

McGrath, S., Marcum, C.D., & Copes, H. (2012). The effects of experienced, vicarious, and anticipated strain on violence and drug use among inmates. *American Journal of Criminal Justice*, 37(1): 60-75. Published by Springer-Verlag (ISSN: 1936-1351). DOI 10.1007/s12103-011-9127-1

The Effects of Experienced, Vicarious, and Anticipated Strain on Violence and Drug Use among Inmates

Shelly A. McGrath, Catherine D. Marcum, Heith Copes

ABSTRACT

The bulk of research on general strain theory has focused on determining the effect of experienced strain on the illegal or delinquent behaviors of juveniles or young adults. While much has been gained by this research, it is important to understand the role of experiencing and witnessing strain on adult, high risk populations (e.g., adult inmates). The current study examines the effect of experienced, vicarious, and anticipated victimization on inappropriate coping mechanisms of inmates. Specifically, it examines the effect of experiencing or witnessing physical victimization on inmates' use of violence and drug/alcohol. Survey data from 208 adult parolees show that, at least in controlled environments like prisons, witnessing violence increases the likelihood of engaging in violence and that experiencing and witnessing violence significantly increases the likelihood that inmates will use drugs or alcohol.

INTRODUCTION

An unfortunate condition of incarceration is the potential exposure to violent victimization. The ever-present possibility of violence is a chronic source of stress for those confined to correctional facilities (Hochstetler, Murphy, & Simmons, 2004). Even for those inmates who have not yet been directly victimized, witnessing the victimization of others and the anticipation of experiencing it can be tremendous sources of stress. This ever-present potential of violence creates a monumental problem in American prison systems. Exacerbating the problem is the fact that most prisoners lack adequate coping skills and have few opportunities to acquire such skills. Like most groups, inmates vary in their resilience and coping strategies when experiencing either actual victimization or the potential of it. Some are able to overcome the potential violence with minimal damage to their emotional well-being by developing a number of pro-social coping mechanisms (e.g., attending religious classes or relying on social support networks). Others, however, respond to stressors in anti-social ways (e.g., initiating violence against others or drug use) (McCorkle, 1993). In light of the high levels of direct and indirect victimization and the general inability to cope with it properly, it is easy to see how this cycle of violence could quickly multiply and become unmanageable.

The importance that strain and coping (or lack of it) has on explaining criminal and delinquent behavior has been well-articulated by Agnew with the development of general strain theory (GST). In short, Agnew (1992, 2002) contends that strain results from negative relations with others. These negative relations occur when one party prevents another from achieving positively valued goals, removes positively valued goals, or presents noxious stimuli. In such situations, the presence of strain is often accompanied with negative emotions (e.g., anger, depression, or frustration). To overcome these negative emotions, individuals cope with them in a variety of ways. Some individuals turn to violence, crime, or drug use in an attempt to adapt to these negative emotions. It is when strained individuals cannot properly cope with the situation that they engage in crime or deviant behavior.

This simple, yet elegant, theory has generated a great deal of research and support since its development (Delisi, 2011; Froggio, 2007). The bulk of research towards testing the theory has relied on younger populations (e.g., juveniles or college students). Undoubtedly, these populations are important to study as they are the groups that are most likely to lack proper coping mechanisms and to engage in crime and deviance. Recently, scholars have noted GST's ability to explain violations that occur in prison settings (Capowich, Mazerolle, & Piquero, 2001). The argument is that inmates must deal with much higher levels and different kinds of strain and have fewer opportunities to escape the strains than those in the free-world. Consequently, the effects of strain on behavior will likely be more pronounced in these setting. The few studies that have examined strain and its impact on behavior in prison settings have generally supported the theory (Neff & Waite, 2007; Piquero & Sealock, 2000, 2004). Specifically, they show that strain (measured by victimization) predicts violence and substance abuse among incarcerated, adolescent populations.

Like the majority of research on GST, the previously mentioned research on strain in prison settings has relied on adolescent samples. In addition, these studies have looked only at strain resulting from experienced victimization. It is important, for theoretical and practical reasons, to understand the importance of

experienced and potential strain on adult inmates. The current study builds on these previous evaluations of GST by focusing on strain and improper coping that occurs within adult prisons. Instead of relying solely on experienced victimization, it examines the importance of vicarious and anticipated victimization on improper coping among inmates. Specifically, it addresses the impact of experienced, vicarious, and anticipated violent victimization on inmates' decisions to engage in violence and/or substance abuse while incarcerated. This study is intended to enhance our understanding of GST by determining how behavioral outcomes associated with experienced, vicarious, and anticipated strain are affected by environmental settings.

GENERAL STRAIN THEORY

Agnew developed general strain theory partly as a response to critiques of earlier strain theories by Merton and Cohen. Agnew (2006) departed from these earlier strain theories in that he saw strain as resulting from any relationship or event or conditions that are disliked by individuals (see also Hay & Evans, 2006). Thus, strain is not conceptualized as a structural variable, but is seen as a social psychological variable that is subjectively assessed and experienced by individuals (Broidy, 2001). This theory allows for an individual conception of strain and does not rely solely on universal goals; consequently, it allows for socio-demographic and personal differences to be taken into account when studying the impact of strain on individuals (Broidy, 2001).

General strain theory asserts that strain can result from three sources: 1) presentation of negative stimuli (e.g., some form of victimization experienced by the individual); 2) removal of positive stimuli (e.g., death of a family member, divorce from a spouse); and 3) failure to achieve positively valued goals (e.g., inability to graduate from college or obtain employment) (Agnew, 1992). When individuals are faced with one or more of these strains they often develop or display negative emotions, such as anger, depression, or anxiety, which in turn can lead to various forms of illegal or deviant behaviors.

The mere presence of strains, and the corresponding negative emotions, is not sufficient to cause crime or delinquency. Instead, crime results when individuals rely on inappropriate coping strategies to relieve the strains. Agnew argues that individuals engage in one of three major coping strategies: cognitive, behavioral, or emotional. When employing cognitive coping strategies, people reinterpret objective stressors in a way that minimizes their subjective adversity. This can be done by ignoring the importance of the adversity (i.e., by saying "it's not important"), by maximizing positive outcomes and/or minimizing negative outcomes (i.e., by saying "it's not bad"), or by accepting responsibility for the adversity (i.e., by saying "I deserve it"). Behavioral coping strategies are typically one of two types. The first is vengeful behavior. When adversity is blamed on others it creates a desire for revenge. It can assume conventional and delinquent forms. The second type of behavioral strategy is maximizing positive outcomes and minimizing negative outcomes. Finally, emotional coping strategies include the use of drugs, physical exercise, meditation, or biofeedback. Here, the focus is on alleviating negative emotions rather than on behaviorally altering the situation that produced the negative emotions.

Strain is most likely to lead to crime when individuals lack the skills and resources to cope with their strain in a legitimate manner, are low in conventional social support, are low in social control, blame their strain on others, or are disposed to crime (Agnew, 2001). The strains that are expected to increase crime as a coping strategy include those that are viewed as unjust, high in magnitude or severity, provoke the negative emotion of anger, or are dealt with more easily through illegitimate rather than legitimate means (Agnew, 2001; Hollist, Hughes, & Schailbe, 2009; Mazerolle, Burton, Cullen, Evans, & Payne, 2000; Mazerolle & Piquero, 1998; Spohn & Kurtz, 2011). One type of strain that has been shown to lead to criminal coping is victimization, especially physical victimization (Agnew, 2002; Kort-Butler, 2010). Numerous scholars, using a variety of samples and methodologies, have found physical victimization to be a contributing factor in delinquency and criminal behavior (Agnew, 2002; Hay & Evans, 2006; Kort-Butler, 2010; Ostrowsky & Messner, 2005). Both Baron (2004) and Ostrowsky and Messner (2005) found that individuals who had experienced victimization were more likely to commit violent crimes. This is likely because criminal victimization often provokes negative emotions such as anger or anxiety, which have been shown to contribute to the use of criminal behavior as a coping mechanism (Agnew, 1992). In addition, others suggest that victimization may provoke substance abuse as well as violent behavior (Brezina, 2000; Carson, Sullivan, Cochran, & Lersch, 2009; Ford & Schroeder, 2009). The implication of these studies is that victimization may have a subjective component, which merits more attention in future research as a cause of delinquency and crime (Froggio & Agnew, 2007).

The majority of research on GST focuses on those strains that are directly experienced by individuals. While this is likely the most powerful type of strain in terms of garnering a deviant reaction, Agnew (2002) has stressed the importance of anticipated and vicarious strain as well. Anticipated strain refers to a stressor that is expected in the future or an expectation that a current negative experience will continue (Froggio, 2007). It includes strains that have not yet occurred, but are still feared by the individual. Agnew (2002) stated that fearful responses to strain often involve escapist (avoiding) behaviors, while responses to strain that involve perceived risk are more likely to involve aggressive and violent behaviors. Anticipated strain can be perceived as a real threat that is immediate; therefore, a violent response can serve as a deterrent, as well as an establishment of machismo and reputation. Anticipated strains that are perceived as unfair, high in magnitude, and affiliated with low social control are strains that tend increase the likelihood of criminal coping (Agnew, 1992, 2002). One's concern for future victimization may lead them to engage in delinquency to prevent victimization from occurring or to cope with the negative emotions (Kort-Butler, 2010).

Vicarious strain is experienced by others and observed by the individual in some way (Agnew, 2002; Froggio, 2007). An individual can learn of these experiences by witnessing the event (i.e., visually), hearing the event take place (i.e., via screams, gunshots, glass breaking), or hearing about the events from other people. It is assumed that the closer the relationship between the individual and the person experiencing the strain, the higher the strain level and the likelihood of participating in criminal coping (Agnew, 2002). Close relationships, such as with parents or childhood friends, increase perceptions of an individual that he or she will suffer a similar strain (Agnew, 2002). Conversely, victimizations that occur to acquaintances or unknown persons are less likely to cause vicarious strain. For example, while

events such as gang shootings and rapes are horrific and devastating, an individual may not worry about these forms of victimizations if she was not closely associated with a victim of these crimes.

According to Agnew (2002), physical victimizations of close peers often cause vicarious strains as they generally occur in locations that are physically near to the individual experiencing the strain. In other words, due to the closeness of the relationship, an individual is highly likely to spend more time in the same physical vicinity as family and friends and therefore experience their victimization. Though this type of strain is under researched, literature suggests that vicarious strain is a powerful indicator of deviant behavior (Agnew, 2002; Baron, 2009; Eitle & Turner, 2002; Kort-Butler, 2010). Eitle and Turner (2002) found that those who had witnessed violence in their community or had a history of learning about others' victimization had an increased propensity toward criminal behavior. Agnew (2002) found that the victimization experiences of family and friends contributed to serious delinquency. Similarly, Kort-Butler (2010) found that adolescents who witnessed violent victimizations were more likely to become delinquent than those who did not.

In addition to the vicarious strain described above, some individuals can be affected by unresolved strains experienced by others (Baron, 2009). Unresolved strains create pressure for an individual to cope criminally, often by committing some act of revenge as a form of justice. These experiences can be influential, or "contagious," to others and rally that vengeful mentality. Qualitative research on retaliation supports this claim about the "contagion" of violence (Jacobs & Wright, 2006). Offenders retaliate to both right a perceived wrong and to ward off their own potential victimization. However, research focusing on vicarious strain and negative events has found that events such as family and friends experiencing a serious illness, or dying natural death, is much less likely to encourage criminal coping compared to criminal victimization (Aseltine, Gore & Gordon, 2000; Hoffman & Miller, 1998; Paternoster & Mazerolle, 1994).

Among inmates, it may be that experienced and potential victimizations are more likely to generate violent reactions than even those in the free world. For example, O'Donnell (2004) reported that sexual assault in prison is a "quodidian experience;" in other words, inmates often have an expectation of experiencing sexual assault while incarcerated and this fear is more common than the actual occurrence rate (Tewksbury, 1989). Even the fear of victimization can cause emotional and physical reactions in inmates. Whether it is from experienced, anticipated, or vicarious experiences, past research has indicated that inmates who have experienced victimization in various manners (e.g., sexual or physical assault, or theft) engage in protective behaviors that include participation in both passive and aggressive behavior (McCorkle, 1992). Due to the relative lack of research that examines experienced, anticipated, and vicarious victimization in prisons, it is important to understand the role of such strains on inmates' coping strategies.

METHODS

The current findings are based on a secondary analysis of data collected from 208 male residents of a work release facility in a Midwestern state between September

and December of 2001 (for more on this data see Delisi, Hochstetler, & Murphy, 2003; Hochstetler et al., 2004; Kerley, Hochstetler, & Copes, 2009). The inmate parolees were located in the Midwest and had all been recently paroled from a state prison within the previous 6 months. Two hundred and eight individuals were selected from a sampling frame of 480 parolees and comprised 43% of the male work-release parole population. The sample was a convenience sample and limitations of this type of sampling should be taken into consideration when interpreting the findings. While the survey instrument yielded a variety of information, the current study was limited to only the information about demographic characteristics, incarceration experiences, violent offending, and violent victimization experiences while incarcerated. The sample was 72% white, the average age was 32 years old, the average number of months that the individuals served in prison was 29 months. Twenty-two percent had been incarcerated for drug offenses, while 28% had been incarcerated for violent offenses.

MEASURES

Independent Variables

We conceptualized and measured anticipated, vicarious, and experienced strain relating to violent victimization. Experienced victimization was operationalized using three questions. The questions used asked how often the respondent was assaulted with an object used as a weapon, threatened with violence, and involved in physical fights with other prisoners. The answers were coded: 0=never; 1=about 1–2 times; 2=about once a month; 3=about once a week; 4=2–3 times a week. The three variables were then factored together to form the experienced strain measure ($\alpha=.672$).

Anticipated strain was measured as both risk and fear (Baron, 2009). Both were measured by giving respondents a ranked statements and asking them the degree to which they agreed with them. The ranked statement in the survey used to measure risk was: "Generally, I was in more danger than the average prisoner." The ranked statement in the survey used to measure fear was: "In general, over the period of my incarceration, I felt safe." The responses for both questions were coded 0=strongly agree; 1=agree; 2=disagree; and 3=strongly disagree.

Vicarious victimization was operationalized using six questions. The six questions used asked the inmates if they had seen another prisoner seriously injured, killed, assaulted with a weapon, fight other prisoners, fight correctional officers, and if they saw another prisoners property being stolen or vandalized. The responses were coded as 0=never; 1= about 1–2 times; 2=about once a month, 3=about once a week; and 4=2–3 times a week. The variables were then factored together ($\alpha=.813$) to form one variable. This study also included the six variables Baron (2009) used that could possibly influence the impact of strain on crime. The six variables include low constraint, negative emotionality, violent values, violent peers, social support and self-esteem. Low constraint was measured on a five point scale (0=strongly agree to 4=strongly disagree) using four questions that ask about excitement and risk taking. The measures were then factored together ($\alpha=.785$). The negative emotionality measure was created by factoring four measures. The ranked statements used to create the measure included: I lose my temper pretty easily; Often, when I'm angry at people I feel more like hurting them than talking to them about why I'm angry;

When I am really angry other people better stay away from me; and When I have a serious disagreement with someone, it's usually hard for me to think calmly about it without getting upset. The responses were coded as 0=strongly agree to 4=strongly disagree ($\alpha=.864$).

The violent values measure was created by factoring three questions about how the respondent would react to confrontation ($\alpha=.741$). Violent peers was measured by asking whether they have ever belonged to a gang (0=yes). The social support measure was created by factoring three questions asking about borrowing money from family, having friends and family member to share their problems with, and having family or friends who will help them stay out of trouble (0=strongly agree to 3=strongly disagree; $\alpha=.741$) (see Copes, Dabney, Higgins, & Tewksbury, 2011). The self-esteem measure was created by factoring three measures that asked about how the respondent has felt in the past month ($\alpha=.713$). The three questions included feeling low in energy, thought of ending their life, and feeling worthless (0=not a bit to 4=extremely).

Finally, six additional control variables were used for the analysis. The demographic variables include age (0=15–16; 1=17–18; 2=19–22; 3=23–25; 4=26–30; 5=30+), race (white=0), and education (0=less than high school; 1=high school; 2=some college; 3=completed college). The other control variables included the number of times in prison (0=1 time; 1=2 times; 2=3–5 times; 4=6–10 times; 5=11 or more), and whether participants had been convicted for a violent offense (1=yes), or convicted for drugs (1=yes).

Dependent Variables

There are two dependent variables for this research. Prior research has found that different emotions mediate the coping strategy. Anger has been more closely associated with violence, while depression has been associated with substance use (Agnew & White, 1992; Jang & Johnson, 2003; Mazerolle, Piquero, & Capowich, 2003; Slocum, 2010). Thus, we sought to measure both violence and drug/alcohol use as coping strategies for strained inmates. The first measure deals with behavioral coping of strain. This measure was created by factoring five variables together ($\alpha=.710$). The questions asked included how often did they 1) destroy property, 2) get in physical fights, 3) carry or possess a weapon, 4) spend time in disciplinary unit, and 5) retaliate against a prisoner. All answer choices ranged from 0=never to 4=2–3 times a week or more. The second dependent variable measured emotional coping. This was operationalized by asking participants how often they used drugs or alcohol while in prison. The answer choices ranged from 0=never to 4=2–3 times per week or more. Tables 1 and 2 provide the descriptive statistics for the independent and dependent variable.

Table 1 Descriptive statistics for categorical variables

Variables	Coding	Percentage
Race	0=white	60.9
	1=all other	39.1
Age	0=15-16	0.5
	1=17-18	8.2
	2=19-22	14.0
	3=23-25	19.3
	4=26-30	56.5
	5=31+	1.4
Education	0=<HS	28.3
	1=HS	40.0
	2=Some college	27.8
	3=BA	3.9
Number of times in prison	0=1 time	38.3
	1=2 times	26.7
	2=3-5 times	30.6
	4=6-10 times	3.4
	5=11 or more	1.0
Violent peer	0=yes	22.4
	1=no	77.6
Convicted of violent offense	0=no	72.5
	1=yes	27.5
Convicted of drug offense	0=no	72.5
	1=yes	27.5
In more danger than other prisoners	0=strongly agree	3.9
	1=agree	4.9
	2=disagree	58.3
	3=strongly disagree	33.0
Overall felt safe in prison	0=strongly agree	22.3
	1=agree	50.0
	2=disagree	23.3
	3=strongly disagree	4.4
How often got drunk or high	0=never	52.7
	1=1-2 times	24.9
	2=about once a month	12.2
	3=about once a week	3.9
	4=2-3 times a week or more	6.3

Table 2 Descriptive statistics for interval level variables

Variable	Mean	St. Dev	Minimum	Maximum
Violent Values	6.44	4.04	0	15
Social Support	2.53	1.96	0	9
Self-esteem	1.70	2.16	0	12
Negative Emotions	8.19	3.84	0	16
Low Constraint	7.80	3.24	0	16
Experienced Strain	1.69	1.57	0	9
Vicarious Strain	5.40	3.43	0	19
Behavioral Coping	2.41	2.53	0	14

RESULTS

Table 3 provides the correlation matrix among all independent and dependent variables. The table indicates that none of the measures are highly correlated with one another. Violent behaviors were positively associated with vicarious strain, experienced strain, and violent values. The measure was negatively associated with violent peers, negative emotions, and low constraint. Drug and alcohol use was positively associated with vicarious strain, experienced strain, and violent values and negatively associated with violent peers, low constraint, and negative emotions. Vicarious and experienced strains were moderately correlated with one another.

Table 3 Correlation matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1 Education	–																	
2 Race	-.176*	–																
3 Age	.179*	-.138*	–															
4 # of times in prison	.023	-.089	.340*	–														
5 Violent conviction	.062	.104	-.091	-.138*	–													
6 Drug conviction	-.014	.038	-.007	-.035	-.380*	–												
7 Low constraint	.026	.177*	.126	-.083	.197*	-.108	–											
8 Negative emotions	.142*	.085	.239*	-.102	.107	-.084	.519*	–										
9 Violent values	-.062	-.056	-.281*	.078	-.067	.113	-.267*	-.456*	–									
10 Violent peers	.050	-.289*	.250*	-.058	-.143*	.015	.018	.121	-.301*	–								
11 Social support	-.088	-.188*	.090	.092	-.056	.062	.058	-.061	-.112	.058	–							
12 Self-esteem	-.050	-.122	-.005	-.028	-.017	-.025	-.250*	-.207*	.031	.044	.328*	–						
13 Anticipated Risk	.058	-.118	-.011	.072	.025	.052	.080	.058	.001	.020	-.098	-.120	–					
14 Anticipated fear	-.061	.028	-.086	-.080	.075	-.021	-.017	.134	.025	-.094	.139*	.124	-.239*	–				
15 Experienced strain	-.070	-.066	-.266*	.125	.107	.080	-.158*	-.281*	.414*	-.359*	-.109	.082	-.103	.272*	–			
16 Vicarious strain	-.106	.107	-.198*	.200*	.148*	.007	-.131	-.319*	.428*	-.341*	-.073	.123	-.052	.129	.597*	–		
17 Violent behaviors	-.151*	.208*	.264*	.157*	.071	.066	-.214*	-.367*	.447*	-.562*	-.056	-.005	.016	.109	.516*	.580*	–	
18 Drug use	-.059	-.114	-.049	.268*	.029	.110	-.207*	-.362*	.493*	-.305*	-.144*	.019	-.104	.014	.483*	.471*	-.100*	–

*significant at the .05 level, two-tailed

Table 4 presents the linear regression results exploring the association between the independent variables and violent behaviors while controlling first for the basic demographic variables, then including the strain variables, and finally including the conditioning variables as additional controls. The first model shows that race, age, and the number of times the individuals has served in prison significantly affect one's violent behaviors. Those who are non-white, older, and have served more times in prison are significantly more likely to use violence. Race and age are still significant when the strain variables are added into the model. Also, experienced and vicarious strains have a significant effect on violent behavior. Individuals who have experienced more violence in prison or have witnessed more violence being used in prison are more likely to use violence as a coping mechanism while in prison. Anticipated strain had no effect on the inmate's violent behavior while in prison.

Table 4 Linear regression analysis for violent behavior

	Model 1		Model 2		Model 3	
	b	se	b	se	b	Se
Education	-.144	.081	-.064	.068	-.079	.061
Non-white	.315*	.139	.343**	.121	.188	.121
Age	-.305***	.068	-.131*	.060	-.007	.057
# of times in prison	.298***	.073	.105	.066	.052	.060
Violent conviction	.270	.162	-.030	.140	-.010	.126
Drug conviction	.257	.159	.059	.137	.048	.122
Anticipated strain (risk)			.113	.084	.135	.075
Anticipated strain (fear)			.004	.077	.180	.072
Experienced strain			.276***	.075	.113	.070
Vicarious strain			.350***	.072	.281***	.068
Low constraint					-.094	.060
Negative Emotionality					-.154*	.067
Violent values					.067	.062
Violent peers					-.839***	.144
Social Support					-.024	.059
Self-esteem					-.062	.057
Constant	.541	.250	-.013	.311	.203	.312
R ²	.189		.442		.576	
N	198		198		198	

*significant at the .05 level, two-tailed

**significant at the .01 level, two-tailed

***significant at the .001 level, two-tailed

Model 3 presents the full model: demographic, strain, and conditioning variables. When the conditioning variables are included in the model, the demographic measures are no longer significant and only vicarious strain significantly affects an individual's use of violence. Furthermore, two of the conditioning variables are

significant. Individuals who have experienced higher levels of negative emotions are more likely to use violence as a coping mechanism in prison. Also, those who belong to a gang were significantly more likely to use violence in prison. Overall, those who have witnessed violence in prison, associated with violent peers, and had higher levels of negative emotionality were more likely to use violence as a coping mechanism.

Table 5 Ordered logit regression analysis for drug/alcohol use

	Model 1		Model 2		Model 3	
	Coeff.	se	Coeff.	se	Coeff.	Se
Education	-.049	.177	.098	.190	.190	.206
Non-white	-.620*	.306	-.837**	.346	-.842*	.428
Age	-.419**	.150	-.093	.165	.229	.183
# of times in prison	.873***	.168	.601**	.182	.652**	.192
Violent conviction	.604	.357	.209	.380	.377	.397
Drug conviction	.966**	.343	.697	.366	.683	.383
Anticipated strain (risk)			-.382	.222	-.440	.235
Anticipated strain (fear)			-.278	.204	-.048	.229
Experienced strain			.783***	.198	.446*	.209
Vicarious strain			.752***	.204	.647**	.223
Low constraint					.073	.202
Negative Emotionality					-.432*	.216
Violent values					.768***	.191
Violent peers					-.815	.428
Social Support					-.139	.187
Self-esteem					-.173	.179
N	200		200		200	
χ^2	38.848		98.755		132.325	
Nagelkerke Pseudo R ²	.192		.425		.528	
μ_1	1.129	.542	.895	.822	1.876	.999
μ_2	2.172	.568	2.196	.845	3.351	1.026
μ_3	2.719	.594	2.847	.869	4.073	1.051

*significant at the .05 level, two-tailed

**significant at the .01 level, two-tailed

***significant at the .001 level, two-tailed

Table 5 presents the results of the ordered logit model for the drug/alcohol use dependent variable. Model 1 presents the results for the demographic measures. Race, age, number of times in prison, and whether one was convicted of a drug crime are all significantly related to substance use in prison. Those who are nonwhite and older significantly decreased the probability of using drugs or alcohol while in prison. Individuals who had been convicted for a drug crime have significantly higher odds of using illegal substances while incarcerated. Also, those

who had been in prison more times have significantly higher odds of abusing drugs and alcohol. Model 2 incorporates the strain variables and it is important to note that once these variables are introduced into the model, whether one was convicted of a drug crime was no longer significantly related to abusing drugs and alcohol in prison. Although one may have used drugs outside of prison, substance abuse in prison was not determined by prior history of use. Race and number of times in prison remain significant while age and drug conviction do not. As with Table 4, only experienced and vicarious strains are significant. The more experienced and vicarious violence the higher the odds that the individuals will have abused drugs and alcohol while incarcerated.

Model 3 includes the demographic, strain, and conditioning variables. As seen in the previous table, when the conditioning variables were included in the model the demographic measures did not significantly affect violent behavior in prison. In Table 5, however, race and number of times in prison were still significantly related to drug/alcohol abuse. Experiencing violence and witnessing violence increased the odds of abusing drugs and alcohol. Negative emotionality and violent values were significantly related to an individual's drug abuse while in prison. Those who scored higher on having negative emotions decreased the probability of achieving a higher score on drug/alcohol abuse while those who had higher violent values increased the probability of achieving a higher score on drug/alcohol abuse. Overall, those who spent more time in prison, experienced violence in prison, witnessed violence in prison, and who had violent values had increased odds of abusing drugs and alcohol, while those who were non-white and scored high on negative emotions decreased their odds of abusing drugs and alcohol.

DISCUSSION

The objective of this study was to assess the utility of general strain theory for explaining violent behavior and drug use among incarcerated males. Drawing from general strain theory, this study set out to examine if experienced, vicarious, and anticipated strain were related to violent behavior within a prison setting. The findings indicated that two of the types of strain (experienced and vicarious) were related to higher levels of violent behavior and drug/alcohol use by inmates. We anticipated that low constraint, negative emotionality, violent values, personality traits and violent peers would all influence one's violent behavior while incarcerated (Agnew, Brezina, Wright, & Cullen, 2002). Results indicated that only negative emotionality and violent peers influenced violent behavior. In the basic models examining the control and strain variable, both experienced and vicarious strain were associated with greater violence; therefore, inmates who had either experienced strain or had seen another inmate experience strain were more likely to act violently. In the full models when controlling for the conditioning variables, experienced strain was no longer significant in predicting violent behavior. Negative emotionality and violent peers negated the association between experienced strain and violent behavior. Individuals who were in networks with violent peers showed a greater propensity towards violent behavior. Moreover, violent peers may encourage inappropriate coping strategies, such as violence (Agnew, 2006). Our findings support the idea that those who view violence as justifiable and positive are more likely to use it as a method of coping with strain.

We also analyzed drug/alcohol use as a coping strategy for the strain that inmates experience while in prison. It appears that both experienced strain and vicarious strain significantly influence the likelihood an inmate will use drugs/alcohol in prison. Again, negative emotionality significantly influences one's negative coping behavior. Also, having violent values influences the use of drugs/alcohol while in prison. In summary, prisoners who have violent values and negative emotions are more likely to use drugs or alcohol than those who do not.

Overall, this study builds on prior research and incorporates new measures of inappropriate coping; however, it is not without its limitations. One limitation is that it is a cross-sectional research design. Cross-sectional designs do not allow for us to determine causality. The past literature indicates that there is a reciprocal effect between victimization and crime (Agnew, 2002; Sampson & Lauritsen, 1990). Agnew (2002) found that when controlling for past criminal acts, victimization predicted a general measure of delinquency and Hay and Evans (2006) found that victimization and perceived harm often initiated violent criminal responses. Although causality cannot be determined, there is support for the behavior to follow the victimization, whether it is experienced, anticipated, or vicarious. Future research would benefit from using a longitudinal approach.

Another limitation is that the results may not be generalizable to female incarcerated populations. Future research could include both female and male inmates to better understand how each cope with strain. We have argued that inmates may be more susceptible to violent behavior because they live in a more violent environment, whereas others belonging to a non-incarcerated population may cope with strain in a different fashion. The prevalence of violence in prisons for women is different than it is for those who house men. In addition, women in general have been shown to rely on different coping strategies than men (e.g., women may use more passive forms of coping) (Broidy & Agnew, 1997; Manasse & Ganem, 2009). Thus, including both men and women in the sample could determine how they differ in their responses to strain in prison.

Despite these caveats, we believe that our findings have important implications for both theory and policy. Our findings suggest that differentiating the type of strain a prisoner experiences can be important in understanding their violent behavior and drug/alcohol use while in prison. It appears that those with certain characteristics, demographic and conditioning, are more vulnerable to react with violence or substance use in response to these strains. Prisoners with negative emotionality and violent peers may react to strain with violence and those with negative emotionality and violent values may react to strain with substance abuse. Knowing this information may allow prison administrators to better manage the violence and anti-social coping that is so prevalent in U.S. prisons. In addition, our findings provide moderate support for general strain theory. The findings show that, at least in controlled environments like prisons, witnessing violence has comparable effects on inappropriate coping as does experienced violence.

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