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**Gender Differences in Delinquency and Health Risk Behaviors:
A Test of General Strain Theory**

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Dissertation

Presented to the Faculty of the Graduate School of

The University of Texas at Austin

in Partial Fulfillment

of the Requirements

for the Degree of

Doctor of Philosophy

The University of Texas at Austin

December, 2007

Acknowledgments

I would like to thank the members of my committee, Drs. Mark Stafford, Robert Crosnoe, Joycelyn Pollock, Mary Rose, and Catherine Ross, for their guidance as I completed this project. I owe special thanks to Dr. Stafford, whose unwavering confidence in me and longstanding support played a substantial role in my achievement of this goal. I thank my parents, Maria and Perry Francis, for providing encouragement when I needed it and for instilling the love of reading and writing early in my life. My appreciation goes to the colleagues I met along the way, especially Kim Baker, Dr. Gini Deibert, and Margaret Vaaler, whose friendship and understanding greatly enriched this period of my life. Finally, I am grateful to Christina Congdon, who kept me focused and motivated from afar, and Marshall Sugg, who made me countless dinners and cheered me on every day.

Gender Differences in Delinquency and Health Risk Behaviors: A Test of General Strain Theory

Publication No. _____

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The University of Texas at Austin, 2007

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Gender is the strongest and most consistent correlate of crime and delinquency, but the reason is unclear and traditionally understudied in criminology. The current study tests the ability of a general theory of crime and deviance, general strain theory (GST), to explain gender differences in responses to strain. Preliminary research suggests that while girls and boys share many of the same types of strain, they also are exposed to qualitatively different types of strain and experience different types of negative emotions that may lead to gendered patterns of behavioral problems. Moreover, girls are thought to have fewer internal coping resources with which to cope. Using a sample of 1,915 adolescents from Wave 2 of the Project on Human Development in Chicago Neighborhoods: Longitudinal Cohort Study (1994-2001), I assess the effects of exposure to violence, sexual victimization, loss of close others, school strain, and fear of victimization on a range of behavioral outcomes including aggressive delinquency, running away, minor theft, substance use, suicidal behavior, and high risk sexual

behavior. I also examine the extent to which these effects are mediated by anger, and the conditioning effects of depression and self-efficacy. Results indicate that girls are more exposed to sexual victimization, loss of close others, and fear of victimization, and boys are more exposed to general violence and school strain. However, girls and boys are equally vulnerable to exposure to violence and loss of close others, but respond in gendered ways. Depression and self-efficacy play important roles in explaining the nature of girls' problem behaviors: depression amplifies the effects of exposure to violence, sexual victimization, and loss of close others on running away and suicidality, while reducing the effect of anger on aggressive delinquency. Self-efficacy reduces the effects of exposure to violence and loss of close others on most outcomes, as well as the effect of depression on running away. This research advances the effort to explain how gender influences the complex relationships among strain, negative emotion, self-efficacy, and problematic coping behaviors, and makes a broad contribution to both criminology and the sociology of mental health.

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Chapter 1: Introduction

Adolescence is a period of developmental transition between childhood and adulthood characterized by intense changes in peers, family, school, self-concept, and physical development (Bergman & Scott, 2001; Compas & Wagner, 1991; Petersen, Kennedy & Sullivan, 1991; Steinberg & Morris, 2001). While most young people successfully move through this transition without serious difficulty, a variety of behavioral and mental health problems increase during this period, with some significant sex differences (Compas, Hinden & Gerhardt, 1995; Steinberg & Morris, 2001). While both girls and boys engage in increased levels of law-violating and other problem behaviors during adolescence, girls commit fewer such behaviors than boys (Canter, 1982; Steffensmeier & Allan, 1996; Steffensmeier, Zhong, Ackerman, Schwartz & Agha, 2006). On the other hand, girls experience significantly more depression, suicide attempts, and lower self-concept than boys (Culbertson, 1997; Grunbaum, Kann, Kinchen, Ross, Hawkins, Lowry, Harris, McManus, Chyen & Collins, 2003; Kovacs, 1996; Nolen-Hoeksema & Girgus, 1994; Rosenfield, Lennon & White, 2005; Sweeting & West, 2003).

Studies of the causes and correlates of these problems bridge many fields, including criminology, sociology, psychology, and public health. The current study extends a general theory of crime and deviance, Agnew's (1992) General Strain Theory (GST), to explain gender¹ differences in responses to strain. GST is a social-psychological theory that draws on the stress and coping model in mental health research to explain how exposure to certain stressors or strains increases the likelihood for

¹ The terms "gender" and "sex" are used somewhat interchangeably throughout this paper to be consistent with the criminology literature, with the recognition that "sex" is more accurate. Most quantitative criminological research does not actually consider gender in the sociological sense.

criminal behavior through increases in negative emotion (Agnew, 1992, 2006). If adaptive, law-abiding coping strategies are unavailable or ineffective, maladaptive law-violating coping is a possible outcome, especially if an individual experiences high levels of anger in response to strain. Because not all who are exposed to strains will cope in a maladaptive way, the likelihood of maladaptive coping is conditional on a number of internal and external factors like internal coping resources, social support, and delinquent peer associations. By using a range of maladaptive coping behaviors, this study extends GST outside the realm of crime in order to better understand gender differences in responses to strain.

Gender is the strongest and most consistent correlate of crime and delinquency, but the reason is unclear and traditionally understudied in criminology (Belknap & Holsinger, 2006; Naffine, 1987; Smart, 1976; Steffensmeier & Allan, 1996). Sociologists in the early to mid-20th century developed general theories of crime like economic strain, social disorganization, and social control with male samples, using the exclusive context of boys' childhoods and adolescent experiences to describe and explain delinquency. While adolescent boys are much more likely to engage in most forms of law-violating behavior, it is important to understand the causes of girls' offending, as well as why they offend less.

Feminist critiques assert that since most theories of criminal behavior were developed with only the male criminal or delinquent in mind, it is unlikely that these theories can accurately account for the causes of female criminal behavior nor account for the gender gap in crime and delinquency (Chesney-Lind & Pasko, 2004; Chesney-Lind, 1997; Daly & Chesney-Lind, 1988; Naffine, 1987). Because psychosocial development is thought to be distinct in some ways for adolescent females (Chodorow, 1978; Gilligan, 1982), and because girls and boys grow up within a gender structure that

produces different social expectations, constraints, power, opportunities, and resources (Hoffman-Bustamante, 1973; Morash, 1999), some feminist criminologists hypothesize that there could also be distinct pathways to deviance for girls necessitating separate theoretical models (Chesney-Lind, 1997; Naffine, 1987).

Chesney-Lind and colleagues suggest taking the best insights from mainstream theories of crime and integrating them with research on gender and adolescence to formulate separate explanations for girls. Others advocate taking a more moderate approach and elaborate on traditional theories to better explain girls' delinquency and gender differences in offending. At the very least, the ability of general theories of crime to explain the gender effect should not be assumed, but rather tested empirically. General theories of crime and deviance may need to consider the gendered context of girls' lives and that girls may engage in different types of problem behavior for different reasons than boys.

Gender-focused tests of GST have appeared in just the last ten years. The current study extends the work in this area by examining the relationships among a range of strains, negative emotions, and maladaptive coping outcomes, and how those relationships vary by sex. Past research has helped to establish that the general relationships are similar across sex (Broidy, 2001; Hoffman & Su, 1997; Mazerolle, 1998), but the extent to which there are gender differences in exposure to qualitatively different types of strain, emotional responses, and potentially gendered styles of deviance (Schur, 1984) remains largely unknown. The next section provides an overview of the extent of girls' involvement in delinquency and health risk behaviors, followed by an overview of the role of gender in GST, and my research questions and methodological approach.

GENDER AND CRIME

Overall, girls have lower arrest rates for both violent and property crimes than boys, but girls' arrest rates are increasing at a faster rate. In 1980, 20 percent of all juvenile arrests were female, and the male arrest rate was 8.3 times that of the female rate (Snyder & Sickmund, 2006). By 2003, girls accounted for 29% of all juvenile arrests, and the male arrest rate was only 4.2 times the female rate (Snyder & Sickmund, 2006). The narrowing of the gap in male-female arrest rates over time was due both to the decline in the male rate and the concurrent increase in the female rate, which was mainly attributable to increases in arrests for aggravated and simple assault (Snyder & Sickmund, 2006). Arrest data tend to reflect the attitudes and behavior of law enforcement officials as much as, if not more so, the actual behavior of youth. Self-report studies, in contrast, typically suggest that the difference between male and female offending is smaller than that reflected in arrest data, and that female offending has remained relatively stable over time (Steffensmeier & Allan, 2000).

The National Longitudinal Survey of Youth (NLSY), conducted annually between 1997 and 2001, found that boys were significantly more likely than girls to report engaging in most law-violating behaviors except for running away—about 20% of girls and 17% of boys had runaway from home by age 17 (Snyder & Sickmund, 2006). Despite these overall differences, the involvement of girls in risky behaviors is not rare. Twenty-seven percent of the girls in the NLSY had vandalized property, and 38 percent had committed theft by age 17 (Snyder & Sickmund, 2006). In 2005, the Youth Risk Behavior Survey found that 28 percent of high school girls had been in a physical fight in the last 12 months, and 7 percent had carried a weapon in the last month (Eaton, Kann, Kinchen, Ross, Hawkins, Harris, Lowry, McManus, Chyen, Shanklin, Lim, Grunbaum & Wechsler, 2006). Moreover, 24 percent of high school girls had engaged in episodes of

heavy drinking in the last month, and 11 percent attempted suicide in the last year (Eaton et al., 2006).

Though arrest rates reflect a less tolerant juvenile justice system more than changes in offending behavior (Steffensmier, et al., 2006), the policy concern is that as more girls enter the system juvenile justice professionals lack the specialized knowledge about female offenders that could help them provide more effective programs (Acoca, 1999; American Bar Association, 2001). A deeper understanding of the stressors in girls' lives, how girls respond to them, and what might mitigate or exacerbate their impact can contribute to the relatively recent interest in gender-responsive programs for juveniles that have received little empirical examination (Office of Juvenile Justice and Delinquency Prevention, 1998).

AN OVERVIEW OF GENDER AND GENERAL STRAIN THEORY

Research on the role of strain and negative affect in the etiology of delinquency has grown steadily since Agnew (1992) presented his foundation for a general strain theory. This research parallels studies of adolescent risk factors in other fields, which indicate that while girls and boys share many of the same types of strain, girls experience differential exposure to some due to the social organization of gender (Morash, 1999). For example, in a 1999 summary of research on girls' lives, the National Council for Research on Women reports that the types of stressors putting girls especially at risk for problem behavior and negative health outcomes include exposure to violence, sexual and physical abuse, domestic violence, incarceration of a family member, negative cultural messages about body image and female sexuality, and lack of power and options due to gender. Moreover, girls' greater levels of depression and anger are well-established empirical patterns, and they are also thought to have fewer personal resources, such as

self-efficacy and self-esteem, with which to cope. How, then, can GST explain why girls commit law-violating behavior at significantly lower rates than boys?

Part of the answer may lie in mental health and public health research that associates adolescent stress not only with delinquency and substance use, but with depression, eating disorders, failure in school, suicide attempts, self-abusive behavior, post-traumatic stress, and high-risk sexual behavior. Recent investigations into gender and GST have prompted the hypothesis that girls' coping responses to strain and negative emotions may be more likely to result in self-directed deviant behaviors than law-violating deviance (Broidy, 2001; Broidy & Agnew, 1997; Jang, 2007; Sharp, Terling-Watt, Atkins, Gilliam, & Sanders, 2001). These studies suggest that boys experience more anger in response to strain, which leads to delinquency, while girls experience co-occurring anger and depression, which leads to less aggressive and more inner-focused problem behaviors. However, they are limited by narrow measures of strain and coping behaviors, as well as by the study samples, and few studies have addressed whether the effects of depression actually lead to different kinds of maladaptive behaviors than anger.

Most gender and GST research is guided by a theoretical piece by Broidy and Agnew (1997), which advanced several hypotheses about the theory's ability to predict female crime and the gender gap in crime. Broidy and Agnew (1997) challenge the position that general theories of crime are not suited to explain girls' experiences. Specifically, they propose that GST can be extended or modified to include consideration of the greater strain that girls often experience. A growing stock of published research has begun to test their hypotheses (Hay, 2003; Jang, 2007; Piquero & Sealock, 2004; Sharp, Brewster & Redhawk Love, 2005).

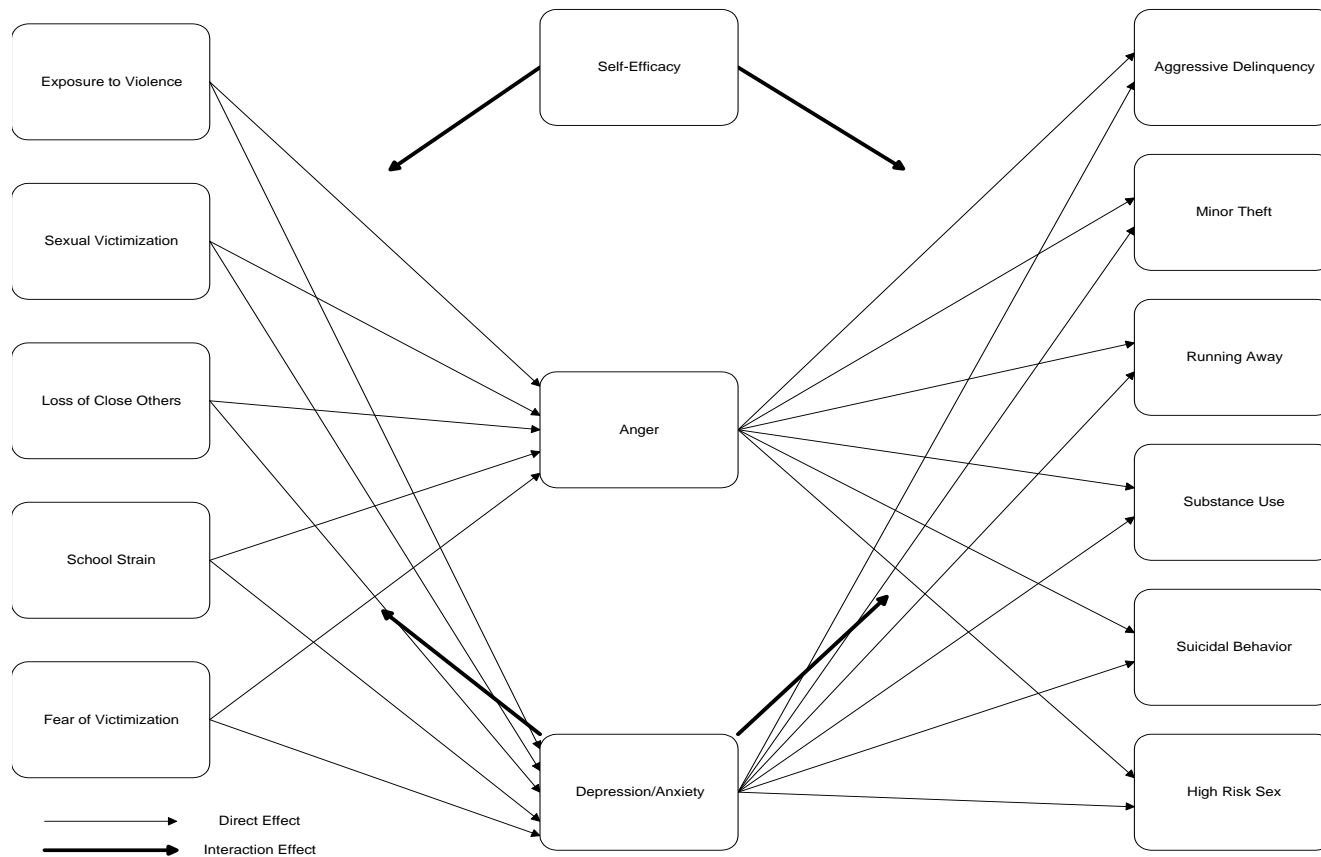
THE PRESENT CONTRIBUTION

Empirical tests of GST are difficult in part because of its breadth; existing data sets rarely include all of the variables needed for a comprehensive test. Nonetheless, studies that explicitly examine gender increasingly suggest that the underlying associations between the primary variables of strain, negative affect, and deviant outcomes seem to apply to both sexes (Broidy, 2001; Hoffman & Su, 1997; Mazerolle, 1998).² However, persistent sex differences in exposure to different types of strain, emotional responses and coping resources, and types of coping behaviors mean that the pathways to problem behaviors may be different (Daigle, Cullen, & Wright, 2007). To the extent that this is true, a more complex GST model or even separate models may be appropriate (Broidy, 2001; Broidy & Agnew, 1997).

My research addresses this theoretical issue and contributes to the larger effort within criminology to evaluate general strain theory, while bridging the literatures of criminology and sociology of mental health. Specifically, this study includes measures of strain thought to be salient for girls, measures of both anger and depression, expands the scope of the dependent variable to include non-delinquent behaviors, and incorporates sense of control as a key coping resource in an effort to unravel these complex relationships and further specify GST. In addition, I explore the possibility that depression may interact with strain and anger to influence the likelihood of different types of problem behaviors. Figure 1.1 provides a conceptual model of the key relationships tested in this study.

² Throughout this paper, I sometimes use the term “deviance” to be consistent with the criminology literature. More often, I refer to deviant outcomes as “problem behaviors,” “problematic coping behaviors,” or “maladaptive coping” to reflect the interdisciplinary nature of the study.

Figure 1.1: Key Relationships Tested Between Strain, Negative Emotions, Self-Efficacy, and Behavioral Outcomes



Traditionally, criminologists have examined externalized deviance (non-normative behavior that primarily negatively impacts other people or property) in the form of crime and delinquency, which is committed mostly by boys. Self-focused, non-confrontational deviance (non-normative behavior that primarily negatively impacts the individual doing the behavior) committed by girls has not been a high priority, probably because this behavior is not seen as having far-reaching social consequences. In fact, the Office of Juvenile Justice and Delinquency Prevention acknowledges that girls in trouble are more likely to threaten their own well-being, and are not seen as being “dangerous to society” (1998). This type of research has been more under the purview of the stress and mental health field, which typically uses depression as the outcome variable. Because of this field split, the breadth of girls’ problem behaviors are overlooked in criminology, and opportunities to examine where the causes of girls’ and boys’ problem behaviors converge and diverge are missed.

I argue that the narrow way in which criminologists operationalize deviance contributes to the apparent gender gap in deviance, and the notion that girls are more conformist than boys. It is likely that rates of deviant behavior among males and females would be closer than commonly thought if we measured a range of outcome behaviors (Aneshensel, Rutter & Lachenbruch, 1991; Tittle, 1995). When more than one outcome has been studied, it is typically the juxtaposition of depression and delinquency and/or substance use. The finding that girls get depressed and boys break the law (see De Coster, 2005) may be misleading without considering behaviors other than serious delinquency to which girls may turn. For this reason, the current study lays out a variety of potential outcomes including (1) law-violating aggressive behavior, (2) law-violating non-aggressive behavior (running away, minor theft, and substance use), and (3) legal but

self-injurious behavior (suicidal and high risk sexual behavior), and conceptualizes depression as a negative emotion that can affect the outcomes of both girls and boys.

Using a sample of 1,915 adolescents from wave two of the Longitudinal Cohort Study of the Project on Human Development in Chicago Neighborhoods (PHDCN), I conduct hierarchical OLS regression models to test direct effects of strain on the outcome variables, and the extent to which anger and depression mediate those effects. Analyses are also conducted separately by sex with tests for the equality of regression coefficients to assess whether the relationships between strains, negative emotions, and the outcomes vary by sex. The conditioning effects of depression and self-efficacy are assessed by testing a series of interaction terms separately by sex.

The next chapter explains the central issues in the study of gender and crime, the main tenets of GST, and draws on the sociology-of-mental-health and criminology literature to outline what is known about how gender influences strain, negative emotions, sense of control, and coping strategies. Chapter 3 explains the sample and methodological approach used in the study, Chapter 4 presents the results from the multivariate analysis of the main effects of strain, and Chapter 5 presents the results of multivariate analyses of the conditioning effects of depression and self-efficacy on strain and anger. Finally, Chapter 6 provides a discussion of the key findings and their implications for GST and the study of gender and adolescent well-being.

Chapter 2: Theory and Research On Gender, Crime/Delinquency, and General Strain Theory

GENDER AND EXPLANATIONS OF CRIME

Gender is the strongest and most consistent correlate of crime, though it did not garner much attention in criminology until the 1970s. Historically, most theories ignored female offending altogether or distorted it based on sexist stereotypes about the biological inferiority of women, sex role socialization, or sexual promiscuity (Cohen, 1955; Naffine, 1985; Pollack, 1961). Starting with Shaw and McKay in the 1930s, girls and women were usually not included in crime study samples, and given brief mention if at all in most of the subsequent criminological theories of the 20th century (Cohen, 1955; Cloward & Ohlin, 1960; Hirschi, 1969; Sutherland, 1947). These theories were considered to be gender-neutral (Kruttschnitt, 1996) when it would have been more accurate to describe them as explanations of male crime and delinquency.

Kruttschnitt (1996) points out that most mid-20th century criminologists were not concerned with female crime because arrest data prior to 1970 indicated that violent and serious property offenses by women were rare, and because gender was thought to be an immutable characteristic (i.e., a sex-related difference) rather than a malleable, constructed feature in the organization of society. The relative lack of interest in female crime among criminologists was not necessarily due to a belief in the absence of criminal behavior in the female population. Both Pollack (1961) and Reckless (1957) believed that female crime was largely “masked.” For Pollack, the hidden nature of female criminality was due to the natural proclivity for deceitfulness in women, while for Reckless it was because of the restricted social roles of women and girls. However, most crime researchers in the 1950s and 1960s portrayed girls as being more concerned with

finding a boyfriend than with “legitimate” problems like blocked economic opportunities (Belknap, 2006). Girls were essentially portrayed by criminologists as unimaginative and dull compared to the exciting world of the rebellious male delinquent (Naffine, 1987).

In the 1970s feminist scholars began to point out the gender bias in traditional criminological theories (Naffine, 1987; Smart, 1976), and there were two early attempts to develop gender-specific theories. Adler (1975) predicted that female offending would increase as a function of “women’s liberation” and the attendant “masculinization” of women who were ostensibly achieving greater equality in the workplace. Simon (1975) offered a related theory predicting that increased occupational opportunities would increase female property crime but decrease violent crime because former housewives would be subject to less stress once in the workforce. These particular theories were based on several false assumptions about the feminist movement and its impact, and were soon debunked using crime trend data (Smith & Visser, 1980; Steffensmeier, 1980). Nonetheless, they laid the foundation for the expansion of the study of gender and crime.

Feminist criminologists in the 1970s and 1980s continued to call attention to the disproportionate amount of research on gender and crime given the predictive strength of gender. In 1988, Daly and Chesney-Lind framed the study of gender and crime as two essential questions: (1) can existing theories be generalized to explain female offending and (2) can they explain why boys and men commit significantly more crime than girls and women (the “gender gap”). There are three main positions on these questions: (1) separate theories are needed because existing theories are steeped in the masculine experience and thus too limiting and restrictive to study female offending (Chesney-Lind, 1989), (2) existing theories are adequate to explain female offending and the gender gap (Smith & Paternoster, 1987), and (3) a “middle road” is needed that draws on useful

concepts from existing theory but also includes consideration of the social organization of gender (Steffensmeier & Allan, 1996; Kruttschnitt, 1996).

Critics of general criminological theories cite two key problems. The first problem is that girls are excluded altogether or are irrelevant during the theory-building phase, as with Albert Cohen's (1955) version of strain theory in which the delinquent was "the rogue male," Travis Hirschi's (1969) social control theory, and Sampson and Laub's (1993) life course theory. To the extent that these theories are based on studies of boys and men and reflect gendered experiences (for example, the affirmation of masculinity in Cohen's theory or the controlling effect of marriage on adult men in Sampson and Laub's theory), their relevance to explaining the etiology of girls' and women's behavior is questionable. The second problem cited by critics of mainstream theories of crime is that they do not adequately recognize the social organization of gender. For example, Morash (1999) points out that social learning theory fails to consider how the gender-related distributions of power, resources, and opportunities directly affect crime, and that social learning theory takes for granted gender differences in socialization and learning rather than recognizing them as complex empirical questions in themselves. Belknap and Holsinger (2006) criticize GST for not paying enough attention to strains like gender inequality, sexism, and racism, as well as childhood traumas like parental abandonment. I contend that the GST framework offers room to integrate feminist criminological theory by including strains relevant to girls' lives and a wider array of potential responses to those strains.

The second position on the gender-crime questions is that general theories adequately explain female offending and no further elaboration is needed. Smith (1979) assessed the capacity of five variables drawn from major theories of crime to predict male and female deviance. He found that these factors, including fear of sanction, moral

commitment to legal norms, goal blockage, and social bonding predicted both male and female crime, but did not explain the gap in the relative amount of offending. Indeed, there are many similarities in the causes and correlates of delinquency across gender (Steffensmier & Allan, 1996; Steffensmeier & Broidy, 2001). In a recent summary of the literature on girls and delinquency, Zahn (2007) identified four correlates common to both boys and girls: family dysfunction, antisocial peers, poor school attachment, and disadvantaged neighborhoods. In addition, Daigle et al.'s (2007) study found that physical victimization was a strong predictor of both girls' and boys' delinquency.

General theories of crime are thought to partially explain the gender gap in offending by the sex-based variation in exposure to criminogenic factors featured in each theory. Basically, boys have more of or are affected more by whatever causes delinquency. But evidence does not consistently support these explanations. For example, girls and women have equal or greater amounts of many types of strain than their male counterparts but offend less often (Broidy & Agnew, 1997). Girls are thought to have higher levels of informal control, such as parental supervision, which is in turn thought to contribute to their lower rates of offending, but direct supervision has been found to be more consequential for reducing boys' violence than girls' and does not account for much of the gender gap in offending (Heimer & DeCoster, 1999). Moreover, in one study using data from the National Longitudinal Study of Adolescent Health, girls and boys reported equal levels of supervision and autonomy (Daigle et al., 2007). In another example, there is little empirical evidence that attachment to parents and family is more critical for girls; effects of parental attachment on delinquency seem to be about the same for girls and boys (Kruttschnitt, 1996). In sum, boys are not more exposed to criminogenic factors than girls (Daigle et al., 2007). Explanations using general theories of crime can miss important differences in how general causal factors are experienced

and responded to by girls and boys and the various ways that the social organization of gender affects these general social forces (Kruttschnitt, 1996; Steffensmeier & Broidy, 2001).

The third position on the gender-crime questions suggests a middle road, in which existing concepts are put to use but the social organization of gender is given a central place in an integrated theory. Key proponents of this view are Steffensmeier and Allan (1996) who propose a “gendered paradigm” of female offending. They argue that existing theories of crime can explain the general causal factors for both male and female offending, but that further consideration of how gender structures individual behavior is needed to explain gender differences in offending. They suggest that female rates of crime will be high to the extent that crime is consistent with gendered norms of behavior and opportunity is high. For example, women’s relatively high presence in property offending, fraud, and embezzlement is consistent with the role of primary family purchaser of consumer goods. Steffensmeier and Allan (1996) claim that while violence is seemingly incompatible with norms of femininity, the pathways and correlates of female violent offending are actually quite conducive to their gender role (also see Kruttschnitt, Gartner & Ferraro, 2002).

Steffensmeier and Allan’s (1996) perspective draws on the “doing gender” perspective in the sociology of gender literature (West & Zimmerman, 1987). Criminologists adopting this perspective suggest that girls and boys engage in deviant behavior in accordance with accomplishing and proving masculinity and femininity in every day interactions. In this way gender is an interactive, dynamic achievement rather than a static characteristic, and can either prevent offending or shape the nature of offending. Heimer (1996) tests a similar idea by measuring the extent to which learned definitions of traditional gender roles affect the likelihood of delinquency. She finds that

the stronger the belief in traditional femininity, the less the delinquency. As early as 1985, Naffine warned against attempts by criminologists to link masculine and feminine personality traits to the likelihood of female offending. She argued that the concepts of masculinity and femininity were fraught with imprecision and guided more by stereotypes than empirical verification. Even feminist criminologists at the time tended to perpetuate the notions of female passivity while at the same time explaining aggressive offenses like robbery (Naffine, 1985).

This dissertation focuses on the potential of the “middle road” view advocated by Steffensmier and Allan (1996) to draw on the useful aspects of GST while paying attention to how the organization of gender influences how stress and coping responses are played out in the lives of boys and girls. Specifically, I draw on Broidy and Agnew’s (1997) extension of GST in which they proposed several hypotheses related to explaining the causes of female crime and delinquency as well as gender differences in those behaviors. Before introducing the role of gender in GST and the hypotheses to be tested in the current study, I present an overview of strain theory and the empirical evidence accumulated since its reinvention in 1992.

STRAIN THEORY

Classic strain theory is associated with Merton’s (1938) anomie theory, Cohen’s (1955) status frustration theory, and Cloward and Ohlin’s (1960) differential opportunity theory. The central idea of these theories is the disconnect between valued cultural goals and the unequal access to legitimate means to achieve those goals. The goal (primarily, economic) is blocked, and this produces “strain,” or the desire to attain those goals by whatever means are available (Akers, 2000).

For Merton (1938), monetary success (the “American Dream”) is the valued cultural goal, and his theory of anomie was mainly used to explain the apparent

concentration of crime in the lower class. Cohen (1955) used the central idea of anomie theory but narrowed its scope to the delinquent subculture of lower-class adolescent boys. The blocked cultural goal for lower-class boys is status and acceptance in conventional, middle class society (manifested in schools, which Cohen perceived as fundamentally middle class institutions), and their “status frustration” results in the formation of an alternative delinquent subculture where they can achieve status and acceptance. Finally, Cloward and Ohlin (1960) focused on the delinquent subculture of lower-class adolescent boys, but argued that they have differential access to illegitimate opportunities as well as legitimate opportunities resulting in different types of subcultures (Akers, 2000). In explaining girls’ lower rates of crime, classic strain theorists thought that girls were simply under less pressure to succeed financially, had other less consequential concerns, and did not experience enough strain to push them into law-violating behavior.

Tests of classic strain theories found little empirical support for the central idea, that the greater the gap between economic and social status aspirations (ideal goals) and expectations (what is realistic to expect), the greater the likelihood of delinquency. These theories predicted a negative relationship between social class and delinquency, a relationship that generally does not hold because it cannot explain the pervasive middle-class delinquency found with self-report measures (Akers, 2000). The popularity of classic strain theories faded through the 1970s and most of the 1980s, until Agnew (1992) proposed a revision of strain theory that could potentially address the shortcomings of its predecessors.

AGNEW’S REVIVAL OF STRAIN THEORY

Agnew (1992) integrates the sizeable literature on stress, aggression, and equity/justice in his social-psychological version of strain theory. He argues that strain still plays a central role in explanations of crime and delinquency, but that strain should

be broadly defined and focus on negative relations with others. In addition to the strain of blocked goals emphasized by classic strain theory, Agnew (1992) adds the removal of positively valued stimuli and the introduction of aversive stimuli. In a major departure from most traditional strain theories, GST includes negative affect as an intervening mechanism through which strain causes deviance. Essentially, Agnew (1992) predicts that exposure to strain causes a range of negative emotions, such as anger, disappointment, depression, fear, and anxiety, and individuals will employ different types of coping strategies in an attempt to alleviate the strain. If law-abiding, adaptive coping strategies are unavailable or ineffective, law-violating, maladaptive coping becomes more likely – especially if the individual experiences high levels of anger in response to the strain. Maladaptive coping is but one possible coping response, and its probability is conditional on a number of internal and external factors outlined by Agnew (1992). What follows is an explanation of the main components of the theory along with summaries of relevant empirical findings.

Types of Strain Specified by GST

GST proposes three general categories of strain. First, the failure to achieve positively valued goals includes three sub-types: the disjuncture between (1) aspirations and what one can expect to achieve, (2) what one expects to achieve and what they actually achieve, and (3) when what one actually achieves is not perceived as a just or fair outcome. The gap between aspirations and expectations is retained from classic strain theory, while the remaining two sub-types, drawn from the equity/justice literature in social psychology, move away from the concept of ideal goals. Instead, strain occurs between realistic expectations of achievement and actual achievements, and the extent to which outcomes are perceived as equitable. Empirical support for the first type of goal blockage is weak, primarily because aspiring for academic or monetary success implies

some level of commitment to conventional norms, and failing to achieve an ideal goal may not produce much distress or pressure to cope with delinquency when such a commitment is present (Agnew, 2006). On the other hand, failure to achieve an expected goal is more likely to have a detrimental impact, especially if this failure is viewed as unjust (Agnew, 2001).

The second type of strain is the removal of positively valued stimuli, which creates pressure to prevent loss, retrieve what was lost, or seek revenge. It is illustrated by a number of stressors that involve loss of something positive to the individual: death of, accidental injury to, or illness of a loved one; moving to a new neighborhood or school; or divorce of one's parents. In general, this type of strain is measured with negative life events scales, and evidence suggests that these types of stressors are positively related to delinquency (Agnew & White, 1992; Aseltine, Gore & Gordon, 2000; Hoffman & Su, 1997; Mazerolle, 1998). Nonetheless, such losses are less likely to lead to delinquency because they are often associated with strong social bonds (e.g., attachment to family) and not likely to be seen as unfair outcomes (Agnew, 2006).

Exposure to aversive stimuli is the third type of strain specified by GST, which creates pressure to avoid, escape, or remove the stimuli. Like removal of positively valued stimuli, this strain is derived from the social-psychological literature on aggression and stress. It is characterized by noxious stimuli, such as child abuse and neglect, sexual victimization, other criminal victimization, and negative relations with peers, family, and teachers. Exposure to these types of stressors is associated with increased delinquency and aggression (Agnew, 1992, 2001; Agnew & Brezina, 1997; Baron, 2004; Eitle & Turner, 2002; Piquero & Sealock, 2000). Overall, a substantial body of empirical research in criminology supports the predicted positive relationship between various types of strain specified by GST and crime/delinquency (Agnew &

White, 1992; Agnew, 2002, 2006; Aseltine et al., 2000; Broidy, 2001; Hoffman & Miller, 1998; Mazerolle, 1998; Paternoster & Mazerolle, 1994).

Recent developments in the identification of criminogenic strains

One limitation of GST in its earliest formulation (Agnew, 1992) was the lack of specification regarding which kinds of strain were most likely to lead to law-violating behavior. The broadened definition of strain was in this way a disadvantage to the theory - there are potentially hundreds of different strains individuals can experience, and the theory did not specify which were the most important and why. Given the tendency to use composite measures of strain in most of the initial tests of GST, there was a lack of knowledge around which strains were most likely to lead to delinquency. In a recent theoretical piece, Agnew (2001) explains why all strains are not equally likely to lead to criminal behavior. In addition, he reverses his original recommendation to employ composite measures of strain and suggests that strains be researched separately in order to tease out the effects of different types of strain – an approach I use in the current research. Based on previous tests of GST, criminological theory, and social-psychological research, Agnew (2001) proposes that strain is more likely to lead to crime and delinquency if it (1) is perceived as unjust, (2) is of high magnitude, (3) is associated with weak social bonds, and (4) creates incentive to engage in criminal coping (e.g., exposure to delinquent peers and opportunity).

First, perceiving a strain as unjust or undeserved is more likely to lead to anger, irritability, and low constraint, which should increase the likelihood of aggressive types of crime (Agnew, 2001). Second, a strain of high magnitude is one that is perceived as severe by the individual, or possesses objective markers of severity, such as long duration, high frequency, and recency (Agnew, 1992, 2001). Strains that are associated with low levels of social control, such as a lack of parental supervision and sanctioning,

low attachment to family, and low commitment to conventional norms, are more likely to lead to crime and delinquency (Agnew, 2001). Examples of strains associated with low social control are criminal victimization and negative school experiences (Agnew, 2006). Lastly, strains that create a particular incentive to engage in crime and delinquency are those that are more easily dealt with by violating the law, like the desire for quick cash or material items, or that create a situation conducive to delinquency like exposure to deviant peers (Agnew, 2001).

Based on these criteria, Agnew (2001, 2006) specifies the kinds of strain most likely to lead to delinquency. Among these are criminal victimization (including victimization of close others and the anticipation of one's own victimization), child abuse and neglect, and negative school experiences. Physical victimization has been largely neglected as a cause of delinquent behavior by criminologists, though it has received particular interest of late within GST (Agnew, 2002; Hay & Evans, 2006). While criminal victimization is strongly related to offending, criminologists have typically considered the effect of offending on future victimization rather than the reverse effect (Lauritsen, Sampson & Laub, 1991) – with the exception of research on the criminogenic effects of child abuse and neglect (Widom, 1991).

Strain, including physical victimization, is usually articulated as one's personal experience with various stressors (Agnew, 2002). Agnew (2002) extends this definition to include "vicarious" strain (i.e., victimization and violence against others to whom an individual is close) and "anticipated" strain (i.e., the expectation that current strains will continue or new ones will occur). As opposed to the types of stressors measured in most negative life events scales, vicarious victimization of close others is high in magnitude, likely to be seen as unjust, and occurs in situations with low social control (Agnew, 2002). Using a national sample of high school boys, he found preliminary evidence that

the vicarious violent victimization of family and friends is significantly related to aggressive delinquency after controlling for prior delinquency. Moreover, a high level of anticipated victimization (measured as perceived likelihood of future victimization) is also related to increased aggressive delinquency, but fear of victimization is associated with less delinquency (Agnew, 2002).

In a follow-up study focused only on personal victimization, Hay and Evans (2006) use data from a national panel survey of children conducted between 1976 and 1981 to test whether violent victimization predicts subsequent delinquency in the context of GST. They found that the relationship is positive and significant, even when controlling for prior delinquency, and that anger partially mediates the effect. The effects of experienced, vicarious, and anticipated strain have not been examined within the GST framework by sex, with the intervening variables of anger and depression (except for the Hay and Evans (2006) study), nor with a greater range of delinquency outcomes such as running away and substance use. The current research fills all three of these gaps in the GST literature.

Negative Emotions

GST posits that strain increases the likelihood that one will experience a range of negative emotions, such as anger, disappointment, depression, and fear. Agnew (1992:60) singles out anger as the negative emotion most likely to lead to criminal outcomes because it “increases the individual’s level of felt injury, creates a desire for retaliation/revenge, energizes the individual for action, and lowers inhibitions.” Anger creates pressure to take corrective action, is associated with blaming others for negative circumstances, and creates a sense of immediate power and desire for revenge (Agnew, 2006). The strength of GST rests with the adequacy of the mediation hypothesis (Aseltine et al., 2000).

Anger is generally believed to be more likely to predict aggressive behaviors, such as fighting, than non-aggressive behaviors like drug use and some property crime (Aseltine et al., 2000; Broidy, 2001; Mazerolle & Piquero, 1998). Further, there is some evidence for complete mediation by anger. For example, Brezina (1998) found that anger mediated the relationship between parental abuse and delinquency in a national school-based sample of boys, and Jang and Johnson (2003) concluded that negative emotion (a composite measure of anger and depression) mediated the effect of general strain on general deviance (a combination of fighting and drug use) in a national sample of African American adults. Other studies find partial mediation. For example, in a study of Boston-area high school students, Aseltine et al. (2000) found that anger mediated the effect of family conflict on aggressive delinquency but not property or drug offending, and not for other types of strain. Moreover, in some instances anger has not accounted for the effect of strain as predicted (Mazerolle & Piquero, 1998; Piquero & Sealock, 2000).

One limitation of GST research is that the same measures of anger are rarely used across studies. For example, Mazerolle and Piquero (1998) use the four-item “temper” component of the Grasmick, Tittle, Bursik and Arneklev (1993) self-control scale, consisting of items like “I lose my temper easily,” and “when I am angry at people, I feel more like hurting them than talking to them about why I am angry.” Aseltine et al. (2000) use a five-item measure of how often individuals were bothered by frequent arguments, “uncontrollable outbursts of temper,” and “urges to break things.” In contrast, the measure used by Jang and Johnson (2003) is a single item asking how often individuals felt like “losing one’s temper” during the time he/she was having trouble with a particular problem.

The few studies that have included other negative emotions focus on depression. Agnew (1992) hypothesized that depression should be less strongly related to aggressive delinquency but more strongly related to drug use and other non-aggressive, inner-directed behaviors. Jang and Johnson (2003) found support for this hypothesis in their study of a national sample of African Americans, but other studies have reported mixed findings. No other study has directly examined this hypothesis. Piquero and Sealock's (2004) study of 150 delinquent youth revealed that while anger was positively related to both interpersonal aggression and property offending, depression was related to neither. Similarly, Aseltine et al. (2000) found that depression was unrelated to both non-aggressive and aggressive delinquency. In contrast, Broidy (2001) observed that non-anger negative emotions were associated with an increase in adaptive coping behaviors and a decrease in maladaptive behaviors. This was the first study to find that depression may exert a negative effect on some criminal coping behaviors.

The precise relationship between depression and offending, especially violent offending, is uncertain. Psychologists have noted that depression and delinquency are co-occurring, especially in girls (Loeber & Keenan, 1994; Wiesner & Kim, 2006), but the extent to which there is a causal relationship is unknown. Using the PHDCN data, Obeidallah and Earls (1999) concluded that depression was more prevalent in girls than boys starting in early adolescence, and that mildly to moderately depressed girls were more likely to commit property and violent crimes than their non-depressed counterparts. However, in a prospective study using the same data, Obeidallah (2002) found that there was no causal relationship between girls' depression and subsequent violent offending. De Coster and Heimer (2001) concluded that depression was associated with increases in offending because they share antecedents such as family and peer conflict, criminal victimization, and school problems, but that law violation ultimately leads to later

depression. Similarly, Hagan and Foster (2003) concluded that experiences with delinquency lead to depression more than depression leads to delinquency (see also Hagan, McCarthy & Foster, 2002).

Types of Coping Outcomes in GST

Coping strategies attempt to alleviate the strain – they are employed to help the person achieve positively valued goals, to regain positive stimuli, or to remove/avoid negative stimuli (Agnew, 1992). Agnew categorizes coping strategies into cognitive, behavioral, and emotional types. Cognitive coping involves reinterpreting strain to reduce its perceived effect. This is done by minimizing the importance of the strain in one's life, exaggerating positive outcomes, and downplaying negative outcomes. For example, an individual can cognitively reduce the effect of strain by taking responsibility for it – by coming to believe that she deserves the negative experience, or that it is somehow fair. This type of coping strategy is not examined in the current research.

The goal of behavioral coping is to either eliminate or avoid the strain or satisfy a need for revenge (Agnew, 1992). Behavioral coping can be adaptive or maladaptive, and examples include skipping school, running away, ending a friendship, or engaging in a range of criminal/delinquent behaviors. Emotional coping strategies directly address the negative affect experienced by the individual in an attempt to find relief from the discomfort of psychological distress. Examples include the use of alcohol or other drugs, physical exercise, disordered eating practices, or risky sexual behavior. Emotional coping is distinct from the other forms of coping in that it tries to directly alleviate the psychological distress rather than behaviorally alter or cognitively reinterpret the situation (Agnew, 1992). The present research focuses on problematic behavioral and emotional forms of coping.

Conditioning Factors in GST

Because maladaptive coping is but one possible response to strain and negative affect, a key challenge for strain theory is to explain why some individuals are more likely to employ maladaptive coping than adaptive coping. Agnew (1992:70) acknowledges that if “strain theory is to have any value, it must be able to explain the selection of delinquent versus non-delinquent adaptations.” Problematic coping behaviors are most likely to occur when (1) adaptive coping is unavailable or ineffective, (2) there are few barriers to maladaptive coping behaviors, and (3) the individual is predisposed to maladaptive coping. To this end, Agnew (1992) proposes several conditioning factors that should increase the likelihood of problematic coping behaviors: lack of personal coping resources (e.g., low self-efficacy), high opportunity, weak social bonds, beliefs supportive of delinquency, and association with delinquent peers (Agnew, 1992, 2006; Agnew, Brezina, Wright, & Cullen, 2002; Agnew & White, 1992).

This area of GST has received the least amount of attention, and evidence is mixed (Agnew, 2006; Agnew & White, 1992; Aseltine et al., 2000; Jang & Johnson, 2005; Mazerolle & Maahs, 2000; Robbers, 2004). For example, Robbers (2004) used one wave of the National Youth Survey to examine the conditioning effect of social support on strain. She observed that a high level of social support buffers the deleterious effect of one type of strain – the failure to achieve personal goals. Further, when the interaction effect was examined separately by gender, it only held for women. A variety of conditioning factors have been tested in the GST literature, including self-efficacy, social support, and attachment to family. My research focuses on the role of self-efficacy/sense of control due to the prominence of this construct in the sociology of mental health and the opportunity to integrate this literature with that of criminology.

A low sense of control or self-efficacy is defined as making external attributions for both good and bad outcomes (Mirowsky & Ross, 1990). Of the various conditioning factors thought to play a role in general strain theory, sense of control could be particularly important because of its strong association with anger and depression. Agnew (1992) positions anger as the key emotion linked to criminal coping strategies largely because it is associated with external attributions of blame for one's negative condition. Others have seized on the complementary idea that depression, anxiety, and guilt are associated with internalization of blame for one's negative condition, and that this is more common among women than men (Campbell, 1993; Cloward & Piven, 1979). However, internalizing responsibility for bad outcomes should characterize a high sense of control and thus lower levels of psychological distress (Mirowsky & Ross, 1990). Indeed, researchers within the stress paradigm in medical sociology have found that a low sense of control, or the tendency to make external attributions for the good and bad things that happen in one's life, is strongly related to increased depression and anxiety; in fact, depression is more strongly related to blaming others than is anger (Mirowsky & Ross, 1990). Conversely, making internal attributions, or taking responsibility for both good and bad outcomes, is associated with *less* psychological distress, not more (Mirowsky & Ross, 1990, 2003).³

In the GST framework, external attributions, sense of control, self-efficacy, and mastery fall under the conceptual umbrella of internal coping resources (Agnew, 1992). The original formulation of GST stated that the more coping resources a person has, the less likely he/she will respond to strain with anger and criminal coping. Specifically, individuals high in self-efficacy will tend to believe they can effectively solve problems in a legal manner (Agnew, 2006). The negative relationship between self-efficacy and

³ This is counter to some clinical literature that suggests internal attributions for sexual abuse and trauma are correlated with greater depression (Kwon, 1999; Morrow, 1991).

delinquency was initially supported (Agnew & White, 1992), and is compatible with Mirowsky and Ross' (2003) finding that a high sense of control decreases the likelihood of psychological distress. However, most studies of the conditioning effect of self-efficacy have failed to find a consistent buffering effect on crime and delinquency (Hoffman & Miller, 1998; Jang & Johnson, 2003; Paternoster & Mazerolle, 1994). Indeed, some studies have found the opposite effect: high self-efficacy amplifies the effect of strain on crime rather than inhibiting the effect (e.g., Paternoster & Mazerolle, 1994; Ross & Mirowsky, 1987). Given the inconsistent findings, Hoffman and Miller (1998) conclude that the buffering effect of self-efficacy may be limited to psychological distress.

GENDER AND GENERAL STRAIN THEORY

The role of gender in GST is a subject of more recent interest. Studies in this vein focus primarily on whether (1) the basic relationships among GST variables are similar across sex, (2) there are sex differences in exposure to strain, and (3) there are sex differences in negative emotional response to strain that predict differences in coping responses. Initial tests by Hoffman and Su (1997) and Mazerolle (1998) found that the direct effects of strain on delinquency were similar across male and female respondents, though Mazerolle (1998) found that negative life events predicted violent delinquency for boys but not girls. Agnew and Brezina (1997) investigated the relationship between interpersonal strain and delinquency across sex and discovered that while related to the delinquency of both sexes, the correlation was stronger for boys than girls – contrary to prior research on the importance of network strains for women and girls (Gilligan, 1982; Kessler & McLeod, 1984; Turner, Wheaton, & Lloyd, 1995). These initial studies of gender and GST did not include anger or depression as mediating variables, but overall,

evidence suggests that the general relationships between strain and delinquency are shared across sex (Broidy, 2001).

Three contradictions continue to drive research in this area: (1) women and girls are exposed to more stressors than their male counterparts (Broidy & Agnew, 1997), (2) girls tend to experience equal or greater levels of anger and greater levels of other negative emotions in response to strain than boys, and (3) girls have less access to some types of internal coping resources (i.e., self-efficacy and self-esteem) than boys. On the surface, these empirical findings on the major strain theory variables would point to girls committing *more* law-violating behavior than boys, not less. However, it is also the case that girls engage in self-directed problematic behaviors like disordered eating, substance use, suicide attempts, and certain types of delinquency like running away, often at rates similar to or higher than boys. Sex may influence the type of coping response not because of the quantity of strain or level of anger, but through qualitative differences in types of strain, types of negative emotions, and available coping strategies that are shaped by gender (Broidy & Agnew, 1997; Broidy, 2001). Theoretical work in this area has proposed that some forms of strain experienced more by girls, such as loss of interpersonal ties and excessive care-giving demands, are associated with high social control (e.g., attachment to family) and restriction of criminal opportunities and thus less criminal behavior; at the same time, these types of strains may be more associated with self-destructive forms of coping behavior (Broidy & Agnew, 1997).

Broidy and Agnew (1997) merge mental health, gender, and stress literatures to inform a framework for empirical tests of the gender/GST relationship. Essentially, they submit that there are gender differences in exposure to different types of strain, and these differences predict further gender differences in emotional response and thus the type of problem behavior. In particular, Broidy and Agnew (1997) hypothesize that (1) girls are

differentially exposed to strains that are less conducive to externalized problems and boys are differentially exposed to strains that are more conducive to these problems; (2) girls are also more likely to experience a range of anger and non-anger negative emotions than boys, which may suppress delinquency; and (3) a lower sense of control/self-efficacy should further reduce delinquency in girls rather than increase it as originally suggested by Agnew (1992). Tests of Broidy and Agnew's (1997) hypotheses are growing in number, and they generally suggest that the relationship between strain and negative emotions varies according to type of outcome (Jang, 2007; Piquero & Sealock, 2004; Sharp et al., 2005). Further, recent evidence suggests that girls may be exposed to strain and react to strain in ways that reduce the likelihood of delinquency but promote other types of maladaptive coping (Jang, 2007; Sharp et al., 2001). The next section provides an overview of what previous research suggests about each of these areas.

Gender Differences in Types of Strain

Studies consistently show that adult women experience more strain than men (Bush & Simmons, 1987; Gove & Herb, 1974; Mirowsky & Ross, 1995; Turner et al., 1995). Research with adolescent samples also suggests that girls are exposed to more strain than boys (Daigle et al., 2007; Dornbusch, Mont-Reynaud, Ritter, Chen & Steinberg, 1991). As a result, strain theorists cannot simply argue that boys commit more offenses because they experience more absolute strain and distress. Rather, Broidy and Agnew (1997) propose that gender differences in crime may instead be a function of gender differences in exposure to different types of strain, where boys experience strains more likely to lead to serious violent and property crime, and girls experience strains more likely to lead to non-aggressive forms of coping like running away, substance use, and suicidal behavior. The logic is that "female strains" may be associated with greater constraints on behavior that are more conducive to non-aggressive, inner-directed coping.

It is important to point out that the only way Broidy and Agnew's (1997) hypotheses can be evaluated is to design multiple outcome studies that include a range of aggressive and non-aggressive coping behaviors. The problem with studies that only examine one type of dependent variable, such as depression in the mental health literature or delinquency in the criminology literature, is that girls and women are found to be disproportionately vulnerable to stress in the former, and boys and men in the latter (Aneshensel et al., 1991). To this end, the current study focuses on multiple outcomes, including different forms of delinquency and health risk behaviors, in order to capture potential differential responses to strain.

Girls and women are differentially exposed to strains rooted in the social organization of gender. Among adults, women have higher levels of exposure than men to general stressors like economic hardship, parenthood, getting fired, low-prestige work and family roles, unequal marital relationships, failure to be treated in a fair and just manner by family, intimates, and employers, and loss of positive ties to others (Broidy & Agnew, 1997; Klonoff, Landrine, & Campbell, 2000; Mirowsky & Ross, 2003). Prior to assuming adult roles, girls are differentially exposed to stress as well. For example, in a recent examination of gender-specific predictors of delinquency using the National Longitudinal Study of Adolescent Health (Daigle et al., 2007), girls were more exposed than boys to negative life events like the suicide of a family member or friend, parental conflict, and poor attachment to parents and friends. Similarly, Dornbusch et al. (1991) and De Coster (2005) found that girls were more often exposed to interpersonal strain than boys, though Agnew and Brezina (1997) discovered that this was more consequential for boys' delinquency (they did not examine other types of outcomes).

The social disadvantage of girls also manifests in stressors that are more specific to the experience of being a girl in the U.S. These include sexual, emotional and physical

victimization and exploitation by intimates, loss of positive ties to others, barriers to participating in certain aspects of social life due to fear of crime, negative messages about female sexuality, restrictions on behavior (including appearance, conversation, sexual behavior, travel, and physical and emotional expression), and normative expectations to “perform” femininity that simultaneously devalue girls’ status in society (Broidy & Agnew, 1997; Chesney-Lind & Shelden, 1992; Klonoff et al., 2000). The current study focuses on physical victimization, sexual victimization, vicarious victimization/loss of close others, and fear of violent victimization, as well as the disjuncture between expected academic performance and actual academic performance.

Girls’ more frequent experiences with sexual victimization are thought to play a particularly important role in their likelihood of delinquency and other maladaptive behaviors. A 1997 compilation of Child Protective Services (CPS) reports from 16 states concluded that girls are three times as likely to be sexually abused, compared to boys. Sexual abuse accounts for 12 percent of all child abuse and neglect cases substantiated by CPS, and 77 percent of those sexual abuse victims are girls (U.S. Department of Health and Human Services, 1999). The U.S. Department of Justice (2000) reports that girls under age 18 are six times as likely as boys to be victims of sexual assault that are known to law enforcement agencies. Similar findings have been replicated in several other studies of the incidence and prevalence of child sexual abuse in the last 25 years, and estimates of sexual abuse history among girls in the juvenile justice system range from 70 to 90 percent (Chesney-Lind & Shelden, 1992).

A history of sexual abuse is correlated with depression, anxiety, anger, school failure, eating disorders, teen pregnancy, prostitution, running away, substance abuse, and trouble with the law (Chesney-Lind & Pasko, 2004; Office of Juvenile Justice and Delinquency Prevention, 1998). In a prospective cohort study of 908 child abuse and

neglect cases in one midwestern county, Widom (1991) found that childhood victimization, including sexual abuse, increased the likelihood of juvenile arrest by a factor of almost two compared to a matched comparison group with no record of victimization. Further, having a history of childhood victimization put girls at a significantly greater risk for violent offending than it did boys.

It should be noted that there is a difference between differential exposure to strain and differential vulnerability to strain (Aneshensel et al., 1991; Thoits, 1995; Turner et al., 1995). The latter means that even if both girls and boys are exposed to the same strain, it may affect one more than the other. For example, girls and boys could be equally exposed to interpersonal strain, but girls could be more vulnerable (indicated by a statistical interaction between sex and the strain) depending on the outcome. Recent research by De Coster (2005) attempts to tease out whether gender differences in depression and law violation are due to differential exposure or vulnerability to gendered stresses. First defining “communal” strain as family and peer stress and “agentic” strain as victimization and achievement failure, she finds that differential vulnerability to these strains is a stronger predictor than differential exposure. Girls tend to (but not absolutely) report more communal strain and boys more agentic strain. Moreover, in general, girls are more vulnerable to communal strain when depression is the outcome, and boys are more vulnerable to instrumental strain when delinquency is the outcome. However, De Coster (2005) also finds that both girls and boys are vulnerable to family strain and express it differently: girls with depression and boys with law violation. This is called “gendered response” or “functional equivalence” in the mental health literature (Horwitz & White, 1987).

Following Broidy and Agnew (1997) and the subsequent research on GST and gender, I test the following hypotheses about exposure to strain:

Hypothesis 1: Girls and boys report differential exposure to different types of strain.

- 1a: Boys are more likely to be exposed to violence (excluding sexual victimization) than girls.
- 1b: Girls are more likely to be sexually victimized than boys.
- 1c: Girls are more likely to report loss of close others (vicarious strain) than boys.
- 1d: Boys are more likely to report school strain than girls.
- 1e: Girls are more likely to fear crime victimization than boys.

The Role of Negative Emotions

Broidy and Agnew (1997) contend that there are gender differences in emotional responses to strain that result in distinct outcomes. They hypothesize that girls and boys should be equally likely to respond to strain with anger, but that girls will have more co-occurring emotions that reduce the likelihood of aggressive delinquency and increase the likelihood of inner-directed problem behaviors. Evidence from studies of both adults and adolescents show that girls and women experience as much or more anger than boys and men in response to strain (Jang, 2007; Mazerolle & Piquero, 1998; Mirowsky & Ross, 1995; Piquero & Sealock, 2004; Sharp et al., 2005). The second and third hypotheses likewise test the extent to which there are sex differences in the mean levels of anger, depression, and self-efficacy, and whether the effect of strain on anger and depression varies by sex.

Hypothesis 2: There are sex differences in levels of negative emotions and self-efficacy.

- 2a: Girls have higher levels of depression than boys.
- 2b: Girls have higher levels of anger than boys.
- 2c: Boys have a higher sense of self-efficacy/control than girls.

Hypothesis 3: The relationships between strain and negative emotions vary by sex.

3a: There are no gender differences in the relationships between strain and anger.

3b: The relationship between strain and depression is stronger for girls than boys.

More recently, Jang (2007) tested Broidy and Agnew's (1997) hypotheses with a national sample of African American adults, and found that strains differentially experienced by women were more likely to result in depression and anxiety than anger, and these emotions were in turn more likely to result in adaptive coping than maladaptive coping (fighting/arguing). Conversely, anger was more likely to result in fighting/arguing than in adaptive coping, but the strains experienced by men were not more likely to result in anger. The fourth hypothesis builds on hypothesis 3 to test whether the effect of strain on coping outcomes varies by sex.

Hypothesis 4: The relationships between strain and problematic coping outcomes vary by sex.

4a: The relationship between strain and aggressive delinquency and high risk sexual behavior is stronger among boys than girls.

4b: The relationship between strain and running away, minor property crime, substance use, and suicidality is stronger among girls than boys.

The fifth set of hypotheses in the current study tests the extent to which anger mediates the effects of strain on problematic coping outcomes. Though Sharp et al. (2005) observe that anger mediated strain for young men and not young women, there is no reason to believe that GST's mediation hypothesis should not work across sex.

Hypothesis 5: Anger mediates the effects of strain on problematic coping outcomes.

5a: Anger is positively associated with problematic coping outcomes.

5b: Anger attenuates the effect of strain on problematic coping outcomes.

Girls and women are more likely than boys and men to experience other negative emotions with anger, like depression, guilt, anxiety, fear, and frustration (Broidy, 2001; Campbell, 1993; Cloward & Piven, 1979; Hay, 2003; Jang, 2007; Mirowsky & Ross, 1995; Piquero & Sealock, 2004; Sharp et al., 2005; Van Gundy, 2002). The potential key role played by these non-angry negative emotions in the GST process was emphasized by Broidy's (2001) finding that they suppress criminal coping, and by a subsequent study of undergraduates confirming that depression decreased the likelihood of criminal coping (Sharp et al., 2005). No others, however, have examined this issue.

In addition to decreasing the likelihood of crime and delinquency, depression may also increase the likelihood of self-directed problematic coping. In a study of undergraduate women, Sharp et al. (2001) analyzed the interaction of anger and depression and found that anger increased the likelihood of purging behavior only when depression was also high, suggesting that depression may be particularly important in predicting non-aggressive, inner-directed problem coping behaviors. Similarly, using a sample of students from one urban high school, Hay (2003) found that family strain was positively associated with anger for boys, while for girls strain was positively associated with anger as well as guilt. He concluded that the presence of guilt seemed to suppress the likelihood of delinquency in girls.

Hypothesis 6: Depression decreases the likelihood of aggressive and minor property delinquency, and increases the likelihood of non-aggressive problematic coping outcomes (running away, substance use, suicidality, and high risk sexual behavior).

Together, these preliminary studies advance the idea that depression, guilt, and other negative emotions felt in conjunction with anger may reduce the likelihood of criminal coping in response to strain, and facilitate self-directed forms of problem coping behaviors.

Conditioning Influences of Depression and Self-Efficacy

In addition to the direct effects of depression on aggressive and non-aggressive outcomes tested in Hypothesis 6, the preliminary findings of Broidy (2001), Hay (2003) and Sharp et al. (2001) point to a possible conditioning effect of depression. That is, depression may interact with strain to lower the likelihood of aggressive outcomes, while amplifying the effects on non-aggressive problem outcomes. Moreover, because girls and women experience anger with co-occurring emotions, such as depression and anxiety, and these combinations of emotions are less likely to lead to aggressive coping outcomes, depression may also interact with anger to buffer its criminogenic effect.

Hypothesis 7: Depression conditions the effect of strain and anger on problematic coping outcomes for girls.

7a: The effect of strain on aggressive delinquency decreases when depression is high.

7b: The effect of strain on non-aggressive outcomes increases when depression is high.

7c: The effect of anger on aggressive delinquency decreases when depression is high.

7d: The effect of anger on non-aggressive outcomes increases when depression is high.

As stated earlier, self-efficacy is one of the key internal coping resources specified by GST, but evidence for its conditioning effect is mixed. Interestingly, the tendency for women and girls to have a lower sense of control and greater distress than their male counterparts (Bush & Simmons, 1987; Mirowsky & Ross, 2003) should exacerbate the effect of strain and lead to greater criminal behavior, not less, as we know to be the case. Along those lines, a high sense of control may be necessary for criminal

coping to occur – a kind of “criminal self-efficacy” (Agnew, 2006). There is some evidence for this. Ross and Mirowsky (1987) found that under conditions of normlessness (a belief that illegitimate means are necessary to attain goals), a high sense of control was positively related to trouble with the law. Similarly, using a localized sample of youth on probation, Piquero and Sealock (2004) observed that boys reported higher levels of coping resources than girls, and that the availability of coping resources was associated with more criminal behavior, rather than less.

In order to explain the gender gap in offending, Broidy and Agnew (1997:7) hypothesize that girls with low self-efficacy and self-esteem are less likely to engage in delinquency because “they may not feel secure or confident enough to challenge behavioral proscriptions against such behaviors for [girls].” At the same time, they propose that girls’ low self-efficacy and self-esteem may be more conducive to inner-directed maladaptive behaviors like substance use. Basically, the role of self-efficacy as a coping resource in GST is thought to be gendered: low levels of self-efficacy inhibit criminal coping for girls, while high levels facilitate criminal coping for boys. The ambiguous role of self-efficacy in the GST process merits further investigation. After first testing for sex differences in the level of self-efficacy in Hypothesis 2c, I test the following interaction effects:

Hypothesis 8: Self-efficacy conditions the effect of strain and anger on problematic coping outcomes.

8a: The effect of strain on aggressive delinquency increases when self-efficacy is high.

8b. The effect of strain on non-aggressive outcomes decreases when self-efficacy is high.

8c: The effect of anger on aggressive delinquency increases when self-efficacy is high.

8d: The effect of depression on non-aggressive outcomes decreases when self-efficacy is high.

In sum, I have reviewed the empirical and theoretical work on general strain theory and the role of gender in general strain theory. There is preliminary evidence that both male and female delinquency can be explained by general strain theory. But there is also evidence that boys and girls may experience qualitatively different strains, have different emotional reactions to strain, cope with strain differently, and have different external and internal constraints on their behavior. Gender influences the general strain theory process, and a more nuanced model of the theory may be needed to adequately account for the gender gap (Broidy, 2001; Broidy & Agnew, 1997).

Previous studies have several limitations, including (1) the use of a single outcome (e.g. delinquency or depression) which can under- or over-emphasize the effect of strain for girls versus boys; (2) the exclusion of mediating variables (anger and depression/anxiety) and an attendant limited understanding of the role of depression in general strain theory; (3) narrow conceptions of strain (usually due to data constraints) that do not include strains thought to be salient for girls – moreover, the use of composite strain indexes that do not allow for the examination of differences among strains; and (4) the use of small, non-probability, school-based, undergraduate, and/or high-risk samples. While the PHDCN is limited to one urban city, it is a community-based multi-stage probability sample of adolescents, and is more racially diverse than most survey samples used to test GST.

The current state of the literature on gender and GST calls for future studies to expand the range of measured strains, negative emotions, and problematic coping

outcomes to better understand how gender influences the process, and to explore the mediation and moderation hypotheses advanced by Agnew (1992) and Broidy and Agnew (1997). My research questions span three general areas: the extent to which exposure and vulnerability to different types of strain are gendered, the extent to which there are distinct emotional responses to strain and if they are related to distinct types of coping responses, and whether sense of control/self-efficacy and depression interact with strain and anger to condition those coping responses. In addition, this study provides much-needed further examination of the categories of experienced, vicarious, and anticipated strains set forth by Agnew (2002).

Tests of the hypotheses outlined above and summarized in Table 2.1 will help clarify how GST might be elaborated to explain gender differences in maladaptive coping behavior as well as explain the causal processes particular to girls' maladaptive coping behaviors. In the next section, I describe the data, measures, and analysis used to test these hypotheses.

Table 2.1: Summary of Hypotheses

H1:	<p>Girls and boys report differential exposure to different types of strain.</p> <p>1a: boys are more likely to witness and experience violence (excluding sexual victimization) than girls.</p> <p>1b: girls are more likely to be sexually victimized than boys.</p> <p>1c: girls are more likely to report loss of close others than boys.</p> <p>1d: boys are more likely to report school strain than girls.</p> <p>1e: girls are more likely to fear crime victimization than boys.</p>
H2:	<p>There are gender differences in levels of negative emotions and coping resources.</p> <p>2a: Girls have higher levels of depression than boys.</p> <p>2b: Girls have higher levels of anger than boys.</p> <p>2c: Boys have a higher sense of self-efficacy/control than girls.</p>
H3:	<p>The relationships between strain and negative emotions vary by sex.</p> <p>3a: There is no gender difference in the relationships between strain and anger.</p> <p>3b: The relationship between strain and depression is stronger for girls than boys.</p>
H4:	<p>The relationships between strain and problematic coping outcomes depend on sex.</p> <p>4a: The relationship between strain and aggressive delinquency and high risk sexual behavior is stronger among boys than girls.</p> <p>4b: The relationship between strain and running away, minor property crime, substance use, and suicidality is stronger among girls than boys.</p>
H5:	<p>Anger mediates the effects of strain on problematic coping outcomes.</p> <p>5a: Anger is positively associated with problematic coping outcomes.</p> <p>5b: Anger attenuates the effect of strain on problematic coping outcomes.</p>
H6:	<p>Depression is negatively associated with aggressive and minor property delinquency, and positively associated with non-aggressive problematic coping outcomes (running away, substance use, suicidality, and high risk sexual behavior).</p>
H7:	<p>Depression conditions the effect of strain and anger on problematic coping outcomes for girls.</p> <p>7a: The effect of strain on aggressive delinquency decreases when depression is high.</p> <p>7b: The effect of strain on non-aggressive outcomes increases when depression is high.</p> <p>7c: The effect of anger on aggressive delinquency decreases when depression is high.</p> <p>7d: The effect of anger on non-aggressive outcomes increases when depression is high.</p>
H8:	<p>Self-efficacy conditions the effect of strain and anger on problematic coping outcomes.</p> <p>8a: The effect of strain on aggressive delinquency increases when self-efficacy is high.</p> <p>8b: The effect of strain on non-aggressive outcomes decreases when self-efficacy is high.</p> <p>8c: The effect of anger on aggressive delinquency increases when self-efficacy is high.</p> <p>8d: The effect of depression on non-aggressive outcomes decreases when self-efficacy is high.</p>

Chapter 3: Methods

DATA

The data for this study come from the Project on Human Development in Chicago Neighborhoods: Longitudinal Cohort Study, 1994 – 2001 (PHDCN). Intended to examine the community, school, peer, family, and personal characteristics that may lead to or away from various antisocial behaviors, the PHDCN consists of three waves of data collected over eight years from a sample of pre-adolescents, adolescents, and their primary caregivers in Chicago (Earls, 2002). Chicago was selected over other U.S. cities due to its stable and defined neighborhoods and its large and diverse population. The present study uses the first two waves of data, as the third wave of data, collected in 2000-2002, was unavailable at the time of my analysis.

The PHDCN employed a three-stage sampling design. First, 343 neighborhood clusters were formed from Chicago's 847 census tracts based on geographically meaningful boundaries, knowledge of Chicago's neighborhoods, and homogeneity on census indicators, such as housing density. Second, the neighborhood clusters were stratified by seven levels of racial-ethnic composition and three socioeconomic levels (high, medium, and low), and a stratified probability sample of 80 neighborhood clusters was selected for the study. The study directors intended to elicit an equal number of neighborhood clusters in each of the 21 strata that varied by racial/ethnic composition and SES. This was achieved with the exception of low-income primarily European American, high-income primarily Latino, and high-income Latino/African American, which did not exist (Earls, 2002). Third, block groups were randomly selected from each of the 80 neighborhood clusters, and children falling within seven age cohorts (birth and ages 3, 6, 9, 12, 15, and 18) were sampled from randomly selected households.

Ultimately, the PHDCN identified 8,347 possible participants, with 800-900 in each of the seven age cohorts. The first wave of data was collected between 1994 and 1997, with a 75 percent (N=6,228) response rate. The second wave was collected between 1997 and 1999, with 86 percent (N=5,338) of the original (first wave) respondents. The majority of the data were collected via extensive in-home interviews and standardized assessments with the children and their primary caregivers, offered in English, Spanish, and Polish.

My hypotheses are not easily tested with existing data sets. In fact, in the first few years following the major revision of strain theory, Agnew (1992) and Broidy and Agnew (1997) pointed out that the central variables specified by GST were not available in existing data sources, let alone the extended range of strain and deviance variables needed to explore the influence of gender. Subsequent research on gender and GST has succeeded in including at least partial measures of the central variables, though only Sharp et al. (2001) and Broidy (2001) have included extended measures of deviance, albeit limited to disordered eating. Most of this literature uses localized samples of college and high school students (Aseltine et al., 2000; Broidy, 2001; Hay, 2003; Sharp et al., 2001), and juvenile offenders or high-risk youth (Hoffman & Su, 1997; Piquero & Sealock, 2004). The PHDCN data are appropriate for my analysis due to the range of measured stressors and strains, delinquency and health risk behaviors, and distressed emotions. In addition, the PHDCN provides an opportunity to test GST on a community-based probability sample of a large urban area.

SAMPLE

My study uses the pooled data from three age cohorts (9, 12, and 15) from Wave 2 for a total of 1,915 respondents. The 2-3 year lag between waves means that these three cohorts (which were approximately 9, 12, and 15 years old in Wave 1) represent an

age range of approximately 11 to 18 years during the second wave of data collection. Wave 1 is utilized for a measure of prior delinquency. While Wave 1 contains some measures pertaining to strains, other central variables like depression, anger, and self-efficacy were not available.

Though longitudinal designs are often desirable to help establish causation (i.e., strain results in negative emotions which then lead to delinquent coping), the cross-sectional design used here is acceptable by the theory under examination. First, the relationships among GST variables are thought to be proximate, with negative events and emotions occurring in the more distant past probably having a lesser impact on coping outcomes (Agnew, 1992). Given this, measuring strain and negative emotions at Time 1 and delinquency at Time 2 (approximately 2 – 3 years later) would be an inappropriate test of the theory, even if all the necessary measures were available. Second, my control for prior delinquency at Time 1 helps to account for any spurious effects of strain or negative emotions on delinquency. Moreover, Broidy (1997) tested central GST hypotheses both longitudinally and cross-sectionally, and found few significant differences in the results.

MEASURES

Dependent Variables

Aggressive Delinquency

A 12-item mean scale of aggressive delinquency was drawn from the Self-Report of Offending (SRO) questionnaire adapted for the PHDCN from Huizinga, Esbenson, and Weiher (1991). A mean scale sums the individual's responses to each item in the scale and divides by the number of non-missing items in the scale. For example, if a respondent completed eight out of ten items in a scale, the sum is divided by eight. A

respondent had to have at least 80 percent of the items completed to be included in the calculation of the scale. This technique retains cases that would otherwise be eliminated from the analysis.

The items ask how many times in the past year respondents engaged in law-violating behaviors spanning aggressive property crimes, such as setting fire to a house and breaking and entering, as well as violent acts like attacking someone with a weapon and being in a gang fight. This variable serves as a contrast to the more non-confrontational delinquency measures like running away, minor theft, and substance use cited by Broidy and Agnew (1997). The aggressive delinquency measure has an alpha reliability coefficient of .75, a mean of .12, and a standard deviation of .30.

A 24-item measure of general delinquency also was employed in the analysis, with measurement characteristics and results similar to those for aggressive delinquency ($\alpha = .80$, $\text{mean} = .13$, $\text{sd} = .26$). The two measures were also highly correlated at .92. For conceptual clarity and brevity, the general delinquency measure is not reported in the subsequent analyses. All delinquency variables (including running away and minor theft below) were recoded from raw counts into ordinal responses ranging from none (0) to 5 or more times (4), because the latter are distributed more normally than the former (Elliott, Huizinga, and Menard, 1989). In the regression analyses, all dependent variables are logged to reduce positive skew and minimize heteroskedasticity (Agresti & Finlay, 1997; Hamilton, 1992).

Running Away

Two additional measures of deviance characterize behaviors identified by Broidy and Agnew (1997) as “self-focused, non-confrontational, illegitimate” coping strategies more likely to stem from the strains that girls experience: running away and substance use. Running away is also measured separately here because it is singled out in the

criminology literature as particularly important for explaining girls' pathways to delinquency (Chesney-Lind, 2004). Running away is measured by a single item asking how many times in the last 12 months the respondent ran away from home overnight. The mean response is .09, with a standard deviation of .46.

Substance Use

Substance use is considered an illegitimate and law-violating coping strategy for adolescents, yet by itself it is self-focused and non-confrontational. Substance use also has been used in several previous tests of GST as an example of an emotional coping strategy (Agnew, 1992; Agnew & White, 1992; Aseltine et al. 2000; Hoffman & Su, 1997). The Substance Use interview in the PHDCN includes questions about use in the last 12 months of a variety of alcohol and other drugs. Because use of most of the drugs is minimal, I calculated the mean of the two items with the most variation – the number of days respondents drank alcohol or used marijuana in the past year. Responses are coded as none (0), 1-2 days (1), 3 – 5 days (2), 6 -11 days (3), 12 – 24 days (4), 25 – 50 days (5), 51 – 99 days (6) and 100 or more days (7). The substance use measure yielded a mean of .48, and a standard deviation of 1.17.

Minor Theft

Broidy and Agnew (1997) also single out minor theft as a criminal behavior more available to girls and women because it does not challenge traditional notions of femininity, and it can be seen as a strategy for coping with gender-specific strains like meeting the demands of others. Minor theft is measured as the mean response to two items that ask respondents how many times in the last 12 months they have (a) stolen something from a store and (b) taken something that did not belong to them from any

member of their households. The mean for minor theft is .23, with a standard deviation of .59.

Suicidal Behavior

Suicidal behavior is used in this study because it is non-law-violating, self-focused, non-confrontational, yet problematic coping strategy. While it can be argued that suicidal behavior is an indicator of depression (and thus confounded with a variable that is conceptualized as causally prior), my measures of suicidal behavior and depression have a relatively low correlation of .22. In addition, to the extent that suicidal behavior is a more severe manifestation of depression, examining it as an outcome variable allows for some comparison to sociology-of-mental-health research that uses depression as the dependent variable. Suicidal behavior is measured as the mean response to three dichotomous items. Respondents are asked if, in the last 12 months, they had (a) thought seriously about killing themselves, (b) a plan for exactly how they would kill themselves and (c) tried to kill themselves. This measure is consistent with that used by another study of suicide and GST (Walls, Chapple & Johnson, 2007). The suicidal behavior scale has an alpha reliability coefficient of .81, a mean of .01, and a standard deviation of .10. These questions were asked only of cohorts ages 12 and 15.

High Risk Sexual Behavior

High risk sexual behavior can also be considered a maladaptive, non-confrontational coping strategy for adolescents, and its association with delinquency and substance use in adolescents is well-documented (Devine, Long, and Forehand, 1993; Kotchick, Shaffer, and Forehand, 2001; Valois, Oeltmann, Waller, and Hussey, 1999). GST has not been tested as a broader explanation for health risk behaviors, with the exception of disordered eating (Broidy, 2001; Sharp et al., 2001) and substance use.

Because of its close association with other forms of risk-taking behavior, risky sexual behavior among adolescents might also be explained by GST.

The PHDCN includes a set of questions related to dating and sexual behavior that are asked in a self-administered module, which allowed the participants to respond privately. These questions were asked only of cohorts ages 12 and 15. I measure high risk sexual behavior with a question about how many sexual partners the respondent had, if any. Responses were coded as (0) if the respondent had not had sex, (1) if he/she had one sexual partner, (2) if two or three partners, and (3) if he/she had four or more partners. The high risk sexual behavior measure yielded a mean of .57, and a standard deviation of .95.

Independent Variables

Turning to the independent variables, I examine five strains that reflect the three general categories of strain specified by Agnew (1992): the introduction of noxious stimuli, the removal of positively valued stimuli, and the failure to achieve positively valued goals. The five strains, which allow for a broad test of GST, are: (1) exposure to serious violence, (2) being a victim of sexual violence, (3) loss of close others, (4) fear of crime, and (5) school strain.

Strain #1: Exposure to Violence

The introduction of noxious stimuli is measured by two variables. The first, exposure to violence, is the mean response to a nine-item index capturing both vicarious and experienced victimization (Agnew, 2002). Four of the items ask respondents if they had ever seen someone else get attacked with a weapon, get shot at but not wounded, get shot, or get killed as a result of violence. The remaining five items ask if they had been attacked with a weapon like a knife or a bat, shot at but not wounded, threatened by

someone to seriously hurt them, chased by someone to hurt or scare them, or beaten up. The full index represents a general measure of exposure to violence (Selner-O'Hagan, Kindlon, Buka, Raudenbush & Earls, 1998), and has a mean of .21 and a standard deviation of .23.

Strain #2: Sexual Victimization

The second measure of noxious stimuli taps into a specific type of victimization experienced more often by girls, sexual violence. This measure is a single dichotomous item from respondents' answers to the question, "have you ever been raped or sexually assaulted?" The mean is .04 and the standard deviation is .15. Both measures of noxious stimuli are drawn from the Exposure to Violence interview (Selner-O'Hagan et al., 1998), which asks the respondents about different types of violence and traumatic events, and if they had seen it happen to someone else and/or if it had happened to them.

Strain #3: Loss of Close Others

I approximate the removal of positively valued stimuli with two variables. The first, "loss," is the mean response to four items drawn from the Exposure to Violence interview. Respondents were asked if someone they knew and felt close to had (a) been killed, (b) died suddenly or been seriously injured, (c) killed themselves, or (d) had been raped. This index also taps vicarious strain, specifically strains that happen to others to whom the individual is close. Vicarious strains that are the result of unjust treatment are more likely to have an effect on delinquency than strains such as accidental death or injury (Agnew, 2001; 2002). Since my measure has a mixture of items that could be perceived as unjust and accidental, it may have a weaker effect on delinquency. The four items have a mean of .28, and a standard deviation of .26. The alpha reliability is not

reported due to the nature of the items as independent events (Hoffman & Cerbonne, 1999; Newcomb & Harlow, 1986).

Strain #4: Fear of Violent Victimization

The second variable reflecting a loss of positively valued stimuli is fear of violent victimization. This variable is intended to be a proxy for the loss of autonomy or the absence of a feeling of safety, singled out by Broidy and Agnew (1997) as a gender-specific strain. Fear of victimization is also a type of “anticipated strain” explored by Agnew (2002), who found that fear suppressed certain types of aggressive delinquency among boys, rather than increasing them. Alternatively, Agnew (2002) also speculated that fear might increase drug use and escapist behaviors. My measure consists of the mean responses to five items: (a) how afraid they are that they might be hurt by violence in their neighborhoods, (b) in front of their residences, (c) inside their residences, (d) at school, and (e) on their way to and from school. The five items load onto one factor, have an alpha reliability coefficient of .80, a mean of 1.60 (on a scale of 1 to 3 with higher values representing greater fear), and a standard deviation of .53.

Strain #5: School Strain

The failure to achieve valued goals is best measured by the disjuncture between expectations and actual achievement, as opposed to the gap between aspirations and expectations (Agnew, 1992; Robbers, 2004). To this end, the disjuncture between one’s expected academic performance versus one’s actual academic performance is represented by a single item self-report measure of how the respondent is doing in school. Response options are (1) “doing really well,” (2) “doing about as well as you can,” and (3) “could be doing better.” The variable was recoded dichotomously so that “well/as well as you

can” equals 0 (no school strain) and “could be doing better” equals 1 (school strain). School strain has a mean of .41 and a standard deviation of .49.

Mediators/Moderators

Anger

There is no standard way of measuring anger, and studies rarely use the same approach. The anger variable in this study is comprised of five items from the Youth Self Report (Achenbach, 1991), a 60-item assessment in which the respondent rates various emotional/behavioral problems experienced now or in the last six months as not true (0), somewhat true (1) or very true (2) for her or him. I factor analyzed all items to arrive at two subscales measuring anger and depression. Five items loaded onto one factor that were the most comparable to past ways of operationalizing anger (Aseltine et al., 2000; Ross & Van Willigen, 1990), and the resulting scale is the mean response to (a) “I have a hot temper,” (b) “I argue a lot,” (c) “I am stubborn,” (d) “I scream a lot,” and (e) “My moods/feelings change suddenly.” The alpha reliability coefficient of this scale is .71, the mean is .68, and the standard deviation is .48.

Depression/Anxiety

Depression is included in the analyses because recent tests of GST with a gender perspective suggest that higher levels of depression may buffer the effect of strain for girls and women (Broidy, 2001; Sharp et al., 2005). That is, a potential explanation for the gender gap in delinquency could be that girls’ greater levels of depression compared to boys counteract the criminogenic effects of strain and anger. Additionally, depression is a core measure of psychological distress associated with strain in the sociology-of-mental-health literature (Mirowsky & Ross, 2003; Turner et al., 1995). The standard measure of depression, the CES-D, was not available in the data, so Achenbach’s Youth

Self Report was factor-analyzed as described above. Eight items loaded onto one factor that can best be characterized as a combination of depression and anxiety. Measuring depression and anxiety together is consistent with research in mental health (Mirowsky & Ross, 2003). The final scale is the mean response to the following statements: (a) “I do not have much energy,” (b) “I feel overtired,” (c) “I feel dizzy,” (d) “I feel confused or in a fog,” (e) “I am nervous or tense,” (f) “I have trouble concentrating,” (g) “I am unhappy, sad, or depressed,” and (h) “I am too fearful or anxious.” The alpha reliability coefficient for this scale is .77, the mean is .43 (on a scale of 0 to 2), and the standard deviation is .37.

Self-Efficacy

Self-efficacy is included as a key coping resource specified in GST. Coping resources are expected to moderate the effect of strain on the outcome variables, with higher levels of coping resources making it less likely a strained individual will violate the law in response. Moreover, self-efficacy can be considered a proxy for the sense of control concept in the sociology-of-mental-health literature (Mirowsky & Ross, 1990). The “Things I Can Do If I Try” scale was developed specifically for the PHDCN and measures self-efficacy in five domains: future, school, neighborhood, family, and peers. Respondents are read two opposing descriptions of how some kids feel about their ability to do different tasks in these domains if they try, instructed to pick which of the two descriptions is more like them, and then indicate how true the statement is for them (“sort of true” or “very true”). The responses were coded into four categories so that higher scores mean higher levels of self-efficacy. Factor analysis resulted in a 10-item scale with items from the “future” and “school” domains, including such items as “some kids feel like they have control over what will happen to them in the future, but other kids feel like they do not have control over what happens to them in the future” and “some kids

think no matter how hard they try, they cannot do the work expected in school, but other kids think they can do the work that is expected of them in school if they try.” The alpha reliability coefficient of this scale is .78, the mean is 3.54 (on a scale of 1 to 4), and the standard deviation is .44.

Background Factors

Race/ethnicity, age, socioeconomic status (SES), and prior delinquency may have a causal impact on delinquency and certain strains (Buka, Stichick, Birdthistle & Earls, 2001; Sampson & Lauritsen, 1993; Selner-O’Hagan et al., 1998). Consequently, it is important to employ controls for these variables in all analyses. Two dummy variables indicating Latino and White/Other were created, with African-American as the reference category. SES is the principal component of annual household income, education (the highest educational level achieved by the primary caregiver), and occupation of the primary caregiver. Prior delinquency is from Wave 1 data, asking whether or not the respondent had engaged in any of 19 delinquent acts prior to Wave 1 data collection.

ANALYTIC STRATEGY

Because several individual strains were found to operate differently for boys and girls, I examine the five strains separately throughout the analysis rather than create a composite strain variable. Agnew (2000) recently commented that strain theory research needs more empirical information about how different types of strains affect different types of outcomes, calling for future research to analyze strains separately.

Ranges, means, standard deviations, and t-tests are reported in Table 4.1, and correlations among the central variables are presented in Table 4.2. The t-tests examine mean differences in the central variables across sex to assess my first hypothesis, whether

girls and boys report different types and levels of baseline strain and negative emotions. The correlation matrix reports the bivariate correlations among the variables.

Table 4.3 summarizes analyses pertaining to a key concept specified in GST – the emotional response to strain. Specifically, the table summarizes relationships between each of the five strains and anger (mediator) and the relationship between the strains and depression (mediator/moderator). These models test key assertions by Broidy and Agnew (1997) and Agnew (1992) about whether girls or boys are more likely to respond to strain with anger, and to what extent depression exhibits similar patterns to anger across sex.

Hierarchical OLS regression models are summarized in Tables 4.4 – 4.9 first with the full sample and then separately by sex. The models test direct effects of strain on aggressive delinquency, minor theft, running away, substance use, suicidal behavior, and high risk sexual behavior, and the extent to which anger and depression mediate those effects. Z-tests for the equality of regression coefficients (Paternoster et al., 1998; Hay, 2003) assess whether the relationships between strains and the outcome variables vary by sex.

Finally, the conditioning effects of depression and self-efficacy on each strain are assessed in Chapter 5 by creating multiplicative interaction terms for the male-female subsamples, presented in Tables 5.1 and 5.2. The extent to which depression conditions anger, and self-efficacy conditions both anger and depression is presented in Tables 5.3 and 5.4. Because the PHDCN data were collected using a complex sampling design with respondents nested within neighborhood clusters, individuals in the sample are assumed to be non-independent. To correct for the tendency to underestimate standard errors in such designs, and thus overestimate statistical significance, all multivariate analyses are

conducted in STATA 8.0 using robust standard errors to account for the clustered sampling design.

Missing data

Missing data on anger (10% missing), depression (3% missing), and fear of victimization (7% missing) were imputed using the regression-based imputation procedure in STATA 8.0. Specifically, imputed values for anger were based on strain, depression, sex, race and age; depression values were based on strain, anger, sex, race and age; and imputations for fear were estimated using the demographic information only. All analyses include controls for the use of imputed values.

Chapter 4: Descriptive, Bivariate, and Multivariate Results

In this chapter, I present the results of descriptive, bivariate, and multivariate main effects analyses designed to address the first six hypotheses introduced in Chapter 2. Depression and self-efficacy will be examined as potential moderators of strain and anger in Chapter 5. In general, I expect to find (1) girls and boys report differential exposure to different types of strain, (2) exposure to strain will be positively associated with both anger and depression, but the relationship with anger will be stronger for boys as depression will be for girls. Further, I expect that (3) the relationship between strain and negative emotions will differ according to the outcome under investigation and by sex. That is, strain will be more likely associated with aggressive delinquency for boys and anger will mediate this relationship. Conversely, strain may have stronger effects on running away, minor theft, substance use, and suicidality for girls. The mediating role of depression will also be examined, though its role is primarily conceptualized as a moderator.

DESCRIPTIVE AND BIVARIATE RESULTS

The sample consists of 1,915 girls and boys ages 9 - 19, selected through a multi-stage sampling procedure from 80 Chicago neighborhoods. The average age of the sample is about 14. Unlike most studies of GST, respondents in this study are highly racially and ethnically diverse: 42 percent are Latino, 32 percent are African-American, and Whites (23%) are combined with the Other category (3%) to make up the remaining 26 percent. There are approximately equal proportions of girls (49.6%) and boys (50.4%). Table 4.1 presents ranges, means, and standard deviations for the main variables used in the analysis. In the 12 months prior to the interviews from which these data came, 30 percent of the overall sample report committing at least one of 12

aggressive acts of delinquency, 18 percent have engaged in minor theft, 5 percent have run away from home overnight at least once, and 25 percent have used alcohol or marijuana at least once or twice in the past year.

Mean indices are calculated for two strains, exposure to violence (.21) and loss of close others (.28). This means that the respondents have witnessed or experienced an average of about two violent events out of the nine measured in that index, and experienced an average of about one out of the four types of losses measured in the loss index. Interpreted another way, 65 percent of the sample report either witnessing or experiencing at least one serious violent incident prior to the interview, and 67 percent report at least one type of loss of a close other. Four percent of the respondents (8 percent of girls) report having been sexually assaulted, 41 percent have experienced school strain, and they report an average fear of violent victimization of 1.60 on a scale of 1 to 3 (higher scores represent greater fear). Mean levels of anger and depression are .67 and .43, respectively, on a scale of 0 to 2 with higher scores representing higher levels of self-reported distress. The mean level of self-efficacy is 3.55 on a possible scale of 1 to 4, with higher scores denoting higher levels of self-efficacy.

Sex differences in strain, negative emotion, self-efficacy, and problem behaviors

The first two hypotheses presented at the end of Chapter 2 contain assertions about sex differences in overall exposure to different types of strain, and in levels of anger, depression, and self-efficacy. To test these, I performed a series of two-tailed t-tests for mean differences (see Table 4.1). I also compared girls' and boys' involvement in the different types of outcomes to ascertain baseline differences prior to the multivariate analyses.

Results indicate support for hypothesis 1, that there are gender differences in level of exposure to different types of strain. Girls experience significantly more exposure to

three of the strains under study, while boys reported greater levels of the other two strains. First, the girls in the sample have been sexually assaulted more frequently than the boys, consistent with prior research (Grunbaum et al., 2003; Scarpa, 2003). Second, these girls have experienced more losses involving close others, what Agnew (2002) calls “vicarious strain” and others call “network strain,” than have the boys. This is consistent with research that suggests women are more aware of social network and relational strains having to do with family and friends, leading to what some mental health researchers call the “cost of caring” (Kessler & McLeod 1984; Turner & Avison 1989; Turner et al., 1995). DeCoster (2005), a criminologist, refers to this as women’s greater exposure to or awareness of “communal strains,” such as parental divorce, parents’ serious illness or job loss, and peer rejection.

Third, fear of violent victimization, a type of “anticipated strain” (Agnew, 2002), is more prevalent among girls than boys in accord with a long history of research on gender differences in the fear of crime (Baumer, 1985; Clemente & Kleinman, 1977; Hindelang et al. 1978; LaGrange & Ferraro 1989; Ortega & Myles 1987; Skogan & Maxfield, 1981; Warr, 1985). Notably, past research on fear of crime has focused on adult women; my data show that the gendered nature of fear is present in early (ages 10-14) and middle (ages 15-17) adolescence as well.

Table 4.1: Ranges, Means, Standard Deviations, And T-Tests For Variables Used In The Analyses, By Sex

DEPENDENT VARIABLES	Range	Total Sample (N=1915)	Girls (n=950)	Boys (n=965)
Aggressive delinquency	0 – 4	.12 (.30)	.08** (.23)	.15 (.35)
Minor theft	0 – 4	.23 (.59)	.23 (.60)	.23 (.59)
Runaway	0 – 4	.09 (.46)	.11 (.51)	.07 (.40)
Substance use	0 - 7	.48 (1.17)	.44 (1.09)	.52 (1.24)
Suicidal behavior	0 – 1	.01 (.10)	.021** (.12)	.005 (.06)
High risk sexual behavior	0 – 3	.55 (.95)	.42** (.80)	.68 (1.07)
INDEPENDENT VARIABLES				
Witness/experience violence	0 – 1	.21 (.23)	.16** (.21)	.25 (.25)
Sexual assault	0 – 1	.04 (.20)	.08** (.26)	.01 (.10)
Loss of close others	0 – 1	.28 (.26)	.31** (.27)	.25 (.24)
Fear of violent victimization	1 – 3	1.60 (.53)	1.64** (.53)	1.55 (.49)
School strain	0 -1	.41 (.49)	.36** (.48)	.45 (.50)
Anger	0 – 2	.68 (.48)	.75** (.49)	.60 (.41)
Depression/anxiety	0 -2	.43 (.37)	.46** (.38)	.40 (.35)
Self-efficacy	1 – 4	3.55 (.44)	3.58** (.42)	3.51 (.45)
Age	9.11 – 19.89	13.99 (2.48)	14.11* (2.48)	13.86 (2.48)
Sex	-	-	49.6%	50.4%
Latino	0 – 1	.42 (.49)	.41 (.49)	.43 (.49)
African-American	0 – 1	.32 (.47)	.33 (.47)	.30 (.46)
White/other	0 – 1	.26 (.44)	.26 (.44)	.27 (.44)
SES	-3.15 – 3.97	-.24 (1.42)	-.29 (1.41)	-.19 (1.42)
Prior delinquency	0 – 1	.08 (.11)	.07** (.10)	.08 (.12)

Notes: Standard deviations are in parentheses. Multiple-item measures are mean scales.

* Significantly different from boys ($p < .05$)

** Significantly different from boys ($p < .01$)

The boys report witnessing and/or experiencing serious violence significantly more than girls. This finding is expected in that juvenile boys generally are allowed more autonomy and have less supervision than girls (Hagan, Simpson & Ellis, 1979), are more likely to be in situations where violent crime occurs outside the home (Osgood, Wilson, O'Malley, Bachman & Johnston, 1996), and are more likely to have delinquent friends (Warr, 2002); all of which would increase the likelihood of witnessing serious delinquent acts. Moreover, past research consistently finds that with the exception of sexual victimization, boys are more often victims of violent crime than are girls (Esbensen, Huizinga & Menard, 1999; Snyder & Sickmund, 2006). Last, the boys in this sample report significantly greater school strain than the girls, concurring with national research that documents boys consistently underperforming girls on math and English grades and standardized reading tests (Downey & Vogt Yuan, 2005).

As expected by hypotheses 2a and 2b, there are significant sex differences in how much anger and depression are experienced by adolescents in this sample. Specifically, the girls report significantly higher levels of both anger and depression compared to boys. This is consistent with prior research (mainly on depression) using adolescent samples (Culbertson, 1997; Kovacs, 1996; Nolen-Hoeksema & Girgus, 1994; Sweeting & West, 2003) as well as adult samples (Mirowsky & Ross, 1995; Ross & Van Willigen, 1996). Age and gender distributions of depression among the adult population suggest that the gender gap in depression narrows but persists for younger adults (Mirowsky 1996; Mirowsky & Ross, 2003). Indeed, data from the National Youth Risk Behavior Survey show that the gender gap in depression certainly is present in adolescence, with a greater number of girls reporting depressive symptoms than boys (Grunbaum et al., 2003).

Contrary to hypothesis 2c, however, girls in the Chicago sample also report significantly higher levels of self-efficacy than boys. Based on studies of sense of control

in adults, it is expected that girls would have lower self-efficacy than boys, even though sex differences are not as great in younger adults as they are in older adults (Mirowsky & Ross, 2003). Research on adolescence and self-esteem, a related construct, suggests that girls and boys share similar levels through the school-age years, but that girls' self-esteem begins to drop in middle adolescence (Bolognini, Plancherel, Bettschart & Halfon, 1996; Wigfield et al., 1991). Self-efficacy studies have found a similar pattern for different domains of self-efficacy, such as academic self-efficacy (Bergman & Scott, 2001; Schunk & Pajares, 2002). As a result, it is surprising that the girls in my sample demonstrate such a high level of self-efficacy vis-a-vis boys.

Turning to the dependent variables, mean difference tests show that boys report significantly greater involvement in aggressive delinquency and high risk sexual behavior, while girls report a significantly greater frequency of suicidal behavior.⁴ Risky sexual behavior is more prevalent in boys (Grunbaum et al., 2003) and highly correlated with delinquency (Jessor & Jessor, 1977) and substance use (Yamaguchi & Kandel, 1987). Alternatively, because risky sexual behavior is a non-aggressive, non-confrontational coping strategy as are problems like disordered eating and drug use, which girls participate in at equal or greater levels than boys, it is interesting that girls are not more involved in this behavior. It may be that the sexual double standard and norms of gender-appropriateness make this particular behavior less likely for girls than boys.

Greater suicidality by girls is in accordance with epidemiological findings that girls more frequently attempt suicide than boys (Grunbaum et al., 2003). Lastly, boys and girls did not differ significantly on the frequency of minor theft, running away, and substance use, though girls' higher amount of running away approached significance.

⁴ I tested an additional dependent variable in preliminary analyses, assault of a household member. Girls reported significantly greater frequency of this behavior than boys, but I eliminated this variable in the interest of brevity. Its regression results were similar to that of running away.

This suggests that the boys and girls in the Chicago sample participate in these types of non-threatening, non-confrontational types of deviance at roughly equal levels, consistent with self-report studies of offending that show the gender gap is smallest for minor law violations (Canter, 1982; Steffensmeier & Allan, 1996).

Correlations among strain, negative emotion, self-efficacy, and problem behaviors

The correlation matrix in Table 4.2 presents the bivariate correlations among the dependent variables (aggressive delinquency, minor theft, running away, substance use, high risk sex, and suicidality), and the independent variables (the five strain measures, depression, anger, and self-efficacy).

Strains

Overall, four out of the five strains under examination operate in the expected positive direction in relation to the outcome variables. Specifically, three strains (witness/experience violence, sexual assault, and loss of close others) are positively associated with all six outcome measures, and a fourth, school strain, is positively associated with all outcomes but suicidal behavior.

The exception to this pattern of positive correlations is the fifth strain, fear of violent victimization. This particular type of strain is associated with *less* aggressive delinquency (-.09), substance use (-.14), and high risk sexual behavior (-.06). Agnew (2002) proposes that anticipated victimization can either “provoke aggressive action designed to discourage others from inflicting strain,” or it may be more conducive to escapist behaviors. He tested two kinds of anticipated victimization, fear of victimization and perceived likelihood of victimization, and found that the former

Table 4.2: Correlations Among Dependent, Independent, and Control Variables

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
A. Aggressive delinquency														
B. Minor theft	.37**													
C. Runaway	.16**	.08**												
D. Substance use	.49**	.26**	.23**											
E. Suicidal behavior	.09**	.12**	.21**	.10**										
F. High risk sexual behavior	.35**	.15**	.24**	.49**	.03									
G. Witness/experience violence	.52**	.23**	.22**	.45**	.08**	.48**								
H. Sexual assault	.09**	.05*	.14**	.12**	.17**	.13**	.18**							
I. Loss of Close Others	.29**	.16**	.15**	.28**	.11**	.24**	.44**	.19**						
J. Fear of violent victimization	-.09**	-.04	-.03	-.14**	.06	-.06**	-.06**	.02	-.06**					
K. School strain	.14**	.12**	.07**	.15**	.05	.14**	.18**	.07**	.11*	-.01				
L. Anger	.27**	.20**	.19**	.27**	.15**	.18**	.33**	.18**	.31**	.02	.16**			
M. Depression/anxiety	.10**	.12**	.11**	.13**	.22**	.10**	.15**	.16**	.16**	.25**	.16**	.47**		
N. Self-efficacy	-.12**	-.11**	-.12**	-.05*	-.06*	-.08**	-.11**	-.07**	.01	-.16**	-.14**	-.14**	-.30**	
O. Male	.12**	.00	-.04	.03	-.08**	.14**	.17**	-.16**	-.12**	-.08**	.09**	-.17**	-.08**	-.09**
P. Age	.19**	.10**	.17**	.46**	.05	.44**	.36**	.12**	.30**	-.22**	.16**	.26**	.06**	-.04
Q. SES	-.02	.05*	-.01	.03	.01	.00	-.07**	-.04*	.02	-.27**	-.02	.00	-.09**	.13**
R. Hispanic	-.10**	-.08**	.01	-.03	.03	-.13**	-.12**	.01	-.14**	.23**	-.02	.01	.12**	-.08**
S. White/Other	-.01	.03	-.02	.06**	-.01	-.04	-.07**	-.02	.00	-.24**	-.01	-.02	-.07**	.03
T. Black	.12**	.05*	.02	-.03	-.02	.18**	.19**	.01	.15**	-.01	.04	.01	-.06*	.06**

Note: *p < .05 **p < .01 (two-tailed), N = 1,915

suppresses aggressive forms of delinquency while the latter increases them. Perceived likelihood of victimization is distinct from fear of crime itself, in that it combines with perceived seriousness of the crime to produce fear (Warr & Stafford, 1983). The particular measure of anticipated victimization used in the PHDCN data asks about perceived likelihood of serious violent victimization, which while not directly measuring fear, is a reasonable proxy. Thus, we would expect fear of victimization in this analysis to encourage avoidance and suppress aggressive behaviors.

Generally, exposure to violence is the strain most strongly related to the dependent variables (average correlation with all six outcome variables is .33), followed by loss of close others (average correlation is .21), sexual assault (average correlation is .12), and school strain (average correlation is .11). Looking more closely at exposure to violence, it is most highly correlated with aggressive delinquency (.52), high risk sexual behavior (.48), and substance use (.45). The stronger associations exhibited by exposure to violence may be due in part to the higher reliability of this measure compared to the other strains under examination, but this particular type of strain also more readily exhibits some of the qualities that Agnew (2000) specifies as most likely to lead to deviant coping strategies – it is a strain high in magnitude and likely to be perceived as unjust.

Loss of close others, while not as highly correlated with the dependent variables as exposure to violence, follows a similar pattern: it is most strongly associated with aggressive delinquency (.29), substance use (.28), and high risk sex (.24). School strain also follows this pattern but with weaker associations. In contrast, sexual assault is most strongly associated with suicidal behavior (.17) and running away (.14). In general, these correlations suggest that three types of strain representing noxious stimuli, loss of positively valued stimuli, and blocked goals are most strongly associated with similar

types of outcomes: aggressive delinquency, substance use, and high risk sexual behavior. A specific type of noxious stimuli more relevant to girls, sexual victimization, is associated with distinctly different outcomes. This lends partial support to Broidy and Agnew's (1997) hypothesis that the strains to which girls are more likely exposed are less conducive to aggressive forms of coping. The finding that loss of close others, a strain to which girls are more likely exposed, is positively associated with aggressive delinquency, substance use, and high risk sex, does not support this hypothesis.

Negative Emotions

Anger plays a pivotal role in GST because strain should have an indirect effect on deviant outcomes via anger. There are three key relationships related to this proposition to examine at this stage of analysis. First, GST states that exposure to strain should be associated with a range of negative emotions, foremost among them anger. Looking at the correlation matrix in Table 4.2, four out of five strains operate in the expected direction and correlate positively with anger. The strongest correlation is with exposure to violence (.33) and loss of close others (.31), with school strain and sexual assault exhibiting weaker correlations (.16 and .18 respectively). Again, the exception is anticipated victimization, which has no significant association with anger but is correlated with depression/anxiety at .25. These findings are consistent with Agnew's (2002) predictions for fear of victimization.

Second, anger should in turn be positively correlated with the dependent variables, though more strongly with aggressive delinquency than with the non-aggressive outcomes. Agnew (1992) argues that while inner and outer-directed emotions should be positively related to both inner (e.g. substance use) and outer-directed deviant coping (e.g. aggression), anger should be more strongly related to outer-directed behavior. Prior empirical evidence is generally supportive of this linkage (Broidy, 2001;

Jang & Johnson 2003; Piquero & Sealock 2000). In general, anger is correlated in the expected positive direction with all dependent variables. As anticipated, anger is most strongly associated with aggressive delinquency (.27), but it is similarly associated with substance use (.27), a non-aggressive outcome. The weakest correlation of anger is with suicidal behavior (.15), though the association is still significant.

Third, because anger is posited by Agnew (1992) as the central intervening mechanism that accounts for the relationship between strain and various deviant outcomes, the relationships between anger and the outcome variables should be stronger than the relationships between the strains and the outcome variables. The correlation coefficients in Table 4.2 show that this generally holds true, with one exception. Anger has an average correlation of .21 with the dependent variables; the only strain that has a higher average correlation with the dependent variables is exposure to violence (average correlation is .33). This suggests that exposure to violence may exert an independent influence on the outcome variables regardless of anger, an assertion to be tested in the multivariate analyses ahead.

According to Broidy and Agnew (1997), depression should be more highly correlated with the non-confrontational “gender-appropriate” outcome variables like running away, minor theft, substance use, and suicidal behavior. Depression, like anger, is positively associated with most of the dependent variables though to a lesser degree. As expected, the weakest association is between depression and aggressive delinquency (.10). However, the correlations with minor theft (.12), running away (.11), and substance use (.13) are not much higher. The strongest relationship is between depression and suicidal behavior (.22). In accord with research on the co-occurring nature of depression and anger (Mirowsky & Ross, 2003), depression and anger are positively and moderately correlated with each other (.47).

Self-Efficacy

In general, the relationships between self-efficacy and the dependent variables, strains, and negative emotions are consistent with prior research. High self-efficacy, thought by Agnew (1992) to be a conditioning coping resource that should reduce the likelihood of problematic coping behaviors, is indeed correlated with less involvement in these behaviors. Though the associations are fairly weak overall, self-efficacy has the strongest negative relationship with aggressive delinquency (-.12), running away (-.12), and theft (-.11). Self-efficacy also is correlated with lower levels of strain, with the exception of loss of close others with which it has no relationship in these data.

It is unclear why loss of close others, especially due to violence, would not be associated with a sense of powerlessness or lack of self-efficacy. Perhaps the type of self-efficacy measured here, that having to do with performance in school and one's future outlook, is less related to this type of strain than self-efficacy having to do with neighborhood, peer, or family concerns. Finally, self-efficacy is inversely correlated with anger (-.14) and depression (-.30). Consistent with research on sense of control and psychological distress (Mirowsky & Ross, 2003), we would expect that the higher the sense of self-efficacy, the lower the indicators of psychological distress, such as anger and depression.

Summary

The pattern of strains reported by the sample members differ by sex: girls suffer sexual assault, loss of close ones, and fear of violent victimization at a greater level than boys, while boys are more often witnesses to and victims of violent acts (other than sexual assault) and have school performance strain. The girls in this study differ from the boys in their level of involvement in some types of problem behaviors. They report less aggressive delinquency and high risk sex, and more suicidal behavior, while participating

relatively equally in other strategies (running away, substance use, minor theft). Next, based on the zero-order correlations, it is evident that not all strains are alike. Exposure to violence and loss of close others are more strongly correlated with the problematic coping outcomes than the other strains, and exposure to violence is the only strain more strongly correlated with the outcomes than anger. Finally, it is noteworthy that the non-law-violating outcomes explored in this study, suicidal and high risk sexual behavior, are correlated with strain in much the same way as the law-violating behaviors. For example, similar to aggressive delinquency, high risk sexual behavior is positively associated with witnessing/experiencing violence (.48), sexual assault (.13), loss (.24), and school strain (.14), and negatively associated with fear of victimization (-.06). Though the correlations are much weaker, suicidal behavior is nonetheless positively correlated with witnessing/experiencing violence (.08), sexual assault (.17), and loss (.11).

MULTIVARIATE RESULTS

In the bivariate analysis reported above, I compared across strains to establish that some strains are more salient than others in relation to the dependent and mediating variables. From this point on, I will be comparing boys and girls in subgroup analyses to ascertain how the GST process works differently for each group, if at all. To this end, I present unstandardized coefficients in the results that follow.

Though Broidy and Agnew (1997) acknowledge that girls may possess equal or greater anger than boys in general, they predict that boys are more likely than girls to feel anger in association with certain strains, which partially explains their greater involvement in delinquency (especially aggressive forms of delinquency). Conversely, they hypothesize that girls are more likely than boys to feel depressed as well as angry in association with strain, and that this should make it less likely for them to engage in aggressive delinquency, but perhaps more likely to engage in non-confrontational

problem behaviors. Moreover, they hypothesize that the differential emotional responses are due to exposure to different types of strains – boys to strains conducive to anger and outward-directed delinquency, and girls to strains conducive to depression (as well as anger) and non-confrontational problem behavior.

My analyses of these assertions proceeds in two steps. First, I test the first part of the theoretical model (see Figure 1.1 on page 8) by regressing depression and anger on each strain controlling for SES, race/ethnicity, age, and prior delinquency. Next, with hierarchical OLS regression models I regress each dependent variable on the strain variables, incrementally adding the intervening measures of depression, anger, and self-efficacy to test Agnew's (1992) assertion that negative emotions mediate the effect of strain. In doing so, I build on Broidy and Agnew's (1997) predictions to test whether a greater range of behaviors (i.e., running away, substance use, suicidal and high risk sexual behaviors) can be explained by GST, and whether and under what circumstances are these more likely for girls than boys.

The Relationships Between Strain, Anger, and Depression

Past research on strain and psychological distress establishes a clear positive relationship between undesirable life events/lifetime traumas and depression (Mirowsky & Ross, 2003; Turner & Lloyd, 1995). Similarly, GST research has generally found consistent positive relationships between strain and anger (Aseltine et al., 2000; Brezina, 1996, 1998). Alternatively, Broidy and Agnew (1997) argue that emotional responses to strain should be gendered: while both may be likely to respond with anger, girls' anger should be more likely to be accompanied by depression, anxiety, and guilt.

Hypothesis 3 states that the relationships between strain and negative emotions vary by sex. Table 4.3 presents unstandardized OLS regression coefficients representing

the effects of each strain on anger and depression. Models 1, 2, and 3 contain the regressions of anger on strain and background variables for the total sample, girls, and

Table 4.3: Regression of Anger and Depression on Exposure to Violence, Sexual Assault, Loss, Fear of Victimization, and School Strain

	<u>Anger</u>			<u>Depression</u>		
	Model 1: Total Sample	Model 2: Girls	Model 3: Boys	Model 4: Total Sample	Model 5: Girls	Model 6: Boys
Male	-.18**	--	--	-.05**	--	--
Witness/experience violence	.42**	.57**	.38**	.13**	.20**	.13*
Sexual assault	.12*	.04	.21	.17**	.10*	.33**
Loss	.25**	.25**	.21**	.13**	.18**	.06
Fear of victimization	.07**	.04	.09**	.18**	.18**	.18**
School strain	.09**	.13**	.07*	.09**	.11**	.09**
R ²	.24	.26	.18	.15	.18	.12

Notes: * $p < .05$. ** $p < .01$.

All models include controls for Age, Race, SES, and prior delinquency.

Coefficients are unstandardized.

boys. Models 4, 5, and 6 contain the regressions of depression on strain and background variables for the total sample, girls, and boys. The results generally indicate that while some strains predict anger and depression about equally for boys and girls, the only case where boys are more likely than girls to experience anger in association with strain is with fear of victimization. Moreover, exposure to violence and school strain have stronger effects on anger for girls than boys. This finding is unexpected because exposure to violence is the strain most strongly related to aggressive delinquency, and boys are exposed to more violence than girls.

Looking more closely at the effect of gender, Models 1 and 4 demonstrate that girls are significantly more likely than boys to be angry ($b = -.18$) and depressed ($b = -$

.05) net of strain, race, age, SES, and prior delinquency. Next, exposure to serious violence is associated with significant increases in anger and depression for both girls and boys, but the effects are stronger for girls. Comparing Model 2 with Model 3, exposure to violence is associated with a .57 increase in anger for girls, compared to .38 for boys. Comparing Models 5 and 6, exposure to violence increases depression by .20 for girls and .13 for boys.

To determine whether these gender differences in coefficient size are statistically significant, I use a z-statistic formula recommended for this purpose by Brame, Paternoster, Mazerolle and Piquero (1998). The formula is the difference between the two coefficients ($b_1 - b_2$) divided by the estimated standard error of the difference (the square root of $SEb_1^2 + SEb_2^2$). If the value of z is greater than 1.64 (for a one-tailed test at alpha level .05), then the values of the coefficients are not likely to be equal and an interaction with sex is present. The results of my z-test indicate that the relationship between exposure to violence and anger is significantly stronger for girls ($z = 1.67$), but no such interaction is present for depression ($z = .74$). This suggests that in the context of exposure to violence, girls and boys experience about equal increases in depression, but girls experience significantly greater anger.

The second strain under examination, sexual victimization, is significantly related to anger for the total sample ($b = .12$) but not for either subsample. Sexual victimization is associated with an increase in depression for both subsamples, but the effect is significantly stronger for boys ($b = .33$) than girls ($b = .10$, $z = 2.02$). This unexpected result may be from outliers stemming from the 9 cases of sexual assault reported by boys, and is likely to be unreliable. Third, loss of close others is associated with a significant increase in anger for both boys ($b = .21$) and girls ($b = .25$), with no gender interaction. In contrast, girls are more likely to experience depression in association with loss ($b =$

.18) compared to boys ($b = .06$), and the difference between the male-female coefficients approaches statistical significance ($z = 1.56$). This means that while loss of close others is associated with roughly the same increases in anger for girls and boys, girls may experience significantly more depression as an accompaniment to anger.

School strain predicts anger and depression in both subsamples. The effects of school strain on anger may be greater for girls ($z = 1.54$), but there is no sex difference for depression ($z = .50$). This means that like exposure to violence, problems in school increase depression and anger for both girls and boys, but tend to provoke more anger in girls. The last strain under study, fear of victimization, is associated with a significant increase in anger for boys ($b = .09$), and not girls ($b = .04$), though the difference in coefficients is not significant ($z = .95$). Fear of victimization prompts equal significant increases in depression across sex.

To summarize, hypotheses 3a and 3b are partially supported. Consistent with research on stress and mental health, boys did not exhibit more anger than girls in association with five different types of strain. Girls and boys tend to respond with both anger and depression, but girls have equal or greater levels of both depending on the strain. For example, consistent with hypothesis 3a, girls experience approximately equal anger associated with loss of close others and fear of victimization, but more anger than boys related to exposure to violence and school strain (inconsistent with hypothesis 3a). Furthermore, while all strains under study are associated with significant increases in girls' depression, they experience significantly more depression than boys associated with loss of close others (consistent with hypothesis 3b). For exposure to violence, fear of victimization, and school strain, girls experienced equal depression as boys, failing to support hypothesis 3b in those cases. For boys, strain is associated with increased

depression for all but one type (loss of close others), but the strength of the effects are equal to or less than those for girls.

My finding that girls experience loss of close others as *both* anger and depression partially supports earlier assertions by Broidy (2001), Hay (2003), and Sharp et al. (2001, 2005), who conclude that the strong presence of other negative emotions like depression and guilt in addition to anger may play a role in predicting the lower levels of aggressive delinquency in girls. Overall, that the girls have equal or greater overall psychological distress than the boys is consistent with Mirowsky and Ross (2003), who point out that adult women have more of all types of psychological distress than men – not just depression. Given that adolescents are likely to have fewer sex differences in psychological distress than adults because inequalities brought about by marriage, parenthood, and employment have not yet come to fore (Mirowsky, 1996; Mirowsky & Ross, 2003), these findings are notable.

The Relationship Between Strain, Negative Emotions, and Behavioral Outcomes

In the next section, I report results from hierarchical OLS regression analyses testing hypotheses 4, 5, and 6. Specifically, these models estimate (1) the direct relationship of the five strains with aggressive delinquency, running away, minor theft, substance use, suicidality and high risk sexual behavior, (2) the extent to which anger or depression account for any relationships between strain and the dependent variables, and (3) any sex differences in these relationships. The hierarchical technique enables assessment of the importance of the independent variables added at each step, and whether these variables mediate prior relationships. Mediation is said to occur if the relationship between strain and the dependent variable is no longer significant, or if the path is significantly reduced (Baron & Kenny, 1986). The dependent variables in these models are logged to reduce positive skew (Hamilton, 1992), which can complicate the

interpretability of the unstandardized regression coefficients; however, when the coefficients are less than or equal to .25, multiplying by 100 approximates the percent increase in the dependent variable for a unit increase in the independent variable. Lastly, all models include controls for age, race, SES, and prior (wave 1) delinquency.

Aggressive Delinquency

Hypothesis 4a states that the relationship between strain and aggressive delinquency will be stronger for boys. Results for the total sample will be presented first, followed by results for each subsample. Models 1 – 5 in Table 4.4 display the hierarchical regression of aggressive delinquency on the predictor variables for the total sample, while Models 6 – 9 and 10 – 13 represent the female and male subsamples, respectively. Across Models 1 – 5, boys are significantly more likely than girls to engage in aggressive delinquency net of strain, anger, depression, self-efficacy, and the control variables. With the introduction of the five strains in Model 2, the coefficient for “male” is slightly reduced and there is a significant increase in R^2 from .23 to .36 ($F = 8.54$, $p < .05$). This suggests that exposure to strain partially explains boys’ greater involvement in aggressive delinquency. Since we know from the earlier analysis that these boys report greater exposure to violence, and exposure to violence is the strain most strongly correlated with aggressive delinquency, this finding lends support to Broidy and Agnew’s (1997) assertion that boys are more likely to participate in violent offending than girls because they more often experience the types of strains that are more conducive to aggressive offenses.

Table 4.4: Aggressive Delinquency (log) Regressed On Strain, Negative Emotions, Self-Efficacy For Total Sample And By Sex

	Total Sample (N=1765)					Girls (n=882)				Boys (n=883)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Male	.04**	.01*	.01*	.02**	.02**	-	-	-	-	-	-	-	-
Exposure to violence	-	.33**	.33**	.31**	.31**	.27**	.27**	.25**	.25**	.36**	.36**	.34**	.34**
Sexual assault	-	.00	.00	.00	.00	.02	.02	.02	.02	.00	-.01	-.01	-.01
Loss	-	.04*	.04*	.03*	.04*	.01	.01	.00	.01	.10**	.09**	.08**	.09**
School strain	-	.02*	.01	.01	.01	.02*	.02*	.02*	.02*	.00	.00	.00	.00
Fear of victimization	-	-.01	-.01*	-.01*	-.02*	-.01	-.01	-.01	-.01	-.02	-.03*	-.03*	-.03*
Depression	-	-	.02	-	-.02	-	.00	-	-.03*	-	.05*	-	.01
Anger	-	-	-	.04**		-	-	.04**	.05**	-	-	.06**	.05*
Self-Efficacy	-	-	-	-	-.03*	-	-	-	-.03*	-	-	-	-.02
R ²	.23	.36	.36	.37	.37	.34	.34	.35	.36	.37	.37	.38	.38
F for change		8.54*	.31	2.89 ^a	.63		.00	2.62 ^b	1.11		1.27	2.94 ^c	.36

Notes: * p < .05, ** p < .01.

All models include controls for Age, Race, SES, and Prior Delinquency.

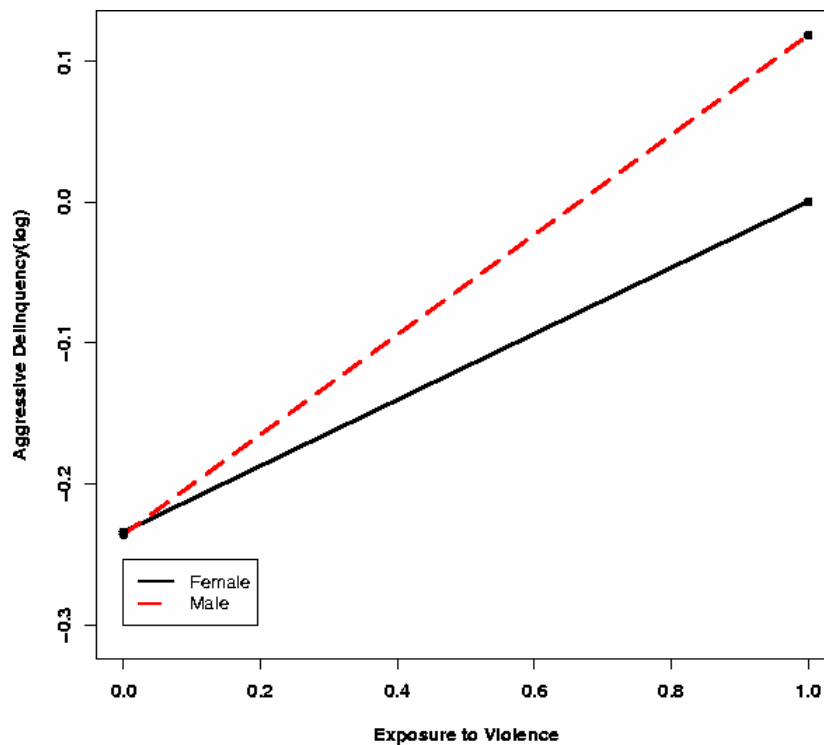
^a Compared to Model 2, ^b Compared to Model 6, ^c Compared to Model 10.

Coefficients are unstandardized.

Depression is introduced to the equation in Model 3, and it has no significant association with aggressive delinquency. With the addition of anger in Model 4, there is no apparent attenuation of the effects of most strains. However, anger seems to account for the effect of school strain. In the final model 5, anger retains its significant and positive effect ($b = .05$) on aggressive delinquency, controlling for strain, depression, and self-efficacy.

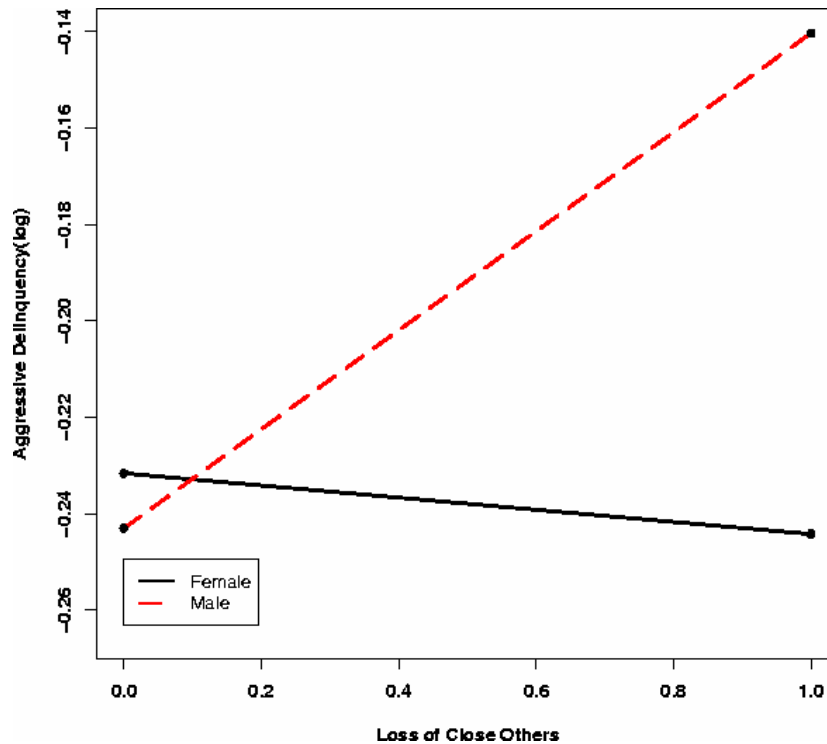
In the subsample analysis, both girls and boys are likely to increase aggressive delinquency with increased exposure to violence net of other strains, negative emotions, and background factors. But, in partial support of hypothesis 4a, boys are more likely to do so in relation to two strains. First, as Figure 4.1 illustrates, boys are more likely than girls to respond to exposure to violence with aggressive delinquency ($z = 1.58$).

Figure 4.1. Effect of Exposure to Violence on Aggressive Delinquency Conditioned by Sex



This additional vulnerability exhibited by the boys supports the idea that the response to some types of strain is gendered, at least when aggressive delinquency is the outcome under study. But because girls, not boys, have significantly greater anger associated with exposure to violence (see Table 4.3), the reason for this does not seem to lie in the emotional response. Second, loss of close others interacts significantly with sex in its association with aggressive delinquency. That is, loss increases aggressive delinquency for boys ($b = .10$) and not girls ($b = .01$), as depicted in Figure 4.2 below.

Figure 4.2: Effect of Loss of Close Others on Aggressive Delinquency Conditioned by Sex



A coefficients test confirms that this difference is significant ($z = 2.54$). So, sex differences in aggressive delinquency can be partially explained by boys' magnified response to traumatic loss, even though girls are exposed to more of this strain. Though inconsistent with the popular notion that girls and women are more detrimentally affected by events that threaten their network ties, this finding mirrors past results from Robbers (2004) and Agnew and Brezina (1997), who found that boys are more sensitive to network strains in predicting delinquency. However, because loss of close others was the only strain associated with more depression in girls than boys, it may be that depression curbs girls' likelihood of aggressive delinquency in relation to this strain, but increases the likelihood of other problem behaviors; the potential role of depression as a moderator will be explored in Chapter Five.

The results for the remaining three strains do not support hypothesis 4a. Sexual assault was unrelated to aggressive delinquency, and the effects of school strain and fear of victimization were not conditioned by sex. Though boys report more school strain overall, school strain is associated with a significant increase in aggressive delinquency for girls ($b = .02$) and not boys ($b = .004$). However, results from a z-test comparing the equality of the coefficients suggest that they may not be much different from one another ($z = 1.35$). This suggests that girls and boys respond in much the same way to school strain – girls are not necessarily more vulnerable to this strain, nor can sex differences in aggressive delinquency be explained by boys' greater exposure to school strain. Finally, while fear of victimization is associated with significantly less aggressive delinquency for boys ($b = -.03$) and is unrelated for girls, no interaction effect was detected. The overall negative relationship suggests that for boys, the greater the perceived risk of violent victimization, the less likely they are to risk aggressing against others.

Depression is added to the equation in Models 7 (girls) and 11 (boys), and the results are mixed. Depression is unrelated to aggressive delinquency for girls, but is positively related for boys ($b = .05$). Models 8 and 12 show the effect of removing depression and adding anger to the equations for girls and boys respectively. Though the coefficients for exposure to violence are reduced slightly for both (.27 to .25 for girls; .36 to .34 for boys), and loss is slightly attenuated for boys, none of the strains lose their significance. This is very weak evidence for Agnew's (1992) crucial hypothesis that anger accounts for much of the impact of strain on serious delinquency.

Finally, the last model for boys (Model 13) includes all strains, depression, anger, and self-efficacy in addition to background factors. The results show that anger remains positive and significantly related to aggressive delinquency, and seems to account for the effect of depression found in Model 11. The full model for girls (Model 9) includes two significant effects that reduce the likelihood of aggressive delinquency: depression ($b = -.03$) and self-efficacy ($b = -.03$). While these effects do not alter the relationships of exposure to violence or school strain with aggressive delinquency, it is notable that these effects are not present for boys. According to Agnew (1992, 2006), depression should be positively related to delinquency—he includes depression as one of several negative emotions thought to mediate strain. Other research also finds a positive relationship between depression and delinquency (DeCoster & Heimer, 2001; Hoffman & Su, 1998; Obedeillah-Davis, 2002). Then again, other GST research (Broidy, 2001; Jang, 2007; Sharp et al., 2001) found that non-angry negative emotions lower the likelihood of aggressive forms of coping in girls, a finding supported by the current research.

Running Away

Hypothesis 4b states that the relationship between strain and running away, minor property crime, substance use, and suicidality will be stronger among girls than boys.

Running away is tested as an outcome variable separate from other kinds of delinquency because it is considered to be a type of deviance more associated with girls and specifically with sexual victimization (Beitchman, Zucker, Hood, da Costa & Akman, 1991; Browne & Finkelhor, 1986; Chesney-Lind and Pasko, 2004). Juxtaposing this outcome with aggressive delinquency and other forms of non-aggressive outcomes should provide useful evidence regarding the gendered nature of deviance.

The regression results for running away (Table 4.5) tell a markedly different story from that of aggressive delinquency. Model 1 shows that girls and boys are relatively equally likely to runaway from home overnight net of background factors. When the strains are taken into account in Model 2, girls become significantly more likely than boys to run away ($b = -.02$). Further, the only strain that has a significant association with running away in the full sample is exposure to violence ($b = .12$). Next, depression increases the frequency of running away but does not appreciably attenuate the strength of exposure to violence (Model 3). Anger, introduced in Model 4, has a positive association with running away and also reduces the strength of exposure to violence. The fifth model includes all strains, depression, anger, and self-efficacy in addition to background factors. There is no further reduction in the effect of exposure to violence, anger remains significant in the model controlling for depression ($b = .04$), and depression becomes non-significant. Finally, self-efficacy reduces the likelihood of running away ($b = -.05$) but does not significantly increase the explanatory power of the model.

The subsample analysis (Models 6 – 9 for girls and 10 – 13 for boys) reveals that the impact of exposure to violence on running away depends on sex. This strain is only significant for girls ($b = .23$); and in support of hypothesis 4b, the results of the z-test to compare the equality of coefficients indicate that girls are significantly more likely than

Table 4.5: Running Away (log) Regressed On Strain, Negative Emotions, Self-Efficacy For Total Sample And By Sex

	Total Sample (N=1765)					Girls (n=882)				Boys (n=883)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Male	-.02	-.02*	-.02*	-.02	-.02	-	-	-	-	-	-	-	-
Exposure to violence	-	.12**	.11**	.10*	.10*	.23**	.22**	.21**	.22**	.05	.05	.03	.03
Sexual assault	-	.08	.07	.07	.06	.07	.06	.07	.05	-.04	-.05	-.05	-.05
Loss	-	.03	.03	.02	.02	.00	-.01	-.01	.00	.05	.05	.04	.05
School strain	-	.01	.01	.01	.00	.02	.01	.01	.01	.01	.01	.01	.00
Fear of victimization	-	.00	-.01	.00	-.01	.01	.00	.01	.00	-.01	-.01	-.01	-.02
Depression	-	-	.04*	-	.01	-	.05	-	.01	-	.04	-	.00
Anger	-	-	-	.05*	.04*	-	-	.04	.02	-	-	.06*	.05*
Self-efficacy	-	-	-	-	-.05**	-	-	-	-.07*	-	-	-	-.03*
R ²	.06	.08	.08	.09	.10	.11	.11	.11	.12	.08	.08	.09	.09
F for change	-	1.10	1.06	1.71 ^a	1.05		.77	.67 ^b	1.31		.63	2.12 ^c	.41

Notes: * p < .05, ** p < .01.

All models include controls for Age, Race, SES, and Prior Delinquency.

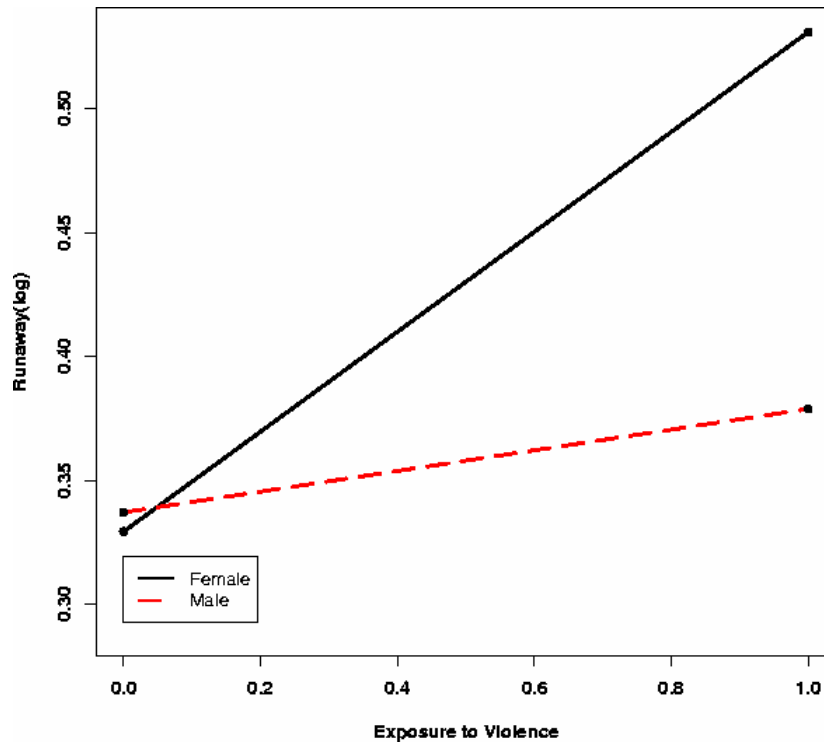
^a Compared to Model 2, ^b Compared to Model 6, ^c Compared to Model 10.

Coefficients are unstandardized.

boys to respond with escapist behavior when exposed to serious violence ($z = 2.14$). The interaction of exposure to violence and sex on running away is illustrated in Figure 4.3.

When Figure 4.3 is compared with Figure 4.1, it is evident that boys are more likely to respond to exposure to violence with aggressive delinquency, and girls with running away. Thus, exposure to violence is highly significant in girls' lives when explaining why they run away from home, and this provides some evidence for gendered responses to exposure to violence.

Figure 4.3: Effect of Exposure to Violence on Running Away Conditioned by Sex



But girls' greater tendency to run away does not seem to be explained by their depression or anger. Neither anger nor depression is significantly related to girls' running away behavior, which does not support the hypothesis that strain influences this type of coping strategy indirectly through negative emotions. Anger is positively related to running away for boys ($b = .06$), but it does not mediate the effect of the strain. Lastly, when self-efficacy is added to the equations in Models 9 and 13, it is negative and significant for both boys ($b = -.03$) and girls ($b = -.07$, $z = -1.25$), indicating that the more internal coping resources an adolescent has, the less likely he or she is to run away from home. Interestingly, contrary to theories of girls' delinquency and female offenders (Belknap, 2001; Belknap & Holsinger, 2006; Chesney-Lind & Pasko, 2004), sexual victimization alone is not a significant predictor of running away for either sex net of other strains. In a separate analysis where each strain was added hierarchically to the models rather than all at once, sexual victimization was positively and significantly associated with running away for girls ($b = .10$, $p < .05$) until exposure to violence was added to the model. This suggests that the effect of sexual victimization is conflated with exposure to other kinds of violence.

Minor Theft

Broidy and Agnew (1997) hypothesize that certain types of strain experienced more often by girls should be more strongly related to their minor theft because it is a "gender-appropriate" type of law-violation (e.g., it is within gendered norms of expected behavior for girls experiencing economic or other kinds of frustrations to shoplift). Following this, some types of strain should be more strongly related to minor theft for

girls than boys, and these strains should be mediated by anger.⁵ Table 4.6 summarizes the model predictions for minor theft.

In the full sample analysis, Model 1 illustrates that boys and girls are equally likely to engage in minor theft (shoplifting or stealing from someone they know) controlling for demographics and prior delinquency. When strain is held constant, girls are more likely to steal. Model 2 shows that exposure to violence ($b = .20$) is associated with a significant increase in minor theft net of other strains, as is school strain ($b = .06$). None of the other strains are related. Model 3 introduces depression, which has a positive and significant association with minor theft ($b = .08$), though it does not attenuate strain. Anger is added in Model 4, which also has positive effects. A comparison of Models 2 and 4 shows that anger attenuates the coefficient for exposure to violence by about 25 percent, in accordance with what GST would predict, but it does not affect school strain. In the last model for the full sample, Model 5, self-efficacy is significantly and negatively related to minor theft.

Continuing with the subsample analysis, in Model 6 (girls) and 10 (boys) I assess the effects of strain on minor theft for girls and boys separately. Exposure to violence increases minor theft equally for both subsamples, but the effect of school strain varies by sex. That is, school strain is significantly more likely to be associated with minor theft for girls ($z = 2.62$) even after controlling for depression and anger. This finding supports hypothesis 4b, and demonstrates how even though a strain can be experienced more often by one social group (boys in this case), other social groups can be more sensitive to its effects. Figure 4.4 illustrates this interaction with sex.

⁵ This study does not include a measure of financial strain, which has been connected to increases in minor property crime in women (Steffensmeier and Allan 1995).

Table 4.6: Minor Theft (log) Regressed On Strain, Negative Emotions, Self-Efficacy For Total Sample And By Sex

	Total Sample (N=1754)					Girls (n=879)				Boys (n=882)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Male	-.02	-.03*	-.03*	-.02	-.02	-	-	-	-	-	-	-	-
Exposure to violence	-	.20**	.19**	.16**	.16**	.20*	.19*	.14	.14	.20**	.19**	.19**	.19**
Sexual assault	-	.00	-.01	-.01	-.02	-.01	-.02	-.02	-.02	.05	.01	.04	.02
Loss	-	.04	.03	.02	.02	.02	.01	.00	.00	.05	.05	.04	.05
School strain	-	.06**	.05*	.05*	.04*	.10**	.10**	.09**	.09**	.01	.00	.01	.00
Fear of victimization	-	.01	-.01	.00	-.01	.01	.00	.01	.00	.00	-.02	-.01	-.02
Depression	-	-	.08**	-	.04	-	.05	-	-.01	-	.11**	-	.10*
Anger	-	-	-	.08**	.06**	-	-	.11**	.11**	-	-	.04	-.01
Self-Efficacy	-	-	-	-	-.04*	-	-	-	-.05	-	-	-	-.04
R ²	.08	.10	.11	.11	.12	.11	.12	.13	.13	.11	.12	.11	.12
F for change		1.15	1.67	2.14 ^a	.60		.56	3.41 ^b	.31		2.27	.31 ^c	1.11

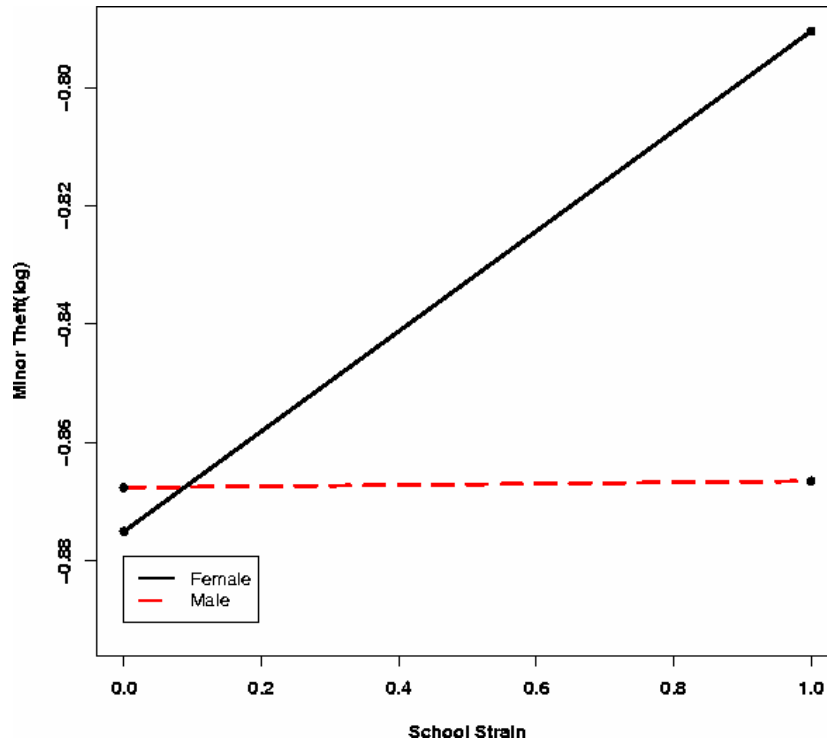
Notes: * p < .05, ** p < .01.

All models include controls for Age, Race, SES, and Prior Delinquency.

^a Compared to Model 2, ^b Compared to Model 6, ^c Compared to Model 10.

Coefficients are unstandardized.

Figure 4.4: Effect of School Strain on Minor Theft Conditioned by Sex



Models 7 (girls) and 11 (boys) add depression, and among boys, an increase in depression is positively associated with minor theft ($b = .11$), while girls' depression is not related to minor theft (a z-test finds no significant difference between the coefficients, $z = 1.02$). Anger is added for the girls in Model 8, and it is positively associated with minor theft for girls ($b = .11$). Moreover, it reduces the association for girls between exposure to violence and theft from .20 to .14 and makes it non-significant, suggesting that about 30 percent of the effect of this strain for girls is attributable to anger. This is the strongest evidence so far of the mediating role of anger in the present test of GST. Anger does not mediate the effect of school strain.

Last, anger is not significantly related to minor theft for boys (Model 12). In the final equation where anger is held constant for them (Model 13), depression retains a significant positive association with theft. The GST mediation hypothesis seems to work for girls (in the case of exposure to violence and minor theft) but not boys; anger is the more prominent explanatory emotion for girls, and it plays no role for boys.

Substance Use

Starting with Agnew's (1992) original conception of GST and Broidy and Agnew's (1997) extension, criminological researchers conceptualize substance use as an inner-directed coping behavior that is often juxtaposed with violent and property offenses. In GST, substance use is considered to be an emotional coping strategy employed to directly relieve the unpleasant and distressing effects of negative emotions (Agnew and White 1992). Broidy and Agnew (1997) and Hay (2003) suggest that the strains girls experience, coupled with higher levels of anger and depression, anxiety, and guilt compared to boys, may result in a greater likelihood of female substance use but they did not test this notion. Accordingly, hypothesis 4b states that I expect to find a stronger relationship between strain and substance use for girls, and this should be explained by their higher depression. The regression of substance use on strain, depression, anger and self-efficacy is presented in Table 4.7.

Models 1 – 5 present results for the full sample. Model 1 demonstrates that net of background factors, there are no sex differences in the average frequency of substance use. When the five strains are introduced in Model 2, two types of strain emerge with

Table 4.7: Substance Use (log) Regressed On Strain, Negative Emotions, Self-Efficacy For Total Sample And By Sex

Total Sample (N=1738)						Girls (n=866)				Boys (n=872)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Male	.02	-.01	-.01	.00	.00	-	-	-	-	-	-	-	-
Exposure to violence	-	.44**	.43**	.42**	.42**	.35**	.32**	.31**	.30**	.50**	.49**	.47**	.48**
Sexual assault	-	.03	.01	.02	.01	.05	.04	.05	.04	.04	.03	.04	.03
Loss	-	.09*	.08	.07	.07	.10	.07	.07	.06	.09	.10	.08	.08
School strain	-	.03	.02	.03	.02	.05	.03	.04	.03	.01	.01	.01	.01
Fear of victimization	-	-.04**	-.06**	-	-.05**	-.04	-.06**	-.04*	-.05*	-.06**	-.07**	-.06**	-.07**
Depression	-		.09**	-	.06		.13**	-	.10**		.06	-	.03
Anger	-		-	.07**	.05			.09**	.06			.06	.05
Self-Efficacy	-		-	-	.02			-	.04			-	.01
R ²	.39	.43	.44	.44	.44	.38	.39	.39	.40	.49	.49	.50	.50
F for change in R ²		3.30*	1.20	1.20 ^a	.29		1.84	1.32 ^b	.78		.80	.67 ^c	.06

Notes: * p < .05, ** p < .01.

All models include controls for Age, Race, SES, and Prior Delinquency.

^a Compared to Model 2, ^b Compared to Model 6, ^c Compared to Model 10.

Coefficients are unstandardized.

significant positive relationships to substance use: exposure to violence ($b = .44$), and loss of close others ($b = .09$). Fear of victimization has a significant negative effect ($b = -.04$) on substance use, consistent with its relationship to aggressive delinquency (see Table 4.4). Comparing Model 2 with Model 1, the addition of these types of strain accounts for significantly more variance in substance use ($R^2 = .43$, $F = 3.30$).

Models 3 and 4 add depression and anger, respectively. Both are positively and significantly associated with substance use, and anger does not appreciably decrease the effect of exposure to violence on substance use. Conversely, loss of close others is no longer significant in these models, suggesting that depression and anger mediate the effect of this strain on substance use. This is the second instance of support in this study for GST's mediation hypothesis. Model 5 shows that the addition of self-efficacy to the full equation has no effect.

The gendered analysis reveals mostly similar patterns to the full sample analysis. Because there are no gender differences in substance use to explain, the separate analyses help us to see if girls and boys share similar predictors of this behavior. Looking at Models 6 – 9 (girls) and 10 – 13 (boys), the types of strains related to substance use are the same for girls and boys, namely exposure to violence, which increases use, and fear of victimization, which decreases use. Comparing Models 6 and 10, exposure to violence appears to have stronger effects on substance use for boys ($b = .50$) compared to girls ($b = .35$), but a z-test for equality of regression coefficients found no significant difference between the two ($z = 1.31$).

Next, depression and anger are added to the equation separately. Both emotions are positively associated with substance use in girls, but not boys. Specifically, Model 7 shows that net of strains and background factors, depression has significant and positive effects on substance use for girls ($b = .13$). Similarly, Model 8 demonstrates that

substance use increases as anger increases ($b = .09$), and the effect of exposure to violence is modestly attenuated by 11 percent. The final girls' model shows no effect of self-efficacy, and anger loses its significance, while depression retains its positive association with substance use.

Conversely, Models 11 and 12 illustrate that for boys, neither depression nor anger are significantly associated with substance use when strain and background factors are held constant. This is surprising in light of research demonstrating that heavy drinking, especially in adult men, is positively associated with depression (Ross, 2000). It may be that this relationship is dependent on age, with weaker associations occurring in the early to middle adolescent age group. Similar to the female sample, self-efficacy has no direct association with male substance use (Model 13). Overall, substance use in girls and boys is predicted by the same strains, but girls' use is partially explained by negative emotions, lending some support to GST.

Suicidal Behavior

As reported earlier in this chapter, girls report significantly more suicidal behavior than boys, and we would expect stronger effects of strain on suicide for girls compared to boys. Examining the full sample analysis in Table 4.8, none of the strains under examination are very strongly linked to suicidal behavior. Nonetheless, two strains have weak positive effects: sexual assault approaches significance ($b = .05$, $p < .10$) and loss of close others ($b = .02$, $p < .05$) is significant. Both of these strains are experienced more by girls, but this does not seem to explain the gender effect in Model 1. Sexual assault and loss of close others become non-significant when depression is added in Model 3, as does the gender effect. This suggests that depression accounts for some of the effect of strain and gender on suicidal behavior. Adding depression also significantly increases the explained variance from .05 to .08 ($F = 5.47$).

Table 4.8: Suicidal Behavior (log) Regressed On Strain, Negative Emotions, Self-Efficacy For Total Sample

	Total Sample (N=1065)				
	(1)	(2)	(3)	(4)	(5)
Male	-.01*	-.01*	-.01	-.01	-.01
Exposure to violence	-	.01	.01	.01	.01
Sexual assault	-	.05^	.04	.05*	.04
Loss	-	.02*	.01	.01	.01
School strain	-	.00	.00	.00	.00
Fear of victimization	-	.01	.00	.01	.00
Depression	-	-	.04**	-	.04**
Anger	-	-		.01*	.00
Self-Efficacy	-	-			.00
R ²	.02	.05	.08	.06	.08
F for change in R ²		1.11	5.47*	.97 ^a	2.22

Notes: ^ p < .10, * p < .05, ** p < .01.

All models include controls for Age, Race, SES, and Prior Delinquency

^a Compared to Model 2.

Sample includes only cohorts 12 and 15.

Coefficients are unstandardized.

Anger has a positive and significant association with suicidality (Model 4), and it mediates the effect of loss of close others, but not sexual assault. In the full equation (Model 5), self-efficacy has no effect on suicidal behavior, and anger becomes non-significant when depression is taken into account. In sum, depression partially mediates the associations between gender and suicidal behavior, and strain and suicidal behavior. Anger has a similar effect, except that it mediates only one of the two strains, and it is not prominent in the final model.

The results of the gendered subsample analysis (not shown) are ambiguous in terms of GST. None of the strains are significantly related to suicidality in the girls' analysis; only depression, net of strain and anger, is positively associated with girls' suicide. In the boys' analysis, past sexual assault is the only significant variable; depression and anger have no effect. But because less than 1 percent of the boys' sample indicated past sexual victimization, these results are unreliable and likely due to outliers or influential cases. Overall, the association between strain and suicidal behavior in the joint sample can be partially explained by depression, consistent with Broidy and Agnew (1997) who expect depression to play a greater role in explaining inner-directed problem behavior. The specific hypothesis related to gender (hypothesis 4b) is unsupported in these data.

High Risk Sexual Behavior

Risky adolescent sexual behavior is more commonly examined in public health, psychology, and sociology of health fields than criminology. However, there are consistent and strong correlations between this behavior and delinquency and substance use (Devine, Long & Forehand, 1993; Jessor & Jessor, 1977; Kotchick, Shaffer & Forehand, 2001; Lowry, Holtzman, Truman, Kann, Collins & Kolbe, 1994; Yamaguchi & Kandel, 1987), and many researchers have conceptualized risky sexual behavior as part

of a constellation of problem behaviors that co-occur in adolescence (Costa, Jessor, Donovan & Fortenberry, 1995; Rowe, Rodger, Mesech-Bushey & St. John, 1989). High risk sexual behavior occupies a murky territory in criminology because it is not illegal (as long as the participants are of similar age) nor aggressive, and it is becoming less “deviant” as social norms around sexual activity change; but it is nonetheless a hazardous behavior linked to other health problems and social disadvantages. Furthermore, since high risk sexual behavior is such a consistent correlate of other problem behaviors that are the subject of GST, it is instructive to explore whether it has similar relationships to strain and negative emotions.

Table 4.9 presents multivariate results for the regression of high risk sexual behavior on strain, negative emotions, and self-efficacy for the full sample. Model 1 reflects a significant sex difference; a greater number of sexual partners is more likely to be reported by boys net of background factors. Model 2 shows that the number of partners increases significantly as exposure to violence increases ($b = .53$), but decreases as fear of victimization increases ($b = -.06$). Accounting for these strains increases the explained variance significantly from $R^2 = .35$ to $.42$, and may partially explain the sex difference in this behavior. By introducing depression in Model 3, the significance of fear is eliminated, but depression itself has no effect on high risk sexual behavior, making it unlikely that depression plays a mediating role in explaining this association. Model 4 demonstrates that anger has no effect on high risk sexual behavior, nor does self-efficacy in Model 5. Thus, contrary to expectations, the explanatory mechanisms of GST do not seem to apply in the case of risky sexual behavior.

Table 4.9: High Risk Sexual Behavior (log) Regressed On Strain, Negative Emotions, Self-Efficacy For Total Sample

	Total Sample (N=980)				
	(1)	(2)	(3)	(4)	(5)
Male	.11**	.08**	.08**	.08**	.08**
Exposure to violence	-	.53**	.53**	.53**	.53**
Sexual assault	-	.12	.12	.12	.12
Loss	-	.00	.01	.00	.00
School strain	-	-.02	-.02	-.02	-.02
Fear of victimization	-	-.06*	-.06	-.06	-.05
Depression	-	-	-.01	-	-.02
Anger	-	-		.01	.02
Self-Efficacy	-	-		-	-.02
R ²	.35	.42	.42	.37	.37
F for change in R ²		3.56**	.01	.02 ^a	.04

Notes: * p < .05, ** p < .01.

All models include controls for Age, Race, SES, and Prior Delinquency.

^a Compared to Model 2.

Sample includes only cohorts 12 and 15.

Coefficients are unstandardized.

The results for the subsample analysis (not shown) follow an identical pattern to that of the total sample, with one gender interaction: while exposure to violence is associated with risky sexual behavior for both boys and girls, this strain has much stronger effects for boys ($b = .68$) than it does for girls ($b = .35$). This difference is statistically significant ($z = 2.32$). Consequently, exposure to violence is a more powerful predictor for boys than girls when high risk sexual behavior is the outcome variable (as it is with aggressive delinquency), supportive of hypothesis 4a, but none of the intervening variables proposed by GST are relevant. Consistent with prior research on high risk sexual behavior, it is more likely to occur among boys and shares an important predictor with aggressive delinquency. Inconsistent with GST, it does not seem to share the mediating pathways through negative emotion.

SUMMARY

Consistent with Hypothesis 1, there are gender differences in exposure to strain. The five types of strain examined here were chosen for the analysis because they exemplified the three types of strain specified by GST (blocked goals, noxious stimuli, and loss of positive stimuli), they included strains that may be more relevant to girls' lives (sexual victimization and fear of victimization), as well as strain thought to be more conducive to aggressive delinquency (exposure to violence). Boys reported higher average levels of exposure to violence and school strain, and girls reported higher average levels of sexual victimization, loss of close others, and fear of violent victimization.

Overall, certain strains are not more conducive to outer-directed versus inner-directed problem behaviors; strains experienced more by girls like loss of close others are not only related to self-directed coping. For example, exposure to violence and loss of close others are related to a range of outcomes: exposure to violence is associated with all

but suicidality, and loss of close others is associated with aggressive delinquency, substance use, and suicidality. However, consistent with predictions, the coping responses to some strains depend on sex. First, in support of hypothesis 4a, the effect of both exposure to violence and loss of close others on aggressive delinquency is much stronger for boys, as is the effect of exposure to violence on high risk sex. Second, the effect of exposure to violence on running away, and school strain on minor theft, is significantly stronger for girls in support of hypothesis 4b. Girls are more sensitive than boys to school strain when predicting minor theft. School strain may be less predictive of delinquency overall because it is more likely to be associated with stronger attachments to conventional goals and institutions, and less likely to be seen as unjust (Agnew, 2006; Broidy & Agnew, 1997). The associations between strain and substance use and suicidality did not vary by sex. Fear of victimization is the exception to the consistent positive relationships found between strain and the dependent variables -- fear is associated with reductions in the likelihood of aggressive delinquency, substance use and high risk sexual behavior for both boys and girls.

Negative emotions occupy a complex role in this study of GST. Consistent with my hypotheses and past research on gender, stress, and anger, girls report higher levels of anger than boys. Further, strain in most cases is positively associated with anger for both boys and girls, but the association is stronger for girls in some cases – inconsistent with the hypothesis that predicted no sex differences in anger. Boys are not more likely than girls to experience anger in association with strain. Girls also report higher levels of depression than boys, supportive of hypothesis 2a and the sizeable literature on adolescent depression. Strain in turn increases depression for both boys and girls, but girls experience more in relation to a particular strain – loss of close others. This finding

supports hypothesis 3b. In general, girls experience equal or greater amounts of both kinds of negative emotion in association with strain.

The evidence for anger as a mediator (hypothesis 5) is spotty, and depends on particular strain–outcome combinations (see Table 4.10 for summary). Most of the mediating effects were detected in the full sample analyses; gender-specific mediating effects were varied and followed no particular pattern. In general, anger tends to mediate aggressive delinquency and minor theft, while both anger and depression show signs of mediating running away, substance use, and suicidal behavior. But the failure of anger in most cases to substantially mediate the relationship between strain and the outcome behaviors suggests that anger explains variation in the dependent variables that is not shared with the strain variables. That is, involvement in certain behaviors is fairly independent of the emotional reactions to strain, which does not support Agnew’s assertion that anger accounts for the indirect effect of strain. However, it is the case that anger is expected to mediate more serious forms of delinquency over less serious forms, which is consistent with the present findings. Others have been unable to detect substantial mediation (e.g., Piquero & Sealock, 2004), and it may be due to the measure of anger used across studies—there is no consistent measure of anger used in studies of GST, so comparisons between studies are difficult to make.

Alternatively, it is notable that the evidence points to anger alone as a mediator of strain and aggressive delinquency, while depression (sometimes alongside anger) plays a role in the cases of non-confrontational outcomes. That is, depression is positively related to running away, substance use, and suicidality, and negatively related to aggressive delinquency for girls. This finding is consistent with hypothesis 6 and Broidy and Agnew’s (1997) idea that depression should play a larger role in predicting these

types of outcomes than traditional delinquency outcomes, but no clear evidence is found for gender-dependent mediating processes.

The next chapter will continue to explore the dynamics of the GST process with regard to gender. Specifically, it will present the results of four sets of interactions intended to determine the conditioning effects of depression and self-efficacy: (1) strain moderated by depression, (2) strain moderated by self-efficacy, (3) anger moderated by depression, and (4) anger moderated by self-efficacy.

Table 4.10: Summary of Mediating Effects of Anger and Depression

Dependent Variables	Strain Variables	Mediating Variable	Evidence For Mediation*	Sample
Aggressive Delinquency	Exposure to violence	Anger	Slight	Full, girls, boys
	Loss	Anger	Slight	Full, boys
	School strain	Anger	Strong	Full only
Runaway	Exposure to violence	Anger Depression	Slight Slight	Full only Full only
Minor Theft	Exposure to violence	Anger Depression	Moderate No	Full, girls
	School strain	Anger Depression	No No	-
Substance Use	Exposure to violence	Anger Depression	Slight No	Full, girls
	Loss	Anger Depression	Strong Strong	Full only Full only
	Fear of victimization	Anger Depression	No No	-
Suicidality	Sexual assault	Anger Depression	No Strong	Full only
	Loss	Anger Depression	Strong Strong	Full only Full only
High Risk Sexual Behavior	Exposure to violence	None	N/A	-
	Fear of victimization	None	N/A	-

*Slight = 10% to 25% reduction in coefficient but remains significant

Moderate = $\geq 25\%$ reduction in coefficient but remains significant

Strong = Coefficient is rendered insignificant

Chapter 5: The Conditioning Effects of Depression and Self-Efficacy

Having considered the direct and indirect influences of different types of strain on multiple outcomes and how they are moderated by sex, I now turn to the conditional effects of depression and self-efficacy. Conditioning factors are crucial to the explanatory capacity of GST because responses to strain vary and not all strained persons cope with stress by engaging in illegal or deviant behaviors (Agnew, 1992, 2001; Broidy, 2001). Further, if girls and boys are differentially exposed and vulnerable to certain types of strains, the effects of the moderating variables may vary by sex as well. This study of GST examined two conditioning factors that may help to identify the circumstances under which different types of problematic coping behaviors are more or less likely: depression and self-efficacy. First, I expect to find that depression increases the effect of strain and anger on self-focused, non-confrontational outcomes and decreases the effect of strain and anger on aggressive delinquency (Hypothesis 7). Second, I expect that high self-efficacy will increase the effect of strain and anger on aggressive delinquency, particularly for boys, and decrease the effect of strain and depression on non-aggressive outcomes, particularly for girls (Hypothesis 8). Depression will be considered first.

Interaction of Strain and Depression

Broidy (2001) and Sharp et al. (2001, 2005) found preliminary evidence that higher levels of depression accompanying anger in women may condition the effects of strain and anger, leading to lower likelihoods of aggressive, externalizing coping strategies, but perhaps increasing the likelihood of self-focused, non-confrontational strategies. Hay (2003) found similar evidence for the potential inhibiting effect of guilt that accompanies girls' anger, but no study has explicitly examined the conditioning effects of depression on girls' delinquency. In fact, most research on adolescent

depression and delinquency focuses on either the impact of depression on delinquency (De Coster & Heimer, 2001; Obeidallah & Earls, 1999), the impact of delinquency on depression (Hagan & Foster, 2003; Hagan et al., 2002; Obeidallah & Earls, 1999), or the extent of co-morbidity (Loeber & Keenan 1994; Wiesner & Kim, 2006). Consequently, the role of depression in the etiology of delinquency and other problem behaviors is unclear.

To explore these findings further, it is necessary to include both aggressive and non-confrontational outcomes in the analysis. Following this, hypothesis 7a predicts that depression will negatively interact with strain for aggressive delinquency, and positively interact with strain for non-aggressive problem behaviors (7b). That is, depression will decrease the effect of strain on aggressive delinquency and increase the effect of strain on non-aggressive problem behaviors. To test these hypotheses, I created five multiplicative interaction terms, one for each strain multiplied by depression, and tested them with each of the six outcome variables separately by sex. I mean-centered the variables prior to creating the interaction terms to reduce multicollinearity and simplify the interpretation (Aiken & West, 1991).

Table 5.1 presents the models for which there was a significant interaction effect alongside its main effects model (non-significant interaction terms are not displayed). For example, Model 1 reflects the full model of strains, negative emotions, and self-efficacy for girls' running away behavior net of age, race, SES, and prior delinquency. Model 2 shows the addition of the interaction term exposure to violence X depression. There were three types of outcomes for which significant interactions were found, listed across the top of Table 5.1 (runaway, suicide, and substance use). In general, higher depression increased the effect of strain on these three escapist, inner-directed outcome variables, providing partial support for hypothesis 7b; on the other hand, depression did

Table 5.1: Unstandardized Coefficients Showing the Interaction of Strain and Depression

	Girls									Boys	
	Runaway (1)	Runaway (2)	Runaway (3)	Runaway (4)	Runaway (5)	Suicide (6)	Suicide (7)	Suicide (8)	Suicide (9)	Substance Use (10)	Substance Use (11)
	<i>b</i>	<i>b</i>	<i>b</i>	<i>b</i>	<i>b</i>	<i>b</i>	<i>b</i>	<i>b</i>	<i>b</i>	<i>b</i>	<i>b</i>
Exposure to violence	.22**	.17**	.21**	.22**	.22**	.03	.02	.03	.03	.48**	.48**
Sexual assault	.05	.03	.00	.04	.05	.02	.01	.00	.02	.01	.00
Loss of positive stimuli	.00	.00	.00	-.01	.00	.02	.02	.02	.02	.07	.07
School strain	.01	.01	.01	.01	.01	.01	.00	.01	.01	.00	.00
Fear of victimization	.00	.00	.00	-.01	.00	.01	.01	.01	.01	-.07**	-.07**
Depression	.01	.00	.01	.00	.01	.04**	.03*	.04**	.03*	.04	.04
Anger	.02	.03	.02	.03	.02	.00	.00	.00	.00	.05	.04
Self-Efficacy	-.07*	-.06*	-.06*	-.07*	-.07*	.00	.00	.00	.00	.01	.01
Exposure to violence X Depression	-	.55**	-	-	-	-	.26*	-	-	-	-
Sexual assault X Depression	-	-	.26**	-	-	-	-	.15*	-	-	-
Loss X Depression	-	-	-	.28**	-	-	-	-	.13**	-	.39*
School strain X Depression	-	-	-	-	.10*	-	-	-	-	-	-
R ²	.12	.16	.14	.14	.13	.10	.14	.13	.12	.49	.49
<i>F</i> for change in <i>R</i> ²	-	5.70*	2.62	2.63	1.09	-	6.80*	5.57*	2.99	-	1.35
	877	877	877	877	877	543	543	543	543	870	870

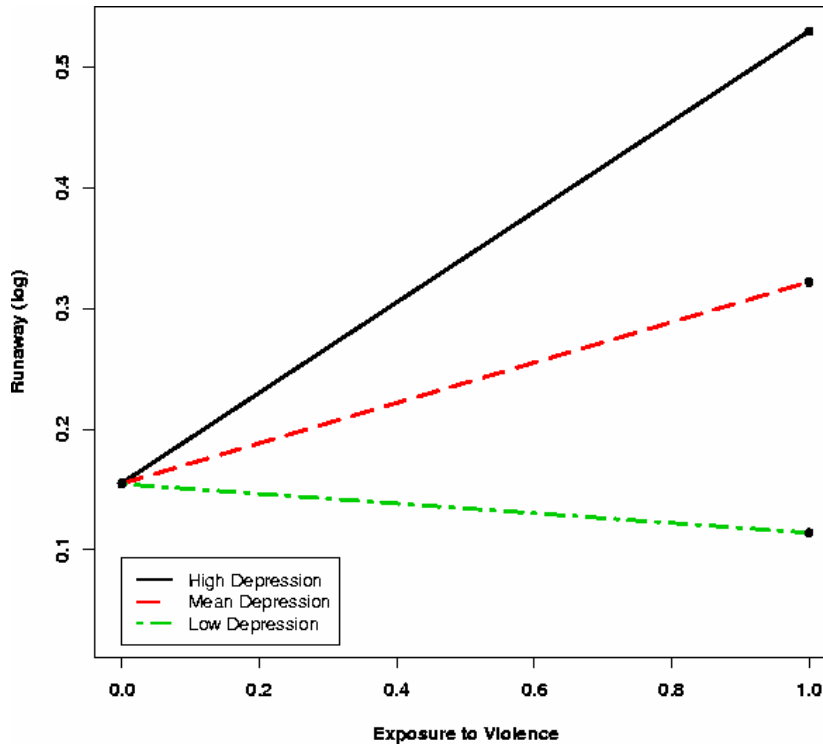
Notes: * $p < .05$ ** $p < .01$. All models include controls for age, race, SES, and prior delinquency. Variables are mean-centered. Only significant interactions are shown.

not interact with strain (positively or negatively) for aggressive delinquency, minor theft, or high risk sexual behavior, failing to support hypothesis 7a.

Beginning with the girls' results, increased depression amplifies the effect of exposure to violence on girls' frequency of running away ($b = .55$, Model 2). For an interaction term to represent a conditioning effect, the inclusion of the term should substantially increase the proportion of explained variance (R^2) over the main effects model (Jessor, Van Den Bos, Vanerryn, Costa & Turbin, 1995). The inclusion of the exposure to violence X depression interaction term significantly increased the R^2 value from 12 percent to 16 percent ($F = 5.70$). Figure 5.1 depicts the results of a post hoc examination of the effect of depression on the relationship between exposure to violence and running away. The three regression lines show the relationship between exposure to violence and running away at three levels of girls' depression: one standard deviation below the mean, the mean level of depression, and one standard deviation above the mean. When depression is high, the likelihood of running away increases the most, shown by the steepest slope of the solid regression line. Even at the mean level of depression, represented by the middle line, girls face an increased effect of exposure to violence on running away. But low levels of depression have a protective effect against the likelihood of running away, depicted by the lower-most dotted line in the figure.

This type of finding was more consistent among girls than boys, in that depression interacted with more types of strain for girls. For example, Models 3 - 5 in Table 5.1 show that increased depression also exacerbates the effect of sexual assault ($b=.26$), loss of close others ($b=.28$), and school strain ($b=.10$) on girls' running away. The main effects model for running away (Model 1) showed only that exposure to violence affected running away; once the compounding effect of depression was taken into account, three

Figure 5.1: Effect of Exposure to Violence on Running Away Conditioned by Depression, Girls



additional types of strain were found to contribute to this behavior, dependent on the level of depression.

Depression also conditioned the effect of strain on girls' suicidal behavior. Models 7, 8, and 9 reflect how depression increases the effect of exposure to violence ($b = .26$), sexual assault ($b = .15$), and loss of close others ($b = .13$) on suicidality. Two of the interaction terms significantly increased the proportion of variance explained – the inclusion of exposure to violence X depression increased the R^2 from 10 percent to 14 percent ($F = 6.80$) and sexual assault X depression increased the R^2 from 10 percent to 13 percent ($F = 5.57$). Comparisons of Models 7, 8, and 9 with Model 6, the main effects equation, reveal that none of these strains had a significant effect on this outcome

because their effect was dependent on level of depression. Depression was not found to interact with strain, either positively or negatively, in the analysis of girls' aggressive delinquency, minor theft, substance use, or high risk sexual behavior. According to Broidy (2001) and Broidy and Agnew (1997), depression should particularly heighten the effect of strain on girls' substance use, because it is a self-directed, non-confrontational coping outcome in which girls participate at about the same rate as boys, but this assertion was not supported. Moreover, the failure of depression to moderate the effect of strain on girls' aggressive delinquency is evidence contrary to hypothesis 7a.

The far right side of Table 5.1 presents the results for the boys. Only one interaction effect was detected in the boys' sample, but it operated similarly to the findings for girls on running away and suicide. This finding supports hypothesis 7b, but was not expected for boys. In the boys' case, the higher the depression, the greater the effect of loss of close others on substance use (Model 11). That is, the association between boys' experience of vicarious strain and their frequency of substance use becomes stronger with higher levels of depression. An examination of Model 10 shows that the main effects equation did not portray the full picture of the strain – substance use relationship; loss of close others was not significantly related to boys' substance use until the level of depression was considered. No further interaction effects for depression were found in the models testing boys' aggressive delinquency, minor theft, or high risk sexual behavior.

In sum, these findings provide no support for hypothesis 7a that non-angry negative emotions like depression and anxiety have a negative effect on delinquency by reducing the effect of strain. On the other hand, the positive interactions between depression and strain on escapist and avoidant behaviors supports hypothesis 7b and the findings of Sharp and her colleagues (2001, 2005), who found that high depression

conditioned the effect of strain on disordered eating. Notably, the similar finding for boys' substance use in the current study suggests that the salience of depression is not limited to the study of girls' pathways to risk behaviors.

Interaction of Anger and Depression

Though conditioning effects in the stress process and GST are typically operationalized by testing their interaction with strain, it may be that depression moderates anger, the central aggravating emotion in GST. In the above analysis depression was found to amplify the effect of strain on running away, suicidality, and substance use, but it neither increased nor decreased the effect of strain on the more externalized outcomes like aggressive delinquency and minor theft. What remains to be tested is whether depression might buffer angry responses to strain, resulting in lower likelihoods of aggressive delinquency for girls. For example, because girls tend to be more depressed than boys as a result of loss of close others (see Table 4.3), and this strain is less likely to result in girls' aggressive delinquency compared to boys (see Table 4.4), the explanation may be that heightened depression curbs the effect of anger on girls' aggressive delinquency.

On the other hand, because depression and anger are positively correlated in both girls and boys, it seems unlikely that high levels of depression would reduce the effect of anger no matter the behavioral outcome. Nonetheless, building on recent theoretical development on the inhibiting role of depression in GST, hypothesis 7c predicts that the effect of anger on aggressive coping outcomes decreases as depression increases, particularly for girls. Conversely, hypothesis 7d states that the effect of anger on self-directed coping increases as depression increases.

To test these hypotheses, I mean-centered the variables for depression and anger, created a multiplicative interaction term, and added the term to six separate models—one

for each of the outcome variables in separate analyses for girls and boys. Table 5.2 presents only the significant results of these tests for the girls' subsample (no interaction effects were found for boys in this analysis). Overall, there is some weak support for hypothesis 7c. For example, Model 2 demonstrates that the effect of anger on girls' aggressive delinquency depends on depression ($b = -.04$); that is, the higher the depression the *less* the effect of anger on aggressive delinquency. However, the effect size is small and there is no significant increase in the amount of variance explained (R^2 changes from .35 to .36). A similar interaction was found for the effect of anger on girls' frequency of minor theft (Model 4). Depression seems to dampen the effect of anger on this outcome ($b = -.14$), though again the change in R^2 was not significant.

There is also modest support for hypothesis 7d. Contrary to the results for aggressive delinquency and minor theft, depression interacts positively with anger to produce heightened effects of both running away and suicide. Specifically, Model 6 illustrates that the positive effect of anger on girls' running away depends on depression ($b = .14$); the higher the depression the *more* the effect of anger on running away. Model 8 demonstrates the same results for suicidal behavior ($b = .07$). Neither model provides a significant increase in the proportion of explained variance in the dependent variable, which potentially decreases the importance of these particular conditioning effects.

Nonetheless, there is at least partial evidence that depression heightens the effect of anger on escapist, non-confrontational coping, and tempers the association of anger with aggressive delinquency. Importantly, depression does not act in such a way for boys; rather, depression has a small positive direct effect on boys' aggressive delinquency (which disappears when anger is controlled) and no association with boys'

Table 5.2: Unstandardized Coefficients Showing the Interaction of Anger and Depression, Girls

	Aggressive Delinquency (1)	Aggressive Delinquency (2)	Minor Theft (3)	Minor Theft (4)	Runaway (5)	Runaway (6)	Suicide (7)	Suicide (8)
Exposure to violence	.25**	.25**	.14	.14	.22**	.22**	.03	.03
Sexual assault	.02	.02	-.02	-.01	.05	.04	.02	.02
Loss	.01	.00	.01	.00	.00	.00	.01	.02
School strain	.02*	.02*	.08**	.09**	.01	.01	.01	.00
Fear of victimization	-.01	-.01	.00	.00	.00	.00	.01	.01
Depression	-.03*	-.03*	-.02	.00	.01	-.01	.04**	.03*
Anger	.05**	.05**	.11**	.11**	.02	.03	.00	.00
Self-Efficacy	-.03*	-.03*	-.05	-.05	-.07*	-.07*	.00	.00
Anger X Depression	-	-.04*	-	-.14*	-	.14*	-	.07*
R ²	.35	.36	.13	.13	.12	.14	.09	.11
F for change in R ²	-	.582	-	1.04	-	2.04	-	2.34
n	878	878	874	874	877	877	543	543

Notes: * p < .05 ** p < .01

All models include controls for age, race, SES, and prior delinquency.

Variables are mean-centered.

Only significant interactions are shown

running away (see Tables 4.4 and 4.5). Interestingly, this positions depression as a risk factor for escapist, self-destructive types of coping, and a “protective” factor for violent and property crime, which is supportive of the idea that girls’ depression plays a unique role in shaping the characteristics of girls’ coping behaviors (Broidy & Agnew, 1997; Hay, 2003; Sharp et al., 2001).

Interaction of Strain and Self-Efficacy

Hypothesis 8 states that self-efficacy will condition the effect of strain and anger on problematic coping outcomes. Agnew (1992) specified that certain internal coping resources, such as self-efficacy, should decrease the effect of strain and anger on law-breaking because individuals with a greater sense of control over their lives have an increased ability to alleviate strain through non-deviant means. Prior research on the role of self-efficacy in GST is inconclusive; Agnew and White (1992) found that high self-efficacy decreased the effect of anger on aggression and theft, but was not related to drug use. Hoffman and Miller (1998) found no support for the protective effect of self-efficacy, while Paternoster and Mazerolle (1994), Piquero and Sealock (2000, 2004), and Ross and Mirowsky (1987) found support for a positive conditioning effect on law breaking, the opposite of what Agnew expected.

One plausible explanation for why girls may experience more strain and more anger but less delinquency than boys is the presence of healthy levels of self-efficacy, which may lessen the effect of strain on delinquency. But given that boys typically have a greater sense of mastery and healthier self-concept than girls, Broidy and Agnew (1997) explain this paradox by hypothesizing that self-efficacy might operate differently across sex and by type of outcome. Specifically, a high sense of self-efficacy may instill the confidence and motivation necessary to engage in delinquent acts – especially offenses

against others. Conversely, they predicted that girls' greater likelihood of internalized coping strategies may be contingent on their lower self-efficacy.

The role of self-efficacy in GST is thus unclear—is it a buffer or a facilitator, or does it depend on the particular strain-outcome combinations under study and the sex of the individual? To tease out whether there is a conditioning role for self-efficacy in the GST-gender framework, I conducted a series of regression models to test Broidy and Agnew's (1997) proposition (hypotheses 8a and 8b). Five interaction terms were created (one for each of the five strains) and added separately to the main effects models for each of the six outcome variables in the girls' and boys' subsamples. The main effects model found that self-efficacy has a direct negative effect on girls' aggressive delinquency and running away, and boys' running away. If there is no interaction with strain, this means that self-efficacy helps to decrease the likelihood of the problem behavior but does not exert a protective effect on strain.

Tables 5.3 (girls) and 5.4 (boys) present the models for which there was a significant interaction effect alongside its baseline model (non-significant interactions are not displayed). For example, Model 1 in Table 5.3 reflects the full model of strains, negative emotions, and self-efficacy for girls' aggressive delinquency, and Model 2 adds the interaction term of self-efficacy X loss. Overall, no support was found for hypothesis 8a. Self-efficacy had a consistent buffering influence on strain for both girls and boys, which means that strain has less of an effect on problematic coping behaviors when self-efficacy is high. But the specific combinations of strains and outcomes for which there was an interaction varied.

In particular, the girls' subsample generated interaction effects for three of the six outcome variables: (1) loss of close others has less of an effect on aggressive delinquency when self-efficacy is high ($b = -.08$); (2) school strain has less of an effect on minor theft

Table 5.3: Unstandardized Coefficients Showing the Interaction of Strain and Self-Efficacy, Girls

	Girls					
	Agg Delinq (1)	Agg Delinq (2)	Minor Theft (3)	Minor Theft (4)	Runaway (5)	Runaway (6)
	<i>b</i>	<i>b</i>	<i>b</i>	<i>b</i>	<i>b</i>	<i>b</i>
Exposure to violence	.25**	.25**	.14	.15	.22**	.20**
Sexual assault	.02	.01	-.02	-.03	.05	.04
Loss of positive stimuli	.01	.00	.00	.01	.00	.00
School strain	.02*	.02*	.08**	.08**	.01	.01
Fear of victimization	-.01	-.01	.00	.00	.00	.00
Depression	-.03*	-.03*	-.02	-.02	.01	.01
Anger	.05**	.05**	.11**	.11**	.02	.03
Self-Efficacy	-.03*	-.03*	-.05	-.05	-.07*	-.06*
Exposure to violence X Self-Efficacy	-	-	-	-	-	-.32*
Loss X Self-Efficacy	-	-.08*	-	-	-	-
School strain X Self-Efficacy	-	-	-	-.16**	-	-
R ²	.36	.36	.13	.14	.12	.14
F for change in R ²		.84		1.82		2.97
n	878	878	874	874	877	877

Notes: * $p < .05$ ** $p < .01$.

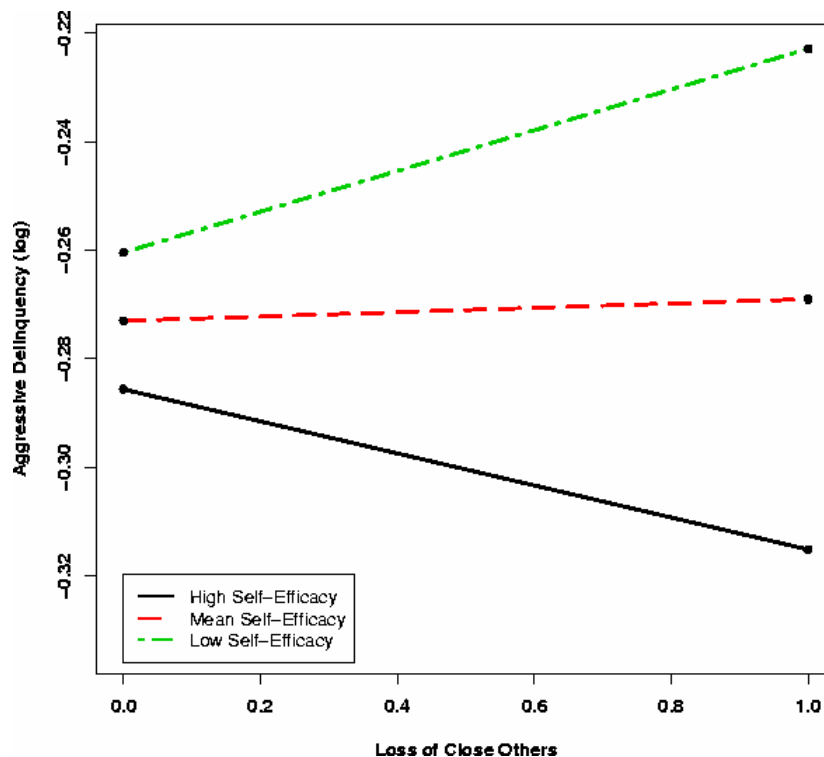
All models include controls for age, race, SES, and prior delinquency.

Variables are mean-centered.

Only significant interactions are shown.

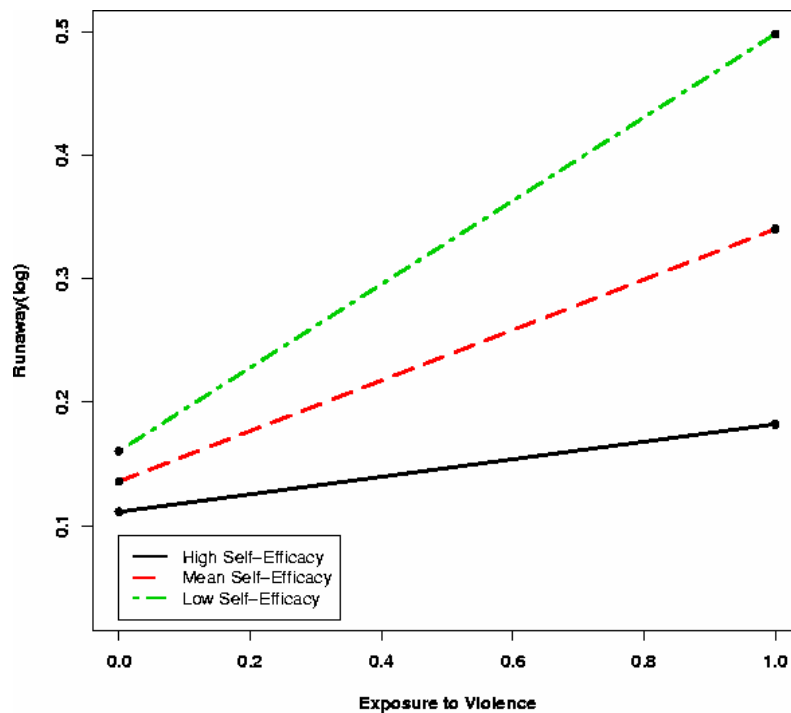
when self-efficacy is high ($b = -.17$); and (3) exposure to violence has less of an effect on running away when self-efficacy is high ($b = -.32$). The first finding is the only evidence in the current study of a conditioning effect that reduces the likelihood of girls' aggressive delinquency. Figure 5.2 depicts the moderating effect of self-efficacy on loss of close others for aggressive delinquency. The three regression lines represent the effect of loss on aggressive delinquency at three levels of girls' self-efficacy: one standard deviation above the mean of self-efficacy, the mean, and one standard deviation below the mean. The lowest line shows the protective effect of high self-efficacy; that even with higher amounts of loss, girls' likelihood of aggressive delinquency declines if they have a strong sense of control over their lives.

Figure 5.2: Effect of Loss on Aggressive Delinquency Conditioned by Self-Efficacy, Girls



The second interaction effect between school strain and self-efficacy on minor theft is another important finding for girls. School strain is significantly more likely to be associated with girls' minor theft than boys,' a finding not explained by intervening variables (see Table 4.6). The interaction analysis reveals that high self-efficacy reduces the effect of this positive relationship. Third, running away is less likely to result from exposure to violence if self-efficacy is strong in girls, depicted in Figure 5.3. This supports hypothesis 8b, that low self-efficacy would amplify the effect of strain on self-directed problematic coping behaviors, though low self-efficacy amplifies the effects of strain on aggressive delinquency and minor theft, too. The protective effect on exposure to violence is especially important, given that exposure to violence is strongly connected to girls' running away (see Table 4.5); evidence of a counter-influence on that type of strain could be helpful in understanding how to prevent such behavior.

Figure 5.3: Effect of Exposure to Violence on Running Away Conditioned by Self-Efficacy, Girls



Four interaction effects were found for boys, shown in Table 5.4. Self-efficacy interacted with strain in the predicted negative direction in two cases: high self-efficacy reduced the effect of school strain on minor theft (Model 2), and reduced the effect of loss of close others on substance use (Model 5). Self-efficacy did not increase the effect of strain on aggressive delinquency, failing to support hypothesis 8a and the idea that a high sense of control in boys is related to their increased involvement in outer-directed delinquency. On the contrary, the higher boys' self-efficacy, the less likely they were to engage in minor property crime because of its dampening effect on school strain. Key gender differences are that high self-efficacy did not interact with any strain to lower the likelihood of boys' aggressive delinquency as it did for girls, and it did not condition the effect of exposure to violence, the most important predictor for boys' problematic behaviors. On the other hand, it lessened the effect of loss of close others for both boys and girls – decreasing aggressive delinquency for girls and substance use for boys – and similarly decreased the effect of school strain on minor theft.

In sum, contrary to Broidy and Agnew's (1997) predictions and hypothesis 8a, high self-efficacy generally works to curb the influence of strain on *both* externalized, aggressive coping outcomes and inner-directed coping outcomes for both boys and girls; this internal coping resource does not operate differently depending on the type of outcome. This finding is more consistent with research on sense of control in the sociology-of-mental-health literature and Agnew's (1992) original prediction that adolescents with a high sense of personal control should be less likely to blame others for problems, have fewer symptoms of psychological distress, and be less likely to use deviant coping strategies. The exception to the protective pattern is found in the boys' results. High self-efficacy amplifies the effect of fear of victimization on minor theft and high risk sexual behavior, instead of reducing it. In the main effects models, fear of

Table 5.4: Unstandardized Coefficients Showing the Interaction of Strain and Self-Efficacy, Boys

	Minor Theft (1)	Minor Theft (2)	Minor Theft (3)	Substance Use (4)	Substance Use (5)	High Risk Sex (6)	High Risk Sex (7)
	<i>b</i>	<i>b</i>	<i>b</i>	<i>b</i>	<i>b</i>	<i>b</i>	<i>b</i>
Exposure to violence	.19**	.20**	.18**	.48**	.48**	.66**	.65**
Sexual assault	.00	.01	-.01	.01	.02	.20	.17
Loss of positive stimuli	.05	.04	.05	.07	.08	.01	.02
School strain	.00	.00	.00	.00	.00	-.01	-.02
Fear of victimization	-.03	-.02	-.02	-.07**	-.07**	-.06	-.05
Depression	.10*	.10*	.10*	.04	.04	-.06	-.07
Anger	-.01	-.01	-.01	.05	.04	.02	.02
Self-Efficacy	-.04	-.03	-.05	.01	.00	-.03	-.03
Loss X Self-Efficacy	-	-	-	-	-.25*	-	-
School strain X Self-Efficacy	-	-.13*	-	-	-	-	-
Fear X Self-Efficacy	-	-	.10*	-	-	-	.22*
R ²	.12	.13	.12	.49	.49	.41	.41
<i>F</i> for change in R ²	-	1.36	1.00	-	.87	-	1.52
n	880	880	880	870	870	468	468

Notes: * $p < .05$ ** $p < .01$. All models include controls for age, race, SES, and prior delinquency. Variables are mean-centered. Only significant interactions are shown.

victimization has a consistent negative relationship to three outcomes for boys and two for girls. These results indicate that the direction of the effect for fear on boys' outcomes depends on the level of self-efficacy; higher self-efficacy may reduce the inhibitory effects of fear, increasing the likelihood of problem outcomes.

The girls in the current study have significantly higher levels of self-efficacy than the boys, an unusual finding because even though sex differences in sense of control are less pronounced at younger ages (Ross & Mirowsky, 2002), studies of adolescents show that boys generally have higher levels of internal coping resources like self-esteem and self-efficacy (Bergman & Scott, 2001; Bolognini et al., 1996). This unexpected finding also violates the assumption on which Broidy and Agnew (1997) based their hypotheses about mastery. In this urban sample of adolescents, the role of internal coping resources seems to work in the same protective manner for both boys and girls.

Interaction of Anger and Depression with Self-Efficacy

Besides conditioning the effect of certain strains, a second way that self-efficacy could impact problematic coping outcomes is by heightening the positive effects of anger on aggressive delinquency and depression on non-aggressive delinquency. To explore this, I tested the extent to which self-efficacy interacted with the two negative emotions under study, anger and depression. The variables were mean-centered and then multiplied together to create two interaction terms: self-efficacy X anger and self-efficacy X depression. The findings, summarized in Table 5.5, show that self-efficacy again has consistent negative effects, diminishing the influence of both anger and depression – but only in certain cases. This fails to support Hypotheses 8c and 8d, which are based on Broidy and Agnew's (1997) predictions, but supports Agnew's (1992) original prediction that high self-efficacy should act as a healthy coping resource, reducing the effect of negative emotion on deviant coping strategies.

First, Models 2 and 5 demonstrate that self-efficacy modifies the effect of anger on two inner-directed, escapist outcomes for girls: running away ($b = -.11$) and suicidal behavior ($b = -.05$). This means that for every one unit increase in self-efficacy, the effect of anger on the frequency of running away decreases by .11 and its effect on suicidal behavior decreases by .05. Self-efficacy had a similar effect on anger for boys' running away behavior ($b = -.09$, Model 7). While not strong effects (the increase in variance explained was not significant), these findings suggest that self-efficacy may help reduce the aggravating influence of anger on some self-destructive outcomes for both boys and girls. Interestingly, self-efficacy has no effect on the anger – aggressive delinquency relationship for either group.

Second, self-efficacy interacted with depression in just one instance, in the context of girls' running away behavior. Model 3 shows that as self-efficacy increases, the effect of depression on running away decreases by .14. Thus, depression, which has an amplifying effect on running away (see Tables 5.1 and 5.2), is weakened if self-efficacy is high. Taken together, the findings about self-efficacy show that it can be a significant protective factor against the problematic outcomes stemming from anger and depression. Because of the significant role that depression plays in predicting girls' running away, it is particularly important to recognize the potential protective function offered by high self-efficacy.

SUMMARY

Interaction effects of depression and self-efficacy were strain and outcome-specific. General patterns suggest that depression mainly works to increase the effects of strain and anger on inner-directed, non-confrontational problem behaviors as predicted, and decreases the effect of anger on aggressive delinquency and minor property

Table 5.5: Unstandardized Coefficients Showing the Interaction of Anger and Self-Efficacy, Depression and Self-Efficacy

	Girls					Boys	
	Runaway (1)	Runaway (2)	Runaway (3)	Suicide (4)	Suicide (5)	Runaway (6)	Runaway (7)
Exposure to violence	.22**	.22**	.21**	.03	.03	.03	.03
Sexual assault	.05	.04	.04	.02	.02	-.06	-.06
Loss	.00	-.01	-.01	.01	.01	.04	.05
School strain	.01	.01	.01	.01	.01	.00	.00
Fear of victimization	.00	.00	.00	.01	.01	-.02	-.01
Depression	.01	.01	.00	.04**	.04**	.00	.00
Anger	.02	.03	.03	.00	.00	.05*	.04
Self-Efficacy	-.07*	-.05*	-.05	.00	.01	-.03*	-.03
Anger X Self-Efficacy	-	-.11*	-	-	-.04*	-	-.09*
Depression X Self-Efficacy	-	-	-.14**	-	-	-	-
R ²	.12	.13	.14	.09	.11	.08	.08
F for change in R ²	-	1.82	2.12	-	1.52	-	1.30
n	877	877	877	543	543	881	881

Notes: * p < .05 ** p < .01

All models include controls for age, race, SES, and prior delinquency.

Variables are mean-centered.

Only significant interactions are shown.

delinquency for girls, also as predicted. However, depression did not suppress the impact of strain on the likelihood of aggressive delinquency and minor theft as hypothesized.

Contrary to what was hypothesized, self-efficacy was found to decrease the effects of strain for both boys and girls on a range of outcomes, both aggressive and non-aggressive. For example, self-efficacy works to curb the effect of strain on aggressive delinquency and running away in girls, and substance use and high risk sex in boys. One

exception to this directional pattern is boys' fear of victimization, which has an increased effect on minor theft and high risk sex at higher levels of self-efficacy. Self-efficacy also curbs the effect of anger and depression on inner-directed problem behaviors for both sexes. For example, both emotions have decreasing effects on girls' running away when self-efficacy is high, and the effect of anger on boys' running away is similarly decreased.

Gender similarities include: (1) depression positively interacts with strain on inner-directed behaviors for both, (i.e. boys' substance use and girls' running away and suicidality), (2) self-efficacy negatively interacts with anger on running away for both, and (3) self-efficacy moderates the effect of school strain on minor theft for both boys and girls. Gender differences include: (1) depression amplifies the effect of several different types of strain for girls, while only modifying one type of strain for boys, (2) depression decreases the effect of anger on aggressive delinquency and minor theft for girls only, and (3) self-efficacy amplifies the effect of fear on boys' minor theft and high risk sexual behavior.

Depression emerged as a key risk factor for girls, working to amplify the effect of several strains on self-destructive behaviors, even as it protected against the effect of anger on aggressive and property delinquency. Self-efficacy was found to be a constructive influence, decreasing the effects of some important strains like exposure to violence and loss of close others, as well as the effect of depression on girls' running away.

Chapter 6: Discussion and Conclusion

This study makes five general contributions to the empirical status of GST and gender, and to the study of gender and deviance more broadly. First, exposure to gender-specific strains does not necessarily translate into differential vulnerability to those strains, but there is some evidence for gendered responses to similar strains; second, depression and self-efficacy/sense of control play important roles in explaining the nature of girls' problem behaviors; third, there is no evidence that a separate theory is needed for girls, though greater elaboration of GST is needed; fourth, the importance of studying experienced, vicarious, and anticipated strains; and fifth, the potential scope limitations of GST. In this chapter I discuss each contribution in more depth and conclude with recommendations for future research.

ARE STRAINS GENDER-SPECIFIC, AND ARE THEY ASSOCIATED WITH GENDER-SPECIFIC OUTCOMES?

A central question in both GST and sociology-of-mental-health research is why boys tend toward outward-focused types of problematic coping behaviors and girls/women to inward-focused strategies. Recognizing that these differences cannot be explained by differences in the absolute amount of strain exposure, research has focused on the extent to which gender-specific strains influence gender-specific outcomes. In one example, Dornfeld and Kruttschnitt (1992) asked "do the stereotypes fit?" and found that mostly they did not. They examined the relationships between different types of family risk factors and depression, substance use, and delinquency, and found that though there was evidence of gender-specific strains (girls were more vulnerable than boys to specific types of family strain), the outcomes did not conform to gender stereotypes – boys were more at risk for depression while girls were more at risk for delinquency.

Criminological researchers have continued to explore the extent to which gender differences in delinquency and crime can be attributed to gendered processes. These processes include the internalization of masculine/feminine gender definitions (Heimer, 1996; Heimer & DeCoster, 1999), control of daughters in the patriarchal family (Hagan, Simpson & Gillis, 1985, 1987), and gender differences in exposure to certain types of strain and gender-specific responses to those strains (Broidy, 2001; Broidy & Agnew, 1997; DeCoster, 2005; Hay, 2003; Jang, 2007; Piquero & Sealock, 2004; Sharp et al., 2001, 2005; Van Gundy, 2002). The first contribution of this project is to the three-part question of current interest in GST/gender research: (1) whether girls and boys are differentially exposed to different types of strain, (2) whether they are differentially sensitive to those strains, and (3) to what extent their problematic coping responses are gendered. Essentially, while the strains examined here do seem to be gender-specific in terms of exposure, sensitivity depends on the specific strain and outcome under consideration; girls and boys are not necessarily more sensitive to the strains to which they are more exposed.

After 15 years of empirical tests, Agnew (2001) responded to criticism that the theory was too vague and specified several characteristics of strain that ought to increase the likelihood of criminal or deviant coping outcomes (outlined previously in this dissertation). He called for future tests to disaggregate strain measures rather than combine them into composite variables (as was commonly practiced) so that differences among strains could be discerned. Since then, tests of GST have been aimed in part at sorting and categorizing different strains as more or less conducive to delinquency. A smaller body of criminological research is focused on studying which types of strain are more important for different social groups, such as by race and gender, to try to explain group differences in offending. Most such research on GST has focused on ways of

categorizing strains by gender and indentifying which strains lead to which negative emotions and distinct types of gendered problem outcomes—a trend counter to the dominant tradition in criminological research to develop general theories (Aseltine et al., 2000).

Studies using GST to explain the gender gap in offending and the causes of girls' offending hypothesize that strains more likely to be experienced by girls are also less conducive to serious delinquency, and strains more likely to be experienced by boys are more conducive to serious delinquency (Agnew, 2006; Broidy & Agnew, 1997). Agnew (2006) explains that this is because the strains to which girls are more likely exposed tend to be associated with factors that limit the likelihood of serious offending, like greater informal and formal social controls and restrictions on criminal opportunities (e.g. greater attachment to family and school, supervision, and pursuit of conventional goals). The strains to which boys are more likely exposed, in contrast, tend to be associated with factors that increase the likelihood of serious offending—like association with deviant peers and lower levels of informal and formal social control.

One recent effort to classify strains by gender is illustrative of this type of research. De Coster (2005) distinguished “agentic” strains from “communal” strains, with the idea that boys report more strains that threaten their orientation toward instrumental, autonomous, and personal achievement concerns, and girls report more strain related to disruption of their interpersonal networks with the idea that agentic strains will be more conducive to serious delinquency. This gender stereotypical perspective in sociology is traceable to Parsons and Bales (1955) and Bakan (1966), who described men as more instrumental and women as more expressive, though the identification of man with “reason” and woman with “emotion” has been core to Western philosophy from Plato to Descartes (Wyke, 1997). The “gendered responses to gendered

strains” thread of the GST literature further proposes that not only are boys more exposed to agentic strains than girls, but sex interacts with this type of strain such that they are more likely than girls to exhibit aggressive, externalized behaviors as a result. Likewise, girls are thought to be both more exposed to and more affected by communal or network strains such that they are more likely to exhibit internalizing emotional states like depression and anxiety or inward-focused problem behaviors like substance abuse⁶, suicide attempts, or disordered eating (Agnew, 2006; Avison & McAlpine, 1992; Colten et al., 1991; Horwitz & White, 1987; Rosenfield et al., 2005; Walls et al., 2007).

Importantly, the extent to which girls and boys are more or less vulnerable to different strains is dependent on the type of outcome under consideration. Aneshensel et al. (1991) outlined the bias problem with single-outcome studies in mental health: the effect of strain on women is over-estimated when depression is the outcome, and underestimated when substance use or violence is the outcome. The same argument can be made for criminology research – the effect of criminogenic factors on women is underestimated when crime is the single outcome. Multiple outcome studies, while preferable, are most often designed by juxtaposing depression with substance use and/or delinquency/crime, and these gendered responses to strain are often investigated as “functionally equivalent” (Aneshensel et al., 1991; DeCoster & Heimer, 2001; DeCoster, 2005; Hoffman & Su, 1997; Horwitz & White, 1987; Van Gundy, 2002). Often, researchers reach the conclusion that women and men are equally vulnerable to strain but express it in different ways according to their gender.

My findings show that the gender split between relational strain/internalizing outcomes and instrumental strain/externalizing outcomes is not a clear distinction. First,

⁶ In mental health research, substance use is typically conceptualized as an externalizing behavior; in criminological research it is typically viewed as an internalizing behavior.

boys do report more of the strains that could be categorized as “agentic” or instrumental, such as criminal victimization and school achievement strain. Girls, on the other hand, report more of both types of strain: agentic (sexual victimization and fear of crime) and communal/relational (loss of close others).⁷ This is the first way in which my findings do not support the simple classification of strains by instrumental/male and relational/female, but confirm earlier work by Leadbetter et al., (1995) who found that internalized and externalized outcomes are not mutually exclusive, and girls are reactive to both interpersonal stress and stress that threatens their agency or competence. Second, the adolescents in the current study respond to strain with an array of negative emotions – both sexes experienced significant increases in anger and depression in association with most of the strains. In no case were boys more likely than girls to be angry, and girls experienced significantly more depression than boys in response to one out of five types of strain. Third, girls and boys are not necessarily more vulnerable to the strains to which they are more exposed. Rather, it depends on the outcome under consideration.

For two types of strain, exposure to violence and loss of close others, girls and boys are both vulnerable but tend to respond in different ways. First, exposure to violence is experienced more often by boys, and strongly related to several outcomes for both boys and girls. When aggressive delinquency is considered as the outcome, boys are more sensitive to this strain. Conversely, girls are more likely than boys to engage in escapist behavior (e.g. running away) when exposed to violence. This is an example of gendered responses to the same strain. Thus, it is not that boys are more vulnerable to exposure to violence than girls; they are both vulnerable, but may experience it

⁷ Sexual victimization could also be categorized as a communal strain, in that it is mostly perpetrated by family members or persons known to the victim. However, personal victimization of any type is a violation of autonomy over one’s self, so I characterize sexual victimization as primarily an agentic strain.

differently, appraise it differently, and have different sorts of social constraints on the available coping strategies.

A second example of gendered response to strain is the case of loss of close others. This is a strain that can be classified as a relational, communal, interpersonal, or vicarious strain and is more often reported by girls. But again, the sensitivity to the strain depends on the outcome. Girls are more susceptible than boys to loss when depression is the outcome. At the same time, loss is more salient for boys than girls when serious delinquency is the outcome – girls report more exposure, but boys are more susceptible. My findings point to three possible reasons for this: (1) depression interacts with girls' strain to increase running away behavior, (2) depression interacts with girls' anger to increase running away behavior and decrease aggressive delinquency, making it less likely they would engage in aggressive delinquency, and (3) self-efficacy interacts with girls' strain to decrease aggressive delinquency. It is also possible that boys have fewer external coping resources like social support with which to cope with a traumatic loss, and/or they may see such strains as more unjust than do girls. Future research could explore if and why this is the case.

School strain breaks this pattern of gendered response. This type of strain can be classified as an instrumental, achievement-oriented strain that threatens competence – a stereotypical “male” concern. Boys report more exposure to school strain, but it affects girls' delinquency more, especially minor theft. Boys are not more vulnerable to this strain for any of the outcomes, which means that girls are more susceptible to a type of achievement/agentive strain in this study. So while there is some evidence for the gendered response idea, the lines are blurred. Differential exposure did not translate into differential vulnerability – that is, contrary to Broidy and Agnew (1997) and De Coster (2005), girls and boys are not more sensitive to the strains to which they are more

exposed. The only exception to this was in the case of loss of close others; girls were more vulnerable to this strain (to which they are more exposed) when depression was the outcome.

Even though these examples are counter to the notion that instrumental/agentive strain and relational/communal strain should lead to corresponding outward and inward types of outcomes by gender, it is important to note that the strains to which girls are more vulnerable do not result in serious delinquency, as they do for boys. Rather, they result in running away, minor theft, and suicidal behavior – outcomes that are arguably gender-appropriate (Broidy & Agnew, 1997; Heimer & DeCoster, 1999). Consequently, it would seem that it is not gendered responses to gendered strains, but something else in the stress process that makes it much less likely for girls to engage in aggressive delinquency or for boys to use escapist strategies. This leads to the second general contribution.

THE ROLE OF NEGATIVE EMOTIONS AND INTERNAL COPING RESOURCES IN EXPLAINING GIRLS' PROBLEM BEHAVIORS

This study contributes a partial explanation for gendered responses to strain by modeling the conditioning role of depression. The GST framework is distinctive in that it allows for the exploration of the mediating and moderating effects of depression on a wide range of behaviors. In this way I depart from previous studies that position depression as a dependent variable in an effort to explain why girls tend toward depression and boys toward delinquency. To my knowledge, this is the most comprehensive test of GST to examine the conditioning effects of depression (see Sharp et al., 2001 for a preliminary investigation).

Overall, symptoms of depression are more likely in girls, depression amplifies the effect of several strains on self-destructive outcomes like running away and suicidal

behavior, and it plays a key role in derailing girls' violent offending; it reduces the likelihood of aggressive delinquency in girls, and decreases the effect of anger on aggressive outcomes. This is somewhat consistent with Agnew's (2006:35) prediction for the role of depression: "Depression is probably less likely than anger to result in aggression, which requires some sense of potency and activity. Depression, however, may be more likely to result in 'passive' crimes like illegal drug use." While he does not provide a definition of "passive," I view running away in particular as an active behavior indicative of resistance to harsh conditions. I think a more useful distinction is between other-focused, aggressive and self-focused, non-aggressive problem behaviors, rather than reverting to the "active/passive" dichotomy so often artificially associated with masculinity and femininity.

Depression is a key variable that should be included in future tests of GST when possible. A weakness of GST has been the the emphasis on anger and its connection to violence without recognition of its correlation with depression—rather, these two emotions are often conceptualized as mutually exclusive, especially for boys. For instance, the theory states that blaming others for bad things that happen is uniquely related to anger without noting the body of evidence on the effect of external attributions on increased depression (Mirowsky & Ross 1990, 2003). My findings indicate that both anger and depression increase the problem behaviors under study, with the important exception of depression decreasing the likelihood of girls' violent delinquency, and that depression amplifies the effect of strain on several non-aggressive problem behaviors. This is consistent with previous research that found that anger and depression can be co-occurring and correlated yet characterize distinct processes (Compas et al., 1995).

The role of sense of control, well-established as protective against psychological distress (Mirowsky & Ross, 2003), is nonetheless ambiguous in studies of the causes of

crime and deviance. My research contributes to the overall understanding of the role of self-efficacy or sense of control in the GST/gender framework. I found evidence for a general protective effect on a range of strains and a broader array of outcomes than is typical in criminological research. For example, while Agnew and White (1992) did not find self-efficacy to condition the effect of strain on drug use, I found that it did decrease the likelihood of substance use for boys by reducing the impact of loss of close others. Self-efficacy acts to inhibit problematic coping behaviors in most cases. Importantly, it does not increase confidence and capacity to commit delinquent acts among boys, as suggested by Broidy and Agnew (1997), except in the case of high self-efficacy increasing the effect of fear of crime on the likelihood of minor theft.

It is important to note that girls have significantly more self-efficacy than boys in this study, contrary to the evidence that Broidy and Agnew (1997) used to develop their hypotheses. There could be several reasons for this. First, it may be that the ages of the study participants were younger on average (average age was 14), when girls tend to have healthier self-concepts and the general decrease in girls' self-esteem and mastery in adolescence (Bergman & Scott, 2001; Schunk & Pajares, 2002; Wigfield et al., 1991) is not detectable. Second, the measure of self-efficacy was domain-specific and included several school-related efficacy items. Girls typically perform better than boys in school, which may account for their higher self-efficacy scores, though psychological studies show they have lower academic self-efficacy than boys (Schunk & Pajares, 2002). Future research should continue to explore self-efficacy and sense of control with domain-specific measures to ascertain whether and how the domain has any bearing, and also if older age groups produce different results.

Third, girls' higher self-efficacy could be due to the racially diverse sample in which white girls were the smallest proportion of the sample. Some research shows that

African American girls have higher self-salience, or the tendency to promote the self relative to the collective, and self-worth than do white girls (Rosenfield et al., 2006). Qualitative research with African American girls has prompted the notion that their capacity to resist the expectations of emphasized femininity in the dominant culture results in higher self-esteem and self-regard (Abrams, 2002; Taylor, Gilligan & Sullivan, 1995), and less psychological distress. Thus, girls who are able to successfully distance themselves from idealized notions of femininity may protect themselves from depression and self-destructive behaviors. For the Chicago girls in this study, a high sense of control is a significant source of resilience against strain, especially traumatic experiences like witnessing or being a victim of serious violence, or being close to others who have been killed, raped, or committed suicide.

GENDER AND CRIMINOLOGICAL THEORY

The third major contribution of this project is to a central question raised by feminist criminologists about general theories of crime: the ability of GST to explain the causes of girls' delinquency and other problematic coping behaviors and any gender differences in involvement with these types of behaviors. It should be noted that this research is not focused exclusively on explaining the gender gap in delinquency, nor how much of the gender gap is accounted for by the theoretical models tested herein. Rather, by analyzing relationships among the key concepts in GST separately by sex, the emphasis is on illuminating the similarities and differences in the GST/stress process that are thought to influence differential responses to strain. These findings, in turn, offer possible reasons why girls are less likely to engage in aggressive delinquency than boys. Guided by the hypotheses laid out by Broidy and Agnew (1997), I specifically examine how the effects of different strains vary by sex and type of outcome, and what intervening or conditioning factors might differentially influence the process for girls and boys.

The current study provides evidence in support of Broidy and Agnew's (1997) overall position that GST can take into account girls' experiences and explain their problem behaviors, if attention is paid to the types of strain, negative emotions, and outcomes included in the theoretical model herein. I argue in this dissertation that there is no evidence necessitating the development of a separate theory to explain girls' behavior. However, like Steffensmeier and Allan (1996) and Steffensmeier and Broidy (2001) assert, the organization of gender shapes the way the general causal forces in GST manifest in different types of strain and available responses to those strains, leading to distinct outcomes. GST needs continued elaboration because the relationships between different types of strain, negative emotions, and outcomes vary by sex and not always in the expected way. The most significant theoretical contribution for girls in this study is the role of depression and the importance of including non-aggressive problem behaviors. For example, the examination of running away as a separate outcome variable revealed that girls experience strain differently and are differentially affected by depression. It is important to point out, too, that depression also affects boys: higher depression differentially increased the effect of loss on boys' substance use.

Mirowsky and Ross (2003) argue that there is little evidence of functional equivalence at the emotional response level (i.e., girls get depressed and boys get angry), nor at the disorder level (i.e., girls get depressed and boys commit delinquent acts or abuse substances). As Ross (2000) and Hagan (1997) found, men do not violate the law instead of getting depressed—rather, this behavior leads to even more depression. The current project examined whether there is a gendered response at the level of deviant behavior, with depression as a possible mediator or moderator, and demonstrated that some gendered responses do occur. Rather than equating depression with law-breaking and/or substance use, my research offers a different way of casting the problem by

approximating a continuum of behavioral outcomes ranging from non-aggressive, self-directed to aggressive, other-directed. In this way, we avoid the potentially misleading dichotomy that assumes girls get depressed and boys break the law. Boys get depressed in response to strain, too, and girls respond with a variety of problematic behaviors, not just psychological distress.

Of course, the categories on the continuum are not mutually exclusive. Some forms of non-aggressive problematic coping accompany aggressive coping (e.g., substance use and high risk sexual behavior are correlated with aggressive delinquency) rather than displace them. That is, boys likely do not engage in aggressive delinquency instead of drinking alcohol or shoplifting.

Based on the present findings, then, I argue for a reconceptualization of the dependent variable in gender and deviance research as a range of behaviors (i.e., not emotional states) organized on a continuum from non-confrontational, non-aggressive, and resistant to confrontational and aggressive. More research is needed to continue to refine these categories and determine if GST can explain more kinds of non-aggressive problem behaviors such as eating disorders and prescription drug abuse that tend to be more common among girls and women. This conceptualization is consistent with Tittle's (1995) assertion that it is men, not women, who are more conformist. He explains that the greater amount of control to which girls and women are subjected relative to the amount of control they can exert in a male-dominant society results in girls and women who engage in "repressive" deviance, many forms of which go largely undetected in criminological research (Hickman & Piquero, 2001; Tittle, 1995). Single outcome studies in criminology thus overestimate the extent to which boys/men are involved in deviant behavior compared to girls/women.

Do The Stereotypes Fit?

So, while most of these behaviors are correlated with one another such that they tend to co-occur and reinforce each other, and some responses (such as substance use) are not as consistently gendered, there are gendered tendencies toward and away from aggressive delinquency, running away, and minor theft. The next analytical task concerns how to explain the GST processes that are gendered, without essentializing those differences.

One perspective, drawn from gender theory, is that gender shapes the external and internal constraints on behavior (i.e., according to what is gender-appropriate), which results in the general channeling into more aggressive behaviors versus non-aggressive behaviors. According to Bem's (1993:126) gender schema theory, "children evaluate different ways of behaving in terms of the cultural definitions of gender appropriateness and reject any way of behaving that does not match their sex," and these internalized gender definitions grow stronger as children grow into adolescence when problem behaviors are at their peak (Horwitz & White, 1987; Rosenfield et al., 2006). In addition, the extent to which girls subscribe to traditional notions of gender appropriateness is associated with less involvement in delinquency (Heimer, 1996; Heimer & DeCoster, 1999) and higher levels of depression (Barrett & White, 2002; Horwitz & White, 1987), which in turn influences the greater likelihood of inner-directed problem behaviors.

Criminological research that seeks to explain and include girls' and women's behavior should attend more to the complexities of gender and question the neat categories of masculine and feminine types of strain and outcomes proposed by some. In particular, the present study calls into question the relational versus individual distinction for categorizing strain derived from psychoanalytic and developmental theory rooted in the work of Freud, Erikson, and Kohlberg, and elaborated by Chodorow (1978) and

Gilligan (1982). Gilligan's (1982) "ethic of care" in particular drives much of the research in the area of girls' adolescent development (Abrams, 2002). The function of girl/woman-centered theories emergent in the 1980s was to challenge the androcentric view of the dominant developmental theories, and to emphasize and value how girls followed unique developmental trajectories (Bem, 1993). However helpful this was to expose the bias in previous theories, the girl/woman-centered theories tended to over-emphasize and polarize gender differences, which then come to be seen over time as essential differences instead of social constructions (Bem, 1993; Naffine, 1985).

Moreover, gender biases can determine how we categorize strains, for instance. In one study, "conflict in peer networks" is described as a "male strain" stemming from competition (Jang, 2007), while another study classifies this same strain as a "communal" (i.e., female) strain stemming from the importance of relationships (De Coster, 2005). In another example with these same authors, physical health is deemed a "female strain" by Jang (2007) and a "self-event" (i.e., male) by De Coster (2005). Categorizing fear of crime as "male" or "female" also is problematic, because it often has to do with limiting freedom of movement and autonomy—something that affects girls and women disproportionately (Broidy & Agnew, 1997; Gordon & Riger, 1989; Warr, 1985) but males are thought to be more concerned with personal autonomy (Van Gundy, 2002).

Part of the difficulty in trying to fit strains into gender categories is that notions of stereotypically "male" and "female" concerns may be changing (De Coster, 2005). This is evident in the traditional tendency to categorize financial strain as experienced more and felt more by men, when the feminization of poverty in recent decades has challenged the relevance of this idea. Further, the fact that women tend to outnumber men in post-secondary education and do so in many graduate and professional schools calls into

question the idea that boys are more concerned with personal achievement and competition and thus more vulnerable to failures in this arena.

While it is true that girls are more depressed and boys more often commit serious delinquency, the usefulness of comparing stereotypical notions of female passivity (depression) and male action (delinquency) in criminological research is limited and serves to reinforce the internalizing/externalizing dichotomy that portrays girls as passively accepting their fates. In contrast, the expanded model of stress and coping/deviance tested here shows girls actively resisting (e.g., running away) or coping with strain with aggressive delinquency and substance use, particularly when they have been exposed to serious violence in their lives. Gender polarization can result in the perpetuation of narratives about girls passively self-destructing due to disruptions in their interpersonal networks, and boys aggressively lashing out against threats to their instrumentality, even if the evidence does not quite fit these scenarios.

These narratives tend to depict adolescent girls as “victims of girlhood” (Currie, Kelly & Pomerantz, 2006), bouyed by popular culture portrayals of girls in crisis. For example, the 2003 movie “Thirteen,” about an early adolescent girl who gets involved with drugs, cutting (self-harm), sexual activity, and minor offending, and the books “Reviving Ophelia” (Pipher, 1994) and “Odd Girl Out” (Simmons, 2002). In academia, research on eating disorders, body image, self-destructive behaviors, and relational aggression all increased in the last ten years (Currie et al., 2006). In criminology, researchers have been interested in explaining girls’ offending and the gender gap in offending since the 1970s. The surge of interest in girls’ lives and the unique factors that shape their development is positive and long overdue. Nevertheless, criminologists should be mindful of the tendency to focus solely on risk factors without attention to the ways in which many girls resist and overcome the various gender-based strains in their

lives (Abrams, 2002). The majority of girls successfully navigate the transition to adulthood (Currie et al., 2006), and as Agnew (1992, 2006) points out, most adolescents do not turn to law-breaking to cope with strain. Of the general theories of deviance (e.g., self-control, social learning, and social disorganization), GST offers the most opportunity to explore additional forms of psychosocial resistance and resilience practiced by girls. Furthermore, care should be taken not to over-emphasize gender differences.

The danger of emphasizing gender differences, especially as manifestations of femininity and masculinity, is that of gender polarization and the reinforcement of restrictive gender dichotomies (Bem, 1993). Gender polarization is the “ubiquitous organization of social life around the distinction between male and female” (Bem, 1993:80). In this way, perceived male-female differences become connected to “virtually every other aspect of human experience” in Western culture (2). Through this lense “the cultural transformation of male and female into masculine and feminine” reinforces power differences among men and women (152). Leadbetter and colleagues (1995:20), writing from a psychological point of view, echo this concern:

The unfortunate trend of reinforcing stereotypical visions of women as self-disclosing, empathic, relational, and caring and of men as guarded, assertive, independent, separate, and rational (Chodorow, 1989; Gilligan, Ward, and Taylor, 1989) serves to normalize rather than challenge, gender differences that may create vulnerabilities to psychopathology.

Rather than become mired in the process of identifying differences for differences’ sake, Bem (1993) recommends accepting that there are some gender differences in order to move forward with the more important question of whether and how these differences get translated into female disadvantage. To this I would add, how gender differences get translated into disadvantage and opportunity. For example, girls and boys are both victimized as children, but girls are disadvantaged in that they are more likely than boys to be victims of sexual assault, and their responses are shaped by

gender—that is, greater levels of anxiety, fear, depression, anger, and hostility, which are in turn related to increased running away, school problems, truancy, and early marriage (Chesney-Lind & Pasko, 2004). Running away has been singled out as a survival strategy for girls that then leads to more disadvantage in terms of trouble with the law (Chesney-Lind, 1989; Chesney-Lind & Pasko, 2004). On the other hand, there are some gender differences that translate into opportunities for greater health and well-being, such as girls' sense of control that mitigates the impact of traumatic strain on serious delinquency.

THE IMPORTANCE OF VICARIOUS AND ANTICIPATED STRAINS

Recently Agnew (2001, 2002) elaborated on the types of strains that should be more likely to lead to delinquent or deviant coping strategies. Chief among these is physical victimization, which he points out has been largely neglected as a cause (rather than consequence) of delinquent behavior by criminologists. Moreover, physical victimization is usually measured by asking about the individual's personal experiences with victimization. But strain can also be vicarious, (i.e., victimization and violence befalling others to whom an individual is close), or anticipated (i.e., the expectation that current strains will continue or new ones will occur) (Agnew, 2002). Exploring the potential connection of vicarious and anticipated strain to problem outcomes is a new area of research for GST, and “has the potential to dramatically expand the scope of strain theory” (Agnew, 2002:604). Agnew (2002) found preliminary evidence of the positive effect of vicarious strain and high levels of anticipated strain on aggressive delinquency among adolescent boys. These types of strain have not been examined by sex – indeed, Agnew's (2002) initial exploration into this area used an all-male sample – nor with the intervening mechanisms of anger and depression, nor with a greater range of delinquency such as running away and substance use.

My research contributes several findings that help to grow knowledge in this area. First, one of the strains examined here, loss of close others, mostly fits with Agnew's definition of a vicarious strain that should be criminogenic. Vicarious strains that are the result of unjust treatment are more likely to have an effect on delinquency than strains such as accidental death or injury or death from an illness (Agnew, 2001, 2002). Since my measure includes a mixture of items that could be perceived as unjust (e.g. someone they feel close to has been killed or raped) and accidental (e.g. died suddenly or been seriously injured), I expected it to have a weaker effect on delinquency. Instead, loss of close others was second only to exposure to violence in terms of the strength of its relationship to the dependent variables. Furthermore, contrary to what Agnew (2002) expected, girls are not more strongly impacted by vicarious strain – as reported previously in this dissertation, it depends on the outcome. Boys are more likely than girls to respond to loss of close others with aggressive delinquency, and the reverse is true of depression. When other types of outcomes were tested, I found that vicarious strain increased substance use and suicidal behavior indirectly through its effect on anger and depression. Vicarious strain is unrelated to running away and property crime.

Second, Agnew (2002) expects that anticipated strain could either lead to avoidance or escape from those situations in which the strain (in this case, victimization) is expected to occur, or it could prompt pre-emptive action or revenge against the source of the expected victimization. Clearly, more research is needed in this area to tease out the conditions under which these responses are more or less likely. Agnew tested two separate measures of anticipated strain; one asked the individual about the likelihood of different types of victimization occurring by age 25, and the other asked directly about how often the individual was afraid of violence in his or her school or neighborhood. The former type of anticipated strain (perceived likelihood) increased aggressive

delinquency at high levels of anticipation only, while the latter type of strain (fear) reduced aggressive delinquency. The fear of victimization measure used in my study asks how afraid one is that they might be hurt by violence in various settings, which I argue is closer to a measure of fear than perceived likelihood.

Like Agnew (2002), I found that higher fear of victimization reduced aggressive delinquency for boys. But because my sample included girls as well as a greater range of behaviors, I was able to build on two of Agnew's (2002) suggestions for future research. Agnew thought that though fear decreased aggressive delinquency in his study, it might increase other types of delinquency like drug use and running away. There is no evidence to support this notion. Rather, fear of victimization decreases substance use for both boys and girls, as well as high risk sexual behavior, and has no relationship to running away. Fear of violent victimization seems to decrease involvement in a wide variety of health risk behaviors, not just aggressive delinquency. Interestingly, though, fear did increase minor theft and high risk sexual behavior among boys with high self-efficacy. A higher sense of control may somehow disinhibit or empower boys to do something about their fear, but it is unclear why it is related to minor property crime and higher risk sexual behavior.

Finally, Agnew (2002) speculated that girls might be more affected than boys by anticipated strain due to their higher levels of self-control and concern for the future. The implication is that girls would be more likely to avoid or escape from situations that might jeopardize their futures, thereby decreasing their involvement in delinquency. There is no evidence in this study that girls are differentially affected by anticipated victimization, though they are more exposed to this type of strain than boys. More research is needed to ascertain why fear of victimization has a consistent negative effect on boys' aggressive delinquency, and on risky behaviors in general.

THE GENERALITY OF GST

The fifth and final contribution is to the field's understanding of the scope of GST. I have already addressed concerns about the gender-inclusiveness of the theory and highlighted my contributions to the new area of vicarious and anticipated strains. The range of behaviors that can be predicted by GST processes is another important way to evaluate the scope of the theory. GST is intended to include a wide range of deviant coping outcomes, both illegal and legal (Agnew, 1992). Aseltine et al., (2000), using a longitudinal structural equation modeling approach to compare aggressive delinquency, non-aggressive delinquency, and marijuana use outcomes simultaneously, concluded that the explanatory power of GST may be limited to serious delinquency because this was the only outcome for which anger mediated strain. As a result, Aseltine and his associates encouraged criminologists to consider that less general theories may be more realistic (and in line with current stress and coping research) than the sweeping theories that currently dominate the field of criminology.

In this spirit, I analyzed the potential of GST to explain a range of aggressive and non-aggressive negative behaviors not typically examined in a single study – particularly by including high risk sexual behavior and suicidal behavior as two non-delinquent risky behaviors. To my knowledge, high risk sex has not been tested as an outcome variable in GST research, and suicidal behavior has appeared twice (Terling-Watt & Sharp, 2001; Walls, et al. 2007). Only one of those studies included measures of anger and depression. I evaluated the capacity of GST to explain these behaviors based on the following criteria: (1) strain is positively related to the outcome, (2) anger, depression, or both are positively related to the outcome, and (3) anger, depression, or both attenuate the relationship between strain and the outcome. Overall, I found almost no support for GST in predicting high risk sexual behavior, and promising results for suicidal behavior.

First, the GST process does not seem to work for high risk sexual behavior primarily because the intervening variables are unrelated to the outcome. On the one hand, this behavior is strongly correlated with other types of delinquent behavior as expected, and exposure to violence increases the likelihood of high risk sex for both boys and girls (though much more so for boys). Yet, this is a health risk behavior that is substantially explained by the strains and background factors alone ($R^2 = .42$), and has no association with anger nor depression. Accordingly, GST may not be able to explain a wider variety of risky behaviors.

Second, Agnew (1992, 2006) specifies that inner-directed emotions such as depression should play a larger role in predicting corresponding inner-directed behaviors like substance use, disordered eating, and suicide attempts. Consequently, depression should have at least as strong an association with these types of outcomes as anger if not stronger, and at least partially account for the effect of strain. The present study found that loss of close others and sexual victimization were weakly but significantly related to suicidal behavior, and the effect of loss in particular was mediated by both depression and anger. Furthermore, two conditioning effects had implications for girls' suicidal behavior. First, the deleterious effects of exposure to violence, sexual victimization, and loss of close others on girls' suicidal behavior were significantly worsened by the conditioning effect of depression. Second, the effect of anger on girls' suicidal behavior was significantly reduced the higher their sense of control/self-efficacy.

The mediation findings are consistent with Walls et al., (2007), who found that anger and depression mediated the effect of perceived discrimination on suicidal behavior in their Native American sample. It is perhaps unsurprising that depression interacts with strain to increase the likelihood of girls' suicidal ideation and attempts, as depression and suicide are strongly linked (though in this study, they are mildly correlated in the full

sample at .22). The protection of having a strong sense of control is consistent with the sociology-of-mental-health literature, which, while not using measures of suicidal behavior, shows that people who believe they are responsible for both good and bad outcomes are less likely to experience psychological distress (Mirowsky & Ross, 1990, 2003). Overall, the ability of GST to explain suicidal behavior and its inability to explain high risk sexual behavior indicates that the scope is limited to certain types of health risk behaviors. Future research should continue to explore these limitations, and why, for instance, GST might be better able to explain disordered eating or suicide attempts than risky sexual behavior.

STRENGTHS

The strengths of this study are both conceptual and methodological. First, it includes three measures of strain that past research suggests are more likely to be experienced by girls (i.e., sexual victimization, loss of close others, and fear of victimization), and measures of both experienced and vicarious physical victimization – two types of strain receiving current attention in the GST literature (Agnew, 2002; Hay & Evans, 2006). The second strength is the inclusion of two measures of negative emotion – anger and depression – which allow for the mediation tests central to the theory and the opportunity to explore the conditioning effect of depression. Third, this study contains a wide range of outcomes including behaviors more likely to be associated with girls, in keeping with the multiple outcome approach recommended by Aneshensel et al., (1991) and Agnew (2006). Fourth, the inclusion of a valid and reliable measure of self-efficacy provides more insight into the ambiguity surrounding this conditioning factor in GST research. While sense of control is a key factor in predicting health and well-being, its relationship to crime and deviance has been less clear. Sorting out the role of self-efficacy/sense of control as an internal coping resource was a key goal of this research.

The fifth strength is methodological. The longitudinal cohort sample of the PHDCN is large, racially and socio-economically diverse, and community-based. This is an improvement over past GST studies, many of which have relied on school-based, college, offender or high-risk, single-sex, or single-race (e.g., predominantly white or African American) populations. The results improve our understanding of the scope conditions of general strain theory, our understanding of some of the factors that undermine and promote the well-being of adolescents, and in what ways those factors may operate differently for girls compared to boys.

Nonetheless, some limitations of the data should be noted. First, this study is limited in its ability to establish causation among the strain, negative emotions, and outcome variables. However, for GST, the effects among the variables are conceived as contemporaneous, making causal interpretations of cross-sectional data somewhat acceptable (Agnew & White, 1992; Brezina, 1996; Piquero & Sealock, 2004; Jang, 2007) and temporally lagged data problematic (Broidy, 2001). One strength in this regard is the inclusion of a control variable for prior delinquency reported in Wave 1, minimizing the chances of reciprocal causation. Second, many of the types of strain that Broidy and Agnew (1997) described as likely to be experienced by girls and especially conducive to crime and delinquency are not available in the PHDCN dataset. These include negative body image, excessive demands from others, and various forms of gender inequality. Third, there is no available measure of the individual's perception of different strains as just or fair. This precludes the use of subjective measures of strain, thought to be useful for a test of GST (Agnew, 1992). Fourth, the PHDCN does not measure disordered eating, an inner-directed, non-confrontational maladaptive coping strategy tested in previous research on gender and GST.

SUGGESTIONS FOR FUTURE RESEARCH

This study generated several avenues for continued research, some of which have already been mentioned above. First, more investigation is needed into how fear of victimization or anticipated strain works in the GST framework. For instance, the reduction in delinquency found here could be due to a decreased sense of autonomy stemming from fear of victimization, or increased social control like caregiver restrictions on activities (perhaps rooted in their own fear) that could lead to delinquency. Fear could create frustration and anger in the individual ostensibly leading to criminal coping, but perhaps it also alters routine activities so that negative outcomes are decreased. Also, that high self-efficacy conditions the effect of fear on boys' minor theft and high risk sexual behavior, essentially reversing the direction of the effect, is an interesting finding to pursue. Other studies on the effect of autonomy (Van Gundy, 2002), sense of control (Ross & Mirowsky, 1987), and mastery (Paternoster & Mazerolle, 1994) on law-violation have found this type of "criminal self-efficacy." General research on experienced, vicarious and anticipated strains is an area in need of further attention, including measures that distinguish these three characteristics (see Eitle & Turner, 2002) and potential factors that could condition their effects.

Second, future research should try to consider other gendered deviance outcomes such as disordered eating, self-mutilation/cutting, and prescription drug abuse. This is difficult given the paucity of existing datasets with the features needed to test GST. Even with a comprehensive dataset like the PHDCN, it is challenging to find adequate measures of these kinds of behaviors. For example, my original intent was to include a measure of disordered eating, but the available measure was inadequate. Nonetheless, GST research should include self-directed behavioral outcome variables to the extent possible.

Third, researchers have not adequately explored other strains thought to pertain to girls' experience. For instance, barriers to engaging in valued behaviors pertaining to appearance, conversation, physical and emotional expression, sexual behavior, and the "background strain associated with the knowledge that the status of female is devalued in our society" (Broidy & Agnew, 1997). This study included a measure of sexual victimization, a strain known to be especially germane to girls' outcomes, but I encountered challenges examining this strain along side other forms of physical victimization – when the more general strain of exposure to violence was controlled, the effects of sexual victimization disappeared. Contributing to this issue is the universal challenge of reliably measuring sexual assault. Low rates of self-reported sexual assault in a community sample like the PHDCN make it difficult to detect effects of this strain, especially as distinct from exposure to violence. The low rates may in part be due to the younger adolescent age group in this sample. Perhaps stronger effects would be found with older female adolescents and young adults, as the proportion of adolescent girls ever victimized increases with age (Ackard & Neumark-Sztainer, 2002; Raghavan, Bogart, Elliott, Vestal & Schuster, 2004). This is a limitation common to almost all studies of sexual assault.

The fourth recommendation reinforces Agnew's (2006) suggestion to include other forms of negative emotion in tests of GST besides anger. Specifically, the evidence from this study and past studies that have included depression, anxiety, and guilt as mediating variables together point to the importance of including these types of negative emotions. Indeed, past research has shown that the association between certain strains like racial discrimination and delinquency may be mediated by a broader set of emotions than Agnew originally envisioned (Jang & Johnson, 2003; Simons, Chen, Stewart & Brody, 2003), and as noted above, depression and anger tend to be correlated and

produce similar conditions such as irritability and explosiveness (Simons et al., 2003) that Agnew (1992, 2001, 2006) only attributes to anger. Moreover, as my research shows, depression may be more significant as a moderator than a mediator, and this should be investigated in the future.

Another avenue for research prompted by this project is the role of conditioning/protective factors, especially for boys. It is noteworthy that self-efficacy did not moderate the effect of exposure to violence on boys' aggressive delinquency. There is a need to identify other potential psychosocial protective factors for boys, such as network or social support factors, although Robbers (2004) found that social support had no conditioning effect for boys in the GST framework. Others have begun to include more measures of coping resources, such as religious beliefs (Jang 2007; Piquero & Sealock, 2004), to determine the protective factors that may differentially impact girls and boys, but the evidence is mixed. Overall, the area most in need of continued research is the set of conditioning factors that influence the likelihood of different kinds of problematic coping (Agnew, 2006). Such factors include low self-control, social support, attachment to social institutions, association with delinquent peers, and neighborhood disadvantage (Agnew, 1992, 2002; Agnew et al., 2002; Elliott, Wilson, Huizinga, Sampson, Elliott & Rankin, 1996; Hay, Fortson, Hollist, Altheimer & Schaible, 2006; Mazerolle & Maahs, 2000).

Related to research on conditioning factors is the concept of resilience, or the ability to successfully cope with adversity. GST provides a framework in which researchers can begin to identify the individual, family, and community factors that lead to or away from problem behaviors that are predicted by strain and negative emotions. In the interest of prevention and intervention, it is particularly helpful to pay attention to the factors that build resilience. For instance, the results of this study revealed that while

depression puts girls more at risk for certain detrimental outcomes as a result of strain, a high sense of control can work against both strain and depression. Sense of control even has some impact on reducing the likelihood of aggressive forms of delinquency in girls. But resilience is not necessarily an individual characteristic – one avenue for future GST research would be to identify the community and neighborhood-level influences that protect against problem outcomes for both girls and boys.

Next, future GST research should continue to examine similarities and differences among social groups regarding exposure and vulnerability to strain, types of emotional reactions, and differential outcomes. Regarding gender and sex, a methodological question is how to improve upon the “crude markers of gender” (Lorber, 1994:17) in quantitative research. Most quantitative criminological research uses the “male” and “female” categories of biological sex to infer gender differences. Heimer’s (1996) work on gender definitions as distinct from sex category is instructive, but not usually possible with most available datasets. There is also much work to be done on race and ethnicity within GST, as the survey samples used by researchers tend to be skewed toward white adolescents. The PHDCN offers a unique opportunity to conduct more focused research in this area, particularly with Latino/a adolescents.

In closing, we are beginning to accumulate much evidence about how girls and boys differ in the stress/GST process, but the larger question is, Why does this matter? Future research should continue to pay attention to gender differences in the causes of problem behaviors, but with an attendant theoretical eye on how differences might translate into disadvantage (Bem, 1993) and opportunity in terms of approaches and interventions aimed at preventing risk behaviors and promoting adolescent well-being. This is especially relevant to the juvenile justice system which has traditionally assumed sameness (i.e., a system designed for boys should fit just as well for girls), and is now

experimenting with programming designed specifically for girls (Acoca, 1999; Bloom, Owen, Deschenes & Rosenbaum, 2002; Goodkind, 2005; Zahn, 2007).

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