

The Moderating Effects of Trait Anger, Low Self-Control, and Prosocial Coping on the  
Relationship between Negative Emotionality and Aggressive Coping:

An Experimental Study of General Strain Theory

by

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## ABSTRACT

This study tested hypotheses derived from general strain theory, including whether the disposition for crime (e.g., trait anger and low self-control) and prosocial coping moderate the link between state-based negative emotions and maladaptive coping. A 2x2 factorial vignette was embedded in a survey instrument and administered to a university-based sample (N = 503). The results from the regression models support different parts of general strain theory, such as the direct effect of strain on negative emotions, the effect of negative emotions on aggressive coping, and the mediating effect of negative emotions. Finally, the effect of some negative emotions on aggressive coping were moderated by trait anger, low self-control, and prosocial coping. The findings of this study support the argument that dispositions to maladaptive coping amplify the effects of negative emotion and underscore the importance of establishing prosocial coping resources.

Keywords: emotions, general strain theory, low self-control, maladaptive coping

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## CHAPTER 1

### INTRODUCTION

General strain theory (GST) posits that crime and delinquency can be explained by adverse events (or “strains”) that result in the development of negative emotions, such as anger and frustration (Agnew, 2006). As these emotional responses fester, the pressure to rectify the situation increases. To date, there is a growing literature linking strain to negative emotionality, and the latter to criminal and other forms of maladaptive coping (Botchkovar & Broidy, 2013; Cho & Galehan, 2020; Daniels & Holtfreter, 2019; Jang & Song, 2015; Ganem, 2010; Moon & Morash, 2017a; Ngo & Paternoster, 2016; Piquero et al., 2010). According to GST, various individual factors moderate the effect of emotional responses to strain. Among these factors include legal stress coping abilities and individual dispositions to commit crime. For example, an individual with low self-control or who is generally angry may be more likely to respond aggressively when experiencing strain-induced negative emotion. When compared to studies testing the direct effects of negative emotionality on crime and delinquency, research assessing potential conditional factors on the effects of negative emotional responses to strain are relatively scarce. This lack of research makes it difficult to evaluate the merit of this facet of GST.

This study addresses the relative scarcity of research testing the factors that moderate the link between negative emotional reactions to strain and maladaptive coping. This objective was carried out by administering a factorial vignette that was embedded in a pencil and paper survey instrument administered to a university-based sample (N = 503). More specifically, this study sought to answer the following questions: Does strain promote negative emotional responses? Do negative emotions promote maladaptive

coping? Do individual factors, such as dispositions to commit crime and prosocial coping resources, moderate the influence of negative emotionality on maladaptive coping? One purpose of this study was to motivate inquiries into moderating factors within a GST framework, and also to underscore the importance of prosocial coping strategies. After a review of previous literature followed by the study's data, methods, and procedures, the results from the regression analyses will be presented. Finally, the implications and the limitations of the study will be discussed.

## CHAPTER 2

### LITERATURE REVIEW

#### **The Concept of Strain in a Historical Context**

Contemporary strain theory can be traced back to Merton's (1938) classical strain theory, which posited that criminal offending in the United States could be explained by frustrations in class differences—a consequence of the societal dysfunction promoted by the “American Dream.” Expectations for monetary success and achievement were high for all citizens, yet not everyone had the resources to achieve material success. These elements of promoting culturally defined goals and succeeding through appropriate channels lead to escalating feelings of “anomie” among those who struggled to meet these expectations. Anomie, Merton explained, is the overall “normlessness” that results after an opportunity for material success was blocked. The resulting effect would be discontent with an inability to move forward, and stress would be resolved via five adaptations: conformity, innovation, retreatism, ritualism, and rebellion. Merton (1938) argued that those who were prone to conformist adaptations were more likely to practice socially acceptable means. Innovators, however, were more likely to cave to societal pressures, and create “innovative,” or illegitimate, routes to achieve monetary success (Agnew & Brezina, 2010; Kubrin et al., 2009; Liska, 1987).

Building on Merton's (1938) work, Cohen (1955) proposed that anomie not only resulted from an inherent push to accumulate wealth, but also from “status frustration,” the struggle to improve social standing and reputation associated with societal success. Cohen argued that those in the lower class aspiring for upward mobility were most susceptible to socially disapproved behaviors because of their status disadvantage.



Additionally, Cohen (1955) provided an explanation for juvenile gangs using his definition of strain, arguing that gang formation resulted from individuals with similar lower-class circumstances coming together to bond over their shared frustrations. For instance, popularity among adolescents often depends on fashion, standing in class, and expectations of middle-class educators—factors often influenced by monetary and status characteristics. It was in these groups of financially disadvantaged youth that societally disapproved behaviors such as toughness, violence, and delinquency were encouraged, leading to a higher likelihood of criminal behavior (Agnew & Brezina, 2010).

Cloward and Ohlin's (1960) theoretical argument took both Merton (1938) and Cohen's (1955) theories of strain and provided further context for juvenile gangs. Cloward and Ohlin (1960) reasoned that gangs are more likely to develop between adolescents who not only struggle with similar financial problems but are dependent on how intense their societal frustrations are and how often members regularly interact. Additionally, Cloward and Ohlin (1960) proposed that gangs are more likely to adhere to three types of delinquent behavior (i.e., fighting, theft, and drug use), but the form of delinquency depends on the availability of illegitimate alternatives. Mentorship from older individuals specializing in theft provides a larger opportunity for juvenile gangs to also practice theft. Overall, Cloward and Ohlin (1960) argue that opportunity and motivation are important (Agnew & Brezina, 2010; Kubrin et al., 2009; Liska, 1987).

Towards the end of the 20<sup>th</sup> century, criticisms directed at traditional strain theories—such as their narrow conceptual focus—began to mount and become more prominent in theoretical debates. All three classical strain theories only considered strain in a financial or societal context, perceived only as blocked opportunities for increasing

wealth and social standing among members of the lower and working classes. This capitalist fallacy is used throughout the early strain theories to explain delinquency (Agnew & Brezina, 2010; Bernard, 1984; Farnworth & Leiber, 1989; Featherstone & Deflem, 2003). Additionally, the original definition of strain proved challenging to measure. Operationalizing status and financial frustration in addition to strain also proved to be difficult. Furthermore, researchers of the 1970s argued that most juveniles are not overly concerned with wealth and status, are more interested in developing increased autonomy, and may participate in delinquent behavior as a step in affirming masculine gender roles. In sum, some criminologists became increasingly convinced that strain theory required revision.

### **Agnew's General Strain Theory**

General strain theory (GST) broadened the traditional conceptual definition of strain. Strains are “events or conditions that are disliked by individuals” (Agnew, 2006, p. 4). GST recognizes three major strains: (1) the failure to achieve something positive, (2) the introduction of something negative, and (3) the removal of something that is valued. Additionally, GST distinguishes between *objective* and *subjective strains*. The former involves scenarios that most people would generally view as adverse events. For example, all but a very small number of individuals would find having their home broken into to not be stressful. The latter refers to events or conditions that may be stressful to some people but not others. Missing a meeting, being late to class, or having a death in the family are all examples of subjective strain. What makes one strain objective versus subjective depends on the individual's personality, past experiences, and personal values (Agnew, 2006).

GST posits that past *personal experiences with strain* (i.e., being the victim of assault) are more likely to result in criminal or deviant coping (Agnew, 2006). However, personal strains are not the only type that can promote negative effects. *Vicarious strains*, stressors that are experienced by somebody close (e.g., family member or friend) can also promote negative outcomes (Agnew, 2006). Finally, *anticipated strains*, ones that are expected to occur or continue to occur in the future, are also potentially strain-inducing (Agnew, 2006). In sum, the nature of strain varies (e.g., objective versus subjective). Nevertheless, GST holds that the immediate consequence of such strain is emotional discomfort.

### **The Role of Negative Emotionality**

A central argument in GST is that “strains increase the likelihood of crime because they make people feel bad” (Agnew, 2006, p. 32). Put differently, the probability of experiencing negative emotions is significantly higher when people are exposed to stressful events or conditions. For example, a crime victim is more likely to become angry or frustrated after being robbed. Anger is an emotion that typically occurs after the strain applied was observed as particularly unjust. Subcategories of anger, such as resentment and jealousy, may also arise as a result of strain (Agnew, 2006). Other emotions initiated by strain may include depression and anxiety. Although depression and the negative feelings that coincide with it can be strong, it is less likely to produce corrective action or deviant behavior compared to anger (Agnew, 2006). Importantly, emotional reactions to most strains are situational in nature. For example, a victim of road rage may only experience a brief bout of anger. These responses are sometimes described as “state-based” emotions (Agnew, 2006; Garase, 2006).

The significance of negative emotions, Agnew (2006) argues, is that they increase the likelihood of criminal behavior. This may happen for a variety of reasons. First, the discomfort associated with negative emotions results in attempts to rectify the situation. For example, after a physical assault, the victim may experience fear, anger, and frustration. The emotional distress that these feelings cause creates pressure to correct the situation. Second, the pressure to eliminate negative emotions in a legal manner is decreased. The intensity of negative emotionality influences individuals to make bad decisions, inaccurately assessing situations, and overreacting. Third, experiencing extremely negative emotions makes people less concerned with the consequences of their actions. When preoccupied with intense anger, less weight is placed on long-term consequences and much more attention is placed on rectifying the situation, oftentimes using illegitimate means. Though criminal coping may result from negative emotions, various forms of prosocial stress coping may also result for some individuals.

### **Coping Strategies for Strain-Induced Negative Emotionality**

While some people are more likely to commit crime and deviance as a response to strain-induced negative emotionality, the vast majority do not do so. Scholars have identified some of the legitimate coping strategies people employ to relieve the pressure caused by strain-induced negative emotionality (see, e.g., Broidy, 2001; Carver, 2011; Carver & Connor Smith, 2010; Ganesan, 2018; Park & Adler, 2003; Smith & Kirby, 2011). Among the more common strategies include speaking to a therapist, talking to the person who is causing the strain, and venting about the stressful event to a friend. These forms of coping do not involve criminal behavior but rather are indicative of *prosocial coping* (Agnew, 2006).

Agnew (2006) outlines the three categories of coping strategies that promote prosocial reactions to negative emotions. First, *behavioral coping* encourages individuals to make decisions to protect themselves, achieve their goals, or avoid a negative stimulus (Agnew, 2006). For example, an adolescent who is being bullied on the bus ride home from school may seek out alternative transportation to avoid harassment. Second, *cognitive coping* involves the individuals reframing the strains so as to minimize their emotional impact (Agnew, 2006). For example, a driver who is suddenly cut off by another may frame the incident as the other driver was in a hurry, perhaps because of an emergency situation. Third, *emotional coping* involves using distractions—music, exercise, or work—to stave off negative emotions (Agnew, 2006). Importantly, all three forms of prosocial coping reflect noncriminal ways of coping with negative emotionality.

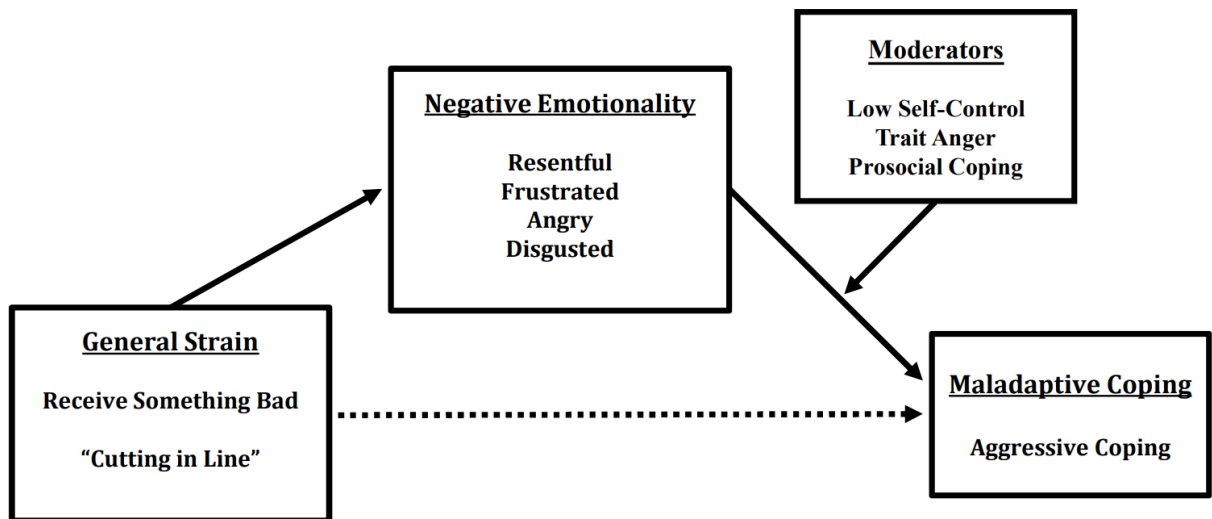
Not everyone has the resources necessary to cope with strain-induced negative emotions in prosocial ways. For these individuals, the likelihood of criminal behavior (or *maladaptive coping*) is much greater (Agnew, 2006). Revising the scenarios used previously as examples of prosocial coping to reflect maladaptive coping, the bullied student may bring a weapon to fight back against their aggressor on the bus or the driver may instead choose to chase down the reckless driver and threaten them with violence. Such forms of maladaptive coping do not actively relieve the pressure that results from strain and its consequences, but rather increases the intensity of negative thoughts and emotions (Agnew, 2006).

### **Moderating Factors of the Effect of Negative Emotionality**

GST recognizes that there are various factors that affect whether strained individuals engage in prosocial or maladaptive coping. First, several personality traits act

as dispositions for criminal coping that may amplify the effect of negative emotions (Agnew, 2006). For example, individuals who are generally impulsive risk takers (i.e., possess low levels of self-control) or who are ill-tempered and “mean” (i.e., exhibit characteristics of trait-based anger) are more likely to engage in maladaptive coping when experiencing strain-induced negative emotions. Second, the ability individuals possess to deal with negative emotions in a legal fashion may reduce the effect of negative emotionality. For example, some individuals are better equipped to cope with their negative emotions in a prosocial manner by employing cognitive, behavioral, or emotional coping techniques that they have acquired. In sum, these factors are espoused to increase or decrease (i.e., moderate) the deleterious effect of negative emotionality on maladaptive coping. The core propositions of GST are summarized in Figure 1.

**Figure 1. GST Core Propositions**



### **Empirical Support for Strain → Negative Emotions Proposition**

A number of studies have tested the proposition from GST that strains promote negative emotions. For example, Yang and colleagues (2018) examined the emotional impact of bullying (strain) among school-aged children (i.e., grades 5<sup>th</sup> through 10<sup>th</sup>). Their findings were consistent with GST: namely, students who were bullied by their peers experienced higher rates of intense negative emotions, mainly anger and frustration, than students who were not victims of bullying. In another bullying study, Oh and Connolly (2019) reported similar results. Their data, which consisted of adolescents attending schools in South Korea, also support GST: being a victim of bullying increased unwanted negative emotions, such as anger, anxiety, and depression. These two studies support the proposition that exposure to strain leads to negative emotionality.

Other studies have tested the effects of other types of strain. For example, Broidy (2001) tested the effects of three types of strains—blocked goals (e.g., goal related to academics, athletics, or personal health), unfair outcomes (i.e., fairness associated with goal attainment), and stressful life events. Broidy found two strains—unfair outcomes and stress—were both positively correlated with anger. Peck and colleagues (2018) examined the relationship between strain and depression. Their results show that a variety of strains, such as familial suicide, receiving public assistance (i.e., welfare), and violent victimization, were positively and significantly related to depression. Many other studies have found results that support the proposition that strain, in varying forms, promotes a range of negative emotions (see, e.g., Boa et al., 2004; Botchkovar & Broidy, 2013; Cho & Galehan, 2020; Jang, 2007; Jang & Song, 2015; Ganem, 2010; Moon & Morash, 2017a; Moon & Morash, 2017b; Piquero & Sealock, 2004; Piquero et al., 2010).

## **Empirical Support for Negative Emotions → Deviant Coping Proposition**

GST also predicts that strain-induced negative emotions create pressure for corrective action, which can ultimately result in legitimate or illegitimate (or criminal) coping. Ganem (2010) examined how different strain-induced emotions influenced three types of criminal coping (i.e., hitting someone, shoplifting, and cutting class) using vignette-based methodology. Results indicated that certain emotions (e.g., anger) predicted an increased likelihood of assault and theft. Other emotions, such as fear and frustration, were only positively and significantly related to cutting class among participants in the university-based sample. Overall, Ganem's (2010) findings demonstrated that different emotions vary in their influence over how individuals cope.

Jang and Song (2015) also examined the hypothesized link between strain-induced negative emotions and deviant coping. Using data from the Korean Youth Panel Survey, the authors reported that one specific negative emotion—anger—increased the likelihood of delinquent coping and drug use. Other negative emotions—depression and anxiety—were more inversely related to delinquency. Overall, the Jang and Song (2015) found that the associations between different negative emotions and illegitimate forms of coping varied.

Many other studies have examined the effects of negative emotions on maladaptive coping (see, e.g., Broidy, 2001; Cho & Galehan, 2020; Daniels & Holtfreter, 2019; Huck et al., 2017; Kondrat & Connolly, 2022; Ngo & Paternoster, 2016; Piquero & Sealock, 2004), and have found varying levels of support. Many of these studies report findings supporting the hypothesized link between anger and maladaptive coping. Other negative emotions, such as depression and anxiety, are less strongly and consistently



correlated with criminal and delinquent coping and more commonly related to substance use.

### **Empirical Investigation of Moderating Effects**

**Trait Anger.** Agnew (2006) argues that some personality traits increase the likelihood of maladaptive coping to occur in response to negative emotions. For example, it can be hypothesized that the effect of reactionary (or state-based) negative emotions on criminal coping will be stronger among individuals with generally angry personalities (or trait anger). Although relatively uncommon, researchers have investigated the moderating effects of trait-based anger in a GST context. Mazerolle and colleagues (2003) administered surveys to a university-based sample to examine the links between strain, state and trait-based anger, and propensity to commit crime. Jang (2007) used data from the National Survey of Black Americans (NSBA) to investigate gender differences in strain, anger, and coping strategies. Lee and colleagues (2022) used data from the Korean Youth Panel Survey (KYPS) to examine the moderating effects of trait anger on victimization and bullying perpetration. Though all of these cited studies examine anger as a conditioning factor, none of them consider the interaction between state and trait-based anger on strain and aggressive coping. After an exhaustive literature search, the author was unable to locate a single research study that tested the interaction effect of state and trait anger on criminal coping.

**Low Self-Control.** Some studies have tested the moderating effect of low self-control and strain on coping (Boccio & Beaver, 2021; Hay & Evans, 2006; Hay & Meldrum, 2010; Mazerolle et al., 2003; Schulz, 2016; Turanovic & Pratt, 2013). However, these studies fail to consider the role of negative emotionality, essentially

skipping a key component of GST. This is unfortunate, given that Agnew (2006) hypothesizes that low self-control, or the inability to effectively regulate one's emotions and behavior, may also increase the likelihood of criminal coping. More specifically, those with low self-control lack the ability to regulate their emotional states which is necessary to engage in legitimate coping. Additionally, those with poor self-control often lack critical thinking skills, lack social awareness, and can be quick to respond when angered by strain—all of which makes maladaptive coping much more likely (Agnew, 2006; also see Gottfredson & Hirschi, 1990).

There are few studies that have investigated the moderating effects of low self-control on the relationship between negative emotionality and criminal coping. For example, Jang and Song (2015) used data from two waves of the Korean Youth Panel Survey (KYPS) to assess several interactions, including the conditioning effects of negative emotion and low self-control on maladaptive coping. Ultimately, the researchers observed that low self-control failed to moderate the effect of negative emotion on the propensity for delinquency and drug use.

Moon and Morash (2017a) used data from two waves of a South Korean longitudinal study collected from middle school students in three cities (i.e. Incheon, Daegu, and Cheongju) to assess gender differences in strains and moderating effects on delinquent behavior. However, Moon and Morash (2017a) used a composite conditioning index that included a low self-control scale among other measures. The authors found that anger and their conditioning index was statistically significant for males and females. Although the study provided some support for the GST moderation hypothesis, the

measurement strategy of the authors made it difficult to determine the role of low self-control in the moderation process (Moon & Morash, 2017a).

**Prosocial Coping.** Agnew (2006) maintains that individuals who possess sufficient prosocial coping skills will be less likely to respond criminally when experiencing strain-induced negative emotions. Though sparse, this moderation hypothesis has been tested. For example, Botchkovar and colleagues (2013) used data from three European cities (i.e., Athens, Lviv, and Nizhni Novgorod) to examine the moderating effect of avoidance coping on the relationship between negative emotions and projected crime among three socioeconomic status (SES) groups (low, medium and high). Avoidance coping was operationalized by combining items such as “putting [strains] out of mind,” telling oneself that “strains are not important after all,” and “turning to other activities” (p. 224). The results from the regression models show that avoidance coping neither amplified nor diminished the relationship between negative emotions and projected crime. Interestingly, the moderating effects of maladaptive coping strategies—past criminal coping—did amplify the effect of negative emotions on projected crime and medium and high SES participants. In short, the study found support for the hypothesis that prior coping impacts the relationship between negative emotions and criminal coping, though the evidence is limited to the harmful effects of prior deviant coping (Botchkovar et al., 2013).

### **Limitations to Prior Research**

Past studies have provided findings with important implications for GST. For example, they have presented evidence that different types of strain promote a variety of negative emotional states. Additionally, much work has shown a clear link between

negative emotionality and various forms of maladaptive coping, especially delinquency/crime and substance use. Among the many emotional reactions to strain, anger has been shown time and again to be very consequential in terms maladaptive coping. Although prior research has provided considerable support for the main propositions of GST, there is a comparative dearth of research that tests the hypothesized moderating variables that amplify (e.g., disposition for crime) or diminish (e.g., legitimate coping skills) the deleterious effects of negative emotionality.

It seems that one of the problems may lie in how negative emotionality is operationalized. Several studies that attempt to examine negative emotionality employ measures of trait emotion, but a sound test of the theory would entail the use of situational-based emotions. The difficulty here is that strain is more likely to elicit emotions of the highest intensity shortly after experiencing the strain. But the use of trait emotion measures assume that individual responses to strain will be measurable across the time periods when surveys are administered longitudinally. State-based emotions, which can be difficult to measure when using cross-sectional and longitudinal designs, are potentially stronger indicators of how individuals respond to strain based on the recency of the stimuli of theoretical interest.

Comparatively few studies have tested GST using experimental designs. This is somewhat surprising given the advantages the methodology offers. For instance, experimental designs are arguably better able to isolate cause-and-effect relationships than cross-sectional designs. For example, manipulating the stimulus (e.g., strain) and measuring the emotional reactions of both the experimental and control groups makes testing the connection between strain and emotions much easier to decipher. An

experimental design, such as a factorial vignette study, provides such an opportunity and overcomes some of the problems with cause-and-effects associated with other research designs.

The limitations of prior studies provide direction for new tests of GST. Questions regarding the factors that moderate the consequences of state-based emotions remain an important gap in the literature. Clearly, there is a need for research in this area. Using an experimental design to manipulate strains and measure state-based emotional responses, this study will contribute to the GST knowledge base by testing the hypotheses outlined in Figure 1, with emphasis placed on the factors that moderate the link between negative emotionality and maladaptive coping.

## CHAPTER 3

### DATA AND METHODS

#### **Participants**

The university-based sample used in this study (N = 503) was comprised of individuals who were enrolled in one of 14 undergraduate criminology and criminal justice courses across three campuses (i.e., Tempe, West, and Downtown) at Arizona State University (ASU). These courses were open to students seeking an undergraduate degree in criminology and criminal justice and students who were enrolled to satisfy a general education requirement. The sample was 68.7% female and 31.3% male. In terms of age, 36.6% reported that they were 18 years old, 26.8% said they were 19 years old, 20.5% reported they were 20 years old, and 16.4% said they were 21 years or older. In terms of race and ethnicity, 40.9% reported they were White, 34.6% said they were Hispanic, 4.3% reported they were Asian, 3.3% said they were Black, 0.8% reported they were Native American, 15.1% identified as multiracial, and 1.0% identified as “other.” Additionally, 54.3% of respondents stated that they were currently employed and 45.9% reported that they were first-generation college students.

#### **Procedures**

A pencil and paper survey instrument with an embedded factorial vignette was administered to the sample participants in each classroom. Before the instrument was distributed, the different versions of the survey instrument were shuffled to help approximate random assignment. The results from the balance tests are provided in Appendix A. Students were informed that their participation in the study was completely voluntary and that their responses were anonymous. Opportunities were given to

participants to ask questions to a research team member before, during, and after the administration of the survey. On average, the survey took about 20 minutes to complete. Importantly, these protocols were approved by ASU's Institutional Review Board prior to the onset of data collection.

The survey was designed specifically for this study. The first section of the instrument featured a series of closed-ended items designed to capture variation in things such as self-control, trait emotions, and prosocial coping. Next, participants were asked to carefully read a hypothetical scenario (~150 words) and respond to the series of closed-ended survey items, which captured variation in both emotional and behavioral reactions, as if the situation described in the vignette actually happened to them (see full vignette in Appendix B). Finally, participants were presented with items that asked about their demographic background.

To assess the quality of the data, several checks were included in the instrument, one of which gauged the attention participants paid to the vignette. Participants were asked to respond "yes" to an item with a closed-ended binary response. A large majority of participants (97%) passed this check. The narrative check entailed asking participants where the situation described in the vignette took place. Nearly all of the participants (99.4%) answered the question correctly. When asked whether the hypothetical scenario was realistic, 97.4% stated that the scenario was either "very realistic" or "somewhat realistic." When asked about how clearly they could imagine the situation described in the scenario, 99.6% responded that they could either "very clearly" or "somewhat clearly" imagine the situation. Participants were also asked to report how honest and careful they were when completing the survey. The majority of participants (83.2%)

stated that they read the survey either “extremely carefully” or “carefully,” and 92.1% of the sample said they were either “completely honest” or “very honest” when completing the survey.

### **Treatment**

A 2x2 between-subjects experimental design was used. The hypothetical vignette was set in a grocery store. The scenario asked participants to imagine they were in a hurry but found themselves in a very slow-moving check-out line. The first experimental condition was intended to capture social control. Specifically, participants were told either the store was “really busy with lots of families and senior citizens shopping” (experimental condition) or that it was “almost empty with only a few customers scattered throughout the store” (control condition). The scenario continued by stating that as the checkout line began to move, a middle-aged man cuts in line. At this point, an experimental condition was manipulated to introduce strain. A description of how the line cutter handled the situation followed: the man “turns and looks at you as if to say, ‘Yeah, what are you going to do about it?’” (experimental condition) or “the man apologizes and explains his wife sent him to get a few things they forgot while she saved their place in line” (control condition). The results from the stimulus checks confirmed that the experimental condition for strain was largely interpreted (i.e., rude and impolite) by participants as anticipated (see Appendix C). Both of the experimental conditions were coded as binary variables (1 = experimental condition and 0 = control condition). Missing cell values were handled using listwise deletion.



## Measures

Immediately following the presentation of the hypothetical vignette, participants were asked to indicate how they felt toward the man in the scenario. A list that included both positive emotions (happy, joyful, and understanding) and negative emotions (resentful, frustrated, angry, and disgusted) were presented to participants and were asked to indicate which ones reflected their reactions. Participants were instructed that they could select more than one option. This study focused on the negative impact of state emotions (or negative emotionality). Accordingly, only negative emotions were used in the analyses. Each of the four negative state emotions were binary coded (1 = yes, 0 = no).

**Dependent Variable.** The dependent variable in this study, aggressive coping, consisted of eight responses to how participants said they would respond to the hypothetical scenario. The possible responses increased in the level of aggression, starting with addressing the line cutter to “call him a bad name, like jerk or jackass, in a quiet voice but hope that he hears you,” “purposely hit him with your shopping cart but act like it was an accident,” “yell at him and tell him to get to the back of the line,” to more violent reactions like “threaten to forcefully move him to the back of the line,” “spit on his car in the parking lot as he is putting his groceries in the trunk,” “scratch his car in the parking lot when he’s not looking,” “follow him in your car and give him the middle finger down the street,” “follow him home and come back later and vandalize his property.” Responses to each item ranged from “very unlikely” (coded 1) to “very likely” (coded 4). The Cronbach’s alpha for this scale was .76. The scale was coded so that higher scores reflected higher rates of aggression.

**Moderators.** Three moderator variables—low self-control, trait anger, and prosocial coping—were used in this study. The first two scales were made up of items that gauged participants’ level of agreement. The Likert-style options ranged from “strongly disagree” (coded 1) to “strongly agree” (coded 4). Low self-control was assessed using thirteen items that provided descriptions of participants’ behavior, such as “I am lazy,” “I say inappropriate things,” “I have trouble concentrating,” “I do certain things that are bad for me if they are fun,” “I wish that I had more self-discipline,” and “I have trouble concentrating” (see Tangney et al., 2004). Four of the thirteen scaled items were reverse-coded to reflect lower self-control. The Cronbach’s alpha for this scale was .79. Higher scale scores reflected lower levels of self-control.

Trait anger was a five-item additive scale that was comprised of the following items: “I feel angry most of the time,” “I feel angry about what I have to look forward to,” “More people than usual are beginning to make me feel angry,” “My feelings of anger sometimes keep me from making good decisions,” and “I am pretty angry about things these days” (Snell et al., 1995; also see Daniels & Holtfreter, 2019). The scale had a high level of internal consistency (Cronbach’s alpha = .81). Higher scores reflected greater levels of trait anger.

Prosocial coping was a twelve-item additive scale that included techniques for dealing with stress and strain that fall under the headings of cognitive, behavioral, and emotional coping. The scale items included “When I feel stress, I think about what is stressing me out and realize that it’s not very important,” “I make sure I get plenty of sleep if I am stressed,” “I talk about the stress I feel with my friends and family,” “I usually ignore stressful things and try to think about other things that are more positive,”

“When I feel stressed out, I get a lot of physical exercise,” “It is helpful for me to talk about my stress with a therapist,” and “When my life becomes stressful, I try to stay socially active and connected to my community.” Each item included a four-point, closed-ended response set that ranged from “never” (coded 1) to “always” (coded 4). Similar scales have been used previously in tests of GST (see Broidy, 2001). The level of internal consistency exhibited by this scale was adequate (Cronbach’s alpha = .62). Higher scores indicated higher rates of prosocial coping.

**Control Variables.** Control variables were used in the multivariate analyses to ensure that the estimates were unbiased. Age was a four-category variable ranging from 18 years (coded 1) to 21 years and over (coded 4). Race/ethnicity was represented by two dummy-coded variables: Latino and Racial Minority (White served as the reference category). Lastly, male was a dummy-coded variable (1 = male, 0 = otherwise). Summary statistics for the variables that were used in the study are provided in Table 1.

**Table 1***Summary statistics for variables used in the study*

|                            | Mean  | SD   | Min   | Max   |
|----------------------------|-------|------|-------|-------|
| Dependent variable         |       |      |       |       |
| Aggressive coping          | 10.33 | 3.33 | 8.00  | 30.00 |
| Experimental manipulations |       |      |       |       |
| Strain                     | .49   | .50  | .00   | 1.00  |
| Social control             | .50   | .50  | .00   | 1.00  |
| Mediating variables        |       |      |       |       |
| Resentful                  | .18   | .38  | .00   | 1.00  |
| Frustrated                 | .57   | .50  | .00   | 1.00  |
| Angry                      | .38   | .49  | .00   | 1.00  |
| Disgusted                  | .25   | .44  | .00   | 1.00  |
| Moderating variables       |       |      |       |       |
| Low self-control           | 31.78 | 4.91 | 17.00 | 44.00 |
| Trait anger                | 9.94  | 2.64 | 5.00  | 20.00 |
| Prosocial coping           | 30.88 | 4.75 | 16.00 | 45.00 |
| Control variables          |       |      |       |       |
| Age                        | 2.17  | 1.09 | 1.00  | 4.00  |
| Male                       | .31   | .46  | .00   | 1.00  |
| Latino                     | .35   | .48  | .00   | 1.00  |
| Racial minority            | .24   | .43  | .00   | 1.00  |

## CHAPTER 4

### RESULTS

#### **Strain and Negative Emotionality**

The first part of Agnew's (2006) argument emphasizes the connection between strain and negative emotionality. For the present study, introduction of a strain stimulus should result in negative emotions, such as frustration and anger. Table 2 provides the results from a series of binary logistic regressions that test the strain—negative emotion link. More specifically, each of the four negative state emotions included in this study were regressed onto the six independent variables, the latter of which included two experimental conditions (i.e., strain and social control) and four demographic control variables (i.e., age, male, Latino, and racial minority).

The results in Model 1 provided support for the strain—negative emotion hypothesis. In particular, the odds ratio of 13.156 that corresponded with the strain estimate indicated that the strain stimulus increased the odds that the participant would experience feeling resentful by 1200%. A similar effect was observed in Model 2, where the odds ratio was 8.820. More formally, participants who received the experimental stimulus were about 780% more likely to report they felt frustrated after reading the hypothetical scenario. The odds ratio for anger (21.409) and disgust (89.810) were larger. Overall, the estimates for the strain experimental stimulus in Table 2 provide support for the strain-negative emotion hypothesis.

Additional findings from Table 2 indicated that age was a statistically significant predictor of frustration (Model 2) and anger (Model 3), and Latinos were significantly more likely than whites to report feelings of resentment (Model 1).

**Table 2***Binary logistic regression models for negative emotionality*

|                           | Resentful         |               |           | Frustrated        |               |           | Angry             |               |            | Disgusted         |               |           |
|---------------------------|-------------------|---------------|-----------|-------------------|---------------|-----------|-------------------|---------------|------------|-------------------|---------------|-----------|
|                           | Model 1           |               |           | Model 2           |               |           | Model 3           |               |            | Model 4           |               |           |
|                           | <i>b</i><br>(s.e) | Odds<br>ratio | Wald test | <i>b</i><br>(s.e) | Odds<br>ratio | Wald test | <i>b</i><br>(s.e) | Odds<br>ratio | Wald test  | <i>b</i><br>(s.e) | Odds<br>ratio | Wald test |
| Strain                    | 2.57<br>(.361)    | 13.156        | 51.081*** | 2.177<br>(.218)   | 8.820         | 99.326*** | 3.064<br>(.267)   | 21.409        | 131.948*** | 4.498<br>(.599)   | 89.810        | 56.361*** |
| Social control            | -.264<br>(.265)   | .768          | .992      | -.080<br>(.213)   | .923          | .143      | -.422<br>(.239)   | .656          | 3.127      | -.418<br>(.258)   | .659          | 2.622     |
| Age                       | -.236<br>(.127)   | .790          | 3.417     | -.201<br>(.099)   | .818          | 4.089*    | -.295<br>(.112)   | .745          | 6.910**    | -.046<br>(.121)   | .955          | .143      |
| Male                      | .428<br>(.291)    | 1.534         | 2.158     | -.240<br>(.230)   | .786          | 1.095     | .133<br>(.262)    | 1.142         | .257       | -.040<br>(.290)   | .960          | .019      |
| Latino                    | -1.085<br>(.321)  | .338          | 11.442**  | .241<br>(.247)    | 1.273         | .953      | -.103<br>(.272)   | .903          | .143       | .020<br>(.290)    | 1.021         | .005      |
| Racial minority           | -.102<br>(.324)   | .903          | .099      | .254<br>(.270)    | 1.289         | .887      | -.010<br>(.309)   | .990          | .001       | .533<br>(.344)    | 1.704         | 2.392     |
| Model $\chi^2$            | 89.163***         |               |           | 126.316***        |               |           | 197.795***        |               |            | 193.849***        |               |           |
| Nagelkerke R <sup>2</sup> | .276              |               |           | .307              |               |           | .455              |               |            | .485              |               |           |
| N                         | 486               |               |           | 486               |               |           | 486               |               |            | 486               |               |           |

Note. Entries are unstandardized regression coefficients (*b*), standard errors (s.e.) in parentheses, odds ratios, and test statistics (Wald tests).

\*  $p \leq 0.05$ , \*\*  $p \leq 0.01$ , \*\*\*  $p \leq 0.001$  (two-tailed test)

## Direct and Mediating Effects of Negative Emotions

Table 3 features a series of linear regression models that were used to accomplish two goals: (1) assess the direct effect of strain and negative emotions on aggressive coping, and (2) test whether negative emotions mediate the effect of strain on aggressive coping. Turning first to the direct effects of the negative emotions (Models 2 through 5). Model 2 in Table 3 indicated that the effect of strain-induced resentment on aggressive coping was statistically significant ( $\beta = .135$ ). A similar standardized effect ( $\beta = .119$ ) was observed for frustration in Model 3. Models 4 and 5 provided the direct effects of anger and disgust on aggressive coping. These two standardized coefficients ( $\beta = .265$  for angry and  $.281$  for disgusted) appeared to be much stronger when compared to the estimates from Models 2 and 3. Overall, these results provided support for the hypothesized link between negative emotions and aggressive coping.

Model 1 in Table 3 assessed the relationship between strain and aggressive coping. Participants who received the experimental stimulus were more likely to report they would respond aggressively to the situation depicted in the hypothetical scenario ( $\beta = .501$ ). This model served as a baseline for testing whether the inclusion of negative emotions in the model mediated the effect of strain on aggressive coping. To test for mediation, the unstandardized coefficient for strain was compared to the effect in the baseline model ( $b = 3.360$  for strain in Model 1) after the inclusion of negative emotion in the model. In addition, Paternoster and colleagues' (1998)  $z$ -test for assessing differences in coefficients across models was employed.

The unstandardized effects for strain were noticeably smaller in Models 2 ( $b = 3.018$ ) and 3 ( $b = 2.975$ ). Despite this reduction, the  $z$ -tests were not statistically

significant at the .05 level ( $z = .871$  for Model 2 and  $.949$  for Model 3). In other words, the results from Models 2 and 3 did not support Agnew's (2006) mediation argument. However, Models 4 and 5 told a different story. The unstandardized strain effects in Model 4 ( $b = 2.305$ ) and Model 5 ( $b = 2.283$ ) were much smaller relative to Model 1. Importantly, the corresponding  $z$ -tests ( $z = 2.509$  for Model 4 and  $2.604$  for Model 5) were statistically significant at the .05 level, which provided support for the mediation hypothesis. Overall, the models in Table 3 provided mixed support for Agnew's (2006) mediation argument.



**Table 3***Linear regression models for aggressive coping*

|                       | Aggressive coping |         |                 |                   |         |                 |                   |         |                 |                   |         |                 |                   |         |                 |
|-----------------------|-------------------|---------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|
|                       | Model 1           |         |                 | Model 2           |         |                 | Model 3           |         |                 | Model 4           |         |                 | Model 5           |         |                 |
|                       | <i>b</i><br>(s.e) | $\beta$ | <i>t</i> -ratio | <i>b</i><br>(s.e) | $\beta$ | <i>t</i> -ratio | <i>b</i><br>(s.e) | $\beta$ | <i>t</i> -ratio | <i>b</i><br>(s.e) | $\beta$ | <i>t</i> -ratio | <i>b</i><br>(s.e) | $\beta$ | <i>t</i> -ratio |
| Strain                | 3.360<br>(.268)   | .501    | 12.531***       | 3.018<br>(.287)   | .450    | 10.516***       | 2.975<br>(.304)   | .444    | 9.782***        | 2.305<br>(.324)   | .344    | 7.118***        | 2.283<br>(.315)   | .341    | 7.257***        |
| Social control        | -.007<br>(.268)   | -.001   | -.025           | .036<br>(.266)    | .005    | .134            | .003<br>(.267)    | .001    | .013            | .106<br>(.261)    | .016    | .406            | .108<br>(.259)    | .016    | .417            |
| Age                   | -.056<br>(.124)   | -.018   | -.453           | -.022<br>(.124)   | -.007   | -.178           | -.027<br>(.124)   | -.009   | -.214           | .025<br>(.122)    | .008    | .202            | -.043<br>(.120)   | -.014   | -.358           |
| Male                  | .469<br>(.292)    | .065    | 1.606           | .425<br>(.290)    | .059    | 1.466           | .508<br>(.291)    | .071    | 1.747           | .453<br>(.284)    | .063    | 1.595           | .477<br>(.282)    | .066    | 1.690           |
| Latino                | -.154<br>(.310)   | -.022   | -.496           | .008<br>(.311)    | .001    | .024            | -.192<br>(.308)   | -.027   | -.623           | -.112<br>(.301)   | -.016   | -.374           | -.155<br>(.299)   | -.022   | -.519           |
| Racial minority       | .007<br>(.345)    | .001    | .021            | .026<br>(.342)    | .003    | .076            | -.038<br>(.343)   | -.005   | -.112           | .019<br>(.335)    | .002    | .058            | -.114<br>(.333)   | -.015   | -.343           |
| Resentful             | ---               | ---     | ---             | 1.193<br>(.380)   | .135    | 3.143**         | ---               | ---     | ---             | ---               | ---     | ---             | ---               | ---     | ---             |
| Frustrated            | ---               | ---     | ---             | ---               | ---     | ---             | .808<br>(.308)    | .119    | 2.618**         | ---               | ---     | ---             | ---               | ---     | ---             |
| Angry                 | ---               | ---     | ---             | ---               | ---     | ---             | ---               | ---     | ---             | 1.833<br>(.335)   | .265    | 5.469***        | ---               | ---     | ---             |
| Disgusted             | ---               | ---     | ---             | ---               | ---     | ---             | ---               | ---     | ---             | ---               | ---     | ---             | 2.165<br>(.360)   | .281    | 6.009***        |
| <i>F</i>              | 26.553***         |         |                 | 24.598***         |         |                 | 24.021***         |         |                 | 28.424***         |         |                 | 29.607***         |         |                 |
| <i>R</i> <sup>2</sup> | .252              |         |                 | .267              |         |                 | .263              |         |                 | .297              |         |                 | .305              |         |                 |
| <i>N</i>              | 479               |         |                 | 479               |         |                 | 479               |         |                 | 479               |         |                 | 479               |         |                 |

Note. Entries are unstandardized regression coefficients (*b*), standard errors (SE) in parentheses, standardized regression coefficients ( $\beta$ ), and test statistics (*t*-ratios).

\*  $p \leq 0.05$ , \*\*  $p \leq 0.01$ , \*\*\*  $p \leq 0.001$  (two-tailed test)

## Moderating Effects

Table 4 provides a series of linear regression models to test Agnew's (2006) moderation hypothesis. In particular, the models test whether trait anger interacts with different negative emotions to promote aggressive coping. GST posits that those who exhibit more dispositional anger will react more aggressively after experiencing strain-induced emotions. The direct effect in Model 1 ( $\beta = .097$ ) of trait anger was significant. Moving on to the interaction effects, it is important to note that each variable was mean centered prior to creating the interaction terms. The estimates in Models 2 ( $\beta = .039$ ) and 3 ( $\beta = .089$ ) do not support the moderation hypothesis. Models 4 and 5, however, provide supportive evidence in favor of the assumption. For example, in Model 4, the interaction effect for trait anger and situational anger was much stronger ( $\beta = .140$ ) and statistically significant ( $t$ -ratio = 2.851,  $p \leq .01$ ). Put simply, trait anger amplifies the effect of strain-induced anger and disgust on aggressive coping; both estimates provide evidence in support of the moderation hypothesis.

Agnew (2006) also proposed that low self-control conditioned the effect of negative emotion on criminal coping. Table 5 features linear regression models that test this hypothesis. Before doing so, however, Model 1 shows that there is no direct effect of low self-control on coping. This is to be expected given the near random assignment of the strain experimental manipulation. In Models 2 ( $\beta = -.020$ ) and 3 ( $\beta = -.006$ ), the standardized effects were relatively small and the corresponding  $t$ -ratios were not significant. Therefore, low self-control does not condition the effects of resentment and frustration on aggressive coping. However, the estimate in Model 4 supports the moderation hypothesis ( $\beta = .111$ ,  $p \leq .05$ ). In other words, participants with low self-

control who felt angry after reading the hypothetical scenario were significantly more likely to use aggressive coping strategies relative to those with higher self-control. Model 5 failed to provide support for the moderation hypothesis.

Table 6 examined the argument that the effect of negative emotion on aggressive coping would be significantly weaker among participants with greater prosocial coping skills. Model 1 shows that the direct effect for prosocial coping on aggressive coping is null. Due to the nature of the experiment and the process of random assignment, this is to be expected. There is support for the moderation hypothesis in Models 2 ( $\beta = -.095$ ) and 3 ( $\beta = -.103$ ). The *t*-ratio for the interaction term in Model 3 had a *p*-value of .093 (two-tailed test). Given the directional nature of the moderation hypothesis, the use of a one-tailed test is justifiable. Accordingly, the effect of Model 3 is interpreted as significant. Finally, the interaction effects in Models 4 and 5 failed to reach statistical significance. Overall, the results of the moderation analyses revealed mixed support for the moderation hypothesis.

**Table 4**

*Linear regression models for the moderating effects of trait anger*

|                          | Aggressive coping |           |                 |                   |         |                 |                   |         |                 |                   |         |                 |                   |         |                 |
|--------------------------|-------------------|-----------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|
|                          | Model 1           |           |                 | Model 2           |         |                 | Model 3           |         |                 | Model 4           |         |                 | Model 5           |         |                 |
|                          | <i>b</i><br>(s.e) | $\beta$   | <i>t</i> -ratio | <i>b</i><br>(s.e) | $\beta$ | <i>t</i> -ratio | <i>b</i><br>(s.e) | $\beta$ | <i>t</i> -ratio | <i>b</i><br>(s.e) | $\beta$ | <i>t</i> -ratio | <i>b</i><br>(s.e) | $\beta$ | <i>t</i> -ratio |
| Strain                   | 3.423<br>(.270)   | .507      | 12.663***       | 3.133<br>(.291)   | .464    | 10.760***       | 3.078<br>(.307)   | .456    | 10.026***       | 2.393<br>(.327)   | .355    | 7.330***        | 2.336<br>(.316)   | .346    | 7.385***        |
| Social control           | .008<br>(.270)    | .001      | .031            | .047<br>(.269)    | .007    | .173            | .047<br>(.269)    | .007    | .176            | .132<br>(.262)    | .020    | .505            | .104<br>(.260)    | .015    | .399            |
| Age                      | -.046<br>(.125)   | -.015     | -.365           | -.017<br>(.125)   | -.005   | -.134           | -.022<br>(.125)   | -.007   | -.177           | .040<br>(.122)    | .013    | .325            | -.035<br>(.120)   | -.012   | -.294           |
| Male                     | .473<br>(.295)    | .065      | 1.604           | .462<br>(.295)    | .064    | 1.566           | .517<br>(.293)    | .071    | 1.762           | .452<br>(.285)    | .062    | 1.585           | .469<br>(.283)    | .065    | 1.658           |
| Latino                   | -.154<br>(.311)   | -.022     | -.495           | .010<br>(.315)    | .001    | .032            | -.232<br>(.311)   | -.033   | -.747           | -.071<br>(.301)   | -.010   | -.236           | -.139<br>(.299)   | -.020   | -.466           |
| Racial minority          | .068<br>(.351)    | .009      | .195            | .082<br>(.348)    | .010    | .236            | -.017<br>(.350)   | -.002   | -.049           | .082<br>(.339)    | .010    | .242            | -.084<br>(.337)   | -.010   | -.248           |
| Resentful                | ---               | ---       | ---             | .987<br>(.393)    | .111    | 2.512*          | ---               | ---     | ---             | ---               | ---     | ---             | ---               | ---     | ---             |
| Frustrated               | ---               | ---       | ---             | ---               | ---     | ---             | .785<br>(.310)    | .115    | 2.528*          | ---               | ---     | ---             | ---               | ---     | ---             |
| Angry                    | ---               | ---       | ---             | ---               | ---     | ---             | ---               | ---     | ---             | 1.736<br>(.340)   | .249    | 5.100***        | ---               | ---     | ---             |
| Disgusted                | ---               | ---       | ---             | ---               | ---     | ---             | ---               | ---     | ---             | ---               | ---     | ---             | 2.051<br>(.365)   | .264    | 5.612***        |
| Trait anger              | .123<br>(.051)    | .097      | 2.425*          | .082<br>(.057)    | .065    | 1.445           | .033<br>(.078)    | .026    | .419            | -.027<br>(.062)   | -.021   | -.434           | .014<br>(.056)    | .011    | .242            |
| Resentful x Trait anger  | ---               | ---       | ---             | .107<br>(.126)    | .039    | .845            | ---               | ---     | ---             | ---               | ---     | ---             | ---               | ---     | ---             |
| Frustrated x Trait anger | ---               | ---       | ---             | ---               | ---     | ---             | .148<br>(.103)    | .089    | 1.447           | ---               | ---     | ---             | ---               | ---     | ---             |
| Angry x Trait anger      | ---               | ---       | ---             | ---               | ---     | ---             | ---               | ---     | ---             | .290<br>(.102)    | .140    | 2.851**         | ---               | ---     | ---             |
| Disgusted x Trait anger  | ---               | ---       | ---             | ---               | ---     | ---             | ---               | ---     | ---             | ---               | ---     | ---             | .322<br>(.116)    | .123    | 2.778**         |
|                          | <i>F</i>          | 23.963*** |                 | 19.764***         |         |                 | 19.855***         |         |                 | 23.905***         |         |                 | 24.879***         |         |                 |
|                          | R <sup>2</sup>    | .266      |                 | .278              |         |                 | .279              |         |                 | .318              |         |                 | .327              |         |                 |
|                          | N                 | 470       |                 | 470               |         |                 | 470               |         |                 | 470               |         |                 | 470               |         |                 |

Note. Entries are unstandardized regression coefficients (*b*), standard errors (SE) in parentheses, standardized regression coefficients ( $\beta$ ), and test statistics (*t*-ratios).

\*  $p \leq 0.05$ , \*\*  $p \leq 0.01$ , \*\*\*  $p \leq 0.001$  (two-tailed test)

**Table 5**

*Linear regression models for the moderating effects of low self-control*

|                               | Aggressive coping |           |                 |                   |         |                 |                   |         |                 |                   |         |                 |                   |       |                 |
|-------------------------------|-------------------|-----------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|-------------------|-------|-----------------|
|                               | Model 1           |           |                 | Model 2           |         |                 | Model 3           |         |                 | Model 4           |         |                 | Model 5           |       |                 |
|                               | <i>b</i><br>(s.e) | $\beta$   | <i>t</i> -ratio | <i>b</i><br>(s.e) | $\beta$ | <i>t</i> -ratio | <i>b</i><br>(s.e) | $\beta$ | <i>t</i> -ratio | <i>b</i><br>(s.e) | $\beta$ | <i>t</i> -ratio | <i>b</i><br>(s.e) | B     | <i>t</i> -ratio |
| Strain                        | 3.408<br>(.281)   | .502      | 12.123***       | 3.074<br>(.304)   | .453    | 10.098***       | 3.039<br>(.324)   | .447    | 9.389***        | 2.290<br>(.339)   | .337    | 6.758***        | 2.296<br>(.329)   | .338  | 6.979***        |
| Social control                | .096<br>(.281)    | .014      | .341            | .125<br>(.281)    | .018    | .446            | .098<br>(.281)    | .014    | .349            | .220<br>(.273)    | .032    | .805            | .217<br>(.272)    | .032  | .796            |
| Age                           | -.074<br>(.131)   | -.024     | -.564           | -.038<br>(.132)   | -.012   | -.292           | -.038<br>(.131)   | -.012   | -.291           | .027<br>(.128)    | .009    | .208            | -.050<br>(.127)   | -.016 | -.391           |
| Male                          | .501<br>(.306)    | .069      | 1.636           | .473<br>(.306)    | .065    | 1.547           | .524<br>(.305)    | .072    | 1.717           | .448<br>(.296)    | .061    | 1.514           | .485<br>(.296)    | .066  | 1.640           |
| Latino                        | -.209<br>(.324)   | -.029     | -.643           | -.063<br>(.327)   | -.009   | -.193           | -.236<br>(.324)   | -.033   | -.728           | -.153<br>(.314)   | -.022   | -.489           | -.180<br>(.313)   | -.025 | -.575           |
| Racial minority               | .017<br>(.365)    | .002      | .046            | .013<br>(.366)    | .002    | .037            | -.034<br>(.365)   | -.004   | -.093           | .127<br>(.354)    | .016    | .358            | -.081<br>(.353)   | -.010 | -.229           |
| Resentful                     | ---               | ---       | ---             | 1.100<br>(.398)   | .124    | 2.760**         | ---               | ---     | ---             | ---               | ---     | ---             | ---               | ---   | ---             |
| 32 Frustrated                 | ---               | ---       | ---             | ---               | ---     | ---             | .763<br>(.327)    | .111    | 2.333*          | ---               | ---     | ---             | ---               | ---   | ---             |
| Angry                         | ---               | ---       | ---             | ---               | ---     | ---             | ---               | ---     | ---             | 1.886<br>(.351)   | .270    | 5.370***        | ---               | ---   | ---             |
| Disgusted                     | ---               | ---       | ---             | ---               | ---     | ---             | ---               | ---     | ---             | ---               | ---     | ---             | 2.229<br>(.378)   | .288  | 5.901***        |
| Low self-control              | .038<br>(.028)    | .055      | 1.329           | .042<br>(.032)    | .061    | 1.328           | .041<br>(.045)    | .059    | .910            | -.022<br>(.035)   | -.032   | -.619           | .018<br>(.031)    | .026  | .580            |
| Resentful x Low self-control  | ---               | ---       | ---             | -.031<br>(.073)   | -.020   | -.425           | ---               | ---     | ---             | ---               | ---     | ---             | ---               | ---   | ---             |
| Frustrated x Low self-control | ---               | ---       | ---             | ---               | ---     | ---             | -.005<br>(.058)   | -.006   | -.088           | ---               | ---     | ---             | ---               | ---   | ---             |
| Angry x Low self-control      | ---               | ---       | ---             | ---               | ---     | ---             | ---               | ---     | ---             | .123<br>(.057)    | .111    | 2.169*          | ---               | ---   | ---             |
| Disgusted x Low self-control  | ---               | ---       | ---             | ---               | ---     | ---             | ---               | ---     | ---             | ---               | ---     | ---             | .012<br>(.067)    | .008  | .177            |
|                               | <i>F</i>          | 21.871*** |                 | 18.090***         |         |                 | 17.748***         |         |                 | 21.948***         |         |                 | 22.239***         |       |                 |
|                               | R <sup>2</sup>    | .257      |                 | .270              |         |                 | .266              |         |                 | .310              |         |                 | .313              |       |                 |
|                               | N                 | 449       |                 | 449               |         |                 | 449               |         |                 | 449               |         |                 | 449               |       |                 |

Note. Entries are unstandardized regression coefficients (*b*), standard errors (SE) in parentheses, standardized regression coefficients ( $\beta$ ), and test statistics (*t*-ratios).

\*  $p \leq 0.05$ , \*\*  $p \leq 0.01$ , \*\*\*  $p \leq 0.001$  (two-tailed test)

**Table 6**

*Linear regression models for the moderating effects of prosocial coping*

|                               | Aggressive coping     |           |                 |                   |         |                 |                   |         |                 |                   |         |                 |                   |         |                 |
|-------------------------------|-----------------------|-----------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|
|                               | Model 1               |           |                 | Model 2           |         |                 | Model 3           |         |                 | Model 4           |         |                 | Model 5           |         |                 |
|                               | <i>b</i><br>(s.e)     | $\beta$   | <i>t</i> -ratio | <i>b</i><br>(s.e) | $\beta$ | <i>t</i> -ratio | <i>b</i><br>(s.e) | $\beta$ | <i>t</i> -ratio | <i>b</i><br>(s.e) | $\beta$ | <i>t</i> -ratio | <i>b</i><br>(s.e) | $\beta$ | <i>t</i> -ratio |
| Strain                        | 3.435<br>(.273)       | .509      | 12.585***       | 3.138<br>(.291)   | .465    | 10.767***       | 3.066<br>(.309)   | .454    | 9.914***        | 2.314<br>(.326)   | .343    | 7.102***        | 2.356<br>(.319)   | .349    | 7.393***        |
| Social control                | .027<br>(.273)        | .004      | .098            | .019<br>(.271)    | .003    | .071            | .032<br>(.271)    | .005    | .119            | .131<br>(.265)    | .019    | .496            | .130<br>(.264)    | .019    | .490            |
| Age                           | -.044<br>(.126)       | -.014     | -.345           | -.015<br>(.125)   | -.005   | -.124           | -.018<br>(.126)   | -.006   | -.143           | .049<br>(.123)    | .016    | .398            | -.025<br>(.122)   | -.008   | -.204           |
| Male                          | .460<br>(.298)        | .064      | 1.545           | .451<br>(.295)    | .062    | 1.530           | .489<br>(.296)    | .068    | 1.654           | .456<br>(.288)    | .063    | 1.583           | .449<br>(.287)    | .062    | 1.565           |
| Latino                        | -.096<br>(.316)       | -.014     | -.305           | .070<br>(.316)    | .010    | .223            | -.123<br>(.314)   | -.017   | -.391           | -.034<br>(.305)   | -.005   | -.110           | -.104<br>(.304)   | -.015   | -.343           |
| Racial minority               | .070<br>(.352)        | .009      | .198            | .101<br>(.347)    | .013    | .291            | -.013<br>(.350)   | -.002   | -.038           | .074<br>(.340)    | .009    | .217            | -.062<br>(.340)   | -.008   | -.181           |
| Resentful                     | ---                   | ---       | ---             | 1.084<br>(.386)   | .123    | 2.807**         | ---               | ---     | ---             | ---               | ---     | ---             | ---               | ---     | ---             |
| Frustrated                    | ---                   | ---       | ---             | ---               | ---     | ---             | .790<br>(.315)    | .116    | 2.509*          | ---               | ---     | ---             | ---               | ---     | ---             |
| Angry                         | ---                   | ---       | ---             | ---               | ---     | ---             | ---               | ---     | ---             | 1.954<br>(.337)   | .281    | 5.801***        | ---               | ---     | ---             |
| Disgusted                     | ---                   | ---       | ---             | ---               | ---     | ---             | ---               | ---     | ---             | ---               | ---     | ---             | 2.166<br>(.365)   | .280    | 5.936***        |
| Prosocial coping              | -.031<br>(.029)       | -.044     | -1.082          | .003<br>(.032)    | .004    | .092            | .030<br>(.044)    | .042    | .677            | -.006<br>(.035)   | -.008   | -.169           | -.006<br>(.033)   | -.008   | -.180           |
| Resentful x Prosocial coping  | ---                   | ---       | ---             | -.155<br>(.073)   | -.095   | -2.116*         | ---               | ---     | ---             | ---               | ---     | ---             | ---               | ---     | ---             |
| Frustrated x Prosocial coping | ---                   | ---       | ---             | ---               | ---     | ---             | -.098<br>(.058)   | -.103   | -1.686+         | ---               | ---     | ---             | ---               | ---     | ---             |
| Angry x Prosocial coping      | ---                   | ---       | ---             | ---               | ---     | ---             | ---               | ---     | ---             | -.060<br>(.058)   | -.050   | -1.024          | ---               | ---     | ---             |
| Disgusted x Prosocial coping  | ---                   | ---       | ---             | ---               | ---     | ---             | ---               | ---     | ---             | ---               | ---     | ---             | -.074<br>(.062)   | -.055   | -1.194          |
|                               | <i>F</i>              | 23.222*** |                 | 20.119***         |         |                 | 19.333***         |         |                 | 23.207***         |         |                 | 23.582***         |         |                 |
|                               | <i>R</i> <sup>2</sup> | .262      |                 | .284              |         |                 | .276              |         |                 | .314              |         |                 | .318              |         |                 |
|                               | <i>N</i>              | 465       |                 | 465               |         |                 | 465               |         |                 | 465               |         |                 | 465               |         |                 |

Note. Entries are unstandardized regression coefficients (*b*), standard errors (SE) in parentheses, standardized regression coefficients ( $\beta$ ), and test statistics (*t*-ratios).

\*  $p \leq 0.05$ , \*\*  $p \leq 0.01$ , \*\*\*  $p \leq 0.001$ , +  $p = 0.093$  (two-tailed test)

## CHAPTER 5

### DISCUSSION

This study tested various aspects Agnew's (2006) theoretical argument, including the effects of strain on negative emotions (i.e., anger, disgust, frustration, and resentment), the influence that state emotions have on aggressive coping, the mediating effects of negative emotions, and the moderating effects of disposition to crime (i.e., trait anger and low self-control) and prosocial coping on the link between strain-induced negative emotions and aggressive coping.

Using an experimental design and survey data from a university-based sample, the results largely supported the core propositions of GST. For example, individuals who received the strain stimulus were significantly more likely to report negative emotionality. Additionally, the four negative emotion variables predicted aggressive coping. Although less consistent, the regression models showed too that negative emotions—especially anger and disgust—served to mediate some of the influence that strain had on aggressive coping.

This study also tested Agnew's (2006) moderation hypothesis. The argument is that a set of third variables—disposition for crime and ability to cope with strain-induced emotion in a prosocial manner—condition the relationship between emotionality and aggressive coping. The results were mixed—trait anger moderated the effect of state anger and disgust, low self-control conditioned the influence of state anger, and prosocial coping conditioned the influence of resentment and frustration. These five findings provided some support for Agnew's (2006) argument.

Although many of the findings from this study supported different GST hypotheses, there are some limitations that should be identified. For instance, the study used survey data from a university-based sample. Clearly, the sample is not representative of the general public. It is unclear how well the results generalize to other populations. Future research that attempts to replicate this study using a more representative sample will be able to shed light on this limitation.

Social control was a manipulation included in the hypothetical vignette and represented in the regression analyses. The idea was that including the presence of more people inside the grocery store resulted in more social control, thus reducing the likelihood of aggressive coping. Results from the experiment, however, showed that the effect was null. Future research may explore whether social control acts as a moderator between negative emotions and aggressive coping.

Although there is a significant amount of criminological literature that tests Agnew's (2006) GST, there is little that examines the GST moderation hypothesis. More information must be uncovered to examine what factors may predispose individuals to crime. Doing so will strengthen GST literature and provide important policy implications for criminal justice intervention programs. Additionally, future GST studies should use experimental methods to test GST hypotheses. Longitudinal studies are limited in that they do not provide robust causal ordering explanations. For instance, longitudinal studies will commonly measure the impacts of strain after a significant period of time, relying on trait anger to operationalize negative emotionality and then measure criminal coping at a later time period. This, however, does not capture state emotions, thus providing a less reliable test of the cause-and-effect relationship



between strain and criminal coping. Finally, more research should focus on emotionality, its meanings, and its implications. This study demonstrated that anger and disgust were negative emotions that had stronger effects than resentment or frustration. Some research has examined why this might be the case, finding that anger and disgust are closely related in that they both elicit reflections of individuals' moral principles, influence decision-making, and are stronger emotions than others (Gutierrez et al., 2012; Molho et al., 2017; Nabi, 2002). More research examining a fuller array of strain-induced emotions and their varying effects on coping strategies could prove helpful.

Though much of this study has focused on dispositions for crime and aggressive coping, it is important to highlight the fact that a large number of people who experience strain do not respond by breaking the law. There are many alternative, legitimate coping strategies that people can practice to help avoid wayward behavior. That being said, this study did find that those who lack the skills to proactively cope with strain are more likely than others to result to maladaptive coping strategies. Such findings support the use of behavioral interventions and the idea that prosocial behavior and coping is a protective factor against deviant behavior. Based on this information, outlets should be provided at an early age to promote prosocial coping skills. Examples include workshops to encourage critical thinking, problem-solving, and healthy distractions from strain, such as exercise.

In conclusion, this study contributed to the GST literature by examining a number of core propositions, including those involving moderators of the link between negative emotionality and aggressive coping (i.e., trait anger, low self-control, and prosocial coping). Results from analyses provide support for Agnew's (2006) arguments. Future studies should use experimental designs

to better examine the causal ordering of the core GST propositions. Future research that further investigates other potential moderators of negative emotions is certainly welcomed.

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APPENDIX A  
BALANCE TESTS



## Appendix A

### Balance tests

|                 | Condition 1 | Condition 2 | Condition 3 | Condition 4 | $\chi^2$ | <i>p</i> -value |
|-----------------|-------------|-------------|-------------|-------------|----------|-----------------|
| Male            |             |             |             |             |          |                 |
| Yes             | 24.0%       | 35.5%       | 37.9%       | 27.8%       | 7.275    | .064            |
| No              | 76.0        | 64.5        | 62.1        | 72.2        |          |                 |
| Age             |             |             |             |             |          |                 |
| 18              | 37.0        | 35.5        | 35.5        | 37.3        | 7.892    | .545            |
| 19              | 28.6        | 27.4        | 23.4        | 27.8        |          |                 |
| 20              | 16.8        | 21.0        | 19.4        | 24.6        |          |                 |
| 21+             | 17.6        | 16.1        | 21.8        | 10.3        |          |                 |
| Race/Ethnicity  |             |             |             |             |          |                 |
| White           | 37.2        | 39.8        | 42.6        | 44.0        | 5.242    | .513            |
| Latino          | 40.5        | 38.2        | 29.5        | 30.4        |          |                 |
| Racial minority | 22.3        | 22.0        | 27.9        | 25.6        |          |                 |

*Note.* The combinations of experimental and control conditions are as follows: Condition 1 (social control – experimental condition, strain – experimental condition), Condition 2 (social control – control condition, strain – experimental condition), Condition 3 (social control – control condition, strain – control condition), and Condition 4 (social control – experimental condition, strain – control condition).

APPENDIX B  
HYPOTHETICAL VIGNETTE

You make a quick stop at the grocery store to buy some food. You are in a hurry and the check-out line at the store is taking forever. You wait and wait and wait to check out. You notice that the store [*is really busy with lots of families and senior citizens shopping. (Social control, experimental condition); is almost empty with only a few customers scattered throughout the store. (Social control, control condition)*] You glance up from your phone just as the line begins to move. Suddenly a man who appears to be in his mid-40s, who is carrying various food items in his arms, appears out of nowhere and cuts to the front of the line. You stand still trying to decide how to handle the situation. As if he could hear your thoughts, the man turns around and [*looks at you as if to say, "Yeah, what are you going to do about it?" He then turns around and places his items on the checkout counter conveyor belt. (Strain, experimental condition); apologizes and explains his wife sent him to get a few things they forgot while she saved their place in line. His wife nods in agreement and thanks you for understanding. (Strain, control condition)*]

## APPENDIX C

### ONE-WAY ANOVA MODELS TESTING STRAIN MANIPULATION

## Appendix C

*One-way ANOVA models testing strain manipulation*

|                               | Polite   |           | Rude      |      |
|-------------------------------|----------|-----------|-----------|------|
|                               | Mean     | SD        | Mean      | SD   |
| Strain experimental condition |          |           |           |      |
| Yes                           | .01      | .315      | .98       | .142 |
| No                            | .89      | .319      | .11       | .315 |
|                               | <i>F</i> | 1710.374* | 1543.339* |      |

\* $p < 0.001$