Stata 12 in order to properly compensate for the sampling design (Chantala and Tabor 2010).

to detect any gender differences in GST by implementing the statistical test for differences recommended by Paternoster et al. (1998).

While the Paternoster et al. (1998) test offers an accurate comparison of coefficients across groups for OLS models, some research has demonstrated that the use of such a comparison across non-linear models, although commonly reported (e.g. Kaufman 2009; Jennings et al. 2009), may not be appropriate due to unobserved variation (Hoetker 2003; 2007). Use of this test with such regressions can provide very conservative tests of differences and mask differences when they are present. Therefore, this dissertation employs a conservative statistical test for group differences.

Most of the dependent variables in this dissertation violate the assumptions of Ordinary Least Squares regression (OLS). OLS assumes that the dependent variables are normally distributed, assumes a linear relationship between the dependent variable and independent variables, and assumes that the error terms are normally distributed (homoscedasticity). Several variables included in this study are either highly skewed and contain a high number of zero values, or are dichotomous. Logistic regression and negative binomial regression do not make the assumptions of OLS such as homoscedasticity or linearity. As nonlinear regression models, logistic regression and negative binomial regression utilize the Maximum Likelihood Estimation (MLE). The MLE method creates a best fitting function by selecting values that maximize the log-likelihood function, in other words it maximizes the probability that the observed values of the dependent variable are due to the values of the independent variables (Burns and Burns 2008). Two forms of logistic regression are utilized in this analysis, binary logistic and ordinal logistic. Binary logistic regression deals with dichotomous variables and

estimates the probability of the dependent variable being equal to one. Ordinal (ordered) logistic regression is an extension of logistic regression which allows for more than two response categories and is typically used with survey questions using scales.

Both violent crime and non-violent property crime are count data, have a large number of zero responses, and are skewed thus violating some assumptions of OLS and logistic regression. Poisson and negative binomial regression models both allow for the analysis of count data with large numbers of zero values. However, these two variables are over-dispersed violating the assumption of a Poisson model that the conditional mean and variances are equal. Therefore negative binomial regression was selected for use with non-violent crime and violent crime as outcomes as it does not assume equal mean and variance.

Models

To examine Hypotheses 6 and 9, which claim men and women experienced different strains, negative emotions, or used different coping styles, it was necessary to run a series of descriptive statistics along with regression analyses. Normally, a t-test would be utilized to assess these differences but between the necessary commands to compensate for survey design the command for t-tests was no longer possible in Stata 12. However, by utilizing simple regressions along with the necessary survey commands a t-value can be obtained for the regression coefficient[16]. These regressions were run on all independent and dependent variables in order to assess gender differences with a

[16] For example, if under the current setup we wanted to know if there is a difference in anger between men and women we could use the stata command *mi estimate: svy, subpop(subpopvariable): logit anger i.female* which produces the necessary t- and P-values.

particular eye for gender differences that could, in gendered-GST, produce gender differences in crime (i.e., strain, negative emotions, and the moderators of strain).

Figure 4.1 outlines the regressions that were utilized to assess the gendered and gender neutral hypotheses (Hypotheses 2 and 7) of whether strain impacted negative emotions and gender differences in the reactions to strain. Due to the differing nature of the negative emotions under analysis, various forms of regression were performed for each negative emotion. Binary logistic regression was performed for bad temper (Anger) whereas linear regression was used for depression (CES-D) and multinomial logistic regression for being upset by problems (Upset). For each negative emotion, separate regression analyses were conducted for males and females, with serious strains and theoretical controls entered using block entry. Paternoster et al.'s (1998) z-test was then used to determine any significant gender differences in the coefficients.

Figure 4.1 Block Entry of Regressions Estimated Separately by Gender for Negative Emotions (Wave I)

Model 1	Model 2	Model 3	Model 4	Model 5
Demographic Controls	Demographic Controls	Demographic Controls	Demographic Controls	Demographic Controls
	Strains	Strains	Strains	Strains
		School Attachment		School Attachment
			Peer Delinquency	Peer Delinquency

A similar set of procedures were utilized for the arguments of the Strain → Crime relationship and the incorporation of negative emotions (Strain → Negative Emotions → Crime) and are outlined in Figure 4.2. In these analyses, non-violent and violent crime

were analyzed as dependent variables, by gender, in three negative binomial regressions. Marijuana use and running away were analyzed through logistic regression. Each analysis was conducted in four separate blocks. The first block assesses Hypothesis 1, whether strain influences crime directly, and includes demographic controls, prior crime, and strain variables. The second block, which entered negative emotions into the regressions, allows for the examination of Hypotheses 3, 4, 8, which address whether negative emotions mediate the relationship between strain and crime. The third block begins to examine Hypothesis 5, which claims a moderating effect of coping and other constraints, by including these constraints and other theoretical controls. An additional set of regressions, which added interaction terms of the various moderators with strain and negative emotion, fully examined the hypothesized moderating effects of these constraints as outlined in Hypothesis 5. The combination of these various analyses allows for conclusions to be made on whether gendered-GST produces the gender gap in crime and whether gendered-GST provides an adequate explanation of female and male crime.

Chapter Conclusion

The objective of this dissertation is two-fold: to determine whether general strain theory applies to men and women equally well (generalizability) along with whether the theory can explain the gender differences in offending (gender gap). The model and analyses described above outline how this dissertation will analyze these aspects of strain. The variables necessary for these analyses are listed in Appendix B, and the necessary initial syntax is found in Appendix C. The following chapter, Chapter 5 – Results, presents the results of these analyses from the basic summary statistics of individual measures to the appropriate regression results.

Figure 4.2^ Block Entry of Logistic and Negative Binomial Regression Models for Wave II Crime and Delinquent Outcomes Separately by Gender

Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Demographic Controls	Demographic Controls	Demographic Controls	Demographic Controls	Demographic Controls	Demographic Controls	Demographic Controls	Demographic Controls
	Strain	Strain	Strain	Strain	Strain	Strain	Strain
		Negative Emotions	Negative Emotions	Negative Emotions	Negative Emotions	Negative Emotions	Negative Emotions
			Coping Mechanisms	Coping Mechanisms	Coping Mechanisms	Coping Mechanisms	Coping Mechanisms
				Ran Away	Ran Away	Ran Away	Ran Away
					Peer Delinquency	---	Peer Delinquency
						School Attachment	School Attachment

^ All Independent Variables Measured at Wave I

Chapter 5 - Results

Chapter Introduction

The following chapter provides the results of the analyses concerning the effects of strain and delinquency. The first section provides the details of the descriptive analyses for all of the variables considered in this study by gender. The second section then describes the multivariate results regarding negative emotions. The third section details the bulk of the statistical analyses regarding gendered-GST. The next section outlines the multivariate results for the moderation effects of the various coping mechanisms and theoretical controls. The final section summarizes the support for the hypotheses. Each section denotes gender differences when present.

Descriptive Results

Table 5.1 provides the mean and standard error for each variable included in this study. The table also provides an indication of whether the mean of each variable is significantly different by gender. In lieu of t-tests a series of simple regressions were completed comparing the two genders with respect to the key variables. Such regressions were necessary since Stata 12 is unable to calculate t-tests while using the SVY command which is necessary to address the complex sampling design of Add Health. Bivariate correlations of the included study variables can be found in Appendix D. Implications for the various hypotheses are indicated in Figure 5.1.

Table 5.1: Descriptive Statistics^

		Males (N=1,352)		*Females (N=1,657)*	
		Mean	SE	Mean	SE
Strain	Violent Victimization	**.571*** **	0.042	0.247	0.026
	Educational Strain	**.428*** **	0.027	0.325	0.019
	Childhood Sexual Abuse	0.036	0.006	0.042	0.005
	Family or Friends Attempted Suicide	0.156	0.011	**0.272*** **	0.016
Negative Emotions	Depression (CES-D)	9.484	0.199	**11.122*** **	0.253
	Bad Temper	0.300	0.015	0.279	0.015
	Upset by Problems	3.395	0.036	**3.678*** **	0.031
Moderators	Self-Esteem	4.221	0.017	**4.050*** **	0.021
	School Attachment	3.817	0.028	3.785	0.040
	Delinquent Peers	2.250	0.122	2.203	0.102
	Coping Styles				
	Behavioral Coping (Problem Avoidance)	**3.220*** **	0.039	3.051	0.032
	Problem Solving Coping	**3.812***	0.022	3.746	0.023
Crime/Delinquency	Social Support	4.033	0.020	4.081	0.020
	Violent Crime T1	**1.312*** **	0.059	0.659	0.052
	Violent Crime T2	**0.785*** **	0.051	0.395	0.028
	Property Crime T1	**1.376*** **	0.085	0.749	0.054
	Property Crime T2	**1.098*** **	0.073	0.650	0.047
	Marijuana Use T1	0.111	0.012	0.117	0.012
	Marijuana Use T2	0.145	0.013	0.141	0.012
	Run Away T1	0.055	0.008	0.072	0.009
	Run Away T2	0.039	0.005	**0.064** **	0.007
Demographics	Age	**14.980*** **	0.110	14.813	0.110
	Race				
	White	0.748	0.028	0.739	0.027
	Black	0.129	0.022	0.133	0.021
	Asian	0.024	0.008	0.018	0.006
	Other	0.100	0.014	0.110	0.014
	Hispanic Ethnicity	0.110	0.018	0.106	0.018
	Public Assistance	0.092	0.013	0.083	0.010

^all analyses include weighted means and standard errors
*p<.05
**p<.01
***p<.001

Hypotheses 6 and 9 directly address gender differences in strain experiences and self-esteem. In regards to different strains, males experienced a higher level of violent victimization than females, which are consistent with Hypothesis 6. Further, females reported a greater level of network strains in the form of friends or family attempting

suicide consistent with Hypothesis 6. Somewhat surprising are results regarding educational strain and having experienced childhood sexual abuse. While no explicit hypothesis surrounded the amount of educational strain adolescents may face, it was expected that educational strain would not differ by gender. Instead, males reported a higher level of educational strain than females. Also, while a variety of studies indicate that there are gender differences in the experience of childhood sexual abuse (Gorey and Leslie 1997; Belknap and Holsinger 2006; Jennings et al. 2009; Sedlak et al. 2010; Huang et al. 2012), there were no statistically significant differences in childhood sexual abuse by gender. Only a small percentage of the sample reported experiencing childhood sexual abuse (males 3.6%, females 4.2%), an estimate lower than other national figures (e.g. Gorey and Leslie 1997).

While additional gender differences regarding negative emotions, coping styles, or criminal involvement were not specifically hypothesized, the gender differences evident are consistent with previous research regarding these issues. As anticipated, males and females were not significantly different in having a bad temper as reported by their parents, the proxy measure for anger. Also consistent with expectations, females reported a higher average level of depressive symptomology than males. Females were also more likely than males to report that difficult problems made them upset.

With regard to various expected moderators of strain there were few gender differences other than self-esteem. There were no significant gender differences in levels of social support, school attachment, or number of delinquent peers. There was a significant gender difference in the behavioral coping mechanism. Males, on average, reported higher levels of TRDM and problem avoidance coping than females. With

reference to potential gender differences in self-esteem (Hypothesis 9), the average self-esteem score for females was 4.050, while the average male self-esteem score for males was 4.221, a statistically significant difference. Since the self-esteem scale was coded so higher numbers indicated positive self-esteem, these results indicated females reported on average less self-esteem. This finding was consistent with the predictions of Hypothesis 9.

While females are expected to turn to more self-oriented forms of crime and delinquency, it is not expected that females would necessarily participate in these actions more than males. Males, as documented in the discussion on the gender gap (e.g. Heimer 2000), are more involved in serious crime and delinquency than females. That pattern is largely replicated in these analyses. Males were statistically more involved in violent crime and non-violent crime at both Wave I and Wave II compared to females. However, while violent and non-violent property crime follow these well documented patterns, there were no significant differences in marijuana use at either Wave I or Wave II. Finally, there was a gender difference in running away at Wave II, consistent with the expectation of the pathways approach and the literature of the gender gap. Females were more likely than males to have run away from home in the past year[17].

A final set of analyses were conducted on the demographic controls to test for gender differences. There were few statistically significant differences between males and females in the demographics of the sample. The sample does not differ significantly by gender in terms of race and ethnicity, nor does it differ in regards to the proxy measure

[17] Analyses of the change scores of crime, using the naïve approach, indicated that the change in crime between Wave I and Wave II for males and females was small. These scores ranged for a maximum mean reduction of .5 for violent crime to a small increase (~.03) for smoking marijuana.

of SES, public assistance. A statistically significant difference was apparent in regards to age, whereas males are a few months older.

While statistical gender differences appeared with some of the independent variables, such as violent victimization, self-esteem, being upset by problems, and depression, the difference between these mean levels was typically a very small difference such as the difference in the mean of network suicide (Males = .156; Females = .272.). The gender difference in mean levels of crime and delinquency tended to be larger differences. Despite the occasional significant differences in the independent variables it is likely that these differences are not responsible for a great deal of the gender gap when looking at disparate levels of offending between males and females.

Summary

Figure 5.1: Hypothesis Summary for Differences in Strain and Coping Skills		
Hypothesis	Supported	Not Supported
6	**X (Male) – Criminal Victimization, (Female) – Network Suicide**	**Sexual Abuse**
9	**X (Female) – Self-Esteem, X (Male) – Avoidance and Problem-Solving Coping**	**Social Support**

Hypothesis 6 postulates that men and women differ in the types of strains they experienced. For the most part, the descriptive and bivariate results support this hypothesis. Men were more likely to report criminal victimization and educational strain than women, whereas women were more likely to report having a friend or family member who had attempted suicide. Contradictory to the hypothesis that men and women experience different levels of abuse, there was no gender difference in childhood sexual abuse.

For the most part, levels of coping skills were gendered in these analyses supporting Hypothesis 9. Women did report lower self-esteem and men reported being more likely to use avoidance and problem-solving coping skills. There were no gender differences in the levels of social support, school attachment, or delinquent peers.

Multivariate Results – Negative Emotions

Tables 5.2, 5.3, and 5.4 show the results from the regression models estimated separately by gender for the negative emotions: anger, depression, and being upset by problems. For each negative emotion regression models were estimated in block format using the following order. The first model included only socio-demographic controls of age, race, ethnicity, parent receiving public assistance, and prior delinquency. Model 2 then added strain measures of violent victimization, network suicide, educational strain, and childhood sexual abuse. School attachment was added in Model 3, whereas Model 4 removed school attachment and added peer delinquency. Model 5 included both school attachment and peer delinquency. For each regression model, either the Odds Ratios or coefficients are presented depending on the type of regression utilized. Odds rations are presented for bad temper and being upset by problems while coefficients are presented for depression. Standard errors are presented in a separate column. As summary of the implications of each regression for the appropriate hypotheses are found in Figure 5.2.

Bad Temper

The results of the logistic regression analyses for bad temper are presented in Table 5.2. Model 1 – Controls – included the socio-demographic controls of age, race, Hispanic ethnicity, and parental public assistance. For the female sample, only public assistance was significantly associated with parental reports of bad temper. The analysis indicated parents who received public assistance had a statistically greater odds of a

female child having a bad temper (OR=1.813). Specifically, female respondents whose parents received public assistance were 1.813 times as likely to have a bad temper.

For the male sample, the results were similar, but with an additional significant coefficient of "Other" race. Compared to white male respondents, males of the "Other" racial category had significantly higher odds of having a bad temper. "Other" race respondents were 1.763 times as likely to have a bad temper compared to whites. Also, parents receiving public assistance resulted in a statistically significant increase in the odds of having a bad temper. Males whose parents received public assistance were 1.889 times as likely to have a bad temper. Within Model 1 there were no significant gender differences in any of the coefficients.

Model 2 – Serious Strains – included the full variety of strains in the analyses. For the female sample, there were no changes in the results compared to Model 1. That is no strains were significant predictors of females having a bad temper, counter to Hypothesis 2. Parental public assistance remained the only significant predictor of having a bad temper (OR=1.682). For males, educational strain was predictive of having a bad temper, confirming, in part, Hypothesis 2. Educational strain resulted in a significant increase in the odds (OR=1.384) of having a bad temper. After introducing the strain measures the odds (OR=1.846) of public assistance and "Other" race (OR=1.630) decreased, but remained statistically significant. There were no significant gender differences in this model as determined by the Paternoster et al. (1998) test of differences in coefficients.

Table 5.2: Logistic Estimates of Bad Temper Regressed on Control and Strains

	Model 1: Controls				Model 2: Serious Strain			
	Female Sample		Male Sample		Female Sample		Male Sample	
Independent Variables	OR	Std. Err.	OR	Std. Err.	OR	Std. Err.	OR	Std. Err.
Controls								
Age	1.037	0.040	0.991	0.042	1.037	0.040	0.978	0.041
Race (White Reference Category)								
African American	1.432	0.373	0.949	0.177	1.449	0.363	0.866	0.164
Asian	1.704	0.637	1.093	0.401	1.715	0.624	1.139	0.441
Other	1.416	0.309	**1.763***	0.429	1.387	0.309	**1.630***	0.391
Hispanic	1.377	0.349	0.870	0.195	1.365	0.350	0.871	0.184
Public Assistance	**1.813*****	0.258	**1.889****	0.441	**1.682****	0.251	**1.846***	0.446
Violent Victimization					1.091	0.095	1.123	0.069
Network Suicide					1.300	0.196	1.180	0.218
Educational Strain					1.080	0.123	**1.384****	0.136
Childhood Sex Abuse					1.446	0.451	0.590	0.259
School Attachment								
Peer Delinquency								
Constant	**.185****	0.104	0.429	0.284	**.163****	0.091	0.434	0.285

* p <.05; ** p<.01; *** p<.001

† indicates a statistically significant gender difference

Table 5.2: Logistic Estimates of Bad Temper Regressed on Control and Strains Cont.

	Model 3: Serious Strain & School Attachment				Model 4: Serious Strain & Peer Delinquency			
	Female Sample		Male Sample		Female Sample		Male Sample	
Independent Variables	OR	Std. Err.	OR	Std. Err.	OR	Std. Err.	OR	Std. Err.
Controls								
Age	1.006	0.040	0.975	0.041	0.986	0.042	0.923	0.040
Race (White Reference Category)								
African American	1.411	0.363	0.910	0.173	1.626	0.413	0.931	0.177
Asian	1.858	0.666	1.187	0.458	1.624	0.599	1.300	0.486
Other	1.370	0.309	**1.614***	0.388	1.399	0.327	**1.689***	0.428
Hispanic	1.426	0.395	0.890	0.189	1.440	0.386	0.916	0.201
Public Assistance	**1.744*****	0.271	**1.829***	0.439	**1.563****	0.226	**1.779***	0.421
Violent Victimization	1.057	0.096	1.077	0.067	1.013	0.088	1.066	0.070
Network Suicide	1.262	0.188	1.130	0.214	1.119	0.166	1.039	0.183
Educational Strain	1.038	0.120	**1.362****	0.132	1.051	0.122	**1.370****	0.136
Childhood Sex Abuse	1.371	0.454	0.569	0.261	1.383	0.431	0.606	0.269
School Attachment	**.731*****	0.054	**.736*****	0.059	---	---	---	---
Peer Delinquency	**---**	---	**---**	---	**1.139*****	0.026	**1.129*****	0.035
Constant	**0.128**	0.071	**0.239***	0.166	**.267***	0.160	0.815	0.533

* p <.05; ** p<.01; *** p<.001

† indicates a statistically significant gender difference

Table 5.2: Logistic Estimates of Bad Temper Regressed on Control and Strains Cont.

	Model 5: Serious Strain & Theoretical Controls			
	Female Sample		Male Sample	
Independent Variables	OR	Std. Err.	OR	Std. Err.
Controls				
Age	0.968	0.042	0.926	0.040
Race (White Reference Category)				
African American	1.567	0.407	0.963	0.185
Asian	1.748	0.643	1.328	0.498
Other	1.385	0.327	**1.670***	0.422
Hispanic	1.479	0.418	0.928	0.204
Public Assistance	**1.628****	0.247	**1.769***	0.419
Violent Victimization	0.997	0.090	1.034	0.068
Network Suicide	1.112	0.164	1.015	0.185
Educational Strain	1.021	0.120	**1.353****	0.133
Childhood Sex Abuse	1.328	0.437	0.584	0.268
School Attachment	**0.774*****	0.058	**0.769*****	0.061
Peer Delinquency	**1.119*****	0.027	**1.134****	0.034
Constant	**.207****	0.122	0.456	0.319

* p <.05; ** p<.01; *** p<.001
† indicates a statistically significant gender difference

Model 3 – School Attachment – features the addition of school attachment to Model 2. Within the female sample, school attachment was statistically significant. Higher school attachment was associated with lower odds (OR=0.731) of having a bad temper, meaning the more attached a girl was to school the less likely she was to have a bad temper. Additionally, the effect of parental public assistance remained, increasing the odds (OR=1.744) of having a bad temper. In the male sample, school attachment was statistically significant, decreasing the odds (OR=0.736) of having a bad temper. Public assistance (OR=1.829), "Other" race (OR=1.614), and educational strain (OR=1.362)

remained statistically significant with school attachment controlled. The continued significance of educational strain adds additional support to Hypothesis 2. No significant gender differences were present in Model 3.

The fourth model, Model 4 – Peer Delinquency – includes the addition of peer delinquency and removes school attachment. Among females, peer delinquency was associated with parental reports of bad temper (OR=1.139). Public assistance remained a statistically significant predictor of female bad temper (OR=1.563). The results for the male sample were similar to the female sample, where having delinquent peers increased the odds of parental reports of bad temper (OR=1.129). The results for males was largely similar to those in Model 3. Relevant for Hypothesis 2, educational strain remained an important predictor of male anger. No statistically significant gender differences were detected in this model.

The final model, Model 5 – Full Model, included both peer delinquency and school attachment. For both the male and female samples the results are consistent with Models 3 and 4. Public assistance, peer delinquency, and school attachment were each significantly associated with bad temper in both samples. Besides these three significant coefficients, educational strain and "Other" race were significantly associated with having a bad temper among males. That educational strain raises the odds of males having a bad temper is consistent with Hypothesis 2. The specific directions and magnitudes of these coefficients are consistent with prior models and displayed in Table 5.2. No significant gender differences were detected within the final model. The lack of a statistically significant gender difference in angry emotions in response to strain is also partially consistent with Hypothesis 7, which claims that men and women will experience

similar levels of angry emotions in response to strain. However, while a quantitative difference in the effect of negative emotions does not occur, there is a "qualitative" difference in the fact that serious strains do not persist once other variables are controlled as a predictor of bad temper for females but they do for males. The continued effect of educational strain for males does provide partial support for Hypothesis 2.

Depression

The results of the linear regression analyses for depression are presented in Table 5.3. These regressions follow the same block format for bad temper. Model 1 – Controls – for the female sample indicated that age, public assistance, Hispanic ethnicity, African American and Asian race are significant predictor of depression. Specifically, as age increased, female youth reported greater levels of depression (β=.677). Further, African American (β=2.211) and Asian American (β=3.770) reported significantly higher levels of depression than Whites. Hispanic youth (β=1.891) and those whose parents received public assistance (β=3.255) also reported significantly higher levels of depression. Among the male sample; age, African American, "Other" race, and receiving public assistance were positively associated with depression. Similar to the female sample, as age of the youths increased so did depressive symptoms (β=.611). African Americans (β=1.383), "Other" race (β=1.846), and youth whose parents received public assistance (β=2.795) also reported higher levels of depression. No significant gender differences were present in this model.

In Model 2 – Strains – all of the variables from Model 1, with the exception of race in the male sample, remain statistically significant. Three of the four strain variables are significant predictors of increased depression. Violent victimization, network suicide,

Table 5.3: Linear Regression Estimates of Depression Regressed on Control and Strains

	Model 1: Control				Model 2: Serious Strain			
	Female Sample		Male Sample		Female Sample		Male Sample	
Independent Variables	β	Std. Err.	β	Std. Err.	β	Std. Err.	β	Std. Err.
Controls								
Age	**.677*** **	0.129	**.611*** **	0.110	**.673*** **	0.113	**.512*** **	0.109
Race (White Reference Category)								
African American	**2.211*** **	0.589	**1.383***	0.541	**2.141*** *	0.613	0.795	0.569
Asian	**3.770***	1.536	1.951	1.517	**3.895*** *	1.413	2.149	1.446
Other	1.202	0.783	**1.846*** *	0.705	0.691	0.817	1.221	0.742
Hispanic	**1.891***	0.872	0.052	0.678	1.598	0.862	-0.005	0.668
Public Assistance	**3.255*** **	0.735	**2.795*** **	0.674	**2.036*** *	0.735	**2.622*** **	0.615
Violent Victimization					**1.656*** **	0.317	**.926*** **	0.200
Network Suicide					**2.725*** **	0.454	**1.733*** *	0.533
Educational Strain					**1.850*** **	0.415	**.943*** **	0.255
Childhood Sex Abuse					1.382	0.880	1.246	1.099
School Attachment								
Peer Delinquency								
Constant	0.134	1.963	-0.341	1.621	-1.424	1.662	0.045	1.585

* p <.05; ** p<.01; *** p<.001

† indicates a statistically significant gender difference

Table 5.3: Linear Regression Estimates of Depression Regressed on Control and Strains Cont.

	Model 3: Serious Strain & School Attachment				Model 4: Serious Strain & Peer Delinquency			
	Female Sample		Male Sample		Female Sample		Male Sample	
Independent Variables	β	Std. Err.	β	Std. Err.	β	Std. Err.	β	Std. Err.
Controls								
Age	**.424*** **	0.105	**.491*** **	0.114	**.333** **	0.121	**.384** **	0.117
Race (White Reference Category)								
African American	**1.834** **	0.598	1.116	0.589	**2.823*** †**	0.575	0.949	0.572
Asian	**4.500** **	1.291	2.356	1.419	**3.495** **	1.245	2.423	1.411
Other	0.528	0.752	1.112	0.678	0.699	0.742	1.268	0.746
Hispanic	**1.932***	0.894	0.108	0.629	**1.908***	0.775	0.112	0.672
Public Assistance	**2.253** **	0.701	**2.513*** **	0.594	**1.482***	0.686	**2.523*** **	0.617
Violent Victimization	**1.374*** **	0.334	**.623** **	0.193	**1.124*** **	0.300	**.807*** **	0.212
Network Suicide	**2.434*** **	0.431	**1.442** **	0.534	**1.715*** **	0.441	**1.456** **	0.530
Educational Strain	**1.504*** **	0.359	**.805** **	0.251	**1.645*** **	0.377	**.906** **	0.261
Childhood Sex Abuse	0.907	0.861	1.236	1.064	1.049	0.865	1.321	1.111
School Attachment	**-2.705*** **	0.233	**-2.096*** **	0.260	**---**	---	---	---
Peer Delinquency	---	---	---	---	**.888*** †**	0.103	**.273** **	0.085
Constant	-3.452	1.602	**-3.968***	1.795	2.069	1.723	1.440	1.654

* p <.05; ** p<.01; *** p<.001

† indicates a statistically significant gender difference

Table 5.3: Linear Regression Estimates of Depression Regressed on Control and Strains Cont.

	Model 5: Serious Strain & Theoretical Controls			
	Female Sample		Male Sample	
Independent Variables	β	Std. Err.	β	Std. Err.
Controls				
Age	0.184	0.113	**.415****	0.120
Race (White Reference Category)				
African American	**2.426*****	0.562	**1.196***	0.590
Asian	**4.094****	1.203	2.512	1.400
Other	0.556	0.704	1.143	0.683
Hispanic	**2.137***	0.825	0.175	0.633
Public Assistance	**1.776****	0.669	**2.458*****	0.600
Violent Victimization	**.983****	0.320	**.562****	0.201
Network Suicide	**1.658*****	0.423	**1.286***	0.533
Educational Strain	**1.386*****	0.334	**.788****	0.254
Childhood Sex Abuse	0.702	0.862	1.281	1.076
School Attachment	**-2.336*****	0.233	**-2.026*****	0.258
Peer Delinquency	**.716***†	0.095	0.161	0.083
Constant	-0.357	1.679	-3.003	1.4963

* p <.05; ** p<.01; *** p<.001
† indicates a statistically significant gender difference

and educational strain were all significant predictors of female depression. Violent victimization was associated with increased depression, with each additional unit change in victimization increasing the depression symptoms (β=1.656). The effects of network suicide (β=2.725) and educational strain (β=1.850) are also associated with increased depressive symptoms. The role of network suicide, violent victimization, and educational

strain in influencing female depression provides strong support for Hypothesis 2 as strain is associated with this type of negative affect.

The results from the male model are similar to the female model. The effects of Model 1 remained significant, with the exceptions of "Other" races and African American. Violent victimization (β=.926), network suicide (β=1.733), and educational strain (β=.943) are all positively associated with symptoms of depression among males. The effects of three of the four strains on male depression provides additional support for the proposition that strain is associated with negative emotions (Hypothesis 2). A Paternoster Z-test for differences indicated that there were no significant differences in the model. Again, there is no quantitative support for a gendering of emotional responses to strain counter to Hypothesis 7.

Model 3 – School Attachment – was similar to the results in Model 2. Age (β=.424), African American (β=1.834), Asian American (β=4.500), Hispanic ethnicity (β=1.932), public assistance (β=2.253), violent victimization (β=1.374), network suicide (β=2.434), and educational strain (β=1.504) remained significantly and positively associated with depression in the female sample. School attachment was positively associated with depression as well. More attached students experienced lower levels of depression. In the male sample, the results are similar. Age (β=.491), public assistance (β=2.513), violent victimization (β=.623), network suicide (β=1.442), and educational strain (β=.805) are positively and significantly associated with depression. For males, school attachment (β=-2.096) is also associated with depression. The continued effects of violent victimization, education, and suicide of others on depression for both males and

females provide continued support for Hypothesis 2. There continued to be no significant differences by gender.

In Model 4 – Peer delinquency – the statistically significant coefficients for both females and males remain the same as Model 3. The addition of peer delinquency to the model is significant for both samples. In both samples increased peer delinquency was associated with increased depression. The effect was significantly different between males and females such that the effect of peer delinquency on females (β=.888) had a significantly stronger impact on depression compared to males (β=.273; Z=4.615). Additionally, there was a gender difference in race effects African American females were more likely to be depressed than African American males (Z=2.311)

In Model 5 – Full Model – the patterns are much the same as Models 3 and 4. School attachment is associated with depression for both males (School Attachment: β=-2.026) and females (School Attachment: β=-2.336). Peer delinquency remained associated with female depression (β=.716). Changes in statistical significance between the samples was in the female sample such that age was no longer a statistically significant predictor of depression and the male sample where delinquent peers were no longer significant. Importantly, in support of Hypothesis 2, violent victimization (Females: β= .983; Males: β=.562), educational strain (Females: β= 1.386; Males: β= .788), and network suicide (Females: β= 1.658; Males: β= 1.286) all continued to influence depression despite the addition of peer delinquency and school attachment. With regard to gender there is one difference that reaches statistical significance. Peer delinquency (Z=4.400) continued to have a greater effect on female depression than male depression.

Upset by Problems

Table 5.4 shows the ordered logistic regression for being upset by problems. Within the female sample for Model 1 – Controls –three variables were statistically significant. Age (OR=1.112), African American (OR=1.389), and parents receiving public assistance (OR=1.558) were associated with females reporting being upset by problems. For males, African American (OR=1.888) and Hispanic ethnicity (OR=1.760) were associated with being upset by problems. A single gender difference was present between the two samples in age, with age being more influential in determining being upset by problems among females compared to the males (Z=2.200).

With the introduction of serious strains to being upset by problems in Model 2 there were few changes from Model 1. Age (OR=1.098) and African American (OR=1.329) were still associated with being upset by problems for females, while receiving public assistance was no longer statistically significant. Of the added strains only violent victimization was statistically significant in predicting being upset by problems for females. An increase in the number of violent victimizations increased the odds (OR=1.228) of being upset by problems. Such a result provided some support for Hypothesis 2.

In the male sample, African Americans (OR=1.767) and Hispanics (OR=1.767) continued to have higher odds than whites of being upset by problems. The addition of strains indicated that educational strain (OR=1.435) and sexual abuse (OR=1.980) were both significant predictors of males reporting being upset by problems, again supportive of Hypothesis 2. Other than the previously discussed gender difference in the effect of age (Z=2.223), there were no additional gender differences in the model.

Table 5.4: Ordered Logistic Regression Estimates of Being Upset by Problems on Control and Strains

	Model 1: Control				Model 2: Serious Strain			
	Female Sample		Male Sample		Female Sample		Male Sample	
Independent Variables	OR	Std. Err.	OR	Std. Err.	OR	Std. Err.	OR	Std. Err.
Controls								
Age	**1.112**††	0.043	0.990	0.035	**1.109**††	0.042	0.986	0.036
Race (White Reference Category)								
African American	**1.389***	0.209	**1.888****	0.355	**1.351***	0.190	**1.767****	0.346
Asian	1.462	0.481	1.036	0.406	1.486	0.478	1.137	0.458
Other	0.932	0.195	0.922	0.215	0.904	0.193	0.853	0.195
Hispanic	1.206	0.229	**1.760***	0.430	1.156	0.218	**1.767***	0.421
Public Assistance	**1.558****	0.252	1.265	0.285	1.372	0.225	1.233	0.284
Violent Victimization					**1.228***	0.108	1.036	0.070
Network Suicide					1.041	0.120	1.154	0.205
Educational Strain					1.208	0.122	**1.435*****	0.103
Childhood Sex Abuse					1.283	0.308	**1.980***	0.605
School Attachment								
Peer Delinquency								
Cut1	**-2.706*****	0.550	**-3.726*****	0.554	**-2.644*****	0.546	**-3.615*****	0.559
Cut2	-0.173	0.546	**-1.138***	0.558	-0.111	0.540	-1.013	0.559
Cut3	0.993	0.555	-0.142	0.558	1.059	0.547	0.000	0.560
Cut4	**3.266*****	0.583	**1.911****	0.579	**3.356*****	0.571	**2.093*****	0.583

* p <.05; ** p<.01; *** p<.001

† indicates a statistically significant gender difference

Table 5.4: Ordered Logistic Regression Estimates of Being Upset by Problems on Control and Strains Cont.

	Model 3: Serious Strain & School Attachment				Model 4: Serious Strain & Peer Delinquency			
	Female Sample		Male Sample		Female Sample		Male Sample	
Independent Variables	OR	Std. Err.	OR	Std. Err.	OR	Std. Err.	OR	Std. Err.
Controls								
Age	**1.108**††	0.043	0.988	0.035	1.079	0.043	0.993	0.038
Race (White Reference Category)								
African American	**1.349***	0.191	**1.727****	0.344	**1.427***	0.202	**1.759****	0.340
Asian	1.490	0.479	1.119	0.444	1.437	0.476	1.116	0.449
Other	0.903	0.196	0.864	0.196	0.900	0.192	0.850	0.193
Hispanic	1.158	0.223	**1.760***	0.420	1.169	0.222	**1.761***	0.417
Public Assistance	1.374	0.226	1.239	0.282	1.316	0.220	1.238	0.284
Violent Victimization	**1.227***	0.107	1.068	0.073	1.177	0.104	1.043	0.070
Network Suicide	1.039	0.124	1.180	0.212	0.963	0.116	1.176	0.219
Educational Strain	1.206	0.122	**1.460*****	0.107	1.189	0.119	**1.438*****	0.104
Childhood Sex Abuse	1.281	0.309	**1.987***	0.616	1.239	0.299	**1.970***	0.600
School Attachment	0.989	0.088	**1.232***	0.105	---	---	---	---
Peer Delinquency	---	---	---	---	**1.073*†**	0.029	0.985	0.028
Cut1	**-2.699*****	0.713	**-2.769*****	0.655	**-2.947*****	0.560	**-3.536*****	0.572
Cut2	-0.166	0.712	-0.163	0.630	-.414	0.558	-.9343	0.574
Cut3	1.003	0.713	0.855	0.632	.7598	0.563	.0785	0.576
Cut4	**3.301***††	0.740	**2.961*****	0.652	**3.073*****	0.584	**2.173*****	0.596

* p <.05; ** p<.01; *** p<.001

† indicates a statistically significant gender difference

Table 5.4: Ordered Logistic Regression Estimates of Being Upset by Problems on Control and Strains Cont.

	Model 5: Serious Strain & Theoretical Controls			
	Female Sample		Male Sample	
Independent Variables	OR	Std. Err.	OR	Std. Err.
Controls				
Age	1.080	0.043	0.990	0.038
Race (White Reference Category)				
African American	**1.433***	0.205	**1.725****	0.339
Asian	1.428	0.470	1.114	0.440
Other	0.902	0.195	0.863	0.196
Hispanic	1.164	0.227	**1.758***	0.419
Public Assistance	1.312	0.218	1.241	0.282
Violent Victimization	1.180	0.105	1.070	0.073
Network Suicide	0.965	0.119	1.186	0.222
Educational Strain	1.194	0.120	**1.461*****	0.107
Childhood Sex Abuse	1.242	0.301	**1.985***	0.613
School Attachment	1.026	0.090	**1.230***	0.105
Peer Delinquency	**1.075**†**	0.028	0.996	0.028
Cut1	**-2.824**	0.729	**-2.754*****	0.604
Cut2	-0.291	0.728	-0.148	0.617
Cut3	0.884	0.728	0.869	0.618
Cut4	**3.197*****	0.752	**2.976*****	0.636

* p <.05; ** p<.01; *** p<.001
† indicates a statistically significant gender difference

The addition of school attachment in Model 3 does little to change the results for the female sample. Age (OR=1.108), African American (OR=1.349), and violent victimization (OR=1.228) were still statistically significant and the odds ratios on those variables only decreased slightly. School attachment was not a statistically significant predictor of females being upset by problems.

For males, Model 3 changed little compared to Model 2 except that school attachment is statistically significant. For males an increase in school attachment led to an

increase in the odds (OR=1.232) of being upset by problems. This indicated that the more males were attached to schools, the more likely they were to report being upset by difficult problems. African American (OR=1.727), Hispanic (OR=1.760), educational strain (OR=1.460), and childhood sexual abuse (OR=1.987) all remained predictive of reporting being upset by problems. Age (Z=2.164) had significantly different effects by gender in the models, where age was a significantly stronger predictor of being upset by problems for females. The continued significant effects of strains in this model lend continued support for Hypothesis 2.

While the addition of school attachment in Model 3 did not impact being upset by problems for females, in Model 4 – Peer Delinquency – the addition of peer delinquency impacted the model for the female sample. An increase in peer delinquency yielded an increase in the odds (OR=1.073) of females being upset by problems. Further, the odds of an African American (OR=1.395) female being upset by problems remained greater than for whites significant while violent victimization was no longer significant.

For males, there were no changes in Model 4 from Model 3. Peer delinquency did not impact being upset by problems. Educational strain (OR=1.438), experiencing childhood sexual abuse (OR=1.970), African Americans compared to whites (OR=1.759), and Hispanics compared to non-Hispanics (OR=1.761) were all more likely to report being upset by problems. The gender difference in age (Z=1.499) was no longer significant in Model 4 compared to Model 3, although a gender difference is present for peer delinquency (Z=2.183) indicating the influence of delinquent peers on being upset by problems is stronger for females.

In the final model, Model 5 – Full Model – little changed from the previous models. In the female sample African American (OR=1.433), and peer delinquency (OR=1.075) influence being upset by problems. In male sample results are also the same compared to previous models. African American (OR=1.725), Hispanic (OR=1.758), educational strain (OR=1.461), sex abuse (OR=1.985), and school attachment (OR=1.232) remained significant. The results from Model 5 are supportive of Hypothesis 2 for males as strain was associated with being upset by problems but was not for females. In regard to gender differences, the difference of peer delinquency in Model 4 continued to be significant (Z=1.995).

Summary- Negative Emotions

Figure 5.2: Strains and Their Effects on Negative Emotions

	Bad Temper	Depression	Upset by Problems
Violent Victimization	**No Effect**	**X (Both)**	**X (Females)**
Network Suicide	**No Effect**	**X (Both)**	**No Effect**
Educational Strain	**X (Males)**	**X (Both)**	**X (Males)**
Childhood Sexual Abuse	**No effect**	**No Effect**	**X (Males)**

Largely, the results of the analyses provided support for Hypothesis 2 which stated that strain will be positively associated with negative emotions. These effects are outlined above in Figure 5.2. Violent victimization, network suicide, and educational strain all predicted increased depression for females and males, even after the addition of peer delinquency and school attachment. Educational strain was a consistent predictor of male bad temper, along with parental public assistance, which could be argued as a form

of strain. In terms of being upset by problems, Hypothesis 2 was again partly supported. Educational strain and childhood sexual abuse influenced males being upset by problems in all models. Additionally, violent victimization was associated with being upset by problems for females until peer delinquency was added to the model.

While evidence for Hypothesis 2 appears to be strong, the quantitative evidence supporting Hypothesis 7 was non-existent. There was no evidence from the Paternoster et al. test of differences in coefficients that there were any gender differences in effects of serious strains on the negative emotions males and females experience. In regard to depress, the same strains were significant for males and females and different strains predicted being upset by problems but differences in their effects were not statistically significant. While there was no quantitative evidence supporting Hypothesis 2 there are "qualitative[18]" differences in the effects of strain, but these differences tend to be counter to Hypothesis 7. Male responses to serious strain resulted in reporting non-angry negative emotions, while those same strains did not impact female negative emotions. Only a difference in being upset by problems supported Hypothesis 7, such that females, but not males, experienced non-angry negative emotions in response to violent victimization. However, this difference was not statistically different. For Hypothesis 7, the majority of the patterns of the data run counter to the hypothesized effect.

Multivariate Results – Delinquency and Crime

Tables 5.5, 5.6, 5.7, and 5.8 display the results of the female and male regression models estimated for the dependent measures of marijuana use, running away, non-

[18] "Qualitative" differences refer here to differences while comparing the statistical coefficients across groups when no statistical difference was present with the Paternoster et al. (1998) test of differences in coefficients. Hoetker (2007) suggested such a comparison as an alternative when employing logistic regression.

violent crime, and violent crime. For each dependent variable the regression models were estimated in block format using the following models. The first model included only the socio-demographic controls of age, race, ethnicity, and a parent receiving public assistance. Model 2 added the strain measures of violent victimization, network suicide, educational strain, and childhood sexual abuse. The negative emotions bad temper, depression, and being upset by problems were then added into Model 3. Model 4 included the coping mechanisms of avoidance coping, problem-solving coping, self-esteem, and social support. The fifth model added running away except when running away was the dependent variable. Model 6 added peer delinquency, whereas Model 7 removed peer delinquency and added school attachment. The eighth and final model added back into the model both school attachment and peer delinquency. For each regression, either the Odds Ratios or coefficients are presented, depending on the type of regression utilized.

Marijuana Use

The results of the logistic regression analyses for smoking marijuana are presented in Table 5.5. Summary of hypothesis support in found in Figure 5.3. Model 1 – Controls – included the socio-demographic controls of age, race, Hispanic ethnicity, parental public assistance, and Wave I marijuana use. For both females and males the only statistically significant variable was prior marijuana use. The analyses indicated that prior marijuana use resulted in a statistically significant increase in the odds of females and males smoking marijuana at Wave II. Female respondents who smoked marijuana during Wave I were 16.168 times as likely to smoke marijuana at Wave II while males

who smoked marijuana at Wave I were 17.494 times as likely to smoke marijuana at Wave II. For this model there were no significant gender differences.

Model 2 – Serious Strains – included all of the strains in the model. The results are again similar for both females and males. Of the measures violent victimization was the only statistically significant measure of strain to impact Wave II marijuana use. Experiencing violent victimization resulted in a statistically significant increase in the odds of marijuana use for both females (OR=1.399) and males (OR=1.174). This provides some support for Hypothesis 1 as strain – violent victimization – is tied to marijuana use. Prior marijuana use remains highly predictive of future marijuana use for both males (OR=17.206) and females (OR=14.712). While none of the racial indicators were significantly associated with marijuana use, tests for differences indicated that there was a gender difference among African Americans (Z=-2.039). For African American females, there was a decrease in the likelihood of smoking marijuana while for African American males there was an increase in the likelihood of smoking marijuana. While there was a difference between African American females and males in their odds of smoking marijuana there was no difference between African American males, or females, with white males, or females. No other gender difference was present in Model 2.

Table 5.5: Logistic Regression Estimates for Drug Use Regressed on Serious Strains

	Model 1: Controls				Model 2: Serious Strains							
	Female Sample		Male Sample		Female Sample		Male Sample		Female Sample		Male Sample	
Independent Variables	OR	Std. Err.	OR	Std. Err.	OR	Std. Err.	OR	Std. Err.	OR	Std. Err.	OR	Std. Err.
Age	0.999	0.061	1.056	0.067	0.997	0.061	1.047	0.067	0.968	0.063	1.061	0.067
Race (White Reference Category)												
African American	0.751	0.180	1.547	0.439	0.671†	0.159	1.424	0.403	**0.555*†**	0.144	1.456	0.423
Asian	1.453	0.482	0.957	0.726	1.487	0.488	0.903	0.647	1.144	0.412	0.919	0.662
Other	1.410	0.440	2.138	0.881	1.285	0.393	2.071	0.833	1.254	0.395	1.972	0.773
Hispanic	0.909	0.273	0.581	0.217	0.841	0.249	0.557	0.211	0.744	0.227	0.557	0.211
Public Assistance	1.045	0.359	0.984	0.277	0.821	0.295	0.948	0.267	0.672	0.259	0.844	0.246
Previous Marijuana Use	**16.168*** **	3.320	**17.494*** **	3.947	**14.712*** **	3.123	**17.206*** **	3.971	**13.801*** **	3.047	**16.865*** **	3.914
Violent Victimization					**1.399** *	0.154	**1.174***	0.087	**1.307***	0.152	**1.162***	0.088
Network Suicide					1.070	0.267	0.727	0.210	0.942	0.248	0.730	0.203
Educational Strain					1.275	0.185	0.894	0.164	1.186	0.185	0.855	0.150
Childhood Sex Abuse					1.430	0.567	0.937	0.427	1.273	0.508	1.022	0.462
Bad Temper									**1.890** *	0.394	**1.966** *	0.474
Depression									**1.036** *	0.013	0.996	0.016
Upset by Problems									1.176	0.125	1.040	0.100
Avoidance Coping												
Evaluation Coping												
Self-Esteem												
Social Support												
Ran Away												
School Attachment												
Peer Delinquency												
Constant	**0.089** *	0.080	0.038	0.036	**0.078** *	0.069	**0.043** *	0.042	**0.405** *	0.040	**.026*** **	0.026

* p <.05; ** p<.01; *** p<.001

† indicates a statistically significant gender difference

Table 5.5: Logistic Regression Estimates for Smoking Marijuana Regressed on Serious Strains

	Model 4: Coping Mechanisms				Model 5: Running Away				Model 6: Peer Delinquency			
	Female Sample		Male Sample		Female Sample		Male Sample		Female Sample		Male Sample	
Independent Variables	OR	Std. Err.	OR	Std. Err.	OR	Std. Err.	OR	Std. Err.	OR	Std. Err.	OR	Std. Err.
Age	0.943	0.065	1.064	0.068	0.941	0.065	1.065	0.068	0.895	0.063	0.954	0.069
Race (White Reference Category)												
African American	**0.549*†**	0.145	1.565	0.463	**0.591*†**	0.146	1.569	0.463	0.786	0.203	**1.913*†**	0.609
Asian	1.189	0.442	0.874	0.647	1.173	0.442	0.878	0.649	1.188	0.414	1.276	0.946
Other	1.226	0.401	1.967	0.753	1.231	0.402	1.975	0.758	1.323	0.417	**2.363***	0.915
Hispanic	0.795	0.234	0.561	0.214	0.806	0.238	0.563	0.214	0.912	0.267	0.564	0.217
Public Assistance	0.680	0.261	0.870	0.262	0.686	0.262	0.870	0.261	0.581	0.224	0.810	0.280
Previous Marijuana Use	**13.405*****	2.958	**15.847*****	3.819	**13.112*****	3.000	**15.792*****	3.832	**7.565*****	1.869	**7.123*****	2.089
Violent Victimization	**1.286***	0.153	1.159	0.087	1.272	0.157	1.157	0.088	1.217	0.152	1.102	0.091
Network Suicide	0.936	0.248	0.730	0.201	0.932	0.248	0.726	0.202	0.813	0.208	0.557	0.175
Educational Strain	1.177	0.187	0.848	0.150	1.175	0.186	0.848	0.150	1.181	0.186	0.839	0.152
Childhood Sex Abuse	1.126	0.455	1.046	0.469	1.094	0.436	1.042	0.462	1.129	0.466	1.139	0.491
Bad Temper	**1.797****	0.360	**1.900***	0.484	**1.777****	0.362	**1.892***	0.480	**1.534***	0.319	**1.744***	0.461
Depression	1.028	0.016	0.987	0.021	1.028	0.016	0.987	0.021	1.011	0.017	0.982	0.021
Upset by Problems	1.199	0.146	1.081	0.114	1.198	0.147	1.079	0.115	1.188	0.152	1.096	0.127
Avoidance Coping	0.911	0.092	0.924	0.079	0.911	0.093	0.922	0.079	0.929	0.096	0.964	0.086
Evaluation Coping	1.209	0.211	0.777	0.143	1.208	0.211	0.777	0.143	1.196	0.223	0.729	0.135
Self-Esteem	0.982	0.182	0.941	0.226	0.985	0.184	0.941	0.226	0.933	0.186	0.977	0.246
Social Support	0.681	0.145	0.850	0.184	0.690	0.150	0.855	0.191	0.759	0.172	0.945	0.207
Ran Away					1.223	0.396	1.091	0.502	1.199	0.398	0.937	0.429
School Attachment									---	---	---	---
Peer Delinquency									**1.256*****	0.045	**1.345*****	0.063
Constant	0.205	0.311	0.202	0.340	0.198	0.306	0.197	0.332	0.265	0.434	0.335	0.565

* p <.05; ** p<.01; *** p<.001

† indicates a statistically significant gender difference

Table 5.5: Logistic Regression Estimates for Smoking Marijuana Regressed on Serious Strains Cont.

	Model 7: School Attachment				Model 8: Full Model			
	Female Sample		Male Sample		Female Sample		Male Sample	
Independent Variables	OR	Std. Err.	OR	Std. Err.	OR	Std. Err.	OR	Std. Err.
Age	0.946	0.067	1.068	0.068	0.901	0.065	0.956	0.069
Race (White Reference Category)								
African American	**0.594*†**	0.146	1.580	0.463	0.796†	0.205	**1.918***	0.608
Asian	1.143	0.441	0.902	0.676	1.144	0.405	1.287	0.962
Other	1.232	0.402	1.996	0.759	1.324	0.416	**2.374***	0.916
Hispanic	0.795	0.234	0.561	0.212	0.898	0.261	0.563	0.217
Public Assistance	0.680	0.261	0.873	0.265	0.574	0.222	0.811	0.282
Previous Marijuana Use	**13.268*****	3.042	**15.744*****	3.801	**7.645*****	1.890	**7.160*****	2.108
Violent Victimization	1.271	0.157	1.144	0.089	1.214	0.151	1.097	0.091
Network Suicide	0.925	0.252	0.720	0.201	0.806	0.210	0.556	0.175
Educational Strain	1.767	0.186	0.847	0.150	1.186	0.185	0.839	0.152
Childhood Sex Abuse	1.100	0.441	1.029	0.464	1.141	0.471	1.132	0.491
Bad Temper	**1.795****	0.364	**1.873***	0.473	**1.556***	0.322	**1.736***	0.458
Depression	1.030	0.017	0.984	0.022	1.014	0.018	0.981	0.022
Upset by Problems	1.190	0.146	1.092	0.122	1.175	0.148	1.102	0.131
Avoidance Coping	0.912	0.093	0.925	0.079	0.929	0.096	0.966	0.086
Evaluation Coping	1.195	0.212	0.783	0.146	1.175	0.223	0.732	0.137
Self-Esteem	0.973	0.177	0.985	0.233	0.913	0.176	1.000	0.248
Social Support	0.678	0.147	0.876	0.196	0.739	0.168	0.957	0.211
Ran Away	1.224	0.397	1.073	0.490	1.204	0.401	0.932	0.423
School Attachment	1.076	0.139	0.882	0.122	1.119	0.149	0.940	0.064
Peer Delinquency	---	---	---	---	**1.259*****	0.045	**1.343*****	0.064
Constant	0.165	0.269	0.215	0.361	0.201	0.346	0.347	0.586

* p <.05; ** p<.01; *** p<.001
† indicates a statistically significant gender difference

The addition of negative emotions in Model 3 lends support to the propositions of Hypothesis 3 as several of the negative emotions were statistically significant. For the female sample, both bad temper and depression were associated with greater probability of smoking marijuana. Parental reports of a female child's bad temper were associated with an increase in the odds of smoking marijuana (OR=1.890) compared to children who did not have a bad temper. Further, for each unit increase in depression the odds of marijuana use increased (OR=1.036). This is consistent with Hypothesis 8 as depression

and anger were associated with a self-directed form of deviance. Additionally, the odds of African American females smoking marijuana were lower than white females (OR=.555). This finding persists until the addition of peer delinquency during Model 6. For females, prior marijuana use (OR=13.801) and violent victimization (OR=1.307) remain statistically significant.

For males, the addition of negative emotions demonstrated that bad temper was significantly related to smoking marijuana. Males whose parents' reported they had a bad temper were nearly twice (OR=1.966) as likely to have smoked marijuana at Wave II compared to children whose parents did not report they had a bad temper. Bad temper was the only negative emotion to have a significant effect for males in Model 3. The finding that female and male marijuana use was related to bad temper provided partial support for one aspect of Hypothesis 3. Negative emotions are positively associated with smoking marijuana. In this model there continues to be one statistically significant difference between males and females and this is the lower odds of using marijuana for African American females compared to African American males.

In order to evaluate the potential mediating effects proposed in Hypothesis 4, the user generated Stata command KHB was utilized. The KHB method was developed by Karlson, Holm, and Breen (2010; 2011) as a means to decompose the effects of mediators in nonlinear probability models. The results from the KHB test do not support Hypothesis 4, as negative emotions did not significantly mediate the effect of strain for either males or females.

Within Model 4 – Coping Mechanisms – there were few changes relative to Model 3 for either female or male. None of the coping mechanisms were statistically

significant predictors of smoking marijuana. For females, African American (OR=.549), prior use (OR=13.405), violent victimization (OR=1.286), and bad temper (OR=1.797) continued to have statistically significant effects, while previous marijuana use (OR=15.847) and bad temper (OR=1.900) continued to be significant for the male sample. Violent victimization was no longer a statistically significant predictor of male marijuana use (OR=1.159, p=.052). The statistically significant gender difference in regards to African Americans persisted, but no other effects were different by gender. Preliminarily, these results do not support any main effects of coping skills, however their moderation effects (Hypothesis 5) will be specifically examined in a later section. The results of Model 4 support Hypotheses 1 and 3, and provide preliminarily support Hypothesis 8.

The addition of running away in Model 5 resulted in one change within the models for both genders. For females, violent victimization was no longer significant in predicting marijuana use (OR=1.271, p=.054). African American (OR=.591), prior use (OR=13.112), and bad temper (OR=1.777) remained significant with the female sample and prior use (OR=15.792) and bad temper (OR=1.892) remained significant for males. The gender difference for African Americans persisted. Since running away was not significant in predicting smoking marijuana, there was a lack of support for running away as a pathway toward delinquency.

For Model 6 – Peer Delinquency – the addition of peer delinquency resulted in a reduction of the difference between African American and white females to non-significance (OR=.786; p=.353). Peer delinquency was significantly associated with an increase in the odds of female marijuana usage. A female who either reported a

delinquent friend who smoked, drank, or smoked marijuana, or had a friend with multiple delinquent acts, had increased odds of smoking marijuana (OR=1.256). Bad temper (OR=1.534) and prior marijuana use (OR=7.565) remained significantly associated with smoking marijuana at Wave II.

For males, peer delinquency was also significantly associated with marijuana use. An increase in deviant friends was related to increased odds of smoking marijuana (OR=1.345). Bad temper (OR=1.744) and previous marijuana use (OR=7.123) remained statistically significant for predicting smoking marijuana at Wave II. The results from the male and female samples provide evidence supporting the importance of delinquent peers in encouraging delinquent and criminal acts. The continued association of bad temper with smoking marijuana for both males and females provides continued support for the first aspect of Hypothesis 3.

With the male sample, two racial differences appear with the addition of peer delinquency. African Americans and "Other" race males are significantly more likely to smoke marijuana at Wave II than are whites. Additional analyses (not shown) were performed to examine the likely cause of the racial effect becoming statistically significant in this model. These analyses indicated a form of mediated-moderation in which the effect of peer delinquency on smoking marijuana was significantly stronger for whites than it was for African Americans and the "Other" racial groups. As the addition of peer delinquency mediated some of the effect for whites, the difference between whites and African Americans or "Other" racial groups, reached statistical significance.

Testing for gender differences between females and males indicated only one significant difference. This difference is again in regard to race. While African American

females' were no longer significantly less likely to smoke marijuana than white females, there was a significant effect for African American males versus white males, thus the difference African American males and females was significant. The interpretation of this effect remains essentially the same compared to previous models. African American females are less likely to smoke marijuana than African American males.

With Model 7 – School Attachment – peer delinquency is removed and replaced with school attachment. For both genders, this model indicates no differences compared to Model 5 – Running Away. School attachment is not statistically significant for either gender. For females, African American (OR=.594), prior use (OR=13.268), and bad temper (OR=1.795) were predictive of Wave II use. For males, prior use (OR=15.744) and bad temper (OR=1.873) were predictive of Wave II use. The gender difference between African American females and males persisted in this model.

Model 8 – Full Model – includes the simultaneous inclusion of both peer delinquency and school attachment. The results are not substantively different from the previous models. For females, having a bad temper (OR=1.556), prior marijuana use (OR=7.645), and delinquent peers (OR=1.259) were associated with higher odds of using marijuana at Wave II. For males, bad temper (OR=1.736), prior use (OR=7.160), and delinquent peers (OR=1.343) also resulted in increased odds of using marijuana at Wave II. The continuing presence of bad temper supports Hypothesis 3 but somewhat contradicts aspects of Hypothesis 8 as depression was not a predictor of female self-directed crime. Instead, the primary negative emotion of anger continued to influence male and female marijuana use. The gender differences for African Americans persisted

with African American males being statistically more likely than African American females to smoke marijuana.

Figure 5.3: Hypothesis Summary for Marijuana Usage		
Hypothesis	Supported	Not Supported
1	**X (Both) – Violent Victimization**	
3	**X (Both) – Bad Temper, X (Females) - Depression**	
4		**X (Both)**
5		**No Support for Main Effects**
8	**Modestly**	

Non-Violent Crime

The results of the negative binomial regression models for non-violent crime are presented in Table 5.6. Implications for the various hypotheses are documented in Figure 5.4. While utilizing a different regression technique, the ordering of the different models follows that of marijuana use. The results of the different models are documented as betas and then converted, when appropriate, to Incidence Response Ratios (IRR) for ease of interpretation.

Model 1 included the socio-demographic controls of age, race, Hispanic ethnicity, parental public assistance, and Wave I non-violent crime. For both samples, age and prior non-violent crime (Female: β=.410; Male: β=.281) were statistically significant predictors of Wave II non-violent crime. The analyses revealed that age resulted in a statistically significant decrease in the expected count of female and male non-violent crime at Wave II. Each additional year of age reduced the female expected count of non-violent crime by

15.5% and for males, each additional year resulted in a slightly smaller decrease in the expected count of non-violent criminal acts by 11.2%. There was one gender difference within this model in regards to the effect of prior non-violent crime. The effect of this variable was significantly stronger for females (Z=3.560). This gender difference persists through the remainder of the non-violent crime models.

Within Model 2 – Serious Strains – age (Females: β=-.170; Males: β=-.134) and prior non-violent crime (Females: β=.380; Male: β=.266) remained significantly associated with increases in the count of non-violent crime. The addition of serious strains for females indicated that network suicide was associated with an increase in non-violent crime. Knowing someone who attempted suicide increased non-violent crime counts for females (β=.353). Converting this effect to Incidence Rate Ratio (IRR) indicated that knowing someone who attempted suicide increased crime counts by 28.5% for females.

For males, network suicide was not statistically significant. However, experiencing violent victimization was associated with an increase in non-violent crime. Each additional incident of violent victimization resulted in an increase in non-violent crime counts of approximately 11%. Males who experienced, for example, three different forms of violent victimization would be expected to have a non-violent crime rate 37% higher than males who had not experienced any violent victimization. As network suicide was significantly associated with non-violent crime among females and violent victimization associated with non-violent crime among males these analyses provide partial support for Hypothesis 1.

Table 5.6: Negative Binomial Regression Estimates for Non-Violent Delinquency Regressed on Serious Strains

	Model 1: Controls				Model 2: Serious Strains				Model 3: Negative Emotions			
	Female Sample		Male Sample		Female Sample		Male Sample		Female Sample		Male Sample	
Independent Variables	β	Std. Err.	β	Std. Err.	β	Std. Err.	β	Std. Err.	β	Std. Err.	β	Std. Err.
Age	**-0.168*****†	0.039	**-0.118****	0.041	**-0.170*****	0.404	**-0.134****	0.039	**-0.183*****	0.040	**-0.157*****	0.040
Race (White Reference Category)												
African American	0.037	0.205	-0.045	0.181	0.071	0.210	-0.109	0.172	-0.002	0.212	-0.058	0.192
Asian	-0.127	0.485	-0.182	0.231	-0.044	0.502	-0.151	0.247	-0.200	0.448	-0.183	0.272
Other	-0.229	0.221	0.049	0.199	-0.218	0.227	-0.036	0.199	-0.247	0.223	-0.086	0.184
Hispanic	0.023	0.204	0.270	0.265	0.022	0.211	0.271	0.276	-0.029	0.212	0.275	0.249
Public Assistance	-0.162	0.219	0.042	0.192	-0.261	0.225	0.035	0.190	-0.298	0.222	-0.124	0.177
Prior Non-Violent Delinquency	**0.410***†	0.028	**0.281*****	0.023	**0.380***†	0.028	**0.266*****	0.023	**0.370***†	0.030	**0.254*****	0.023
Violent Victimization					0.150	0.080	**0.106***	0.043	0.123	0.076	**0.090***	0.042
Network Suicide					**0.353****	0.133	0.123	0.152	**0.325***	0.139	0.108	0.154
Educational Strain					0.091	0.099	0.033	0.079	0.052	0.098	0.009	0.079
Childhood Sex Abuse					0.189	0.328	0.430	0.473	0.121	0.314	0.465	0.407
Bad Temper									0.263	0.141	**0.281***	0.126
Depression									0.016	0.009	**0.027****	0.010
Upset by Problems									0.104†	0.080	-0.108	0.055
Avoidance Coping												
Evaluation Coping												
Self-Esteem												
Social Support												
Ran Away												
School Attachment												
Peer Delinquency												
Constant	**1.415***	0.588	1.179	0.624	1.276*	0.613	1.329	0.594	0.872	0.681	1.723	0.575
α	3.264	0.326	2.515	0.284	3.147	0.318	2.480	0.272	3.067	0.326	2.395	0.262

* p <.05; ** p<.01; *** p<.001
† indicates a statistically significant gender difference

Table 5.6: Negative Binomial Regression Estimates for Non-Violent Delinquency Regressed on Serious Str

	Model 4: Coping Mechanisms				Model 5: Running Away				Model 6: Peer Delinquency			
	Female Sample		Male Sample		Female Sample		Male Sample		Female Sample		Male Sample	
Independent Variables	β	Std. Err.	β	Std. Err.	β	Std. Err.	β	Std. Err.	β	Std. Err.	β	Std. Err.
Age	**-0.171*****†	0.043	**-0.159*****	0.042	**-0.173*****	0.044	**-0.156*****	0.042	**-0.183*****	0.044	**-0.166*****	0.038
Race (White Reference Category)												
African American	-0.015	0.217	-0.027	0.188	0.002	0.216	-0.023	0.187	0.040	0.215	-0.012	0.186
Asian	-0.196	0.471	-0.309	0.213	-0.237	0.421	-0.304	0.213	-0.246	0.412	-0.280	0.222
Other	-0.219	0.217	-0.115	0.186	-0.230	0.219	-0.101	0.191	-0.229	0.219	-0.099	0.193
Hispanic	-0.051	0.211	0.287	0.257	-0.028	0.214	0.292	0.257	-0.006	0.213	0.302	0.257
Public Assistance	-0.294	0.224	-0.101	0.182	-0.282	0.220	-0.098	0.181	-0.299	0.219	-0.104	0.179
Prior Non-Violent Delinquency	**0.366***†	0.032	**0.240*****	0.024	**0.361***†	0.032	**0.240*****	0.024	**0.356***†	0.032	**0.236*****	0.025
Violent Victimization	0.127	0.075	**0.087***	0.041	0.110	0.072	0.082	0.042	0.097	0.070	0.079	0.044
Network Suicide	**0.325***	0.139	0.116	0.150	0.317	0.140	0.110	0.152	**0.292***	0.143	0.103	0.154
Educational Strain	0.032	0.099	0.002	0.081	0.034	0.098	0.006	0.081	0.034	0.099	0.003	0.082
Childhood Sex Abuse	0.155	0.306	0.480	0.396	0.116	0.291	0.398	0.358	0.114	0.295	0.381	0.347
Bad Temper	0.240	0.141	0.238	0.122	0.220	0.144	0.229	0.120	0.210	0.142	0.219	0.120
Depression	0.014	0.010	0.015	0.011	0.013	0.010	0.014	0.010	0.010	0.010	0.013	0.011
Upset by Problems	0.096	0.082	-0.082	0.602	0.093	0.082	-0.080	0.060	0.093	0.081	-0.077	0.061
Avoidance Coping	0.067	0.066	-0.022	0.058	0.063	0.066	-0.022	0.058	0.058	0.066	-0.021	0.058
Evaluation Coping	-0.142	0.113	-0.127	0.111	-0.154	0.109	-0.130	0.113	-0.153	0.109	-0.135	0.115
Self-Esteem	-0.003	0.141	-0.091	0.139	-0.017	0.140	-0.087	0.140	-0.024	0.140	-0.083	0.140
Social Support	0.025	0.133	-0.223	0.121	0.050	0.132	-0.226	0.121	0.061	0.133	-0.218	0.123
Ran Away					0.336	0.245	0.228	0.295	0.301	0.236	0.217	0.297
School Attachment									---	---	---	---
Peer Delinquency									0.037	0.025	0.020	0.027
Constant	0.986	0.975	**3.634*****	0.896	1.034	1.000	**3.599*****	0.905	1.154	0.997	**3.678*****	0.885
α	3.038	0.322	2.351	0.257	3.027	0.319	2.350	0.256	3.017	0.316	2.349	0.256

* p <.05; ** p<.01; *** p<.001

† indicates a statistically significant gender difference

Table 5.6: Negative Binomial Regression Estimates for Non-Violent Delinquency Regressi

	Model 7: School Attachment				Model 8: Full Model			
	Female Sample		Male Sample		Female Sample		Male Sample	
Independent Variables	β	Std. Err.	β	Std. Err.	β	Std. Err.	β	Std. Err.
Age	**-0.178*** **	0.044	**-0.156*** **	0.042	**-0.186*** **	0.044	**-0.167*** **	0.038
Race (White Reference Category)								
African American	-0.009	0.212	-0.023	0.187	0.024	0.212	-0.012	0.186
Asian	-0.192	0.420	-0.305	0.215	-0.203	0.412	-0.281	0.224
Other	-0.251	0.218	-0.101	0.192	-0.247	0.219	-0.099	0.194
Hispanic	0.013	0.218	0.293	0.255	0.027	0.218	0.303	0.255
Public Assistance	-0.265	0.221	-0.098	0.181	-0.281	0.220	-0.104	0.179
Prior Non-Violent Delinquency	**0.363*** †**	0.032	**0.240*** **	0.024	**0.359*** †**	0.032	**0.236*** **	0.025
Violent Victimization	0.108	0.072	0.083	0.042	0.098	0.071	0.079	0.043
Network Suicide	**0.328***	0.139	0.110	0.152	**0.306***	0.142	0.102	0.154
Educational Strain	0.031	0.098	0.005	0.081	0.031	0.098	0.003	0.081
Childhood Sex Abuse	0.110	0.283	0.397	0.353	0.108	0.287	0.380	0.341
Bad Temper	0.197	0.139	0.229	0.120	0.191	0.138	0.219	0.120
Depression	0.012	0.010	0.014	0.010	0.009	0.010	0.014	0.010
Upset by Problems	0.091	0.082	-0.081	0.061	0.092	0.081	-0.078	0.062
Avoidance Coping	0.055	0.065	-0.022	0.058	0.052	0.065	-0.021	0.058
Evaluation Coping	-0.133	0.110	-0.130	0.112	-0.135	0.110	-0.136	0.114
Self-Esteem	0.023	0.141	-0.088	0.147	0.013	0.141	-0.084	0.148
Social Support	0.091	0.138	-0.227	0.123	0.097	0.137	-0.219	0.125
Ran Away	0.340	0.240	0.229	0.282	0.310	0.234	0.220	0.284
School Attachment	-0.121	0.072	0.004	0.099	-0.110	0.073	0.006	0.100
Peer Delinquency	---	---	---	---	0.032	0.025	0.020	0.027
Constant	1.101	0.999	**3.595*** **	0.899	1.290	0.995	**3.671*** **	0.881
α	3.006	0.321	2.350	0.256	2.999	0.318	2.349	0.256

* p <.05; ** p<.01; *** p<.001
† indicates a statistically significant gender difference

While the strain effects were not comparable across the male and female samples, the differences in the models were not significantly different by gender. The only gender difference continued to be that of the effect of prior non-violent crime.

The inclusion of negative emotions in Model 3 does little to change the significant effects within the female sample. Network suicide (β=.325), age (β=-.183), and prior crime (β=.370) were all statistically significant for females. No negative emotions were significantly associated with non-violent crime at Wave II.

Within the male sample there were two negative emotions that were related to non-violent crime. Bad temper and depression were both positively associated with male non-violent crime. Bad temper increased the count of non-violent crime by 32.5%. Additionally, depression had a statistically significant, effect on male non-violent crime, such that each additional depressive symptom increased the non-violent crime by .2.7%.

For females the lack of influence of negative emotions was contrary to Hypothesis 3. These results are also contrary to Hypothesis 8, which predicted that negative emotions would lead to female participation in non-violent and self-directed crime and delinquency. Among males support for Hypothesis 3 was stronger as bad temper and depression both positively influenced non-violent crime. Concerning gender differences, the difference in the effect of prior non-violent crime persists. Additionally, there was a significant difference in the effect of the negative emotion of being upset by problems, where being upset by problems increased female non-violent crime and decreased male non-violent crime ($Z=2.184$). The result is supportive of Hypothesis 8, but the importance of such a difference is questionable as the effect of being upset by problems was not significant for either sample.

In order to evaluate the potential mediating effects of negative emotions the user generated Stata 12 command KHB was again utilized. However, while this method is established as a way assess mediation in nonlinear probability models, such as logistic regression, the technique is experimental with negative binomial regression. Overall, the applicability of mediation analysis in Poisson distributions is in the developmental phases (Coxe and MacKinnon 2010). As this method is experimental for negative binomial regression but established for linear regression, analyses were conducted using both types

of regression as a form of sensitivity analyses. The results of the KHB test indicated that while the inclusion of negative emotions does indeed reduce the effect of network suicide for females and violent victimization among males, the mediation effects were not statistically significant. These results do not provide support for the mediation effects proposed in Hypothesis 4.

Model 4 features the inclusion of coping mechanisms. None of the added coping mechanisms were significant in either sample, indicating a lack of support for the main of effects of the moderators for Hypothesis 5. Network suicide (β= .325), age (β= -.171), and prior non-violent crime (β= .366) continue to be the sole predictors of female non-violent crime. For males, violent victimization (β= .087), age (β= -.159), and prior non-violent crime (β= .240) influenced non-violent crime. The persistence of network suicide (female) and violent victimization (male) as predictors of non-violent delinquency lends continued support to Hypothesis 1.

Model 5 – Ran Away – does not result in any new statistically significant variables in either sample. However, network suicide in the female sample and violent victimization in the male sample are no longer significant. Age (Females: β= -.173; Males: β= -.156) and prior non-violent crime (Females: β= -.361; Males: β= -.240) remain the only statistically significant predictor of Wave II non-violent crime. The gender difference in the effect of prior non-violent crime is again present with this variable a stronger predictor of female non-violent crime rather than male non-violent crime (Z=3.025).

The addition of school attachment (Model 6) and peer delinquency (Model 7) to the analyses does not alter the results for non-violent crime. Age and prior non-violent

crime remained as significant predictors of Wave II non-violent crime for both males and females. In Models 6 (70.8%) and 7 (67.2%) network suicide is again a significant predictor of female non-violent crime, with network suicide increasing non-violent crime. These results persist in Model 8. In Model 8 – Full Model – age resulted in a statistically significant decrease in female and male non-violent crime. Each additional year decreased the female log-count of crime by 17.0%. For males, each additional year resulted in a slightly smaller decrease of 15.3%. Prior non-violent crime continued to be significantly associated with increased female non-violent crime (β= .359). Prior non-violent crime was also associated with increased counts of male non-violent crime (β=.236). The effect of prior non-violent crime was significantly different across gender with non-violent crime being a significantly stronger predictor of female crime. The results from Model 8 provide some additional support for Hypothesis 1, as network suicide continues to be associated with female non-violent crime.

Figure 5.4: Hypothesis Summary for Non-Violent Crime		
Hypothesis	Supported	Not Supported
1	**X (Female) – Network Suicide, X (Male) – Violent Victimization**	
3	**X (Males) – Bad Temper, Depression**	**X (Females)**
4		**X (Both)**
5		**No Support for Main Effects**
8		**X**

Violent Crime

The results of the negative binomial regression analyses for violent crime are presented in Table 5.7. Implications of the results for the various hypotheses are demonstrated in Figure 5.5. The ordering of the models follows that of the previous regressions. Within Model 1 – Controls – age and prior violent crime were significantly related to female violent crime. Age resulted in a statistically significant decrease in the female violent crime (β=-.132). In terms of IRR, for each additional year of age violent crime counts were reduced by 12.4%. Additionally, female prior violent crime was associated with an estimated 64% increase in violent crime counts. For the male sample, African American (β= .393) and prior violent crime (β= .312) are both associated with an increase in the counts of violent crime. There were two significant gender differences; age (Z=-2.282) and prior crime (Z=3.509). Age was a significantly stronger predictor of the reduction in violent crime for female rather than male crime. Prior violent crime was a significantly stronger predictor of Wave II violent crime for females than males. These two gender differences persist through a number of the subsequent models.

With the addition of bad temper, depression, and being upset by problems in Model 3 – Negative Emotions – two of the negative emotions had an influence on violent crime. Bad temper yielded an increase in male (β= .333) and female (β= .313) violent crime, coinciding with a 36.7% increase in female violent crime and a 39.6% increase in male violent crime. Another negative emotion, being upset by problems, led to a decrease in violent crime for males (β= -.115) but not females. This coincided with a 10.9% decrease is male violent crime counts.

Table 5.7: Negative Binomial Regression Estimates for Violent Delinquency Regressed on Serious Strains

	Model 1: Controls				Model 2: Serious Strains				Model 3: Negative Emotions			
	Female Sample		Male Sample		Female Sample		Male Sample		Female Sample		Male Sample	
Independent Variables	β	Std. Err.	β	Std. Err.	β	Std. Err.	β	Std. Err.	β	Std. Err.	β	Std. Err.
Age	**-0.132**†**	0.043	-0.004	0.036	**-0.139**†**	0.042	-0.019	0.035	**-0.146**†**	0.044	-0.026	0.035
Race (White Reference Category)												
African American	0.130	0.185	**0.393***	0.176	0.175	0.186	0.357	0.184	0.124	0.186	**0.383***	0.185
Asian	0.608	0.402	0.133	0.434	0.611	0.362	0.153	0.448	0.495	0.339	0.104	0.434
Other	0.056	0.153	0.283	0.176	0.051	0.152	0.195	0.181	0.037	0.150	0.158	0.178
Hispanic	0.287	0.213	0.291	0.189	0.246	0.216	0.302	0.197	0.230	0.213	0.362	0.192
Public Assistance	0.236	0.162	-0.051	0.198	0.153	0.165	-0.048	0.200	0.057	0.181	-0.111	0.207
Prior Violent Delinquency	**0.495***†**	0.044	**0.312****	0.028	**0.409***†**	0.049	**0.273****	0.029	**0.369***†**	0.048	**0.252****	0.031
Violent Victimization					**0.186****	0.066	**0.108****	0.040	**0.205****	0.071	**0.110****	0.040
Network Suicide					0.251	0.133	0.034	0.118	0.223	0.136	0.005	0.117
Educational Strain					0.023	0.085	0.073	0.076	0.004	0.085	0.052	0.068
Childhood Sex Abuse					0.233	0.261	0.478	0.332	0.195	0.254	0.521	0.289
Bad Temper									**0.313***	0.131	**0.333****	0.113
Depression									0.012	0.008	0.012	0.009
Upset by Problems									0.088	0.069	**-0.115*†**	0.056
Avoidance Coping												
Evaluation Coping												
Self-Esteem												
Social Support												
Ran Away												
School Attachment												
Peer Delinquency												
Constant	0.271	0.623	-0.887	0.533	0.282	0.608	-0.723	0.523	-0.121	0.623	-0.420	0.549
α	1.370	0.211	1.650	0.219	1.303	0.212	1.608	0.214	1.249	0.198	1.540	0.203

* p <.05; ** p<.01; *** p<.001

† indicates a statistically significant gender difference

Table 5.7: Negative Binomial Regression Estimates for Violent Delinquency Regressed on Serious Strains Cont.

	Model 4: Coping Mechanisms				Model 5: Running Away				Model 6: Peer Delinquency			
	Female Sample		Male Sample		Female Sample		Male Sample		Female Sample		Male Sample	
Independent Variables	β	Std. Err.	β	Std. Err.	β	Std. Err.	β	Std. Err.	β	Std. Err.	β	Std. Err.
Age	**-0.144**††	0.043	-0.028	0.036	**-0.149**††	0.040	-0.029	0.037	**-0.171***	0.041	**-0.072***	0.034
Race (White Reference Category)												
African American	0.057	0.188	**0.386***	0.193	0.064	0.187	0.376	0.196	0.135	0.187	**0.461***	0.193
Asian	0.484	0.350	0.050	0.405	0.458	0.357	0.036	0.401	0.458	0.391	0.196	0.419
Other	0.008	0.150	0.150	0.176	0.010	0.151	0.139	0.176	0.032	0.154	0.164	0.177
Hispanic	0.246	0.212	0.355	0.190	0.259	0.213	0.342	0.189	0.270	0.214	**0.395***	0.197
Public Assistance	0.017	0.187	-0.111	0.207	0.026	0.187	-0.116	0.205	-0.004	0.194	-0.124	0.208
Prior Violent Delinquency	**0.377***†	0.047	**0.251***	0.032	**0.371****	0.048	**0.259***	0.033	**0.360***†	0.047	**0.237***	0.033
Violent Victimization	**0.208****	0.069	**0.104***	0.042	**0.204****	0.071	**0.104***	0.041	**0.193****	0.070	**0.083***	0.041
Network Suicide	0.222	0.137	0.001	0.113	0.222	0.138	0.012	0.115	0.186	0.137	-0.033	0.117
Educational Strain	-0.001	0.087	0.053	0.068	-0.009	0.089	0.056	0.068	-0.016	0.088	0.056	0.071
Childhood Sex Abuse	0.207	0.259	0.513	0.279	0.181	0.273	**0.579***	0.290	0.173	0.279	**0.542***	0.256
Bad Temper	**0.315***	0.131	**0.321****	0.115	**0.312***	0.130	**0.344****	0.115	**0.300***	0.129	**0.303***	0.120
Depression	0.008	0.009	0.011	0.011	0.008	0.009	0.011	0.011	0.004	0.010	0.008	0.011
Upset by Problems	0.033	0.074	-0.111	0.058	0.034	0.075	-0.110	0.058	0.028	0.076	-0.107	0.058
Avoidance Coping	**0.138***	0.066	0.003	0.050	**0.139***	0.065	0.008	0.049	**0.147****	0.065	0.019	0.048
Evaluation Coping	0.154	0.106	0.024	0.075	0.152	0.106	0.029	0.075	0.136	0.110	0.014	0.073
Self-Esteem	-0.085	0.122	0.064	0.124	-0.086	0.122	0.066	0.126	-0.091	0.123	0.075	0.125
Social Support	0.018	0.125	-0.137	0.126	0.036	0.123	-0.148	0.126	0.076	0.123	-0.108	0.126
Ran Away					0.271	0.269	-0.350	0.238	0.235	0.261	-0.398	0.232
School Attachment									---	---	---	---
Peer Delinquency									**0.062****	0.023	**0.093*****	0.021
Constant	-0.639	0.803	-0.201	0.842	-0.646	0.794	-0.202	0.859	-0.496	0.782	0.096	0.863
α	1.212	0.200	1.537	0.205	1.232	0.204	1.524	0.210	1.219	0.196	1.461	0.205

* p <.05; ** p<.01; *** p<.001

† indicates a statistically significant gender difference

Table 5.7: Negative Binomial Regression Estimates for Violent Delinquency Regressed on Serious Strains Cont.

	Model 7: School Attachment				Model 8: Full Model			
	Female Sample		Male Sample		Female Sample		Male Sample	
Independent Variables	β	Std. Err.	β	Std. Err.	β	Std. Err.	β	Std. Err.
Age	**-0.150*****†	0.040	-0.030	0.037	**-0.170*****	0.041	**-0.075***	0.034
Race (White Reference Category)								
African American	0.063	0.189	0.375	0.197	0.136	0.190	**0.460***	0.195
Asian	0.459	0.349	0.023	0.401	0.457	0.385	0.177	0.417
Other	0.009	0.151	0.134	0.177	0.033	0.155	0.155	0.179
Hispanic	0.260	0.214	0.343	0.191	0.269	0.215	**0.400***	0.200
Public Assistance	0.027	0.187	-0.115	0.205	-0.005	0.194	-0.121	0.207
Prior Violent Delinquency	**0.371*****	0.048	**0.260*****	0.033	**0.360*****†	0.047	**0.239*****	0.034
Violent Victimization	**0.203****	0.070	0.106	0.041	**0.193****	0.069	**0.089***	0.041
Network Suicide	0.222	0.137	0.013	0.115	0.185	0.137	-0.032	0.116
Educational Strain	-0.009	0.090	0.056	0.068	-0.005	0.089	0.057	0.071
Childhood Sex Abuse	0.181	0.273	**0.586***	0.293	0.173	0.279	**0.555***	0.258
Bad Temper	**0.312***	0.132	**0.347****	0.115	**0.300***	0.130	**0.308***	0.119
Depression	0.008	0.010	0.012	0.011	0.004	0.010	0.009	0.011
Upset by Problems	0.035	0.074	-0.112	0.057	0.027	0.076	-0.111	0.057
Avoidance Coping	**0.138***	0.065	0.009	0.049	**0.148***	0.065	0.020	0.048
Evaluation Coping	0.152	0.106	0.025	0.076	0.136	0.109	0.006	0.074
Self-Esteem	-0.084	0.117	0.051	0.127	-0.093	0.118	0.046	0.125
Social Support	0.038	0.131	-0.158	0.128	0.074	0.130	-0.127	0.129
Ran Away	0.272	0.270	-0.354	0.237	0.234	0.262	-0.405	0.231
School Attachment	-0.005	0.088	0.039	0.067	0.006	0.086	0.078	0.069
Peer Delinquency	---	---	---	---	**0.063****	0.024	**0.096*****	0.022
Constant	-0.635	0.831	-0.223	0.860	-0.509	0.827	0.055	0.861
α	1.233	0.206	1.527	0.210	1.218	0.200	1.466	0.205

* p <.05; ** p<.01; *** p<.001
† indicates a statistically significant gender difference

The effect of bad temper was consistent with the expectations of Hypothesis 3 as it yielded increased violent crime. The non-significant effect of depression for males was partially consistent with the expectations of Hypothesis 8 as depression reduced the likelihood of other-directed crime. However, depression did not reduce violent crime among females as was predicted. The effect of being upset by problems was also significantly different by gender as it was a significantly better predictor of a reduction in

male rather than female crime (Z=2.284). Prior violent crime (Females: β= .369; Males: β=.252), age (Females: β= -.146), and violent victimization (Females: β= .205; Males: β= .110) remained significant in Model 3. The effects of violent victimization remained consistent with Hypothesis 1. The gender differences documented in age (Z=-2.134) and prior violent crime (Z=2.048) persisted. The coefficient for African American males was again significant and persists throughout most of the remaining models.

An additional test for the mediating effects postulated in Hypothesis 4 was conducted using the KHB in the same fashion as it was for non-violent crime. The results of the KHB test with both a negative binomial and linear regression indicated that while the inclusion of negative emotions did reduce some of the effect of violent victimization, the mediation effect was not statistically significant. These results are counter to the expectations of Hypothesis 4.

The four coping mechanisms in Model 4 yielded few new significant results. Female avoidance coping were significantly associated with an increase in violent crime (β= .138). As females were more likely to avoid dealing with problems there was an expected increase in violent crime of 14.7%. No other coping mechanisms were statistically significant. These results provide only weak support for the main effects of moderating variables from Hypothesis 5. Being upset by problems was no longer significant for males, but all other results from Model 3 persisted in terms of significant coefficients and gender differences.

The addition of running away in Model 5 did not yield any new statistically significant results for running away, but it did have an interesting impact on the role of childhood sexual abuse for males. Experiencing childhood sexual abuse was significantly

related to an increase in the male violent crime counts (β=.579). This effect persisted for males in the remaining models. Childhood sexual abuse coincided with a 78.5% increase in male violent crime counts and was consistent with Hypothesis 1. An examination of multicollinearity indicated that collinearity was not an issue with the childhood sexual abuse variable (VIF=1.03). Additional changes to Model 5 included the reduction to non-significance of the race difference between African Americans and whites (p=.058). The gender difference in prior violent crime (Z=1.92) desisted. The age effects (Females: β=-.149), prior violent crime (Females: β= .371; Males: β= .259), violent victimization (Females: β= .204; Males: β= .104), bad temper (Females: β= .312; Males: β= .344), and avoidance coping (Females: β= .139) results remained in Model 5. The effects of violent victimization continued to support Hypothesis 1, whereas the effect of bad temper was consistent with Hypothesis 3. The significant difference in the age effect continued as age significantly reduced female compared to male violent crime (Z=-2.202).

In Model 6 – Peer Crime – delinquent peers significantly increased violent crime for both males (β= .093) and females (β= .062), again supporting the importance of delinquent peers in influencing crime. This was equivalent to a 6.4% increase in female violent crime and a 9.8% increase in male violent crime. Age also significantly reduced the violent crime among males (β= -.072). Additionally, Hispanic ethnicity now significantly increased the log-count of violent crime within the male model (β= .395) compared to non-Hispanics. Age (Female: β= -.171), prior violent crime (Females: β= .360; Males: β= .237), violent victimization (Females: β= .193; Males: β= .083), childhood sex abuse (Males: β= .542), bad temper (Females: β= .300; Males: β= .303), and avoidance coping (Females: β= .147) remain statistically significant in this model.

The gender difference in age is no longer statistically significant (Z=1.859). The results from Model 7 – School Attachment – resulted in the same statistically significant effects as Model 5 – Running Away – with some changes in effect size. School attachment did not significantly predict violent crime.

Model 8 – Full Model – demonstrated results similar to those of Model 6 – Peer Crime – with differences in effect size. Age was significantly associated with reductions in violent crime for females (β= -.170) and males (β= -.075). However, these two coefficients are no longer significantly different by gender. Prior violent crime was significantly associated with increased female (β= .360) and male (β= .239) violent crime. The effect of prior violent crime was again significantly stronger for females than it is males (Z=2.086). Violent victimization was also significantly associated with an increase in violent crime for both groups (Females: β= .193; Males: β= .089), supporting Hypothesis 1. The negative emotion, bad temper, was related to increases in violent crime for both genders (Females: β= .300; Males: β= .308) in line with Hypothesis 3. Delinquent peers continued to be associated with an increase in violent crime with males (β= .096) and females (β= .063). Avoidance coping was associated with a 15.9% increase in female violent offending counts. For males, unique effects are present for race, ethnicity, and childhood sexual abuse. African American males (β= .460), compared to white males, had higher counts of violent crime. This same type of effect was present for Hispanic (β= .400) males who had higher violent crime counts compared to non-Hispanic males. The effect of race and ethnicity likely result from the addition of variables which mediate relationships between whites, non-Hispanics, and violent crime. In other words, it is possible that GST as tested in this dissertation provided a better explanation of white

and non-Hispanic violent crime than it does African American and Hispanic violent crime. However, this proposition was not tested. In addition to the race and ethnicity effects among males, childhood sexual abuse was significantly associated with increased violent crime (β= .555). For males, the effect of experiencing childhood sexual abuse can be expected to increase the number of violent delinquent acts by 74.2%.

Figure 5.5: Hypothesis Summary for Violent Crime		
Hypothesis	Supported	Not Supported
1	**X (Both) – Violent Victimization**	
3	**X (Both) – Bad Temper**	
4		**X (Both)**
5	**Main Effects Partially Supported (Females)**	
8		**X**

Ran Away

The results of the logistic regression analyses for running away as a dependent variable are presented in Table 5.8. Implications for the hypotheses are outlined in Figure 5.6. While the previous two analyses utilized negative binomial regression, the analyses for running away proceeded with a binary outcome and used binary logistic regression. Seven separate models are presented for running away instead of eight as prior running away was utilized as a separate model in previous analyses and was included in a control for prior delinquency in the models for running away.

Model 1 – Controls – included the socio-demographic controls of age, race, Hispanic ethnicity, parental public assistance, and Wave I running away. For both samples, the only statistically significant variable was prior running away. The analyses indicated prior running away resulted in a statistically significant increase in the log-odds (Females: β= 3.066; Males: β= 2.500) of running away. Females who ran away during Wave I were 21.450 times as likely to run away at Wave II and males who ran away at Wave I were 12.189 times as likely to run away at Wave II. Within this model there were no significant gender differences.

Model 2 – Serious Strains – included all of the strains. As in Model 1 – Controls – running away at Wave I remains highly predictive of running away for both females (β= 2.881; OR=17.828) and males (β= 2.210; OR=9.112). The strains of violent victimization, network suicide, and childhood sexual abuse all impacted running away at Wave II. For females, network suicide doubled the odds of running away from home (β= .744; OR=2.105). For males, experiencing violent victimization resulted in a statistically significant increase in the odds of running away (β= .228; OR=1.256). Males who experienced childhood sexual abuse were also more likely to run away (β= 1.289; OR=3.629). The results of Model 2 for running away demonstrate support for Hypothesis 1. However, none of the effects were significantly different by gender.

The addition of the four negative emotions in Model 3 lends some additional support to the negative emotion aspects of GST (Hypothesis 3), as several negative emotions were successful in predicting running away. For females, depression was associated with a greater probability of running away (β=.047). Each one point increase in depressive symptoms led to an increased odds of running away of 1.048. Parental

reports of a male child having a bad temper were associated with an increase in the log-odds (β= .033) of running away (OR=2.181). This indicated that males with a bad temper were about twice as likely to run away as males who did not have a bad temper. Prior running away (Female: β= 2.628; Male: β= 1.934) remained significantly associated with this behavior at Wave II and was the largest significant coefficient related to running away. For males, violent victimization (OR=1.219) and childhood sexual victimization (OR=3.965) were both associated with an increased likelihood of running away. Males who were sexually victimized before 6th grade were nearly four times as likely to run away from home as males who did not experience childhood sexual abuse.

Analysis of the hypothesized mediating effects of negative emotions did not indicate support for Hypothesis 4. The use of the KHB method indicated that while the addition of negative emotions reduced the effects of strain on running away, they did not significantly mediate those effects. Overall, the findings from Model 3 – Negative Emotions – lends support for aspects of Hypothesis 3 and continued support for Hypothesis 1, but no support was evident for Hypothesis 4.

Table 5.8: Logistic Regression Estimates for Running Away Regressed on Serious Strains

	Model 1: Controls				Model 2: Serious Strains				Model 3: Negative Emotions			
	Female Sample		Male Sample		Female Sample		Male Sample		Female Sample		Male Sample	
Independent Variables	OR	Std. Err.	OR	Std. Err.	OR	Std. Err.	OR	Std. Err.	OR	Std. Err.	OR	Std. Err.
Age	1.027	0.072	1.012	0.097	1.045	0.076	0.969	0.097	1.012	0.074	0.942	0.093
Race (White Reference Category)												
African American	1.295	0.484	1.164	0.584	1.387	0.538	0.965	0.483	1.149	0.460	0.962	0.469
Asian	1.995	0.719	1.000	###	**2.276***	0.868	1.000	###	1.686	0.659	1.000	###
Other	1.484	0.569	1.457	0.740	1.439	0.541	1.212	0.648	1.361	0.522	1.087	0.570
Hispanic	0.940	0.364	1.205	0.585	0.898	0.345	1.042	0.549	0.833	0.324	1.067	0.552
Public Assistance	0.787	0.336	1.658	0.924	0.648	0.299	1.838	1.028	0.524	0.248	1.539	0.870
Previously Ran Away (Time 1)	**21.450*****	6.122	**12.189*****	4.762	**17.828*****	5.823	**9.112*****	3.691	**13.852*****	4.892	**6.917*****	3.046
Violent Victimization					1.043	0.140	**1.256***	0.120	1.002	0.142	**1.219***	0.115
Network Suicide					**2.105****	0.567	1.321	0.504	**1.757***	0.488	1.162	0.453
Educational Strain					1.353	0.255	1.069	0.255	1.246	0.258	0.954	0.226
Childhood Sex Abuse					1.109	0.609	**3.629***	2.048	1.077	0.599	**3.965***	2.217
Bad Temper									1.544	0.444	**2.181***	0.809
Depression									**1.048****	0.017	1.034	0.024
Upset by Problems									1.059	0.192	1.162	0.205
Avoidance Coping												
Evaluation Coping												
Self-Esteem												
Social Support												
School Attachment												
Peer Delinquency												
Constant	**0.022*****	0.023	0.006*	0.030	**0.012*****	0.014	**0.029***	0.045	**0.009*****	0.011	**0.015****	0.024

* p <.05; ** p<.01; *** p<.001
- No Asian Males Ranaway
† indicates a statistically significant gender difference

Table 5.8: Logistic Regression Estimates for Running Away Regressed on Serious Strains Cont.

	Model 4: Coping Mechanisms				Model 5: Peer Delinquency				Model 6: School Attachment			
	Female Sample		Male Sample		Female Sample		Male Sample		Female Sample		Male Sample	
Independent Variables	OR	Std. Err.	OR	Std. Err.	OR	Std. Err.	OR	Std. Err.	OR	Std. Err.	OR	Std. Err.
Age	0.996	0.074	0.957	0.091	0.982	0.076	0.903	0.092	0.975	0.073	0.952	0.090
Race (White Reference Category)												
African American	1.189	0.501	0.842	0.432	1.282	0.521	0.951	0.486	1.187	0.490	0.821	0.425
Asian	1.641	0.691	1.000	###	1.608	0.677	1.000	###	1.784	0.789	1.000	###
Other	1.384	0.523	1.172	0.587	1.424	0.539	1.226	0.646	1.402	0.531	1.153	0.579
Hispanic	0.843	0.335	1.045	0.526	0.871	0.347	1.049	0.559	0.877	0.352	1.036	0.526
Public Assistance	0.533	0.261	1.322	0.696	0.509	0.256	1.319	0.696	0.544	0.261	1.319	0.690
Previously Ran Away (Time 1)	**13.386*** **	4.706	**7.709*** **	3.432	**13.002*** **	4.692	**7.270*** **	3.329	**13.843*** **	4.933	**7.909*** **	3.565
Violent Victimization	1.003	0.141	**1.269***	0.127	0.984	0.137	1.231	0.131	0.997	0.144	**1.294***	0.130
Network Suicide	**1.759***	0.493	1.000	0.459	1.690	0.482	0.883	0.408	**1.785***	0.514	1.004	0.463
Educational Strain	1.249	0.268	0.989	0.248	1.245	0.267	0.996	0.250	1.243	0.272	0.988	0.248
Childhood Sex Abuse	1.010	0.581	**4.111***	2.337	0.995	0.568	**4.219***	2.424	0.954	0.547	**4.120***	2.389
Bad Temper	1.521	0.443	**2.520** **	0.865	1.481	0.421	**2.352***	0.843	1.479	0.429	**2.524** **	0.860
Depression	1.043	0.023	**1.065***	0.029	1.038	0.025	**1.067***	0.030	1.038	0.024	**1.068***	0.030
Upset by Problems	1.068	0.222	1.189	0.226	1.066	0.223	1.173	0.222	1.082	0.224	1.189	0.223
Avoidance Coping	0.916	0.114	0.835	0.148	0.922	0.115	0.854	0.150	0.906	0.113	0.829	0.147
Evaluation Coping	1.219	0.300	1.114	0.303	1.230	0.303	1.105	0.300	1.266	0.311	1.087	0.289
Self-Esteem	0.897	0.257	1.739	0.605	0.877	0.253	1.884	0.666	0.945	0.261	1.669	0.583
Social Support	0.870	0.214	1.190	0.314	0.898	0.216	1.280	0.355	0.924	0.236	1.164	0.314
School Attachment					---	---	---	---	0.786	0.129	1.169	0.208
Peer Delinquency					1.054	0.056	**1.137***	0.070	---	---	---	---
Constant	**0.020***	0.038	**0.000** **	0.001	**0.021** **	0.040	**.000** **	0.001	0.037	0.075	**0.000** **	0.001

* p <.05; ** p<.01; *** p<.001

- No Asian Males Ranaway

† indicates a statistically significant gender difference

Table 5.8: Logistic Regression Estimates for Running Away Regressed on Serious Strains Cont.
Model 7: Full Model

	Female Sample		Male Sample	
Independent Variables	OR	Std. Err.	OR	Std. Err.
Age	0.967	0.075	0.893	0.091
Race (White Reference Category)				
African American	1.257	0.499	0.922	0.474
Asian	1.746	0.775	1.000	###
Other	1.430	0.542	1.199	0.637
Hispanic	0.895	0.359	1.030	0.560
Public Assistance	0.524	0.258	1.323	0.693
Previously Ran Away (Time 1)	**13.485*** **	4.972	**7.464*** **	3.448
Violent Victimization	0.984	0.140	**1.260***	0.132
Network Suicide	1.728	0.512	0.880	0.414
Educational Strain	1.240	0.271	0.992	0.250
Childhood Sex Abuse	0.947	0.540	**4.355***	2.468
Bad Temper	1.451	0.412	**2.355***	0.835
Depression	1.034	0.025	**1.072***	0.031
Upset by Problems	1.080	0.225	1.176	0.219
Avoidance Coping	0.911	0.114	0.846	0.148
Evaluation Coping	1.272	0.314	1.066	0.281
Self-Esteem	0.925	0.257	1.791	0.640
Social Support	0.940	0.235	1.246	0.354
School Attachment	0.801	0.132	1.235	0.232
Peer Delinquency	1.040	0.057	**1.145***	0.071
Constant	0.037	0.076	**.000****	0.001

* p <.05; ** p<.01; *** p<.001
- No Asian Males Ranaway
† indicates a statistically significant gender difference

When coping mechanisms are added in Model 4, the effect of depression for females is rendered non-significant. There are no significant effects of any of the coping skills and the only significant effects for females were prior running away (OR=13.386) and network suicide (OR=1.759). Females who previously ran away were 13 times more likely to run away while females who experienced a network suicide, or attempt, were 1.759 times more likely to run away consistent with Hypothesis 1.

For males, none of the coping mechanisms were statistically significant, nor did they reduce the already significant effects. However, within the model male depression was a significant predictor of running away (β= .063; OR=1.065), supporting Hypothesis 1 but counter to the predictions of Hypothesis 8. A one unit increase in depressive symptomology increased the odds of males running away by 1.065. For males, the effects of previously running away (β= 2.042; OR=7.709), violent victimization (β= .283;

OR=1.269), childhood sexual abuse (β= 1.414; OR=4.111), and bad temper (β= .924; OR=2.520) remained significant, and in fact, increased slightly in effect size. Initial support for the main effects of moderating variables from Hypothesis 5 was lacking as none of the coping mechanisms were significant for either males or females.

The remaining three models demonstrated few differences in which variables were significant. Some coefficients changed with the removal of peer delinquency and the addition of school attachment in Model 6 – School Attachment, but these changes disappear in the final model, Model 7 – Full Model. As such Models 5 and 6 are discussed together.

In the female sample of Model 5 – Peer Delinquency – the only significant effect is that of prior running away (β=2.565). Females who had previously run away were 13 times as likely to run away in Wave II. No other effects were statistically significant for the female sample. With males, the addition of peer delinquency changes the model slightly. Peer delinquency was positively associated with an increase in the log-odds of males running away (β= .128), again supporting the role of negative peers. For each additional delinquent friend, or delinquent act a friend was involved, males were 1.137 times as likely to run away at Wave II. The only other change in the model was the reduction of the effect of violent victimization to non-significance. However, the effect returned to statistical significance in Models 6 –School Attachment - and Model 7 – Full Model. For males, prior running away (β= 1.984; OR=7.270), childhood sexual abuse (β= 1.440; OR=4.219), bad temper (β= .855; OR=2.352), and depression (β= .065; OR=1.067) all remain statistically significant. In Model 6 – school attachment was not a

significant predictor of running away for either males or females and significant coefficients were the same as Model 4.

The full model, Model 7, included both school attachment and peer delinquency and was similar to Model 5 – Peer Delinquency in regards to the effects that were statistically significant With the female sample, the only remaining significant effect is that of prior running away (β= 2.602). Females who previously had run away were 13 times as likely to run away at Wave II. Males who had previously run away were 7.464 times as likely to run away at Wave II (OR=7.464). For males, depression (OR=1.072), delinquent peers (OR=1.145), bad temper (OR=2.355), violent victimization (OR=1.260), and childhood sexual abuse (OR=4.355) all remained significant predictors of running away at Wave II. No gender differences were present in this, or any of the other running away models. While there were no statistical gender differences in the models, the results for males provide some of the best support for the GST hypotheses. Violent victimization and childhood sexual abuse were predictive of males running away, supporting Hypothesis 1, but no mediating effect of negative emotions was present, counter to Hypothesis 4. Supporting Hypothesis 3, depression and having a bad temper were also associated with males running away, but these effects are indicative of lack of support for Hypothesis 8.

Figure 5.6: Hypotheses Summary for Running Away		
Hypothesis	Supported	Not Supported
1	**X (Males) – Violent Victimization, X (Males) – CSA, X (Females) – Network Suicide**	
3	**X (Males) – Bad Temper, X (Females) – Depression,**	
4		**X (Both)**
5		**No Initial Support for Main Effects**
8		**X**

Multivariate Analyses Summary

The previous analyses evaluated the propositions found in Hypotheses 1, 3, 4, and 8, and to some degree Hypothesis 5. Overall, the results from the delinquency regression models provided some support for the different gendered-GST hypotheses. If a variable was significant in regression models predicting one dependent variable, e.g. smoking marijuana, it often was not significant in models predicting other outcomes, e.g. non-violent delinquency. The most consistent effects were in regards to violent victimization and bad temper. Hypothesis 1 stated strain would be positively associated with crime and delinquency; it was mostly supported as experiencing violent victimization was predictive of both genders' violent delinquency and smoking marijuana. It was also consistent with increased male non-violent delinquency and running away. The strain of network suicide was predictive of female non-violent delinquency and running away, while childhood sexual abuse was significant for males' running away. In no model was educational strain predictive of crime and delinquency, which was no surprise given the

critiques of educational strain (e.g. Kornhauser 1978). There were no significant gender differences in the effects of strain.

Hypothesis 3 stated that negative emotions will be associated with crime; it received strong support for all four outcomes. Bad temper predicted increased crime and delinquency for males across all four dependent variables. Bad temper was also associated with females' smoking marijuana and running away. The effects of depression were somewhat consistent with Hypothesis 3 as depression was associated with females' smoking marijuana and running away. Contrary to Hypothesis 3, being upset by problems was not related to any of the measured forms of crime or delinquency. Also, in regard to non-violent delinquency, no negative emotions were associated with female delinquency. The results were not supportive of all aspects of Hypothesis 8. Depression was associated with females smoking marijuana and running away but there was no reduction in non-violent or violent crime.

The final hypothesis tested by these regressions was Hypothesis 4, which stated that the direct effects of strain would be mediated by negative emotions. However, there was no evidence that the significant strain effects outlined in Hypothesis 1 were significantly mediated by the inclusion of negative emotions. In several cases, the addition of negative emotions reduced the effect of strain but did not reach a level of significance as determined by a test using the KHB method.

Notably, those who associated with delinquent peers were more likely to engage in certain forms of criminal acts. For females these included smoking marijuana and violent crime. For males, these included smoking marijuana, violent crime, and running away. GST argues that strain frees individuals to associate with criminal others and

increases the appeal of doing so. Association with delinquent peers can increase disposition, opportunity, and attitudes favorable to crime. These aspects of GST were not tested in this dissertation. However, the results presented her suggest that association with criminal others does promote certain forms of criminal coping.

Multivariate Results - Moderation Models

In addition to the multivariate regression models discussed earlier, regressions models modeling the interaction effects of the moderators identified in gendered-GST were estimated. These interaction effects were between negative emotions and the theorized conditioning effects of coping styles, social support, and self-esteem. These regressions involved a total of 18 interaction effects. The results of these regressions are presented in Table 5.9 which presented only the significant interaction effects ($p<.05$). Each interaction effect was initially estimated at the average (mean), high (1 standard deviation above the mean), and low values (1 standard deviation below the mean) of the hypothesized moderator variable (i.e. coping style, self-esteem, social support). After initial estimates did not adequately demonstrate the interaction effects, additional analyses of the interaction effect was completed using Stata 12 *margins* and *marginsplot* commands to estimate the marginal effects at various representative values of the moderator. The effects were estimated following the common practice of estimating the interaction effect at the mean and +/- one standard deviations from the mean of the moderator variable (Aiken and West 1991), but also included the minimum and maximum value of the moderator. These results are presented for females and males in the ordering of the previous results - smoking marijuana, non-violent delinquency, and running away. No significant interaction effects were present for violent delinquency.

Table 5.9: Moderation Models - Interaction Effects

	β	Std. Err.	OR	Std. Err.
Marijuana Use				
Female: Upset by Problems x Avoidance Coping*	-0.191	0.083	0.826	0.069
Upset by Problems	-0.644	0.899	0.525	0.473
Avoidance Coping	0.627	0.342	1.872	0.639
Male: Depression x Avoidance Coping*	-0.024	0.012	0.975	0.011
Depression	0.110	0.111	1.116	0.124
Avoidance Coping	0.085	0.327	1.089	0.356
Non-Violent Delinquency				
Female: Bad Temper x TRDM*	-0.573	0.2255	---	---
Bad Temper	1.297	1.179	---	---
TRDM	0.041	0.359	---	---
Male: Depression x Self-Esteem*	0.033	0.016	---	---
Depression	-0.0002	0.057	---	---
Self-Esteem	-0.014	0.392	---	---
Ran Away				
Male: Depression x TRDM**	-0.106	0.032	0.899	0.029
Depression	0.416**	0.142	1.515	0.215
TRDM	1.145	0.812	3.142	2.552
Female: Upset by Problems x Avoidance Coping***	-0.451	0.122	0.627	0.077
Upset by Problems	0.716	1.126	2.046	2.304
Avoidance Coping	1.566***	0.398	4.788	1.904
Violent Delinquency				
No Significant Interactions				

* p <.05; ** p<.01; *** p<.001

† indicates a gender difference

Such an analysis is typically interpreted as the amount of change in the criminal outcome with a unit change in the respective negative emotion while holding the hypothesized moderator constant at different values (UCLA Statistical Consulting Group 2012). However, for the current interpretation these results are reported in terms of their more general patterns of change and not the specific changes occurring at different levels of the moderator. Specific values of the marginal effects at various representative values are reported in Appendix E.

Smoking Marijuana

Among the moderation analyses of smoking marijuana, two interactions were significant. The interaction between being upset by problems and avoidant coping was significant for females and the interaction of depression and avoidant coping was significant for males.

The analyses of smoking marijuana indicated that for females the interaction between being upset by problems and avoidant (behavioral) coping was significant. While neither of the main effects of upset by problems (OR=.525) and avoidant coping (OR=1.872) were significant, there was a significant negative interaction between the two variables (OR=-.826). From these analysis it was evident that the interaction effect did indeed vary by level of avoidance coping. However, the impact was only significant at low levels of avoidance coping (minimum and -1sd from mean). The effect of avoidance coping was such that at these low values, which coincided roughly with the response categories strongly disagree and disagree, the effect of being upset by problems was increased. At higher levels of avoidance coping, agree and strongly agree, the impact of being upset by problems on smoking marijuana was decreased, but these effects were not significant. Due to these results, it is evident that the moderation effect of avoidance coping was partially consistent with the predictions of Hypothesis 5, as low levels of avoidance coping were related to an increase in the effects of being upset by problems on smoking marijuana. However, the moderating effect was not fully present, as higher levels of avoidance coping did not decrease the effects of being upset by problems on crime.

With males an interaction effect was present between depression (OR=1.116) and avoidance coping (OR=1.089). Neither variables' effects were significant but their interaction term was significant (OR=.976). Examination of the estimated effects at different levels of avoidance coping indicated that the positive impact of depression was reduced at higher levels of avoidance coping. These results were only significant at the highest level of avoidance coping where avoidance coping led to a small, but statistically significant, reduction in the effects of depression. Again, these results lend some support to Hypothesis 5 the effect avoidance coping, while small, did moderate the impact of depression. No statistically significant gender differences were present for either interaction effect, counter to the expectations of Hypothesis 10.

Non-Violent Delinquency

Looking at nonviolent delinquency, one interaction term was significant for females, the interaction between anger (β= 1.297) and TRDM (β= .0412). The coefficient for the interaction between anger and TRDM was negative (β= -.573). Analyses of the interaction effect at the different levels of TRDM indicated that the effect of anger decreased at higher levels of TRDM. In other words the estimated number of non-violent criminal events as influenced by anger decreased at higher levels of TRDM. To an extent, angry females with higher levels of TRDM are able to handle the impact of anger and had lower levels of non-violent crime.

For males, the interaction between depression (β=-.0001) and self-esteem (β= -.014) was significant. The interaction itself was positive (β= .033). Initial examination of this interaction effect at the five different levels of self-esteem indicated no significant effects. However, examining the differential effect of self-esteem at meaningful levels of

depression indicated that the moderating effect of self-esteem on depression was not consistent. At low levels of self-esteem depression decreased the expected number non-violent acts, but this effect was not significant. At low (-1 sd.) and medium (mean) depression, self-esteem had a positive conditioning impact on the depression-crime association. At these levels of depression, higher levels of self-esteem increased the number of predicted non-violent delinquent acts due to depression. This effect is counter to that expected in Hypothesis 5 as self-esteem did not significantly reduce the effect of depression on crime but was consistent with Broidy and Agnew's (1997) suggestion that higher levels of self-esteem, especially criminal self-esteem, among males would encourage participation in crime. Neither of the two interaction effects in the non-violent crime models were significantly different by gender, counter to Hypothesis 10.

Ran Away

Two significant interactions were present for running away: one for females and one for males. For females the interaction between being upset by problems (OR=2.046) and avoidance coping (OR=4.788) was significant. In this case, the interaction term was negative (OR= .637). Examination of the change in being upset by problems effect at five different levels of avoidance indicated a moderating effect consistent with Hypothesis 5. At the two lowest levels of avoidance coping the changes in the effect of being upset by problem on smoking marijuana was increased. However, at the highest level of avoidance coping the effect of being upset by problems on the predicted probability of running away was significantly reduced. This is consistent with Hypothesis 5 as avoidance coping reduced the impact of the negative emotion, being upset by problems.

For males, the interaction between depression (OR=1.515) and TRDM (OR=3.142) was negative and significant (OR=.899). The analyses of the effect of depression at different levels of TRDM indicated a negative slope in which higher levels of TRDM decreased the effect of depression on running away. However, these effects were only significant at the mean and lower levels of TRDM. This indicates that while higher levels of TRDM decreased the influence of depression on the probability of running away, TRDM was unable to negate the effect of depression. Again these results are partially supportive of Hypothesis 5. Further, this interaction effect was significantly different by gender where the interaction effect was significant for males but was not so for females. As such, the interaction of depression and TRDM had significantly stronger negative impact on running away for males than it did for females. While a gender difference is present, the difference is counter to the expectations of Hypothesis 10. Hypothesis 10 posited that these moderation effects would be significantly stronger for females than males. In this case the effect is in the opposite direction.

Summary

Overall, the analyses of the moderation effects are somewhat supportive of gendered-GST and Hypothesis 5. The majority of interaction effects did not have a significant impact on the crime and delinquency outcomes. However, a handful of interactions were significant and impacted delinquent outcomes in accordance with gendered-GST. For males, high levels of avoidance coping led to a reduction of the positive influence of depression on the predicted probability of smoking marijuana. Additionally, for females the positive effect of anger on nonviolent delinquency was reduced at high levels of TRDM. Further, for females the positive effect of being upset

by problems on running away was reduced by avoidance coping at the highest levels of avoidance coping.

Partial support for Hypothesis 5 came from the interaction, for males, between depression and TRDM for running away. With this particular interaction the slope of TRDM's effect was negative indicating that the size of the depression effect was reduced as utilization of TRDM increased. However, TRDM was not significant at levels at which TRDM would have led to an estimated negative effect on depression's effect on running away. A similar effect, for females, is present for smoking marijuana between being upset by problems and avoidance coping.

Finally, there was one interaction which indicated a pattern opposite of that found in Hypothesis 5. For males, the interaction between depression and self-esteem appeared opposite of the hypothesized effect which stated self-esteem would reduce the positive influence of depression on crime. In this case, at specific levels of depression, self-esteem not only increased the effect of depression on non-violent crime but this effect had a positive slope indicating that the effect increased at higher levels of self-esteem. While counter to the specifics of Hypothesis 5 this finding is consistent with the suggestion of Broidy and Agnew (1997) that high levels of self-esteem may increase male involvement in crime.

Chapter Summary

The results from the bivariate and multivariate analyses of strain, negative emotions, and crime were presented in this chapter. Analyses allowed for the testing of the nine hypotheses related to the propositions of GST and the gendering of negative emotions, coping skills, and strain. Of these nine hypotheses, there was support for several hypotheses (Hypotheses 1, 2, 3, 5, 6, and 9) while little to no support was present

for others (Hypotheses 4, 7, and 8). The only gender differences that reached a statistical level of significance were that of strain and negative emotions. Females were more likely to have a family or friend attempt suicide while males were more likely to experience violent victimization or educational strain. With negative emotions, females were more depressed and more likely to be upset by problems than males. The results of these analyses are largely supportive of Agnew's GST.

Certain strains and negative emotions were associated with specific criminal outcomes but maintained no consistent pattern across the different forms of crime. Violent victimizations' relationship to criminal outcomes were probably the most consistent results in these analyses. Violent victimization was associated with smoking marijuana and violent crime for both and with non-violent crime and running away for males. Reactions to strains did appear to be further gendered as network suicide was associated with females' running away and non-violent crime but not smoking marijuana or violent crime. Anger (bad temper) was also consistently related to all male criminal outcomes along with female violent crime and smoking marijuana. Depression, which was expected to reduce female outward directed and increase self-directed crime, was associated with increases in running away and smoking marijuana but was not related to the other measures. Overall, gendered patterns of the effects of strain and negative emotions are present and consistent with the gendered hypotheses of GST, but do not reach a statistical level of significance. While there are no statistical differences in the effects of strains and negative emotions the statistical differences in the type of negative emotions and strains females and males experience is supportive of gendered-GST.

Consistent with conditioning effects outlined in gendered-GST there was moderate support as some of the interactions between negative emotions and coping mechanisms revealed the differential impact of coping mechanisms on negative emotions. These effects demonstrated that occasionally the role of negative emotions on criminal outcomes were lower when higher levels of coping skills were available. The implications of these and the others analyses on gendered-GST are discussed in greater detail in Chapter 6 – Discussion and Conclusions.

Chapter 6 – Discussion and Conclusions

Chapter Introduction

This chapter provides an overview of this dissertation. It includes a review of the purpose of the study and the research questions. The chapter then addresses the findings of this dissertation, the limitations, directions for future research, and conclusion.

This purpose of this study was two-fold: (1) to evaluate the need for the inclusion of gender-specific elements into gender neutral theory, and (2) to examine whether a gendered form of general theory provided a reasonable explanation of women's crime. Specifically, these two issues were assessed through the lens of General Strain Theory and the gendered-GST modification (Broidy and Agnew 1997). Gendered-GST expected differences in the type of strains males and females experience, in the emotional responses to strain, and in responses to emotions as conditioned by coping resources thereby leading to gender differences in crime. The specific concepts of GST including strain, negative emotions, and coping mechanisms were evaluated in terms of whether males and females experience, or possess, different types and levels of each of these. These concepts were also assessed for whether they had a unique impact on crime for either gender. In other words, the strain-crime link was explored in terms of how, if, and when gender matters in GST. To examine these questions, data from the first three waves of Add Health were analyzed.

Discussion of Findings

The following section discusses the findings of the analyses in terms of the various proposed hypotheses, gendered-GST, and the two broader research purposes. Although these analyses provide a conservative test of GST, the findings demonstrated

support for a majority of the GST hypotheses and several of the gendered-GST hypotheses. Overall, there was support for six of the nine hypotheses outlined in Chapter 3.

Gendered-GST (Broidy and Agnew 1997) argues that males and females differ in the type of serious strains they experience as well as in their negative emotions and available coping skills. Based on this, it was hypothesized that males would experience more criminal victimization, and females would experience more childhood sexual abuse and more family or friends who attempted suicide. The results of the analyses confirmed gender differences in the types of strains experienced and differences in negative emotions. Males experienced more violent victimization and educational strain, while females had more strain in their social networks. Contrary to Hypothesis 6, there was not a significant difference in childhood sexual abuse. A very small number of males (n=47) and females (n=70) reported that they had been sexually abused as children. It was expected that childhood sexual abuse would largely be a female experience. As a strain objectively high in magnitude (Agnew 2006), childhood sexual abuse would be a leading factor in female crime and a primary pathway to running away. This was not the case in these analyses as childhood sexual abuse was not different by gender nor did it influence female delinquency. In examining negative emotions, results from this research were consistent with expectations, and prior research (Broidy and Agnew 1997; Kaufman 2009; Savage 2011), as there were no differences in anger, but females did report more depression and were more upset by problems.

In response to serious strains it was expected that there would be increased negative emotional responses under GST. Additionally, emotional responses to strain

would be gendered, such that females would be more likely to experience non-angry negative emotions than males but experience similar levels of anger in response to strain. The first hypothesis was moderately supported as increased depression was evident in response to violent victimization, network suicide, and educational strain for both genders. Further, males who reported educational strain and childhood sexual abuse were more upset by problems than males who did not. Finally, violent victimization was related to females being upset by problems. Largely, anger was not influenced by strain except for an influence on males stemming from educational strain. This disconnect with theory was potentially due to the fact that anger as the parent-reported measure, which may not be necessarily reflective of an adolescents' actual temperament. Statistically, the influence of negative emotions was not supportive of the seventh hypothesis, which proposed men and women would experience different negative emotions in response to strain. Serious strains consistently impacted depression while the effects of strains on anger and being upset by problems were not the same for males and females. Anger and being upset by problems demonstrated different patterns by gender on criminal outcomes For example, anger influenced male running away but not female running away. However, there were no statistical gender differences in the effects of negative emotions. This is counter to the seventh hypothesis which stated that women would experience more non-angry negative emotions in response to strains. This result is contrary to previous research on GST using depression and the Add Health data (Kaufman 2009)

These results do speak to the issues of generalizability and gender-specificity. There is good evidence here that strain impacted negative emotions in a general way, supporting generalizability, as strains influenced depression similarly for both genders.

While not different statistically, the patterns of influence for angry emotions and being upset by problems does suggest a gender-sensitive impact of serious strains. For example, female anger was not influenced by any of the included strains but male anger was influenced by educational strain.

In support of the proposition of gender specific elements of GST are the resultant gender differences in negative emotions and experienced strains. Males were more likely to experience violent victimization and educational strain than females, while females were more likely to experience social network strain in the form of suicide attempts by family and friends. The difference in these strains points to the importance of examining gendered forms of strain along with gender separate models of offending. Without examining these gendered-types of strain (Jang 2007), or including separate gender statistical models, the effect of these strains and negative emotions would be subsumed into a general theory. Such an analysis would ignore that these strains are gendered and influence the gender gap in crime.

Under GST, and gendered-GST, it was expected that serious strains and negative emotions would lead to delinquent and criminal outcomes. Under gendered-GST it was expected that women's concurrent experience of multiple negative emotions would lead toward self-, or inwardly-, directed forms of crime and deviance. There was mixed support for the importance of serious strains and negative emotions in leading to these various types of criminal and deviant behavior. Anger and violent victimization had by far the most consistent impact of serious strain or negative emotions on deviant outcomes. Violent victimization, and anger, influenced male crime and delinquency for all four outcomes, while anger was associated with female smoking marijuana and

running away from home. Female depression also influenced smoking marijuana and running away from home. The fact that the co-occurrence of depression and anger influenced running away from home and smoking marijuana but that depression did not impact violent or property crime which is highly consistent with the propositions of gendered-GST. The combination of anger and depression were consistent with females participating in self-directed, or inner-focused, forms of delinquency and not outer-directed forms, such as violence or property offending. However, the impact of these effects should not be overstated as neither effect was particularly robust and reduced to statistical non-significance with other variables held constant.

Having been sexually abused as a child did not demonstrate the expected effects as it was only related to males running away, and it was not related to any form of female delinquency. Network suicide was only related to female running away and non-violent delinquency. These results again demonstrate patterns supportive of the idea of gender-specific influences on criminal and delinquent outcomes as some strains had an effect only for one specific gender. The influence of strains and negative emotions provide evidence that certain strains or negative emotions influence gendered pathways to deviance but there are more general impacts of specific strains and negative emotions. The results also provide support for the generalizability of strain processes. Specifically, violent victimization appeared to operate across gender to influence multiple forms of delinquency.

Negative emotions, under both versions of GST, were expected to mediate the relationship between serious strains and criminal outcomes. Gendered-GST further suggests that there will be gender differences in the negative emotions with which males

and females respond, thus creating a gender difference in criminal outcomes. As such, it was expected that the negative emotions of depression, anger, or being upset by problems would mediate any relationships of violent victimization, educational strain, childhood sexual victimization, and network suicide with the four criminal and delinquent outcomes. However, this dissertation found no support for the proposition that negative emotions significantly mediate the relationship between serious strains and crime or delinquency. This lack of a significant finding is possibly be due to the measures of negative emotions which were all trait based emotions. While no mediation was found in this research, trait based measures of negative emotions have been found to mediate the strain-crime relationship (Mazerolle et al. 2003; Jang and Johnson 2005), although the lack of mediation in this study was consistent with several other studies which utilized trait-based measures (Kaufman 2009; Jennings et al. 2009). Research that has utilized state-based measures of negative emotions has that negative emotions reported directly in response to a straining event are likely to mediate the direct impact of the experienced strain (Jang and Johnson 2003; 2005).

Serious strain and negative emotions do not necessarily lead to criminal forms of coping under GST (Agnew 1992; 2006). Instead, the effects of serious strain and negative emotions can be conditioned by certain factors. Due to this aspect of GST it was hypothesized that the conditioning factors of self-esteem, social support, and two forms of behavioral coping would moderate the impact of negative emotions on criminal outcomes. Support for the moderation hypotheses through the variety of conditioning effects were somewhat supportive of GST and gendered-GST. Several of the twelve interactions examined between negative emotions and coping mechanisms indicated a

differential ability of coping to influence the impact of negative emotions. Of these moderation effects the majority were consistent with the proposition that the impact of negative emotions on crime would be buffered when higher levels of coping skills were available and overwhelmed when they were absent. Like other studies there was little support for the conditioning effect of self-esteem (see Jang and Johnson 2003), except with regard to depression and non-violent delinquency. The conditioning effect of self-esteem on its own was non-significant in all of the crime and delinquency models, but the significant interaction of self-esteem and depression for males was indicative of an effect in which self-esteem increases the positive impact of depression on non-violent delinquency. Conditioning effects of avoidance and TRDM were also present. Avoidance coping was able to reduce the effects of being upset by problems for male marijuana use and females running away. While the main effects avoidance coping and being upset by problems were non-significant in the delinquency models, their indirect moderating effects on crime were revealed. Additionally, TRDM was able to reduce the effects of depression with males running away and the effect of bad temper with female non-violent delinquency. This indicated that TRDM was able to buffer the effect of depression on running away for males and bad temper on non-violent delinquency for females.

This study provides positive support for a number of aspects of GST and its wider applicability to male and female criminality, thus supportive of the generalizability of GST. Males and females who experience more serious strains and negative emotions were more likely to engage in crime and delinquency than their peers who did not experience strain or negative emotions. There were no statistically significant differences by gender in the ability of serious strain or negative emotions to predict four different

forms of crime and delinquency. The only statistically significant gender differences present in the GST related aspects of this dissertation were in the levels of strains experienced, negative emotions, and two conditioning effects that were different by gender. Again, due to the nature of some of the choices made regarding this research these estimates provide a very conservative estimate of gendered-GST. The results indicated that different strains and emotions impacted criminal outcomes differently for females and males. While these differences never reached a level of statistical significance a comparison of the significance of the coefficients across models often demonstrated the gendered nature of strain and negative emotions supportive of gendered-GST. As such, while there were no gendered statistically significant differences in the ability of gendered-GST to predict crime and delinquency, the study still suggests the continued need to examine GST through a gendered lens. Females were more likely to experience family or friends who attempted suicide, a strain that was only ever significant for female delinquency. By not examining gendered theory, gendered strains such as network suicide would likely be neglected and be unable to explain why youth, particularly girls, ran away. Instead, running away would be attributed to depression or violent victimization which was associated with male running away in the majority of the statistical models. Therefore, consistent with the propositions of a middle ground approach, while gender-specific theories might not be necessary to explain female crime, it was evident that any gender-neutral theory not informed by gendered theory will not be able to fully address women's crime to the same degree that it could for men's crime.

Limitations of the Research

The conclusions thus far must be considered in light of the limitations of this dissertation. A number of these limitations are due to data restrictions from utilizing the public use version of the three waves of Add Health. Other limitations are due to general strain theory and some of the choices which were made in order to evaluate gendered-GST.

One important limitation of this work is that while it attempted to evaluate gendered-GST, there were no direct measures of gender identity within the study. This study did attempt to avoid the "add sex and stir" (Chesney-Lind 1986) approach by examining by examining strains, such as sexual abuse, and negative emotions, such as depression, which are presumed to be gendered. However, there was no indication of whether a given person's biological sex matched their gender. The Add Health data included a measure of masculinity/femininity and gender roles in the fourth wave in the form of the Bem Sex-Role Inventory (BSRI). The BSRI is an instrument designed to examine endorsement of traditional male or female gender roles and whether they match to a respondents' biological sex. While the BSRI would provide a validated indication of respondents' gender, the measure was excluded for several reasons. First, the BSRI is based upon a developmental theory of gender (Sellars 2008) and therefore gender, consistent with the theories outlined in this dissertation, changes over time. In fact, research on the longitudinal nature of the BSRI indicated that individual gender-role categories do vary over time (see Hyde, Krajnik, and Skuldt-Niederberger 1991; Sellars 2008). As the BSRI was included in the fourth wave, some twelve years after the first wave of data was collected, respondents' gender-role categories may have changed since Wave I and thus provides an inaccurate picture of respondent gender. Perhaps more

importantly the use of the BSRI was excluded from analyses as these measures were only included in the restricted access version of the Add Health dataset, which was not available for this dissertation.

A similar problem was present with the measure of anger. In this study the measure for anger comes from the parental survey during the first wave and addresses whether a child had a bad temper. There are two particular issues related to this choice of measure. First, the measure of a parental response is highly subjective and does not assess the adolescents' perception of whether they have a bad temper. As there are different gender norms regarding the appropriateness of expressing anger and the manner in which that anger is expressed, parental responses to their child's temper have the potential to be biased. Second, the measure of anger (and other negative emotions) is a trait-based negative emotion. As a trait based emotion the resultant negative emotion is not based upon experiencing a stressful event or something else causing the anger, but instead is a measure of underlying temperament. Previous research indicates that situationally based measures of anger perform as better moderators of strain (Mazerolle et al. 2003) but there is evidence that individuals higher in trait anger are more likely to experience state-anger (Mazerrole et al. 2003; Jang and Johnson 2003; 2005).

Another limitation is related to missing data related to the bad temper measure. The use of parental reports of anger resulted in a large number of missing cases as parents either failed to respond to the survey or failed to complete the question regarding their child's temperament. The missing data for this specific question resulted in 370 missing cases approximately 13% of the available sample. Nonetheless it was the best measure of anger available. In addition to missing data from the bad temper measure, missing values

and subject attrition over the three waves resulted in about 21% of the sample having missing data on at least one variable of interest. Efforts were made to address these missing cases through the use of multiple imputation, which initially appeared successful. However, it was later determined that the survey sampling design was not being correctly accounted for in the imputation process. Additional efforts to impute the data after properly correcting for the survey design failed, likely due to missing data in the dependent variables. All attempts to properly impute the data failed and were abandoned. As these missing data were not missing completely at random and were, at best, missing at random there was the likelihood of bias in these results. Since there is the potential of bias resulting from missing data the results should be interpreted with caution.

The common procedure of listwise deletion was also unavailable in these analyses as this could lead to incorrect standard errors with the Add Health sampling design (see Chen and Chantala 2014). Instead the selection of sub-populations with no missing data were utilized in this analysis. The use of sub-populations (Stata syntax *subpop*) allows for complete case analysis while maintaining the ability of statistical software to draw on the correct number of primary sampling units. This is compared to listwise deletion which could result in the deletion of these primary sampling units from the data and biases in variance.

Another methodological concern revolves around the use of the Paternoster et al. (1998) test of differences in coefficients with non-linear models, in this case logistic regression and negative binomial regression. Hoetker (2003; 2007) indicated that testing the equivalence of coefficients across two different groups can lead to the identification of inappropriate difference or suppression of informative differences. Hoetker (2007)

suggested that this is especially a concern when group differences are identified with an interaction term of group membership (i.e. male x anger). Subgroup analyses, as performed in this dissertation, are also problematic but Hoetker (2007) suggests that at least the statistical significance of the coefficients of models estimated separately for each group can be meaningfully compared. As a statistical alternative, Hoetker (2007) suggests estimating separate equations then utilizing Allison's (1999) test for unobserved variation between groups and proceeding differently dependent on whether or not unobserved variation is present. If unobserved variation is present, then a researchers options are more restricted and should only test for differences in coefficients if a strong theoretical reason is present. Since this dissertation did not test for these differences in unobserved variation the results of the Paternoster et al. (1998) can be overly conservative and suppressing gender differences in the two equations. A brief review of the various coefficients and their differing significance in male and female models indicates this is likely the case. Thus, this dissertation provided a very conservative test of gendered-GST. Future, studies should incorporate the suggestions by Hoetker (2007) in analyzing gender differences in strain.

One final concern was the nature of the sample, as the Add Health at Waves I and II was a sample of adolescents who were then attending high school. This sample was limited to adolescents who tend to be less involved in criminal activity than their criminal peers. Those youth who experienced serious strains conducive to more serious forms of crime and delinquency have a greater possibility of not being included in this sample. It is likely that serious forms of crime or delinquency would have either seen an adolescent

removed from school through expulsion or suspension or they were not available due to involvement with the juvenile justice system.

Future research

While the results of this dissertation only somewhat supportive of gendered-GST there are several directions that future research can take in pursuing the evaluation of the viability of gendered-GST and gendered theory. First, the data were not particularly well suited for a full test of general strain theory. While this dissertation improved upon some of the literature by offering a longitudinal test of GST with a shorter follow-up of one year, the examination of strains and negative emotions on criminal outcomes was that of a lagged effect. In longitudinal studies of GST the difficulty of detecting the conditioning effects on strain are well known (Agnew and White 1992). Related to this issue of the gap between waves, the lack of more consistent strain effects, especially that of childhood sexual abuse, could be a function of the temporal gap between strain and crime outcomes. Sexual abuse was a Wave III measure which asked respondents to recall sexual abuse prior to 6th grade. For inclusion in the study all respondents were in grades 7th through 12th at Wave I, therefore the recall period for childhood sexual abuse was for events that occurred at minimum six years prior to Wave III data collection. Future research should utilize a relatively short follow-up period, perhaps only a few months, or use measures with recall periods that better cover the gap between waves in order to better detect the conditioning effects of GST.

Future studies should also examine the cognitive interpretation of serious strains. The strains selected for this dissertation were intended to be consistent with Agnew's (2001) understanding of objective strains. While these strains appear to be objectively

stressful, the strains may not necessarily reflect a subjective evaluation of the events. The likelihood of responding to strain with crime is understood in strain theory to be associated with the subjective evaluation of the seriousness and magnitude of the event. This evaluation is partly determined by past experiences with similar events and is influenced by attitudes or beliefs regarding the strain, the centrality of strain to an individual's identity, and the perceived injustice of strain (Agnew 2006). By including a subjective evaluation of objective strains it would be possible to determine which aspects of a straining event were salient (Botchkovar, Tittle, and Antonaccio 2012). This would narrow the specific aspects of the interpretation of strain that overwhelms coping mechanisms and produces crime.

An additional direction future research should likely pursue is to examine gendered-GST in terms of other intersectionalities (Crenshaw 1989) including race, age, and social class. This dissertation found interesting effects in which peer delinquency had a significantly stronger influence on white males marijuana smoking and involvement in violent crime compared to African Americans. Perhaps different conditioning effects influence racial differences in reactions to strain (Agnew 2006). From a general strain perspective it has been suggested that African Americans face more and different strains conducive to crime including victimization, community strains, economic strain, and prejudice and discrimination (Kaufman, Rebellon, Thaxton, and Agnew 2008; Agnew 2006). While this dissertation controlled for socio-demographic influences on crime it did not examine the more complex relationships between gender, race, and crime. Nor did it explore the possibilities of strains varying by socioeconomic status. Deprived communities are more likely to have characteristics associated with experiencing strain

including poverty, criminal victimization, and lack of opportunity to legitimately cope with strain (Agnew 2006). These multiple intersectionalities could potentially influence the different legal and illegal manners with which people react in response to strain.

Conclusion

The goal of this dissertation was to evaluate the ability of a middle range theory to impact the larger debate of gender-specificity and generalizability. Scholars have argued that gender neutral theories are able to adequately explain female crime and therefore gender specific theories are unnecessary (Smith and Paternoster 1987). Alternatively, others have argued that these theories demonstrate an androcentric bias and female crime requires a gender-specific theory in order to understand women's differential involvement in crime (see Daly and Chesney-Lind 1988). While these two perspectives tend to dominate the debate there are those who take the position that a middle-ground approach should be used in order to explain gender differences in crime without dismissing the contributions of two different bodies of literature (Daly 1998).

I argued in this dissertation that gendered-GST could be a middle range theory providing both an adequate explanation of female crime and of the gender gap in crime. This was done by looking at potentially gendered strains and negative emotions. Gendered-GST was expected to predict female and male criminality through the different pathways males and females take to crime. This would occur through the gendered strain of sexual victimization and running away a primary pathway of female entry into crime. Support for this idea was present, but weak. The concepts identified in gendered-GST demonstrated different patterns in their ability to influence crime through different pathways. For example, network suicide was only ever significant for females running

away, whereas childhood sexual abuse, anger, and depression were only significant for males running away. Such patterns demonstrate some support for gendered-GST and the need for additional analysis of such a gendered model.

The resultant analyses did provide strong support for aspects of GST as a generalizable theory of crime since certain strains and negative emotions were conducive to crime. Considering that some previous research was unable to document an impact of strain on crime for women (Agnew and Brezina 1997; Piquero and Sealock 2004; Manasse and Ganem 2009), it was not clear whether gendered-GST would provide an adequate explanation of female crime. The results here show that GST provided an explanation of male crime and delinquency. Several strains and negative emotions were able to explain, with some robustness, female non-violent crime, violent crime, and smoking marijuana thus providing support for the generalizability of gendered-GST.

This dissertation contributed to the literature by taking a longitudinal approach to strain, which included gendered strains and negative emotions that had been neglected in prior research. It incorporated multiple serious strains including childhood sexual abuse which was presumed to be related to a primary pathway of female offending. Childhood sexual abuse had been included in previous cross-sectional studies of strain (Jennings et al. 2009) but rarely has been included in longitudinal studies of strain. Also, strains in social networks were theorized by Broidy and Agnew (1997) to be an important strain for female delinquency. As such, social network suicide was included as a gendered version of serious strain, which except for Kaufman (2009) had not been included in examinations of GST. Finally, a negative emotion, upset by problems, that had not been utilized in strain studies was included. While this negative emotion was influenced by

serious strain in the manner expected by GST, it was not associated with crime. This is likely due to the fact that being upset by emotions was a trait instead of state-emotion. Alternatively, from a theoretical perspective, being upset by problems may not be the type of negative emotion that drives deviant coping (Agnew 2006).

Between 2002 and 2011 the number of females arrested increased by approximately 6% (FBI 2011) while the number of males arrested dropped. Jailed female offenders, as of the most recent report in 2013, made up the fastest growing correctional population with yearly growth of 3.4%. While female offenders continue to make up a small percentage of arrestees (NCVS 2011; UCR 2012), this growing proportion of arrestees and incarcerated female offenders should not be ignored. A continued lack of investigation into the etiology of female crime would further delay our understanding of crime in America and hold back criminological development. While support for the gendered theory was not overwhelming in this research, we must continue to examine the gendered life elements which produce different patterns of offending. I believe, therefore, that it is still necessary to progress towards an integration of gender-specific theory with gender-neutral theory in order to fully evaluate how gender relates to criminal offending.

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Appendix A: Missing Data Analysis

Logistic Regression Estimates for Missing Data Regressed on Demographics			
		OR	*Std. Err.*
Independent Variables			
Demographics	Age	**0.829*****	0.021
	Race (White Reference Category)		
	Black	**0.502*****	0.049
	Asian	**0.348*****	0.069
	Other	0.769	0.111
	Hispanic	**0.639****	0.090
	Public Assistance	0.858	0.114
	Female	1.147	0.095
Dependent Variable coded Missing Data (0), No Missing Data (1)			
*p<.05			
**p<.01			
***p<.001			

Appendix B: Survey Questions

Violent Crime – Wave I

In the past 12 months, how often did you...

H1DS5 – get into a serious fight?

H1DS6 – hurt someone badly enough to need bandages or care from a doctor or nurse?

H1DS11 – use or threaten to use a weapon to get something from someone?

H1DS14 – take part in a fight where a group of your friends was against another group?

- Never
- 1 or 2 times
- 3 or 4 times
- 5 or more times
- Refused
- Don't Know
- N/A

Violent Crime – Wave II

In the past 12 months, how often did you…

H2FV16 – get into a serious physical fight?

H2FV22 – hurt someone badly enough to need bandages or care from a doctor or nurse?

H2DS9 – use or threaten to use a weapon to get something from someone?

H2DS13 – take part in a fight where a group of your friends was against another group?

- Never
- 1 or 2 times
- 3 or 4 times
- 5 or more times
- Refused
- Don't Know
- Skip

Property Crime – Wave I

In the past 12 months, how often did you…

H1DS2 – Deliberately damage property that didn't belong to you?

H1DS4 – Take something from a store without paying for it?

H1DS9 – Steal something worth more than $50?

H1DS10 – Go into a house or building to steal something?

H1DS13 – Steal something worth less than $50?

- Never
- 1 or 2 times
- 3 or 4 times
- 5 or more times
- Refused
- Don't Know
- Skip

Property Crime – Wave II

In the past 12 months, how often did you…
H2DS2 - Deliberately damage property that didn't belong to you?
H2DS4 – Take something from a store without paying for it?
H2DS7 – Steal something worth more than $50?
H2DS8 – Go into a house or building to steal something?
H2DS11 – Steal something worth less than $50?

- Never
- 1 or 2 times
- 3 or 4 times
- 5 or more times
- Refused
- Don't Know
- Skip

Marijuana Use – Waves I and II

During the past 30 days, how many times did you use…?
H1TO32 – Marijuana
H2TO44 – Marijuana

- Range 1-800
- Recoded
    - (0) No
    - (1) Yes

Running Away

In the past 12 months…
H1DS7 – How often did you run away from home?
H2DS5 – How often did you run away from home?

- Never
- 1 or 2 times
- 3 or 4 times
- 5 or more times
- Refused
- Don't Know
- Not Applicable

Violent Victimization

During the past 12 months, how often did each of the following things happen?
H1FV1 – You saw someone shoot or stab someone
H1FV2 – Someone pulled a knife or gun on you
H1FV3 – Someone shot you
H1FV4 – Someone cut or stabbed you
H1FV6 – You were jumped

- Never
- Once
- More than once

- Refused
- Don't Know
- Not Applicable

Suicidal Behavior by Friends of Family

H1SU4 – Have any of your friends tried to kill themselves during the past 12 months?
H1SU6 – Have any of your family members tried to kill themselves during the past 12 months?

- No
- Yes
- Refused
- Don't Know
- Not Applicable

Educational Strain

On a scale of 1 to 5, where 1 is low and 5 is high,…
H1EE1 – How much do you want to go to college?
H1EE2 – How likely is it that you will go to college?

- 1
- 2
- 3
- 4
- 5
- Refused
- Don't Know

Sexual Abuse

How often had each of the following things happened by the time you started 6th grade?
H3MA4 – Had one of your parents or other adult care-givers touched you in a sexual way, forces you to touch him or her in a sexual way, or forced you to have sexual relations?

- One time
- Two times
- Three to five times
- Six to ten times
- More than 10 times
- This has never happened
- Refused
- Don't know
- Not Applicable
- Missing

Depression

How often was each of the following things true during the past week?
H1FS1 – You were bothered by things that usually don't bother you.
H1FS2 – You didn't feel like eating, your appetite was poor.

H1FS3 – You felt that you could not shake off the blues, even with help from your family and your friends.
H1FS4 – You felt that you were just as good as other people. (R)
H1FS5 – You had trouble keeping your mind on what you were doing.
H1FS6 – You felt depressed.
H1FS7 – You felt that you were too tired to do things.
H1FS8 – You felt hopeful about the future. (R)
H1FS9 – You thought your life had been a failure.
H1FS10 – You felt fearful.
H1FS11 – You were happy. (R)
H1FS12 – You talked less than usual.
H1FS13 – You felt lonely.
H1FS14 – People were unfriendly to you.
H1FS15 – You enjoyed life. (R)
H1FS16 – You felt sad.
H1FS17 – You felt that people disliked you.
H1FS18 – It was hard to get started doing things.
H1FS19 – You felt life was not worth living.

- Never/Rarely
- Sometimes
- A lot of the time
- Most/All of the time
- Refused
- Don't Know

(R) Reverse Coded

Anger

PC32 – Does {NAME} have a bad temper?

- No
- Yes

Upset by Problems

H1PF15 – Difficult problems make you very upset.

- Strongly Disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly Agree
- Refused
- Don't Know

Rosenberg's Self-Esteem

Please tell me whether you agree or disagree with each of the following statements.
H1PF30 – You have a lot of good qualities.
H1PF32 – You have a lot to be proud of.

H1PF33 – You like yourself just the way you are.
H1PF34 – You feel like you are doing everything just about right.
H1PF35 – You feel socially accepted.
H1PF36 – You feel loved and wanted.

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly Disagree
- Refused
- Don't Know

Coping

Behavioral Coping

Please tell me whether you agree or disagree with each of the following statements.
H1PF14 – You usually go out of your way to avoid having to deal with problems in your life.

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly Disagree
- Refused
- Don't Know

Problem-Solving Coping

Please tell me whether you agree or disagree with each of the following statements.
H1PF18 – When you have a problem to solve, one of the first things you do is get as many facts about the problem as possible.
H1PF19 – When you are attempting to find a solution to a problem, you usually try to think of as many different ways to approach the problem as possible.
H1PF20 – When making decisions, you generally use a systematic method for judging and comparing alternatives.
H1PF21 – After carrying out a solution to a problem, you usually try to analyze what went right and what went wrong.

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly Disagree
- Refused
- Don't Know

Social Support

How much do you feel that…
H1PR1 – adults care about you?
H1PR2 – your teachers care for you?
H1PR3 – your parents care about you?
H1PR4 – your friends care about you?
H1PR5 – people in your family understand you?
H1PR7 – you and your family have fun together?
H1PR8 – your family pays attention to you?

- Not at all
- Very little
- Somewhat
- Quiet a bit
- Very much
- Does not apply
- Refused
- Don't Know

Race

What is your race?
H1GI6A – White
H1GI6B – Black or African American
H1GI6C – American Indian or Native American
H1GI6D – Asian or Pacific Islander
H1GI6E – Other

H1GI8 – Which one category best describes your racial background?

- White
- Black/African American
- American Indian/Native American
- Asian/Pacific Islander
- Other
- Refused
- Legitimate Skip (only one race marked)
- Don't Know
- Not Applicable

H1GI9 – Interviewer: Please code the race of the respondent from your own observation alone.

- White
- Black/African American
- American Indian/Native American
- Asian/Pacific Islander
- Other
- Refused
- Don't Know

Hispanic or Latino Ethnic Origin

H1GI4 – Are you of Hispanic or Latino origin?

- No
- Yes
- Refused
- Don't Know

Foreign Born

H1GI11 – Were you born in the United States

- No
- Yes
- Refused
- Legitimate Skip
- Don't Know

Resident Parent Socio-Economic Status

H1RM9 – Does she receive public assistance, such as welfare?
H1RF9 – Does he receive public assistance, such as welfare?

- No
- Yes
- Refused
- Legitimate skip (no resident MOM/DAD)
- Don't Know
- Not Applicable

School Attachment

[if school year:] …
[if summer:] Last year,…
H1ED19 – You feel close to people at your school
H1ED20 – You feel like you are part of your school
H1ED22 – You are happy to be at your school

Delinquent Peers

Of you 3 best friends, how many…
H1TO9 – Smoke at least 1 cigarette a day?
H1TO29 – Drink alcohol at least once a month?
H1TO33 – Use marijuana at least once a month?

Appendix C: Stata Syntax

```
****STARTUP FILE FOR ADD HEALTH****
**set maxvar 30000

keep _mergeWIweight _mergeWII _mergeWIII _mergeWIIIweight _mergeWIV
CLUSTER2 GSWGT3 H1DS4 H2TO19 H1PF14 H2DS4 H1TO15 H1PF15 H1PF16
H1PF18 H1PF19 H1PF20 H1GI1M H1GI1Y IMONTH IDAY IYEAR H1GI4 H1GI8
H2TO44 H2TO50 H2TO54 H2TO58 H1GI6B H1GI6C H1GI6D H1GI6E H1GI6A
H1GI9 H1GI11 BIO_SEX3 BIO_SEX2 H1FV2 H1FV3 H1FV4 H1FV6 H1FV1 H1SU4
H1SU6 H1EE1 H1EE2 H3MA4 H1FS1 H1FS2 H1FS3 H1FS4 H1FS5 H1FS6 H1FS7
H1FS8 H1FS9 H1FS10 H1FS11 H1FS12 H1FS13 H1FS14 H1FS15 H1FS16 H1FS17
H1FS18 H1FS19 PC32 H1PF30 H1PF32 H1PF33 H1PF34 H1PF35 H1PF36 H1PF21
H1PF14 H1PR1 H1PR2 H1PR3 H1PR4 H1PR5 H1PR7 H1PR8 H1DS5 H1DS6 H1DS11
H1DS14 H1FV7 H1FV8 H2FV16 H2FV22 H2DS9 H2DS13 H2FV6 H2FV7 H1DS2
H1DS9 H1DS10 H1DS13 H2DS2 H2DS7 H2DS8 H2DS11 H1DS7 H2DS5 H1TO32
H1TO36 H1TO39 H1TO41 H2TO46 H2TO52 H2TO56 H2TO60 H1ED19 H1ED20
H1ED22 H1TO9 H1TO29 H1TO33 H1RM9 H1RF9 H3MA4 H1GI4 H1GI11 H1PF14
H1PF21 H1DS7 H2DS5

*drop if _mergeWII==1
*drop if _mergeWIII==1
drop if GSWGT3 ==.
svyset CLUSTER2 [pw = GSWGT3]

//Calculate Wave I age
recode H1GI1M (96=.), gen (w1bmonth)
recode H1GI1Y (96=.), gen (w1byear)
gen w1bdate = mdy(w1bmonth, 15,1900+w1byear)
format w1bdate %d
gen w1idate=mdy(IMONTH, IDAY,1900+IYEAR)
format w1idate %d
gen w1age=int((w1idate-w1bdate)/365.25)

//Demographics
**Hispanic
recode H1GI4 6/8=.
rename H1GI4 hispanic

**race
gen race=.
replace race =1 if H1GI6B==1 and  H1GI6C!=1 and  H1GI6D !=1 and  H1GI6E !=1 and
H1GI6A !=1
replace race =2 if H1GI6C==1 and  H1GI6D!=1 and  H1GI6B !=1 and  H1GI6E !=1 and
H1GI6A !=1
```

```
replace race =3 if H1GI6D==1 and  H1GI6B!=1 and  H1GI6C !=1 and  H1GI6E !=1 and
H1GI6A !=1
replace race =4 if H1GI6E==1 and  H1GI6C!=1 and  H1GI6D !=1 and  H1GI6B !=1 and
H1GI6A !=1
replace race =0 if H1GI6A==1 and  H1GI6C!=1 and  H1GI6D !=1 and  H1GI6B !=1 and
H1GI6E !=1
numlabel H1GI8, add
label define race 0 "White" 1 "African American" 2 "American Indian" 3 "Asian" 4
"Other" 5 "2 or More"
label value race race
**Replace these to a 2 or more races mixed race group
replace race =5 if H1GI8==1
replace race =5 if H1GI8==2
replace race =5 if H1GI8==3
replace race =5 if H1GI8==4
replace race =5 if H1GI8==5
replace race =5 if H1GI8==6
replace race =5 if H1GI8==8
**19 remaining missing in legitimate skips
tab  H1GI6A H1GI8, missing
gen raceunk = .
replace raceunk = 1 if H1GI6D==8
numlabel H1GI9, add
tab H1GI9 raceunk
recode raceunk 1=1 if H1GI9==1
recode raceunk 1=2 if H1GI9==2
recode raceunk 1=4 if H1GI9==5
recode raceunk 1=. if H1GI9==8
replace race =0 if raceunk==1
replace race =1 if raceunk==2
replace race =4 if raceunk==4
gen race2= race
recode race2 0=0 1=1 3=2 4/5=3 2=3
label define race2 0 "White" 1 "African American" 2 "Asian" 3 "Other"
label value race2 race2
tabulate race2, gen(races)

//Foreign Born
recode H1GI11 1/8=0 0=1
label drop H1GI11
label variable H1GI11 "S1Q11 Foreign Born"
label define foreign 0 "U.S. Born" 1 "Foreign Born"
label value H1GI11 foreign
rename H1GI11 immigrant

//Female
```

```
gen female = BIO_SEX3
recode female 1=0 2=1
replace female =0 if BIO_SEX2==1 and female==.
**Following
http://www.cpc.unc.edu/projects/addhealth/data/guides/W4_nonresponse.pdf
replace female =1 if BIO_SEX2==2 and female==.
label define female 1 "Female" 0 "Male"
label value female female

//Violent Victimization Recode
**Someone pulled a knife on you
recode H1FV2 0=0 1=1 2=2 6/8=. 9=0
**Someone shot you
recode H1FV3 0=0 1=1 2=2 6/8=. 9=0
**Stabbed You
recode H1FV4 0=0 1=1 2=2 6/8=. 9=0
**Jumped
recode H1FV6 0=0 1=1 2=2 6/8=. 9=0
**Witnessed stabbing or shooting
recode H1FV1 0=0 1=1 2=2 6/8=. 9=0
**Violent Victimization Scale
alpha H1FV1 H1FV2 H1FV3 H1FV4 H1FV6, c i
gen violvic =  H1FV1+ H1FV2+ H1FV3+ H1FV4+ H1FV6

//Suicidal behavior by friends
recode H1SU4 0=0 1=1 6/8=. 9=0
recode H1SU6 0=0 1=1 6/8=. 9=0
gen suicoth = H1SU4+H1SU6
recode suicoth 1=1 2=1

//Educational Strain
recode H1EE1 6/8=.
recode H1EE2 6/8=.
gen educstrain = H1EE1-H1EE2
recode educstrain -4/-1=0

//Sexual Abuse
**recode H3MA4 6=0 1=1 2/5=2 96/98=. 99=0
**recode H3MA4 6=0 1=1 96/98=. 99=0
recode H3MA4 6=0 1=1 2/5=1 96/98=. 99=0
rename H3MA4 sexabuse

//CES-D
recode H1FS1 6/8=.
recode H1FS2 6/8=.
recode H1FS3 6/8=.
```

```
recode H1FS4 6/8=.
recode H1FS5 6/8=.
recode H1FS6 6/8=.
recode H1FS7 6/8=.
recode H1FS8 6/8=.
recode H1FS9 6/8=.
recode H1FS10 6/8=.
recode H1FS11 6/8=.
recode H1FS12 6/8=.
recode H1FS13 6/8=.
recode H1FS14 6/8=.
recode H1FS15 6/8=.
recode H1FS16 6/8=.
recode H1FS17 6/8=.
recode H1FS18 6/8=.
recode H1FS19 6/8=.
**Reverse codes
recode H1FS11 0=3 1=2 2=1 3=0 6/8=.
label drop H1FS11
label define H1FS11 0 "Most/all of the time" 1 "A lot of the time" 2 "Sometimes" 3
"Never/rarely"
label value H1FS11 H1FS11
recode H1FS4 0=3 1=2 2=1 3=0 6/8=.
label drop H1FS4
label value H1FS4 H1FS11
recode H1FS8 0=3 1=2 2=1 3=0 6/8=.
label drop H1FS8
label value H1FS8 H1FS11
recode H1FS15 0=3 1=2 2=1 3=0 6/8=.
label drop H1FS15
label value H1FS15 H1FS11
alpha H1FS1 H1FS10 H1FS11 H1FS12 H1FS13 H1FS14 H1FS15 H1FS16 H1FS17
H1FS18 H1FS19 H1FS2 H1FS3 H1FS4 H1FS5 H1FS6 H1FS7 H1FS8 H1FS9, c i
gen cesd =  H1FS1+ H1FS2+ H1FS3+ H1FS4+ H1FS5+ H1FS6+ H1FS7+ H1FS8+
H1FS9+ H1FS10+ H1FS11+ H1FS12+ H1FS13+ H1FS14+ H1FS15+ H1FS16+
H1FS17+ H1FS18+ H1FS19

**Anger
recode PC32 6=.
rename PC32 anger

**Upset by Problems
recode H1PF15 8=. 6=.
revrs H1PF15, repl
rename H1PF15 upset
```

```
//Self-Esteem six-item RSE
recode H1PF30 6/8=.
recode H1PF32 6/8=.
recode H1PF33 6/8=.
recode H1PF34 6/8=.
recode H1PF35 6/8=.
recode H1PF36 6/8=.
alpha H1PF30 H1PF32 H1PF33 H1PF34 H1PF35 H1PF36, c i gen(RSE2)

//Coping Style
**TRDM
recode H1PF18 6/9=.
recode H1PF19 6/9=.

**Behavioral Coping
recode H1PF14 6/9=.
rename H1PF14 avoid
revrs avoid, repl

//Social Support (may need to investigate "Does not apply")
recode H1PR1 6/98=.
recode H1PR2 6/98=.
recode H1PR3 6/98=.
recode H1PR4 6/98=.
recode H1PR5 6/98=.
recode H1PR7 6/98=.
recode H1PR8 6/98=.
alpha H1PR1 H1PR2 H1PR3 H1PR4 H1PR5 H1PR7 H1PR8, c i gen(socsupp1)

//Violent Crime Wave I
**serious fight
recode H1DS5 6/9=.
**Hurt someone badly
recode H1DS6 6/9=.
**Threaten with Weapon
recode H1DS11 6/9=.
**Group Fight
recode H1DS14 6/9=.
alpha H1DS5 H1DS6 H1DS11 H1DS14, c i
gen violence = H1DS5 + H1DS6 + H1DS11 + H1DS14

//Violent Crime Wave II
**serious fight
recode H2FV16 6/9=.
**Hurt someone badly
recode H2FV22 6=. 7=0 8=.
```

```
**Threaten with Weapon
recode H2DS9 6/9=.
**Group Fight
recode H2DS13 6/9=.
alpha H2FV16 H2FV22 H2DS9 H2DS13, c i
gen violence2 = H2FV16 + H2FV22 + H2DS9 + H2DS13

//Property Crime Wave I
**Damage Property
recode H1DS2 0=0  6/9=.
**Steal >$50
recode H1DS9 0=0 6/9=.
**Burglary
recode H1DS10 0=0 6/9=.
**Steal <$50
recode H1DS13 0=0  6/9=.
**Shoplift
recode H1DS4 6=. 8=.
alpha H1DS2 H1DS9 H1DS10 H1DS13 H1DS4, c i
gen nonviol = H1DS2 + H1DS9 + H1DS10 + H1DS13 + H1DS4

//Property Crime Wave II
**Damage Property
recode H2DS2 0=0 6/9=.
**Steal >$50
recode H2DS7 0=0 6/9=.
**Burglary
recode H2DS8 0=0 6/9=.
**Steal <$50
recode H2DS11 0=0 6/9=.
**Shoplift
recode H2DS4 0=0 6/9=.
alpha H2DS2 H2DS7 H2DS8 H2DS11 H2DS4, c i
gen nonviol2 = H2DS2 + H2DS7 + H2DS8 + H2DS11 + H2DS4

//Running Away Wave I
recode H1DS7 6/9=.
recode H1DS7 1/3=1
rename H1DS7 runaway1

//Running Away Wave 2
recode H2DS5 6/9=.
recode H2DS5 1/3=1
rename H2DS5 runaway2

**Marijuana Use Wave I and II
```

```
gen mj = H1TO32
recode mj 1/800=1 996=. 997=0 998/999=.
gen mj2 = H2TO46
recode mj2 997=0 996=. 998=. 1/500=1

//School Attachment
gen attachdrop=1 if H1ED19!=7|H1ED20!=7|H1ED22!=7
**Previous creates a variable to identify if they were dropped since they were out of
school
recode H1ED19 6/8=.
recode H1ED20 6/8=.
recode H1ED22 6/8=.
alpha  H1ED19 H1ED20 H1ED22, c i gen (attach)
revrs attach, repl

//Delinquent Peers
recode H1TO9 6/9=.
recode H1TO29 6/9=.
recode H1TO33 6/9=.
gen peerdel = H1TO9+H1TO29+H1TO33

//SES
gen pubassist = .
gen pubmom = H1RM9
gen pubdad = H1RF9
label value pubmom H1RM9
label value pubdad H1RF9
numlabel H1RM9, add
numlabel H1RF9, add
recode pubmom 7=0 6=. 8/9=.
recode pubdad 7=0 6=. 8/9=.
label define pubassist 0 "No Public Assistance" 1 "Receives public assistance"
label value pubassist pubassist
replace pubassist =1 if pubmom==1 | pubdad==1
replace pubassist =0 if pubmom==0 and pubdad==0
```

Appendix D: Bivariate Correlations

Correlation Matrix for Study Variables (Females Only) *n=1,657*

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*	*19*	*20*	*21*	*22*	*23*	*24*	*25*
1 Smoked Marijuana (T1)	1.000																								
2 Smoked Marijuana (T2)	0.473	1.000																							
3 Non-Violent Delinq. (T1)	0.296	0.248	1.000																						
4 Non-Violent Delinq. (T2)	0.187	0.286	0.545	1.000																					
5 Violent Delinq. (T1)	0.194	0.210	0.321	0.205	1.000																				
6 Violent Delinq. (T2)	0.134	0.190	0.188	0.249	0.521	1.000																			
7 Ran Away (T1)	0.246	0.187	0.203	0.170	0.237	0.136	1.000																		
8 Ran Away (T2)	0.136	0.289	0.132	0.194	0.204	0.227	0.426	1.000																	
9 Age	0.127	0.059	-0.018	-0.087	-0.038	-0.073	0.086	0.046	1.000																
10 Race	0.026	0.037	0.073	0.004	0.164	0.117	0.001	0.029	0.024	1.000															
11 Hispanic	0.024	0.023	0.111	0.031	0.078	0.087	-0.031	-0.008	-0.013	0.458	1.000														
12 Public Assistance	-0.008	0.000	-0.005	-0.023	0.111	0.080	0.009	-0.004	-0.013	0.145	0.076	1.000													
13 Violent Victimization	0.136	0.153	0.272	0.204	0.530	0.440	0.204	0.116	0.025	0.132	0.097	0.143	1.000												
14 Network Suicide	0.169	0.108	0.173	0.157	0.237	0.156	0.138	0.136	-0.022	0.013	0.005	0.012	0.171	1.000											
15 Educational Strain	0.040	0.069	0.070	0.064	0.087	0.036	0.056	0.071	-0.010	0.052	0.062	0.128	0.028	0.089	1.000										
16 Childhood Sexual Abuse	0.071	0.063	0.019	-0.007	0.086	0.034	0.109	0.063	0.031	-0.016	-0.006	0.076	0.034	0.066	0.071	1.000									
17 Bad Temper	0.042	0.118	0.113	0.074	0.178	0.121	0.114	0.100	0.027	0.099	0.072	0.097	0.069	0.061	0.044	0.046	1.000								
18 Depression	0.224	0.214	0.227	0.151	0.302	0.207	0.225	0.205	0.139	0.132	0.095	0.137	0.224	0.194	0.185	0.071	0.151	1.000							
19 Upset by Problems	0.050	0.093	0.027	0.041	0.134	0.095	0.084	0.072	0.076	0.024	0.016	0.080	0.078	0.025	0.061	0.044	0.092	0.273	1.000						
20 Avoidance Coping	-0.009	0.005	0.005	0.059	0.084	0.094	0.027	0.016	-0.058	0.101	0.068	0.088	0.031	0.042	0.094	0.000	0.096	0.169	0.308	1.000					
21 TRDM	-0.079	-0.037	-0.143	-0.129	-0.055	0.000	-0.043	-0.022	0.090	0.040	-0.038	0.024	-0.001	-0.071	-0.090	0.016	-0.053	-0.142	0.072	0.068	1.000				
22 Self-Esteem	-0.143	-0.146	-0.188	-0.138	-0.083	-0.045	-0.173	-0.144	-0.077	-0.019	-0.028	-0.035	-0.088	-0.131	-0.176	-0.073	-0.114	-0.517	-0.099	-0.036	0.335	1.000			
23 Social Support	-0.216	-0.207	-0.234	-0.148	-0.170	-0.084	-0.238	-0.169	-0.138	-0.034	-0.003	-0.040	-0.156	-0.171	-0.168	-0.121	-0.204	-0.457	-0.109	-0.089	0.216	0.518	1.000		
24 School Attachment	-0.169	-0.118	-0.146	-0.117	-0.124	-0.036	-0.129	-0.130	-0.163	-0.018	0.026	-0.004	-0.104	-0.074	-0.095	-0.054	-0.136	-0.364	-0.022	-0.031	0.205	0.384	0.417	1.000	
25 Peer Delinq.	0.482	0.396	0.271	0.167	0.262	0.165	0.228	0.166	0.231	0.008	-0.007	0.089	0.216	0.241	0.089	0.068	0.159	0.363	0.107	0.016	-0.062	-0.228	-0.317	0.247	1.000

Correlation Matrix for Study Variables (Males Only) *n=1,352*																									
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*	*19*	*20*	*21*	*22*	*23*	*24*	*25*
1 Smoked Marijuana (T1)	1.000																								
2 Smoked Marijuana (T2)	0.482	1.000																							
3 Non-Violent Delinq. (T1)	0.325	0.246	1.000																						
4 Non-Violent Delinq. (T2)	0.139	0.251	0.447	1.000																					
5 Violent Delinq. (T1)	0.226	0.167	0.453	0.198	1.000																				
6 Violent Delinq. (T2)	0.149	0.246	0.195	0.397	0.354	1.000																			
7 Ran Away (T1)	0.139	0.091	0.261	0.113	0.266	0.061	1.000																		
8 Ran Away (T2)	0.020	0.079	0.091	0.201	0.136	0.189	0.263	1.000																	
9 Age	0.147	0.093	0.039	-0.064	0.016	0.010	-0.011	0.000	1.000																
10 Race	-0.017	0.041	0.009	0.038	0.010	0.066	-0.022	0.017	-0.018	1.000															
11 Hispanic	-0.036	-0.036	-0.027	0.018	0.029	0.095	-0.031	0.016	0.001	0.365	1.000														
12 Public Assistance	0.044	0.027	0.009	0.003	0.108	0.051	0.045	0.053	-0.016	0.090	0.108	1.000													
13 Violent Victimization	0.184	0.155	0.318	0.195	0.493	0.265	0.158	0.144	0.105	0.131	0.044	0.069	1.000												
14 Network Suicide	0.135	0.047	0.145	0.054	0.117	0.053	0.110	0.067	0.068	0.021	0.015	-0.040	0.166	1.000											
15 Educational Strain	0.054	0.022	0.082	0.063	0.136	0.068	0.055	0.035	0.003	0.056	0.027	0.055	0.126	-0.023	1.000										
16 Childhood Sexual Abuse	0.015	0.010	0.040	0.049	0.005	0.057	0.043	0.106	0.007	0.047	0.047	0.030	0.059	0.058	-0.007	1.000									
17 Bad Temper	0.090	0.133	0.147	0.143	0.179	0.138	0.146	0.109	-0.011	0.074	0.026	0.090	0.090	0.033	0.121	-0.033	1.000								
18 Depression	0.139	0.083	0.186	0.131	0.153	0.103	0.154	0.116	0.148	0.112	0.044	0.137	0.236	0.129	0.130	0.058	0.140	1.000							
19 Upset by Problems	0.021	0.024	0.070	0.015	0.028	-0.022	0.069	0.066	0.000	0.051	0.081	0.060	0.051	0.015	0.134	0.076	0.025	0.226	1.000						
20 Avoidance Coping	0.009	-0.005	0.020	0.010	0.084	0.023	0.069	0.021	-0.049	0.041	0.055	0.084	0.035	-0.079	0.093	0.058	0.057	0.096	0.278	1.000					
21 TRDM	-0.080	-0.089	-0.176	-0.153	-0.086	-0.043	-0.036	0.005	0.049	0.014	0.015	-0.005	0.007	0.026	-0.068	0.032	-0.080	-0.108	0.049	0.055	1.000				
22 Self-Esteem	-0.149	-0.105	-0.239	-0.156	-0.133	-0.072	-0.103	-0.015	-0.144	-0.025	0.000	-0.006	-0.185	-0.076	-0.111	-0.015	-0.115	-0.479	-0.026	0.049	0.285	1.000			
23 Social Support	-0.197	-0.145	-0.273	-0.174	-0.216	-0.122	-0.154	-0.037	-0.114	-0.091	-0.017	-0.012	-0.197	-0.100	-0.096	-0.019	-0.144	-0.353	0.005	0.040	0.239	0.464	1.000		
24 School Attachment	-0.142	-0.120	-0.213	-0.137	-0.155	-0.101	-0.130	-0.042	-0.043	-0.025	-0.009	-0.021	-0.226	-0.100	-0.080	-0.015	-0.138	-0.315	0.065	0.031	0.187	0.401	0.360	1.000	
25 Peer Delinq.	0.526	0.408	0.345	0.136	0.323	0.207	0.145	0.114	0.329	-0.039	-0.035	0.029	0.260	0.202	0.060	-0.001	0.139	0.196	0.002	-0.042	-0.040	-0.215	-0.247	0.215	1.000

Appendix E: Moderation Models and Marginal Effects

Moderation Models - Marginal Effects at Specified Level of Moderator

	dy/dx	Std. Err.
Marijuana Use		
Female: Upset by Problems x Avoidance Coping		
Avoidance Coping = 1.000	**0.050***	0.023
Avoidance Coping = 2.005	**0.031***	0.015
Avoidance Coping = 3.069	0.012	0.010
Avoidance Coping = 4.133	-0.006	0.012
Avoidance Coping = 5.000	-0.020	0.016
Male: Depression x Avoidance Coping		
Avoidance Coping = 1.000	0.003	0.003
Avoidance Coping = 2.190	0.000	0.002
Avoidance Coping = 3.237	-0.002	0.002
Avoidance Coping = 4.284	-0.004	0.002
Avoidance Coping = 5.000	**-0.005***	0.002
Nonviolent Delinquency		
Female: Bad Temper x TRDM		
TRDM = 1.000	3.765	2.075
TRDM = 3.171	**1.312*****	0.249
TRDM = 3.780	**0.999*****	0.199
TRDM = 4.390	**0.770****	0.228
TRDM = 5.000	**0.601***	0.263
Male: Depression x Self-Esteem		
Depression = 3.000, Self-Esteem=1.000	-0.406	0.486
Depression = 3.000, Self-Esteem=3.672	0.008	0.016
Depression = 3.000, Self-Esteem=4.219	**0.027***	0.012
Depression = 3.000, Self-Esteem=4.766	**0.038****	0.013
Depression = 3.000, Self-Esteem=5.000	**0.041****	0.014
Depression = 9.000, Self-Esteem=1.000	-0.244	0.232
Depression = 9.000, Self-Esteem=3.672	0.012	0.016
Depression = 9.000, Self-Esteem=4.219	0.034	0.017

Depression = 9.000, Self-Esteem=4.766	**0.052***	0.024
Depression = 9.000, Self-Esteem=5.000	**0.058***	0.027
Depression = 16.000, Self-Esteem=1.000	-0.137	0.096
Depression = 16.000, Self-Esteem=3.672	0.016	0.018
Depression = 16.000, Self-Esteem=4.219	0.044	0.027
Depression = 16.000, Self-Esteem=4.766	0.074	0.045
Depression = 16.000, Self-Esteem=5.000	0.087	0.054
Ran Away		
Female: Upset by Problems x Avoidance Coping		
Avoidance Coping = 1.000	**0.062***	0.024
Avoidance Coping = 2.005	**0.031***	0.013
Avoidance Coping = 3.069	0.006	0.008
Avoidance Coping = 4.133	-0.016	0.011
Avoidance Coping = 5.000	**-0.034***	0.016
Male: Depression x TRDM		
TRDM = 1.000	**0.012***	0.005
TRDM = 3.185	**0.004****	0.001
TRDM = 3.820	**0.002***	0.001
TRDM = 4.454	0.000	0.001
TRDM = 5.000	-0.002	0.002

* p <.05; ** p<.01; *** p<.001