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SEXUAL VIOLENCE VICTIMIZATION AND PRESCRIPTION DRUG MISUSE:
AN ANALYSIS USING GENERAL STRAIN THEORY

by

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B.A. University of Central Florida 2016

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ABSTRACT

Sexual violence among college women is a widespread and severe public health issue in the United States. When compared to women in the general public, collegiate women are at an increased risk of sexual violence. Sexual violence can result in damaging and long-term consequences for the victim. Consequences of sexual violence include physical injuries, psychological distress, social withdrawal, poor grades and participation in health risk behaviors. While a connection between sexual violence victimization and negative outcomes is well established, most of the research in this area is atheoretical. To address this gap in the literature this study relied on Robert Agnew's General Strain theory (GST), one of the most empirically validated theories of crime and deviance. The current research examines the relationship between strain (sexual violence victimization), negative affect (anger and depression), and deviant coping (prescription drug misuse). **Methodology**: The data for the current research are from the National College Health Assessment (NCHA), a national study of the health related behaviors of college students, which was organized by the American College Health Association (ACHA). Schools selected for inclusion in the study either surveyed their entire student population or randomly selected students for participation. The current research used data from multiple data collection periods (Fall 2008 to Spring 2011) and includes 379,584 respondents. **Findings:** Findings are supportive of General Strain Theory. College women who have been sexually violated are more likely to report both negative affect and prescription drug misuse. In addition, the relationship between sexual violence victimization and prescription drug misuse is partially mediated by negative affect with depression being the stronger mediator.

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CHAPTER ONE: INTRODUCTION

Sexual violence among college women is a widespread and serious public health issue in the United States (Koss, Gidycz, Wisniewski, 1987; Fisher, Cullen, Turner, 2000; Abbey, 2002; Krebs, Linguist, Warner, Fisher, & Martin, 2009; Black et al., 2011). It has come to the attention of many researchers that college campuses are crisis zones for criminal activity. Since college campuses foster large concentrations of young men and women in both private and public settings, students are not exempt from the risk of criminal victimization (Koss, Gidycz, Wisniewski, 1987; Fisher et al., 1998; Fisher, Cullen, Turner, 2000).

The high risk of sexual violence among college women merits special attention by researchers. Sexual violence can result in damaging and long-term consequences for the victim. Consequences of sexual violence include physical injuries, psychological distress, social withdrawal, poor grades and participation in health risk behaviors (Goodman, Koss, Russo, 1993; Brener et al., 1999; Lang et al., 2003; Campbell, Dworkin, Cabral, 2009). While a connection between sexual violence victimization and negative outcomes is well established, most of the research in this area is atheoretical.

To address this gap in the literature the current research relies on Robert Agnew's General Strain Theory (GST), one of the most empirically validated theories of crime and deviance (Agnew 2006; Akers & Sellers, 2004). GST examines the relationship between strain, negative affect, and crime and deviance (Agnew, 1992; 2007). Agnew argued that when people are confronted with strain they are likely to develop negative affect states, and that crime and deviance are an option to avoid/escape from the strain or deal with the resulting negative affect (Agnew, 1992; 2007). One type of strain that researchers have examined is criminal

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victimization (Kilpatrick et al., 1997; Agnew, 2001; 2005; 2007; 2013; Baron, 2004). That being said, the current research will examine the relationship between strain (sexual violence[1] victimization), negative affect (anger and depression), and crime and deviance (prescription drug misuse) among a national sample of female U.S. college students.

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[1] For the purposes of this study the term "sexual violence" is used because it is a broad term that includes sexual assault and rape as well as other actions concerning physical contact of a sexual nature (Cantalupo, 2009).

CHAPTER TWO: LITERATURE REVIEW

Prevalence of Sexual Violence on College Campuses

Sexual violence has been reported as the most common form of violence on US college campuses (Cantaupo, 2009). While the prevalence of sexual violence on college campuses vary due to methodological differences, prior research has reported that from one-fifth to one-quarter of college women are raped during the course of their academic careers (Koss, Gidycz, & Wisniewski, 1987; Fisher, Cullen, & Turner, 2000, Krebs et al., 2009; Yung, 2015). Furthermore, the National Sexual Victimization of College Women study found approximately 9% of women experienced unwanted sexual contact within an academic year and approximately 2-3% of college women experience forcible rape during an academic year (Fisher, Cullen, & Turner, 2000). The Bureau of Justice Statistics' (BJS) National Crime Victimization Survey (NCVS) found that from 2014 to 2015, the rate of rape and sexual assault increased from 1.1 victims per 1,000 persons to 1.6 victims per 1,000 persons respectively (NCVS, 2016). Additionally, the National Center for Education Statistics (NCES) report on Indicators of School Crime and Safety examined the frequency of *reported* sex offences on college campuses and found that 18% of *reported* on-campus crimes were forcible sex offenses in 2013. NCES also found that the number of *reported* forcible sex crimes on campus increased 126% from 2001 to 2013 (2,200 to 5,000 cases respectively) (NCES, 2015).

Findings from previous research has pointed to the college culture and its related lifestyle as a reason college women are more at risk of sexual violence victimization (Fisher, Cullen, & Turner, 2000; Krebs, Linguist, Warner, Fisher, & Martin, 2009). For many students, part of the

college experience means frequenting parties and/or bars and engaging in alcohol or other drug consumption. According to previous research, approximately 50% of sexual violence against college women involve the consumption of alcohol or other drugs by the victim, perpetrator, or both (Testa & Parks, 1996; Abbey, 2002). One national study found that 82% of college students were under the influence of alcohol or other drugs when they experienced unsolicited sexual intercourse during the academic year (Dowdall, 2007). According to a Campus Sexual Assault Study of 5,446 undergraduate women, 19% of participants experienced attempted or completed sexual violence since entering college. Moreover, 16% of these victims experience incapacitated sexual violence with 10.8% of the incapacitated sexual assaults enabled by alcohol and/or other drugs (Krebs, Linguist, Warner, Fisher, & Martin; 2009). It is important to note that women are not to blame for their victimization because of alcohol or drug consumption, the fault of the sexual violence lies exclusively with the perpetrator.

In addition to the partying lifestyle, other risk factors have been associated with placing collegiate women at risk of sexual violence victimization. These risk factors include age (Fisher et al., 1998; Brener et al., 1999; Black et al., 2011), sexual orientation (Campus Climate Survey Validation Study, 2016; Coulter et al., 2017), Greek affiliation (Copenhaver & Grauerholz, 1991; Lasky et al., 2017), and prior victimization (Fisher, Cullen, & Turner, 2000; Aosved & Long, 2005; Waldron et al., 2014). Consistent with findings from the 2005 NCVS that younger women are more at risk of sexual assault, the Campus Sexual Assault Study found that 52.7% of sexually assaulted students had experienced less than 2 years of college at the time of the study (Krebs, Linguist, Warner, Fisher, & Martin; 2009). In addition, the NCVS (2015) reported that when compared to all other age groups, females ages 18 to 24 had the highest rate of sexual violence

victimizations. Previous studies have also found sexual orientation may influence a student's risk for sexual violence victimization (Coulter et al., 2017). According to a study on sexual identity and sexual violence on college campuses, homosexuals have an increased risk of sexual violence victimization when compared to heterosexual men but not heterosexual women and bisexual individuals are more at risk of being victims of sexual violence then heterosexual individuals (Coutler et al., 2017). Prior research has also found that being Greek affiliated increases the risk for sexual violence against women (Copenhaver & Grauerholz, 1991; Lasky et al., 2017). For example, a study on Greek-life membership and drugging victimization found that approximately 25% of first year sorority women who binge drank were victims of drugging (Lasky et al., 2017). Previous research has also found that being a victim of sexual violence in the past puts an individual more at risk of re-assault (Aosved & Long, 2005; Waldron et al., 2014). In fact, one study found that previous victims of sexual assault were 2-3 times more at risk of re-assault then those who had no history of sexual violence (Waldron et al., 2014). These findings have significant implications for collegiate sexual violence victimizations as victims often suffer from physical injuries and psychological distress following victimization.

Consequences of Sexual Assault

A study lead by Brener specifically focused on rape and its associated health risk behaviors among female college students (Brener et al., 1999). Brener and her colleagues found that college women who had been the victims of rape were more likely to engage in physical fights with their spouse or boyfriend, to seriously consider suicide, and to drive after drinking when compared to college women who had not been raped (Brener et al., 1999). The research

team also found that college women who were raped were more likely to engage in episodic heavy drinking, to use marijuana, and more likely to use alcohol or drugs during last sexual intercourse (Brener et al., 1999). Thus, collegiate women who are victims of sexual violence are potentially at risk for a wide range of adverse health outcomes. Consequences of sexual violence are generally structured into three categories: physical injuries, psychological distress, and participation in health risk behaviors (Goodman, Koss, Russo, 1993; Fisher et al., 1998; Brener et al., 1999; Lang et al., 2003; Campbell, Dworkin, Cabral, 2009).

Physical injuries resulting from sexual violence include gynecologic problems such as vaginal bleeding or inflection, chronic pain, sexually transmitted diseases, and pregnancy (Fisher et al., 1998; Coker et al., 2000; McFarlane et al., 2005). One study found that 30% of sexually abused women reported three or more gynecologic health problems compared to 6% of women who were never abused (Campbell et al, 2002). Also forced sex causes an increase in the transmission of microorganisms due to blunt force and lack of lubrication, thus increasing the risk of contracting sexually transmitted diseases (McFarlane et al., 2005). According to the Center for Disease Control, more than 32,000 pregnancies result from rape every year (Holmes et al., 1996; McFarlane et al., 2005) and a 2002 national study found that 5% of pregnancies were rape-related (Campbell et al, 2002). While the number of elective abortions following rape-related pregnancy is unknown, there is evidence to suggest that victims of sexual violence are more likely to terminate pregnancies (Evins & Chescheir, 1996; Texas Department of Health, 1998). One study on intimate partner sexual assault found that 16% of rape-related pregnancies were terminated with an elective abortion (McFarlane et al., 2005).

In addition to physical injuries, victims of sexual violence also experience increased levels of psychological distress. Psychological consequences of sexual violence include depression, anger, and symptoms of post-traumatic stress disorder (PTSD), including emotional detachment, lack of sleep, flashbacks, and anxiety (American Psychiatric Association, 1994; Kessler et al., 1995; Friedman & Schurr, 1995). A study on the relation between sexual violence and negative affect conditions in female college students found that sexual violence victimization was positively associated with depressive and anxious symptoms in victims (Chang et al., 2017). Due to the overlap between symptoms of PTSD and depression, it is important to note that depression detected in some studies may represent indicators of PTSD (McFarlane et al., 2005). Likewise, experiences after the stress of sexual violence can be understood as representing PTSD (McFarlane et al., 2005). Prior research has revealed that female victims of sexual violence report significantly more PTSD symptoms compared to female nonvictims (McFarlane et al., 2005; Yaun, Koss, Stone; 2005). Previous research has also shown that PTSD symptom levels of victimized women remain elevated for at least two years following a rape compared to women who have never been victims of sexual violence (Frazier, 2003; Koss & Figueredo, 2004a, 2004b). Due to methodological and timing differences in previous research, the reported rates of PTSD among rape survivors vary from 30% to 65% (Yaun, Koss, & Stone, 2005). The likelihood of developing psychological health problems after a sexual violence incident is related to the severity of the assault and the existence of other adverse life experiences. Previous research has found that extensive use of verbal and physical force by the assailant (Bennice, Resick, Mechanic, & Astin, 2003) as well as threats to life and injury (Resnick et al., 1993) are assault characteristics that are associated with PTSD symptoms.

Furthermore, prior studies have found that histories of depression and alcohol abuse intensify the psychological impact of sexual assault (Acierno et al., 1999; Gilmore & Bountress, 2016; Parks et al., 2016; Wolff, Rospenda, & Colaneri, 2017). For instance, a study on sexual harassment, psychological distress and problematic drinking among college students found that alcohol problems and psychological distress both contribute to and are influenced by sexual harassment (Wolff, Rospenda, & Colaneri, 2017). Likewise, a similar study found that psychological symptoms of depression and anxiety were positively associated with sexual victimization (Parks et al., 2016). Women with histories of depression or alcohol abuse are more at risk of developing adverse psychological consequences as a result of sexual violence victimization (Acierno et al., 1999; Gilmore & Bountress, 2016; Parks et al., 2016; Wolff, Rospenda, & Colaneri, 2017).

Research regarding the relationship between victimization and health risk behaviors has produced mixed results (Yuan, Koss, & Stone., 2005). While it is unclear whether these behaviors occur as a precursor or a consequence of sexual violence, victims of sexual violence are more likely to report adverse health risk behaviors (Fisher et al., 2000; Silverman et al., 2001; Champion et al., 2004). Adverse health risk behaviors that result from victimization include engaging in high-risk sexual behavior such as unprotected sex, having multiple partners, and sex without birth control (Kilpatrick et al., 1992; Fisher et al., 2000; Silverman et al., 2001), as well as engaging in delinquent/criminal behavior like theft, weapon carrying, and fighting (Miller et al., 1995). Another adverse health risk behavior associated with sexual assault victimization is participation in substance use namely, binge drinking, marijuana use, and prescription drug misuse (Brener et al., 1999; Champion et al., 2004).

Several studies have attempted to explain the relationship between victimization and prescription drug misuse. As previously stated, substance use can act as both a risk factor for sexual violence as well as a consequence of victimization. One study conducted by Parks, Frone, Muraven and Boyd (2016) found that nonmedical use of anxiolytics/sedatives was positively associated with regretted sex and sexual victimization among college students. A similar study found that when compared to students who did not use illicit and prescription drugs, students who used were more at risk of being victims of sexual violence during the past year (Newton-Taylor, Dewit, and Glikksman, 1998). These types of studies have a tendency to lean towards the explanation that prescription drug misuse leads to victimization. However, these explanations fail to acknowledge the reciprocal nature of victimization and prescription drug misuse (Wilsnack et al., 1997; Kilpatrick et al., 1997). In their longitudinal study, Kilpatrick et al. (1997) found that after a new assault, the odds of both alcohol abuse and substance use were significantly increased. Engaging in drug use and/or alcohol consumption has been argued as a method used by the victims to self-medicate or to cope with the sexual assault incident (Kilpatrick et al, 1997; Silverman et al., 2001). In these instances victimization fosters prescription drug misuse, which can then lead to revictimization.

General Strain Theory

Robert Agnew's General Strain theory extends the work of classical strain theories by examining the relationship between strain, negative affect, and crime and deviance (Agnew, 1992). Classic strain theories generally focused on relationships in which someone or something prevents an individual from achieving positively valued goals (Agnew, 1992). Agnew expanded

individual-level strain theory to include several sources of strain. Specifically, GST argues that individuals are pressured into crime and delinquency by the negative affect – especially anger and depression – that results from negative relationships (Agnew, 1992). Negative affect is said to create pressure on the individual to use illegitimate channels to reach goals, avoid or escape from the source of strain, and/or manage their negative effect through substance use (Agnew, 1992). GST identifies three major sources of strain (1) the failure to achieve positively valued goals, (2) the removal of positively valued stimuli and (3) the confrontation with negative stimuli.

The failure to achieve positively valued goals includes three subtypes (Agnew, 1992). The first is strain as the disjunction between aspirations and actual achievements. Agnew broadened the relationship between aspirations and expectations to include immediate goals as well as future goals. Agnew also introduced individual inadequacies in abilities and skill as a source of strain. The second subtype is strain caused by the disjunction between expected and actual achievements. This type of stain often leads to feelings of anger, disappointment, and resentment in the individual. The third subtype is strain as the disjunction between just/fair outcomes and actual outcomes. This type of strain results when the amount of effort put into an activity or relationship is viewed as inadequate to the rewards especially, when compared to the efforts of others. Distress caused by this type of stain is particularly likely when individuals feel they have been under rewarded for their efforts.

According to Agnew (1992), removal of positively valued stimuli refers to the type of strain caused by an individual's experience with stressful life events. Stressful life events can include the death or illness of a friend or family member, separation from an intimate

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relationship, or divorce of one's parents. All of these experiences foster feelings of anger and depression which may lead an individual to crime and deviance as an option for avoidance or escape.

Confrontation with negative stimuli is another type of strain caused by an individual's experience with stressful life events; however, these events involve an individual's confrontation with negative actions by others. Agnew argued that an adolescent's inability to legally escape from the negative stimuli causing strain could lead to crime and deviance (Agnew, 1992). However, there is data that suggests that the presence of negative stimuli may lead to aggression and other adverse consequences in certain circumstances, even when escape from such stimuli is possible (Bandura, 1973; Zillman, 1979). Deviant behaviors may be taken to deal with stress by escaping/avoiding the negative stimuli, seeking revenge against the source of the negative stimuli, or managing the negative affect through substance use (Agnew, 1992; Broidy & Agnew, 1997).

Research has shown that the likelihood of an individual reacting criminally significantly increases if the response to strain is anger (Agnew, 1992; Broidy, 2001; Baron, 2004; Baron, 2007). Agnew argues that anger is the most pivotal emotional reaction for GST because it lowers inhabitations, energizes the individual for action, fosters a desire for revenge, and increases the level of felt injury (Agnew, 1992). The manifestation of negative affect, particularly anger, creates pressure to take counteractive steps with crime and deviance being potential responses (Agnew, 1992; 2007; 2013; Broidy, 2001; Baron, 2004; Baron, 2007). It is important to note that other negative effects, such as depression, can cause individuals to react in a delinquent manner (Agnew, 1992; Broidy, 2001). Prior research has revealed a strong connection between

depression and substance use indicating that elevated depression symptoms often predict

substance use problems (King, Iacono, McGue, 2004; Sihvola et al., 2008; Mackie, Conrod,

Brady, 2012).

According to Broidy and Agnew (1997) there is a clear gendered difference in criminality

as a result of strain. The researchers maintain that males and females experience different types

of strain, react differently to strain, and use different coping strategies to relieve strain. Broidy

and Agnew suggest that the gendered differences in reaction to strain are the reason for the

gendered differences in type of crime committed. GST indicates that males are more likely to

experience financial and work related strains because they are more focused on material success

and more concerned about the fairness of outcomes (i.e. distributive justice). GST also argues

that males are more likely to experience peer-related issues such as competition, conflict, and

jealously. Broidy and Agnew argue that these types of strains are more inductive to using

aggression and violence to cope. On the other hand, females are more likely to experience strains

that are conducive to interpersonal relationships because they are more focused with the fairness

of the procedures by which outcomes are allocated (i.e. procedural justice). GST also argues that

females are more likely to experience strains related to maintaining close relationships and

strains related to specific types of discrimination such as sexual violence. Broidy and Agnew

indicate that these types of strain are inductive self-destructive behaviors like eating disorders

and substance use.

Broidy and Agnew (1997) also argue that men and women differ in their responses to

strain. Males typically respond to stain with externalized emotions of moral outrage (Campbell,

1993; Broidy, 2001; Grothoff et al., 2014). They are more likely to blame others and express

outward anger which is more conducive to crime. Alternatively, females are more likely to

respond to strain with internalized and accompanying emotions in addition to anger (Mirowsky

& Ross, 1995; Turner et al., 1995; Broidy, 2001; Hay, 2003; Grothoff et al., 2014). Mirowsky

and Ross (1995) found that for women, depression and anger typically accompany one another

and that women are more likely to be both depressed and angry. Women also tend to view their

anger as inappropriate or harmful to their close relationships (Agnew & White, 1992; Broidy &

Agnew 1997; Broidy, 2001; Grothoff et al., 2014). Thus, females are more likely to engage in

self-directed, non-confrontational forms of illicit coping such as substance use and binge

drinking (Agnew & White, 1992; Broidy & Agnew 1997; Broidy, 2001; Hay, 2003).

Agnew (2001) maintained that criminal victimization, including sexual violence, is

among the types of strain that is best viewed as an individual's confrontation with negative

stimuli and is most conducive to crime and deviance. Instances of victimization are typically

seen as unjust, high in magnitude, and happen in settings where social control is low (Agnew,

2001). Several studies have examined the relationship between female victimization and

criminal behavior (Kilpatrick et al., 1997; Agnew, 2001; 2005; 2007; 2013; Baron, 2004). For

instance, Pinchevsky, Fagan, and Wright's study (2014) examined the relationship between type

and degree of victimization and substance use utilizing GST. The researchers studied how direct

and indirect threats, physical altercations, and assaults with deadly weapons influenced an

individual's substance use. They found that victimization experiences were significantly

associated with increased substance use. Participants who encountered multiple types and/or

severe victimization were more likely to use drugs. Prior research shows victimization is a

significant type of strain in GST and provides a vital link to explaining female criminal and

delinquent behavior. Because females are more likely to be victims of sexual violence and are thus more likely to experience adverse feelings of negative affect, this study only examines female respondents.

The current research utilizes Agnew's General Stain Theory to explain the relationship between sexual violence victimization, negative effect, and prescription drug misuse among female college students. To the best of my knowledge, only a limited number of studies have examined the relationship between GST and prescription drug misuse (Ford & Schroeder, 2009; Schroeder & Ford, 2012; Ford, Reckdenwald, & Marquardt, 2014). Consistent with prior research that victimization is most conductive to crime (Agnew, 2006; Akers & Sellers, 2004), the current study expects that women who are victims of sexual violence experience strain as a result of the presentation of negative stimuli. Because females are more likely to engage in self-directed and non-confrontational forms of illicit coping (Agnew & White, 1992; Broidy & Agnew 1997; Broidy, 2001; Hay, 2003), the resulting negative affect after victimization pressures victims to alleviate feelings of anger and depression by misusing prescription drugs.

CHAPTER THREE: METHODOLOGY

<u>Sample</u>

The data for the current research are from the National College Health Assessment II (NCHA), a national study of the health-related behaviors of college students, which was organized by the American College Health Association (ACHA). Data has been collected biannually since 2000 and includes 624 different postsecondary institutions in the United States (American College Health Association, 2014). Schools selected for inclusion in the study either surveyed their entire student population or randomly selected students for participation. The NCHA II includes students from both public and private institutions, schools in all regions of the country, small and large schools, urban and rural schools, and religious affiliated schools. Students complete the 30 minute survey online or on paper. While the sample is not generalizable to the entire population of college and university students in the United States, the findings of the NCHA II are comparable to other national studies of health-risk behaviors of college students (ACHA-NCHA.org). The current research used data from multiple data collection periods (Fall 2008 to Spring 2011) and includes 379,584 respondents at 391 different institutions. All logistic regression models were ran for females only as they were the focus of this study. As a result, the number of respondents ended up being 186,104 female college students.

<u>Measures</u>

To measure deviant coping, the current study identified respondents who indicated past year prescription drug misuse (0 = No, 1 = Yes). Prescription drug misuse was defined in the NCHA as taking any prescription drug that was not prescribed to you in the past 12 months and included antidepressants (Prozac, Zoloft, etc.), pain killers (OxyContin, Vicodin, etc.) sedatives (Xanax, Valium, etc.) and stimulants (Ritalin, Adderall, etc.). For the purposes of this study, if a respondent answered yes to taking any one of these drugs, they were considered prescription drug misusers. To measure negative affect, respondents identified if they felt overwhelming anger in the past 12 months (0 = No, 1 = Yes) and/or if they felt so depressed that it was difficult to function in the past 12 months (0 = No, 1 = Yes). To measure sexual violence, respondents were asked in the past 12 months were they sexually touched without their consent, was sexual penetration attempted without their consent, or were they sexually penetrated without their consent. If respondents answered yes to any one of these questions, they were considered a victim of sexual violence (0 = No, 1 = Yes).

In order to obtain independent associations between strain, negative affect, and crime and deviance, the following covariates were controlled for in each model as these variables are often associated with prescription drug misuse: age (18-25), race (0 = nonwhite, 1 = white), sexual orientation (0 = bisexual/homosexual, 1 = heterosexual), grade point average (1 = A, 2 = B, 3 = C, 4 = D/F, 5 = N/A), Greek affiliation (0 = No, 1 = Yes), athletic involvement (0 = No, 1 = Yes), lifetime marijuana use (0 = No, 1 = Yes), lifetime illicit drug use (0 = No, 1 = Yes), campus locale which is the size of community surrounding the college (1 = very large city with a population over 500,000, 2 = large city with a population between 250,000-499,999, 3 = small

city with a population between 50,000-249,999, 4 = large town with a population between 10,000-49,999, 5 = small town with a population between 2,500-9,999, 6 = rural community with a population under 2,500), what semester the survey was completed (study), region of country (Northeast, Midwest, South, West), and school type (0 = public, 1 = private).

For the purposes of this study, lifetime illicit drug use was measured using student responses regarding frequency of use of cocaine (crack, rock, freebase), methamphetamine (crystal meth, ice, crank), other amphetamines (diet pills, bennies), sedatives (downers, ludes), hallucinogens (LSD, PCP), anabolic steroids (testosterone), opiates (heroin, smack), inhalants (glue, solvents, gas), MDMA (ecstasy), other club drugs (GHB, ketamine, rohypnol), and other illegal drugs. Respondents could answer by checking never used, have used but not in the last 30 days, 1-2 days, 3-5 days, 6-9 days, 10-19 days, 20-29 days, or used daily. Responses were recoded to reflect lifetime use (0 = never used, 1 = lifetime use).

Analytic Strategy

A series of logistic regression models was used to examine the research questions outlined above. In the first phase of the analysis, the relationship between strain and negative affect was examined. To accomplish this, two logistic regression models were ran with negative affect as the dependent variable. One model included a measure of anger while the other will included a measure of depression. Both models were analyzed with a measure of strain (sexual violence) and covariates. In the second phase of the analysis, the relationship between strain and prescription drug misuse was examined. To do this, a logistic regression model was examined with prescription drug misuse as the dependent variable, a measure of strain, and covariate

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variables. In the third phase of the analysis, the current study measured how negative affect effects the relationship between strain and prescription drug misuse. To complete this phase, three logistic regression models were conducted with prescription drug misuse as the dependent variable. The first model includes a measure of strain, anger, and covariates. The second model included a measure of strain, depression and covariates. Lastly, the third model of this phase included a measure of strain (sexual violence), anger, depression and covariates.

STATA 14.0 was used to estimate the models defined above (Version 14.0; StatsCorp LP, College Station, Texas). All logistic regression models provide adjusted odds ratios (AOR) and 95% confidence intervals (95% CI) while controlling for covariates. To correct for possible bias, all analyses used robust standard errors with the school the respondents attended as the cluster variable (391 institutions that participated in ACHA-NCHA).

CHAPTER FOUR: FINDINGS

Sample characteristics for the 186,104 female respondants that were included in the analysis are shown in Table 1. Roughly 14% of the sample reported prescription drug misuse, this study's measure of deviant coping, in the past 12 months. Additionally, 40% of the sample reported feeling overwhelming anger, one of the measures for negative affect, in the past 12 months and 33% of the sample reported feeling so depressed that it was difficult to function, the other measure of negative affect, in the past 12 months. Furthermore, 9% of the sample reported sexual violence victimization, this study's measure of strain, in the past 12 months. With regard to the controls the mean age of the sample was 20 years, around 93% were heterosexual, approximately 75% were white, and about 10% were Greek affiliated.

Table 1 – Descriptive statistics (N=186,104)

Variable Name	Coding	Percent or mean
Prescription Drug Misuse	0 = No, 1 = Yes	13.6%
Sexual Violence Victim	0 = No, 1 = Yes	9.2%
Anger	0 = No, 1 = Yes	40.0%
Depression	0 = No, 1 = Yes	33.0%
Age	18-25	20.275
Race	0 = nonwhite, 1 = white	74.8%
Sexual Orientation	0 = bisexual/homosexual, 1 = heterosexual	93.4%
Grade Point Average	1 = A, 2 = B, 3 = C, 4 = D/F, 5 = N/A	A- 38.01% B- 48.36% C- 10.66% D/F- 00.61% N/A- 02.34%
Greek Affiliation	0 = No, 1 = Yes	10.3%
Athletic Involvement	0 = No, 1 = Yes	7.8%
Marijuana Use	0 = No, 1 = Yes	33.6%
Other Illicit Drug Use	0 = No, 1 = Yes	14.0%
Locale	1 = Very large city, 2 = Large city, 3 = Small city, 4 = Large town, 5 = Small town,	VLC- 22.76% LC- 07.65% SC- 38.22% LT- 21.80% ST- 08.40%

Variable Name	Coding	Percent or mean
	6 = Rural community	RC- 01.16%
Region	Northeast, Midwest, South, West, Outside of US	NE- 28.03% MW- 17.98% S- 25.95% W- 24.11% O- 03.90%
Study	Fall 2008 - Spring 2011	Fall '08 - 07.65% Spri '09 - 22.98% Fall '09 - 08.72% Spri '10 - 24.94% Fall '10 - 08.20% Spri '11 - 27.51%
School Type	0 = public, 1 = private	37.3%

Findings for the logistic regression examining the impact of sexual violence victimization on both anger and depression are shown in Table 2. These results show that sexual violence victimization is significantly related to both anger and depression. Respondents who reported sexual violence victimization were at an increased odds for reporting anger (AOR = 1.948). Respondents who reported sexual violence were at an increased odds for reporting depression (AOR = 2.200). These findings are consistent with Agnew's general strain theory which argues that strain is associated with negative affect.

Table 2 - Impact of Strain on Negative Affect

	Anger	Depression
Sexual Violence	.667*** (.017) [1.948]	.788*** (.018) [2.200]
Age	-.018*** (.004) [.982]	-.004*** (.004) [.996]
Race (White)	-.162*** (.016) [.850]	-.142*** (.016) [.868]
Sexual Orientation (Heterosexual)	-.538*** (.023) [.584]	-.797*** (.022) [.451]

	Anger	Depression
Grade Point Average	.152*** (.009) [1.164]	.166*** (.010) [1.180]
Greek Affiliation	-.052*** (.019) [.949]	-.099*** (.020) [.906]
Athletic Involvement	-.112*** (.021) [.894]	-.246*** (.020) [.782]
Marijuana Use (Lifetime)	.313*** (.014) [1.367]	.240*** (.016) [1.271]
Other Illicit Drug Use (Lifetime)	.535*** (.017) [1.707]	.591*** (.017) [1.806]
Locale	-.005 (.008) [.995]	-.004 (.008) [.996]
Region	-.005 (.009) [.995]	.007 (.009) [1.007]
Study	-.013** (.006) [.987]	.002 (.006) [1.002]
School Type (Private)	-.132*** (.022) [.876]	.090*** (.022) [1.095]

Table includes unstandardized regression coefficient, robust standard errors in parenthesis, and adjusted odd ratios in brackets (*** $p < .001$, ** $p < .01$, *$p < .05$).

The findings in Table 3 show the impact of sexual violence and negative affect on prescription drug misuse. In the baseline model, sexual violence victimization was significantly related to prescription drug misuse. When compared to nonvictims, victims of sexual violence were at an increased risk (AOR = 1.511) for prescription drug misuse. In the second model, one of the measures of negative affect, anger, was added to the regression. This model revealed that respondents who reported overwhelming anger are at an increased risk (AOR = 1.592) for prescription drug misuse. The model also revealed that when compared to nonvictims, victims of

sexual violence are at an increased risk (AOR = 1.412) for prescription drug misuse. In the third

model, the other measure of negative affect, depression, was added to the regression. Like anger,

depression was significantly related to prescription drug misuse (AOR = 1.717). This model also

revealed that when compared to nonvictims, victims of sexual violence are at an increased risk

(AOR = 1.378) for prescription drug misuse. In the complete model, the impact of sexual

violence victimization and both anger and depression on prescription drug misuse was examined.

These findings support general strain theory as both strain and negative affect were significantly

related to prescription drug misuse. Respondents who reported sexual violence and feelings of

anger and depression were at an increased risk (AOR = 1.350, 1.339, 1.512 respectively) for

prescription drug misuse.

The complete model also demonstrations that the controls related to prescription drug

misuse are consistant with past reaesrch as expected. Prescription drug misuse was more likely

among older respondents, white respondents, heterosexual respondents, respondents with lower

GPAs, and respondents who attended a private college. Additionally, respondents who

participated in greek life and/or athletics were more likely to misuse prescription drugs.

Respondents who used marijuana or other illicit drugs were also more likely to misuse

prescription drugs.

Table 3 - Impact of Sexual Violence and Negative Affect on PDM

	Model 1	Model 2	Model 3	Model 4
Sexual Violence	.413*** (.022) [1.511]	.345*** (.023) [1.412]	.321*** (.022) [1.378]	.300*** (.023) [1.350]
Anger		.465*** (.015) [1.592]		.292*** (.017) [1.339]
Depression			.541*** (.016)	.413*** (.018)

	Model 1	Model 2	Model 3	Model 4
			[1.717]	[1.512]
Age	.017***	.019***	.019***	.020***
	(.006)	(.005)	(.006)	(.005)
	[1.017]	[1.019]	[1.019]	[1.020]
Race (White)	.194***	.213***	.209***	.217***
	(.023)	(.023)	(.023)	(.023)
	[1.214]	[1.237]	[1.232]	[1.243]
Sexual Orientation (Heterosexual)	-.202***	-.147***	-.102***	-.092***
	(.027)	(.027)	(.027)	(.027)
	[.817]	[.864]	[.903]	[.912]
Grade Point Average	.183***	.168***	.162***	.157***
	(.010)	(.010)	(.010)	(.010)
	[1.201]	[1.182]	[1.176]	[1.170]
Greek Affiliation	.374***	.380***	.389***	.390***
	(.030)	(.030)	(.031)	(.031)
	[1.453]	[1.463]	[1.476]	[1.477]
Athletic Involvement	.051**	.058**	.078***	.078***
	(.029)	(.029)	(.029)	(.029)
	[1.052]	[1.060]	[1.081]	[1.081]
Marijuana Use (Lifetime)	.863***	.837***	.845***	.833***
	(.021)	(.021)	(.021)	(.021)
	[2.371]	[2.309]	[2.328]	[2.300]
Other Illicit Drug Use (Lifetime)	1.552***	1.504***	1.495***	1.477***
	(.020)	(.020)	(.020)	(.020)
	[4.721]	[4.502]	[4.458]	[4.382]
Locale	.014	.014	.014	.015
	(.011)	(.011)	(.011)	(.011)
	[1.014]	[1.014]	[1.014]	[1.015]
Region	.004	.005	.005	.006
	(.014)	(.014)	(.015)	(.015)
	[1.004]	[1.005]	[1.005]	[1.006]
Study	.002	.003	.001	.002
	(.009)	(.009)	(.009)	(.009)
	[1.002]	[1.003]	[1.001]	[1.002]
School Type (Private)	-.150***	-.134***	-.159***	-.147***
	(.031)	(.031)	(.032)	(.031)
	[.861]	[.875]	[.853]	[.863]

Table includes unstandardized regression coefficient, robust standard errors in parenthesis, and adjusted odd ratios in brackets (*** $p < .001$, ** p < .01, *p < .05).

CHAPTER FIVE: DISCUSSION AND CONCLUSION

This study examined the relationship between sexual violence victimization, negative affect, and prescription drug misuse among a national sample of collegiate women. In recent years, research has shown that women in college are at a greater risk for rape and other forms of sexual violence then women in the general public (Koss, Gidycz, Wisniewski, 1987; Fisher et al., 1998; Fisher, Cullen, Turner, 2000). The increased risk of sexual violence among college women is important because victimization may lead to an assortment of adverse physical and mental health outcomes. While a relationship between sexual violence victimization and negative outcomes is well-known, most of the research in this area is atheoretical. Using Agnew's GST the current study examined the relationships between sexual violence victimization (a type of strain), feelings of anger and depression (measures of negative affect), and prescription drug misuse (a deviant coping mechanism).

The findings of the current research suggest that strain was associated with negative affect which supports previous research. Agnew (2001) maintained that criminal victimization, including sexual violence, is among the types of strain that is most conducive to crime and deviance. Instances of victimization are typically seen as unjust, high in magnitude, and happen in settings where social control is low (Agnew, 2001). Prior research has examined the relationship between female victimization and criminal behavior (Kilpatrick et al., 1997; Agnew, 2001; 2005; 2007; 2013; Baron, 2004). Previous research shows victimization is a significant type of strain in GST and provides a vital link to explaining female criminal and delinquent behavior. Because females are more likely to be victims of sexual violence and are thus more likely to experience adverse feelings of negative affect. Likewise, this study indicated that the

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odds of reporting anger or depression were approximately double (approximately 95% higher for anger and 120% higher for depression) for respondents that reported sexual violence victimization.

In addition to explaining the relationship between strain and negative affect, the current research also established backing for GST. This study found that strain was both directly and indirectly related with deviant coping via negative affect. Across all four models, there was a direct association between strain and prescription drug misuse, as respondents who reported strain were at an increased risk for prescription drug misuse. In the baseline model, victims of sexual violence were approximately 51% more likely to report prescription drug misuse. The works of Broidy and Agnew (1997) argue that females respond to strain with internalized emotions that could lead to deviant coping. Because females are more likely to respond to strain with internalized emotions, they are more likely than men to feel depressed (Mirowsky & Ross, 1995; Broidy, 2001; Grothoff et al., 2014). Prior research has found a strong connection between depression and substance use indicating that elevated levels of depression symptoms often predict substance use problems (King, Iacono, McGue, 2004; Sihvola et al., 2008; Mackie, Conrod, Brady, 2012). Similarly, the current study also found that feelings of negative affect partially mediated the relationship between sexual violence victimization and prescription drug misuse. When the measure of anger was added to the regression, the coefficient for sexual violence was reduced by 16%. However, when the measure of depression was added to the regression, the coefficient for sexual violence was reduced by 22%. These findings suggest that depression is a stronger mediating variable in the relationship between strain, negative affect, and prescription drug misuse then anger. These findings are consistent with prior research that

validates GST, providing an explanation for the relationship between strain, negative affect, and prescription drug use (Ford & Schroeder, 2009; Schroeder & Ford, 2012; Ford, Reckdenwald, & Marquardt, 2014).

A number of limitations are worth nothing in this study. First, although the sample was very large, it is not generalizable to the entire population of U.S. college women, meaning results are not comprehensive to all college women. Despite this limitation, the findings from NCHA II are comparable to other national studies of health-risk behaviors (Ford & Schroeder, 2009; Schroeder & Ford, 2012; Ford, Reckdenwald, & Marquardt, 2014). Second, this data is cross-sectional. Although it is not uncommon to use cross-sectional data (Broidy, 2001; Baron, 2004; Ford, Reckdenwald, & Marquardt, 2014) when testing GST it is ideal to use longitudinal data because the measures of strain, negative affect, and prescription drug misuse can be taken at different times. Third, the data was reliant on self-reported information. As with all data that is self-reported there is risk of respondents reporting false or misleading information.

Even with these limitations there are also major strengths to consider in this study. First, this study utilizes a large sample, which increases statistical power and helps to assess behaviors that are relatively uncommon. Second, the analysis is theoretically grounded. This is important because the study examined an understudied type of strain and measures of deviant coping. This study found that female college students who were victims of sexual violence are at an increased risk for misusing prescription drugs. Furthermore, the relationship between strain and PDM was partially mediated by feelings of anger and depression with depression being the stronger mediator. These findings expand GST by suggesting that depression is a stronger predictor of PDM after an incident of sexual violence.

Implications from this research suggest a strong gendered nature in the relationship between strain, negative affect, and substance use. Despite previous research that suggests that anger is the negative affect that is most conducive to crime (Agnew, 1992; Broidy, 2001; Baron, 2004; Baron, 2007), this study implies that depression is the stronger mediator for females. From these findings it can be implied that for females, depression, not anger, is the negative affect most conductive to crime. Future research in this area should examine longitudinal data and include measures of self-medication to obtain a more complete picture of the relationship between strain, negative affect, and prescription drug misuse among college women.

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