Examining the Links between Strain, Situational and Dispositional Anger, and Crime: Further Specifying and Testing General Strain Theory
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EXAMINING THE LINKS BETWEEN STRAIN, SITUATIONAL AND DISPOSITIONAL ANGER, AND CRIME
Further Specifying and Testing General Strain Theory

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Past research testing General Strain Theory has relied on trait-based, static indicators of anger, assuming that “anger people” develop angry emotional states (i.e., situational anger) when exposed to strain. Here, the authors explore whether the relationship between strain, anger, and deviant outcomes varies as a function of whether trait-based or situational-based measures of anger are used. Additionally, using structural equation modeling, they examine whether individuals with high levels of trait anger have an increased likelihood of experiencing strain, becoming angry due to strain, and responding with deviance. The results reveal that relying on trait-based static indicators of anger is problematic. The findings demonstrate that the relationship between anger and deviant outcomes is attenuated when trait-based measures of anger are used. Moreover, results also reveal that trait anger increases deviant outcomes independent of the effects of strain or situational anger, which suggests that different mechanisms are operating.

Keywords: general strain; dispositional anger; situational anger

Three key aspects of Agnew’s (1992) General Strain Theory (GST) have generated significant empirical attention in research on delinquency and crime. First, GST maintains that exposure to strain increases delinquent behavior. Second, GST asserts that various factors
condition the impact of strain on delinquency. In other words, when certain factors are present (e.g., exposure to deviant peers, holding weak moral constraints against delinquent conduct), delinquent responses are more likely to occur given exposure to strain. Third, GST posits that when exposure to strain gives rise to angry emotional states, delinquent responses increase. Anger, according to GST, is a critical component in the processes leading to crime and delinquency because anger increases felt injury and generates the need for adaptive responses including delinquency and crime (Agnew, 1992, p. 60). In sum, aside from exposure to strain, anger represents a crucial component in explaining delinquency according to GST.

Although the majority of past research on GST has focused on examining baseline relationships between exposure to strain and delinquency (Agnew & White, 1992; Hoffmann & Miller, 1998; Paternoster & Mazerolle, 1994), some studies have examined the relationships between strain, anger, and delinquency, testing in particular whether anger mediates the relationship between strain and delinquent outcomes (cf. Aseltine, Gore, & Gordon, 2000; Brezina, 1996, 1998; Capowich, Mazerolle, & Piquero, 2001; Mazerolle, Burton, Cullen, Evans, & Payne, 2000; Mazerolle & Piquero, 1997, 1998; Piquero & Sealock, 2000). The majority of research examining whether anger mediates the effect of strain on delinquency is supportive of GST; however, the research on this issue universally suffers from a limitation that has the potential to call into question the conclusions generated from this research.

Due principally to data limitations, past research examining this issue has relied on trait-based measures of anger, which reflect relatively stable characteristics of individuals (Spielberger, Jacobs, Russell, & Crane, 1983; Spielberger, Johnson, Russell, & Crane, 1985). Such measures are conceptually similar to measures of hostility (cf. Buss, 1961) and are expected to gauge how individuals interpret and define potentially anger-producing situations (Smith, Furlong, Bates, & Laughlin, 1998). However, according to GST, the anger that occurs in response to strain is of central interest, which suggests that measures of anger need to be tailored to the strain experienced. Spielberger and colleagues (1983) have defined this as “state” anger. Although previous researchers examining this issue for GST have assumed that individuals with high levels of trait anger are more likely to
respond to strain with anger (Mazerolle & Piquero, 1997, 1998), measures of “situational” anger directly linked to strain represent a more valid test of GST. It may be acceptable to include trait-based measures of anger in tests of GST with the assumption that angry people are more likely to become angry given exposure to strain. However, a more comprehensive test of GST requires an examination of the role of situational anger. In short, the issue needs to be explored empirically; this is the issue we turn to in this analysis.

Herein we explore relationships between strain, trait anger, situational anger, and various deviant adaptations. In particular, the analysis focuses on whether the relationships between strain, anger, and deviant outcomes vary as a function of whether trait-based or situational-based measures of anger are used. We examine an additional, logically derived hypothesis from GST. Using structural equation modeling techniques, we examine whether individuals with high levels of trait anger have an increased likelihood of experiencing strain, becoming angry due to strain, and responding with deviance, net of controls.

AGNEW'S GENERAL STRAIN THEORY

The core assumption of GST is that crime and delinquency can occur in response to noxious circumstances and situations. Building on earlier strain theories (cf. Cohen, 1955; Merton, 1938), GST expands the range of situations and circumstances that produce strain. For example, according to GST, strain can arise when individuals fail to achieve positively valued goals, when individuals are presented with noxious circumstances, and when individuals lose something to which they assign positive value (Agnew, 1992).

Failing to achieve positively valued goals incorporates original conceptions of strain; however, according to GST, it also includes strain arising from situations that individuals perceive as inequitable or unjust. Strain arising from experiencing noxious stimuli typically involves aversive incidents such as criminal victimization and child abuse as well as the more common noxious interactions individuals may experience at school, at home, and in their neighborhoods. Strain arising from the loss of positively valued stimuli involves situations in
which individuals lose something they value such as a close friend, a parent, or a nice place to live and go to school. According to GST, experiencing strain may lead to negative affective states including the emotions of anger, depression, and frustration. When anger occurs in response to strain, the possibility of delinquent or deviant outcomes increases.

Given its prominent role in specifying GST, the role of anger has been investigated previously in a number of empirical examinations (Aseltine et al., 2000; Brezina, 1996; Broidy, 2001; Capowich et al., 2001; Mazerolle et al., 2000; Mazerolle & Piquero, 1997, 1998). For example, using data from the Youth in Transition Survey, Brezina (1996) found that a summary measure of strain related to school and parental relations as well as to anger. Mazerolle and Piquero (1997) found a composite indicator of strain to be predictive of anger, and they found that anger mediates, to a large extent, the relationships between strain and behavioral intentions to assault. In their study of 150 youth probationers, Piquero and Sealock (2000) found that strain, measured as a composite indicator of physical abuse and emotional abuse, exerts a positive effect on anger; however, anger is not significantly related to property crime but is related to interpersonal aggression. Finally, in one of the more comprehensive studies conducted to date, Aseltine and colleagues (2000) found various types of strain (family conflict, conflict with peers, and negative life events) to be related to angry emotional states. However, their findings on the mediating influences of anger offer somewhat mixed results for GST. The results of their structural equation modeling analysis revealed that anger is significantly related to interpersonal aggression but not to marijuana use or other forms of delinquency. In short, anger appears to entirely mediate the effect of strain on interpersonal aggression, but this does not occur for other forms of deviance.

Despite the finding that anger has a prominent role for GST, past research on this issue has overlooked the relationship between exposure to strain and the development of angry emotional states and subsequent deviant adaptations. GST is explicit in describing the role of anger for the theory: Experiencing various types of strain is expected to increase negative emotional states such as anger that, in the absence of conventional coping responses, are expected to increase the likelihood of deviant outcomes (Agnew, 1992). Most of the research in this
area suffers from the fact that dispositional or trait measures of anger, as opposed to situationally derived measures of anger, have been used. Though illuminating, this past research may suffer from model misspecification error. Such models are based on the assumption that, ceteris paribus, angry people are more likely to become angry given exposure to strain. That assumption may not be correct, and it does not allow for an examination of the contextual nature of anger as well as whether individuals with low levels of trait anger become angry given exposure to strain.

The only empirical study to include a measure of anger contextualized to exposure to strain (cf. Broidy, 2001) represents an important advance but it does not compare whether different types of anger (trait vs. situational) better specify the GST model. Thus, this study represents the first effort to examine whether trait anger and situational anger operate in similar or different ways in specifying the relationships between strain, anger, and deviant outcomes. In short, this article extends past research in this area and allows for an empirical examination of a critical but heretofore neglected aspect of GST.

METHODS

SAMPLE

Data used in this study are based on a questionnaire administered to a random sample of undergraduates who were registered for classes at a large university located in the western United States during the Spring 1997 semester. After eliminating directed study classes and labs from the list of all Spring courses offered by the College of Arts and Sciences, we stratified the list by class level (100s to 400s) and randomly selected classes from within each stratum. Data collection occurred during April and May 1997 and was done in the classroom during the regularly scheduled class period after coordinating with the professor. Classes selected as part of the sample showed a total enrollment of 414 different students with 382 who completed the questionnaire. This represents an 8% nonresponse rate as a result of absenteeism. After listwise deletion of missing data, 338 valid cases were available for the analyses for this article. The sample’s characteristics
were very similar to the undergraduate population’s demographics, although women were overrepresented in the sample compared to the population (54% vs. 45%, respectively).

We recognize that a sample of college students contains some inherent weaknesses: It is not representative of the larger population; college students may have relatively low levels of strain and angry temperaments compared to other segments in society, and so forth. Nevertheless, there are strengths that counter these shortcomings and support our reliance on such a sample for this analysis. Our research employs new measures of anger that have not previously been used in testing GST. Such indicators are not currently available in national probability samples, thereby requiring a specific data collection effort. Furthermore, our analysis focuses on internal validity and the modeling of GST constructs that is of paramount importance in theoretical tests that employ new measures. To the extent that our research confirms GST predictions, future research with different samples can employ our measures.

MEASURES

Dependent variable: Intentions to commit crime. We used hypothetical but believable scenarios to assess behavioral intentions to commit selected crimes. In recent years, much criminological research has made use of the scenario methodology (Mazerolle & Piquero, 1997, 1998; Nagin & Paternoster, 1993; Piquero & Tibbetts, 1996) and its advantages have been noted elsewhere (Nagin & Paternoster, 1993). All respondents were presented with brief scenarios describing common situations that college students may experience or have experienced. The two different vignettes used in this study include fighting (assault) and shoplifting, and these are reported below.

Situation #1: Assault

It’s Friday night. Mike and Lisa, who have been dating for two years, go into the Dutch Goose for a few beers and dinner. While drinking their beers, Mike excuses himself and goes to the bathroom. While he is away, another guy, Joe, who is with his friends, starts talking to Lisa and sits down at her table. Mike returns just as Joe is asking Lisa for her phone number and asks the guy if he has a problem, because he is com-
ing on to his girlfriend. Joe stands up and tells Mike that Lisa does not have a ring and is therefore allowed to talk to whomever she wants. Mike does not like this very much, so he motions to Lisa for her hand so they can leave. Meanwhile, Joe’s friends stare Mike down. Then Joe pushes Mike’s hand down. Mike grabs a beer bottle off the table and hits Joe in the head with the bottle.

Situation #2: Shoplifting

It’s Sunday evening. Laura has gone to the Mini-Mart store near campus to buy batteries for her alarm clock. Laura needs the batteries because she has to wake up very early the next day to take an exam in her 8:30 a.m. class. Laura will be up studying most of the night, and she knows that if she does not have the batteries for her alarm clock, she will probably oversleep. The store is about to close when Laura realizes that she does not have enough money to buy the batteries, but the batteries are small enough to fit in her pocket. Laura has enough money to buy a soda so that no one will be suspicious of her not buying anything. Laura decides to take the batteries.

Respondents were asked to read the scenario and then estimate the likelihood that they would behave as the protagonist in the scenario had behaved. Responses to this question were measured on a scale from 0 (not likely) to 10 (very likely). The distribution of responses to the offense scenario represents the dependent variable for this analysis.

Although we acknowledge that intentions to act are somewhat removed from actual behavior, previous research has found a strong correlation between the two dimensions especially when the scenarios are created to reflect locally relevant details (Green, 1989; Kim & Hunter, 1993; Nagin & Paternoster, 1993). To convey a sense of realism in the scenarios, we included details that reflect areas and places frequented by the university students sampled for this study. Most of the respondents agreed that the scenarios used were very believable. For example, only 4% of the respondents reported that the assault scenario was unrealistic and only 1% reported that the shoplifting vignette was unrealistic. In sum, the overwhelming majority of respondents reported that the scenarios used in this study reflected realistic situations.
Independent variable: Strain. Two measures of strain were included in this study. First, strain was measured using a composite of negative life events. This particular indicator includes a number of discrete categories of strain identified by GST. These sources of strain were designed to capture examples of the failure to achieve positively valued goals, the presentation of negative stimuli, and the removal of positive stimuli. Across all domains of strain, responses were coded as no or yes (0, 1) counts or events with affirmative responses representing strain. Thus, the scale was coded so that higher values reflect greater strain. Respondents were asked to indicate, in a no or yes fashion, whether a range of 20 events occurred in their homes or to members of their family in the previous year. Examples of events included the following: family had serious money problems, mother or father remarried, immediate family member or close friend died, respondent or immediate family member had a serious illness, respondent attended a new school, divorce, separation, serious accident, respondent or someone in the family in trouble with the law, parental unemployment, and family moves. The items were geared purposely to events that are common in the lives of college students. The reliability alpha for the scale is .58, which is not surprising given that stressful life events often reflect discrete and independent episodes in persons’ lives (see Hoffmann & Miller, 1998).

Our second indicator of strain gauged inequitable experiences at school by focusing on the disjunction between just and fair outcomes versus actual outcomes. Although this type of strain has previously been identified by Agnew (1992, p. 53), it has been relatively underexplored in past tests of GST. According to GST, individuals involved in exchange relationships can experience strain and distress if they feel that particular outcomes are unjust. For example, if there is a noticeable disparity between outputs and inputs then feelings that an injustice has occurred and the associated distress can result. Moreover, according to Agnew (1992, p. 55), considerations of equity may also include a social comparison process in which one’s evaluation of a just outcome occurs in relation to the outcomes of others.

Our measure of inequity was comprised of two items. Respondents were asked to report in a no or yes fashion to the following two questions: “During the past year, have you received a grade that you think was lower than you deserved?” and “During the past year, have you re-
ceived a grade that you think was unfair compared to the grade received by others?” The items were combined into a scale with responses ranging from 0 to 2 to include respondents who reported zero, one, or two inequitable episodes.

**Independent variable: Situational anger.** Anger plays a central role in GST and, as discussed earlier, previous research examining the role of anger has included dispositional measures (e.g., Brezina, 1996; Mazerolle et al., 2000). Although trait measures of anger may be appropriate in tests of GST given the assumption that angry people become angry when exposed to strain, a direct empirical test of whether situational-based, as opposed to trait-based, measures of anger is more appropriate for GST has not been conducted. Clearly, GST does not rule out the importance of dispositional anger; however, the theory appears to be more consistent with the anger that emerges from particular incidents (Agnew, 1992, 1995a). We included a situational measure of anger in each of two scenarios that links anger to precise situations involving strain. After each scenario, respondents were asked to respond to the following: “If you were the character in the scenario, rate the degree to which this situation would make you angry.” Response options were arranged along a 10-point continuum from not at all to very much.

**Independent variable: Trait anger.** Our measure of trait or dispositional anger is based on the anger expression scale developed by Spielberger and his colleagues (1985), and it overlaps, to some extent, with a measure of negative emotionality recently used to study GST by Agnew, Brezina, Wright, and Cullen (2002). According to their research, anger expression has two major subcomponents: anger-in (AI) and anger-out (AO). AI refers to anger that is suppressed, whereas AO refers to expressed anger or more explicit outbursts of anger. According to Spielberger and his colleagues (1985), AO is more consistent with anger as a personality trait and correlates strongly with other indicators of angry temperament for both males and females. Factor analysis of the 8-item AO scale indicated the presence of one primary factor that accounted for 46% of the variance. Reliability analysis indicated solid internal consistency (alpha = .82).
Control variable: Respondent’s prior behavior. In an effort to capture the influence of previous deviant behavior, each respondent was asked to respond to two questions that referenced the number of times in the past year they had (a) stolen something worth less than $20 and (b) been in a fight or assaulted someone. These questions were designed to relate specifically to each of the two scenarios. Additionally, because of the skewed nature of this variable, each item was dummy coded with 0 indicating no prior involvement and 1 indicating involvement in one or more activities.

Control variable: Respondent’s moral beliefs. Each respondent was asked a single-item question assessing how wrong they felt it was for someone their age to (a) steal something worth less than $20 and (b) hit or threaten to hit someone without reason. Each of these items was designed to reference the act in each of the two scenarios.

Control variable: Respondent’s peer criminal activities. Respondents were also asked to indicate how many of their friends have (a) stolen something worth less than $20 and (b) hit or threatened to hit someone without reason. Each of these items was designed to reference the act in each scenario.

Control variable: Sex. In the survey, respondents selected which sex group they belonged to (0 = male; 1 = female).

Descriptive statistics for each of the aforementioned items may be found in Table 1.

ANALYTICAL STRATEGY

In this article, we conduct two separate analyses to comprehensively assess the role of anger in GST. In the first part of the analysis, we take a stepwise approach to examine whether anger mediates the effect of strain on crime as proposed by GST. Additionally, we examine whether such mediating relationships vary as a function of whether measures of trait or situational anger are used; using a stepwise approach allows us to assess whether the mediating relationships
are sensitive to which measure is used. In the final stage of this analysis, we examine whether such relationships (e.g., the mediating aspects of anger) hold after controlling for a range of alternative risk factors for crime and deviance (e.g., holding weak moral constraints against deviance, exposure to deviant peers, etc).

Our expectations from GST are that anger, especially situational anger, should function as a mediating influence linking exposure to strain with criminal outcomes. Relationships between strain and deviance should diminish or vanish after anger is introduced into the models. Moreover, relationships between strain, anger, and deviant outcomes are expected to remain even after controlling for alternative criminogenic influences (e.g., weak moral constraints, deviant peer exposure). Finally, in comparing the effects of trait anger and situational anger, we expect that situational anger would more adequately mediate the relationships between strain and deviant outcomes, which is in accord with theoretical expectations from GST.

In the second stage of our data-analytic procedures, we explore, in a more formal sense, the relationships between trait anger, strain, situational anger, and intentions to commit crime. Using structural equa-

### TABLE 1
Descriptive Statistics ($N = 338$)

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>0.54</td>
<td>0.50</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Age</td>
<td>22.01</td>
<td>4.80</td>
<td>18</td>
<td>48</td>
</tr>
<tr>
<td>Dispositional anger</td>
<td>6.99</td>
<td>4.05</td>
<td>1</td>
<td>23</td>
</tr>
<tr>
<td>Strain-count</td>
<td>5.01</td>
<td>2.77</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>Strain-equity</td>
<td>1.08</td>
<td>0.84</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Scenario #1: Assault</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Situational anger</td>
<td>6.26</td>
<td>2.53</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Prior assault</td>
<td>0.06</td>
<td>0.24</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Moral beliefs</td>
<td>9.31</td>
<td>1.53</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Peer assault</td>
<td>2.16</td>
<td>2.51</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Intentions to assault</td>
<td>2.47</td>
<td>2.72</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Scenario #2: Shoplifting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Situational anger</td>
<td>5.62</td>
<td>2.86</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Prior shoplifting</td>
<td>0.13</td>
<td>0.34</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Moral beliefs</td>
<td>8.66</td>
<td>1.95</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Peer shoplifting</td>
<td>3.64</td>
<td>3.19</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Intentions to shoplift</td>
<td>0.44</td>
<td>0.50</td>
<td>0</td>
<td>1</td>
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</table>

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tion modeling, a more complex relationship between different types of anger, strain, and deviant outcomes can be explored. Specifically, the hypothesis that angry people experience more strain and become angrier given exposure to strain can be explored. This particular issue has been raised in previous research on GST (Mazerolle et al., 2000), but it has not been formally tested within the context of GST. Moreover, such a relationship is consistent with assumptions from anger researchers in psychology, as Spielberger and colleagues (1985) state:

Persons high in T-Anger [trait anger] were expected to perceive a wider range of situations as anger provoking (e.g., annoying, irritating, frustrating) than individuals low in T-Anger, and to respond to such situations with elevations in S-Anger [state or situational anger]. High T-Anger individuals were also expected to experience more intense elevations in S-Anger whenever annoying or frustrating conditions were encountered. (pp. 13-14)

The assertions of Spielberger and colleagues (1985) that individuals with high trait anger will react to circumstances with more anger than people with low levels of trait anger have been explored empirically at least in a non-GST context. For example, in a recent study, Deffenbacher, Huff, and Lynch (2000) found that motor vehicle drivers with high trait anger reported more frequent and intense anger in reaction to traffic incidents than drivers with low trait anger. Such expectations have yet to be explored within the context of GST.

In summary, the second stage of our analysis tests whether persons with high levels of trait anger experience more strain and elevated levels of situational anger and criminal intentions than do other respondents. This represents an important test for GST and has the potential to extend current knowledge about the theory.

**RESULTS**

Our analysis begins by exploring the bivariate relationships between five key variables of interest in this study: dispositional anger, the two intentions-to-offend measures, and the two situational-anger measures. As can be seen from Table 2, dispositional anger is posi-
tively related to both situational measures of anger as well as intentions to assault; however, dispositional anger is not significantly related to intentions to shoplift, a finding that is consistent with extant research (Mazerolle & Piquero, 1997). In addition, the two situation-specific measures of situational anger are positively related to one another ($r = .29$) and are positively correlated to their respective intentions to offend outcome measures ($r = .14$ for shoplifting; $r = .51$ for assault). These results are consistent with GST, which would expect that situational anger should be correlated with deviant outcomes including behavioral intentions to offend.

**MULTIVARIATE RESULTS**

The results reported in Table 3 present a series of stepwise logistic regression models predicting intentions to shoplift. The results reported in Model 1 reveal that males are more likely to intend to shoplift, as are individuals experiencing strain related to exposure to negative life events and having inequitable experiences at school.

A measure of situational anger is added in Model 2 and the results are largely unchanged from the previous model. The results reveal that males are more likely to intend to shoplift, as are individuals who experience different types of strain (e.g., negative life events, inequitable situations). Situational anger related to the situation depicted in the vignette is significantly related to behavioral intentions to shoplift, as expected by GST. However, situational anger only partially mediates one measure of strain (equity) in its effect on intentions to shoplift.
In Model 3, a measure for dispositional anger is introduced to assess whether similar relationships between strain, anger, and behavioral intentions to shoplift are evident. The results are largely unchanged from the previous models except for the finding that anger, in this model, is not predictive of behavioral intentions to shoplift. Males and individuals experiencing different types of strain are more likely to report behavioral intentions to shoplift, whereas individuals with high levels of trait anger are not more likely to hold behavioral intentions to shoplift than individuals with low levels of trait anger. This finding is consistent with the bivariate results reported in Table 2.

In Model 4, measures for both situational and dispositional anger are included and the results mirror the earlier findings. In this model, the results indicate that situational anger significantly predicts behavioral intentions to shoplift, as do experiencing different types of strain.

### Table 3

Logistic Regression Estimates of Intentions to Shoplift

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
<th>Model 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>-.464</td>
<td>-.471</td>
<td>-.473</td>
<td>-.478</td>
<td>-.100</td>
<td>-.106</td>
</tr>
<tr>
<td>Age</td>
<td>-.007</td>
<td>-.002</td>
<td>-.007</td>
<td>-.002</td>
<td>-.021</td>
<td>-.026</td>
</tr>
<tr>
<td>Strain-count</td>
<td>.084</td>
<td>.084</td>
<td>.080</td>
<td>.081</td>
<td>.090</td>
<td>.087</td>
</tr>
<tr>
<td>Strain-equity</td>
<td>.347</td>
<td>.306</td>
<td>.339</td>
<td>.301</td>
<td>.453</td>
<td>.409</td>
</tr>
<tr>
<td>Situational anger</td>
<td>.090</td>
<td>.087</td>
<td>.085</td>
<td>.040</td>
<td>.084</td>
<td></td>
</tr>
<tr>
<td>Trait anger</td>
<td>.026</td>
<td>.020</td>
<td>.000</td>
<td>.028</td>
<td>.028</td>
<td></td>
</tr>
<tr>
<td>Prior shoplift</td>
<td>.897</td>
<td>.883</td>
<td>(.415)**</td>
<td>(.416)**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moral beliefs</td>
<td>-.372</td>
<td>-.369</td>
<td>-.372</td>
<td>.081</td>
<td>.081</td>
<td></td>
</tr>
<tr>
<td>Peer shoplift</td>
<td>.066</td>
<td>.068</td>
<td>.066</td>
<td>.041</td>
<td>.041</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>-.624</td>
<td>-1.199</td>
<td>-.787</td>
<td>-1.302</td>
<td>1.277</td>
<td>.723</td>
</tr>
<tr>
<td>$\chi^2/df$</td>
<td>17.429/4</td>
<td>22.434/5</td>
<td>18.316/5</td>
<td>22.957/6</td>
<td>66.048/7</td>
<td>69.954/9</td>
</tr>
</tbody>
</table>

NOTE: Beta coefficient and standard error (in parentheses) are presented for each.  
**$p < .05$. 

In Model 3, a measure for dispositional anger is introduced to assess whether similar relationships between strain, anger, and behavioral intentions to shoplift are evident. The results are largely unchanged from the previous models except for the finding that anger, in this model, is not predictive of behavioral intentions to shoplift. Males and individuals experiencing different types of strain are more likely to report behavioral intentions to shoplift, whereas individuals with high levels of trait anger are not more likely to hold behavioral intentions to shoplift than individuals with low levels of trait anger. This finding is consistent with the bivariate results reported in Table 2.

In Model 4, measures for both situational and dispositional anger are included and the results mirror the earlier findings. In this model, the results indicate that situational anger significantly predicts behavioral intentions to shoplift, as do experiencing different types of strain.
and being male. As in the previous model, dispositional anger does not exhibit any significant effect on intentions to shoplift.

Results of a logistic regression model with statistical controls for prior deviance, moral beliefs against shoplifting, and exposure to peers who shoplift are reported in Model 5. As can be seen, two of the three control variables incur their expected, significant effect on intentions to shoplift. Prior shoplifting is associated with increased intentions to shoplift as is holding weak moral beliefs against shoplifting. Both strain measures retain their significant effects on behavioral intentions to shoplift, which is important given that controls for alternative theoretical explanations are controlled in this model.

Model 6 presents the estimates for the fully saturated model including measures of strain, the control variables, and both measures of anger. As can be seen, both strain measures and two of the three control variables retain their previously observed significant effects on intentions to shoplift. Of the two anger measures, only situational anger exhibits a significant effect on intentions to shoplift. These results are consistent with prior literature on GST insofar as strain has an effect on criminal activity and dispositional anger is not related to certain types of instrumental offenses such as theft and shoplifting (Mazerolle & Piquero, 1998). By contrast, situational anger exerts a consistent effect on behavioral intentions to shoplift, which is consistent with GST.

Results of OLS regressions predicting behavioral intentions to assault are reported in Table 4. The format of the models is similar to that in Table 3. The results in Model 1 reveal that a number of variables are predictive of intentions to assault. For example, males and younger respondents are more likely to report intentions to assault and individuals with high exposure to strain in the form of experiencing inequitable situations at school are more likely to report intentions to assault.

Situational anger is introduced in Model 2. Situational anger exhibits a strong, positive effect on intentions to assault. Additionally, males and individuals experiencing inequitable experiences at school have an increased probability of intentions to assault. Situational anger clearly has the strongest impact in the model and introducing this variable has a major impact on the explained variance in the model as the $r$-square increases from .10 to .32. Furthermore, situational anger
appears to mediate, at least to some extent, the effect of strain on behavioral intentions to assault, which accords well with expectations derived from GST.

Model 3 replaces situational anger with the measure for dispositional anger to assess whether there is similarity in the pattern of relationships. The results in Model 3 reveal that being male and younger increase the probability of behavioral intentions to assault. Persons experiencing high levels of strain (i.e., inequitable experiences at school) and holding angry dispositions report an increased probability of behavioral intentions to assault. On the surface, these results appear similar in form to those reported for situational anger in Model 2. However, two issues differentiate these findings. First, the measure for dispositional anger does not appear to have any mediating influence linking the effect of strain on intentions to assault as in the previous model for situational anger. Second, the explained variance ap-
pears much lower in this model (.16 vs. .32). Collectively, this suggests that the measure for dispositional anger operates somewhat differently than the measure for situational anger even though on the surface the findings appear to be similar.

In Model 3, the measures for dispositional anger and strain (i.e., equity) remain as significant predictors of behavioral intentions to assault. Given that the measure of dispositional anger is consonant with a static indicator of angry temperament, it could be argued that the results are consistent with the view that people with anger dispositions are more likely to experience strain, which subsequently has an impact on the development of situational anger and deviance (Mazerolle et al., 2000). We return to this issue later in the analysis.

The results reported in Model 4 allow a direct comparison of the relationships between strain, situational and dispositional anger, and behavioral intentions to assault. Results from this model reveal that being male, experiencing strain (inequity), situational anger, and dispositional anger significantly predict intentions to assault. As in the previous models, the results reveal that the effect of strain on deviance is largely mediated by situational anger and that situational anger exhibits stronger effects on intentions to assault than dispositional anger.

Model 5 replaces both anger measures with three control variables for prior assault, moral beliefs against assault, and exposure to peers who engage in assaultive behavior. As shown, all of the control variables significantly affect intentions to assault. Variables associated with increased intentions to assault included sex (i.e., being male), strain related to inequitable experiences, prior assault, and exposure to assaultive peers; whereas individuals holding strong moral beliefs against assault were more likely to report lower intentions to assault. These findings are consistent with theoretical expectations and past research, which finds that measures of strain still predict crime and deviance after controlling for alternative theoretical influences (Agnew & White, 1992; Paternoster & Mazerolle, 1994).

Measures for situational and dispositional anger are added in Model 6. The results are consistent with previous results in that measures for strain and the control variables are significantly related to intentions to assault. Moreover, significant relationships between intentions to assault and situational and dispositional anger are observed;
situational anger remains the strongest predictor of intentions to assault.

In the next section of this analysis, we turn to the issue of further specifying the relationships between strain, different types of anger, and intentions to deviate.

**SPECIFYING THE RELATIONSHIPS BETWEEN ANGER, STRAIN, AND ASSAULTIVE INTENTIONS**

In the final stage of our analysis, we explore relationships between dispositional anger, strain, situational anger, and intentions to assault. Findings reported above, as well as prior research, suggest that persons with angry temperaments or dispositions are more likely to experience strain or perceive situations as involving more strain (Eaken, 2001; Mazerolle et al., 2000). Prior work (Spielberger et al., 1985) suggests that persons with high levels of trait anger are more easily frustrated and irritated and more likely to develop angry emotional states (i.e., state anger or situational anger).

Recall that this issue has important implications for GST as past research examining relationships between strain, anger, and deviant adaptations has included measures of trait anger (Brezina, 1996; Mazerolle & Piquero, 1997, 1998; Mazerolle et al., 2000). At issue is whether this research is misspecified because a stable indicator of anger has been used in regression equations or, rather, this research is acceptable because of the assumption that individuals with high trait anger are more likely to develop situational anger in response to strain. If the latter is the case, the findings of previous research might simply be conservative but not necessarily incorrect because diluted, decontextualized measures of anger have been used.

To investigate this issue, we estimated a structural equation model for intentions to assault, the results of which may be found in Table 5. The relationships were not examined for intentions to shoplift because significant relationships were not observed between trait anger and intentions to shoplift in the bivariate and multivariate analyses.

The results reported in Table 5 report the hypothesized relationships illustrated in Figure 1. In terms of predictors of strain, it is expected that persons reporting higher trait anger are more likely to ex-
experience strain. The results reported in the Strain-Count and Strain-Equity columns of Table 5 report somewhat mixed results on this issue. For example, net of the effects of sex and age, the persons with higher levels of trait anger have increased levels of strain related to an index of negative life events. However, trait anger is not related to the strain that arises from experiencing inequitable events such as getting an unfair grade in school. In short, persons with high levels of trait anger are not significantly more likely to experience this type of strain than individuals with lower levels of dispositional anger.

Predictors of situational anger are also reported in Table 5. Theoretically, we expected that experiencing strain would be related to situational anger. Moreover, trait anger should be related to situational anger, although we expected these effects to operate primarily through strain. The results again reveal somewhat mixed findings. In support of GST, the findings show that some measures of strain, such as experiencing inequitable events, are related to situational anger.
However, the results also reveal that dispositional anger is predictive of situational anger. This finding is not surprising given the conceptual overlap of trait and situational anger. Moreover, it supports earlier assumptions that persons with high levels of trait anger are likely to develop high levels of situational anger. This finding is consistent with the assertions of Spielberger and his colleagues (1983, 1985), and it is supportive of past GST research that made assumptions that angry people were more likely to experience situational or state anger (Mazerolle & Piquero, 1997, 1998). However, the results are not supportive of the view that these effects are mediated by experiencing strain (Mazerolle et al., 2000).

Finally, in predicting intentions to assault, it appears that situational anger, strain arising from experiencing inequitable events, dispositional anger, sex, prior assault, weak moral beliefs against assault, and exposure to peers who assault exhibit significant effects. Among the significant relationships, the largest effect was observed for situational anger. Dispositional anger still maintains a positive effect on intentions to assault, which suggests that a nontrivial degree of the effects of trait anger on intentions to assault does not operate through situational anger. Statistical tests suggest that there was a good fit of the model to the data.4
DISCUSSION

This study was motivated by the need to further clarify relationships between exposure to strain, developing angry emotional states in response to strain, and embracing deviant or criminal adaptations. The role of anger for GST represents a core aspect of the theory. However, past research examining this issue, due primarily to data limitations, has relied almost exclusively on trait indicators of anger, which reflects a time stable indicator of persons with angry temperaments.

In this study, we examined relationships between trait anger, strain, situational anger, and behavioral intentions to deviate with data collected from 338 university students. We were keen to examine whether different conclusions were reached when measures of trait anger and situational anger were used in regression models. In other words, would a similar form of the relationship linking strain, anger, and intentions to deviate be observed regardless of the type of measure of anger used? Moreover, we were motivated to investigate further whether persons with angry temperaments were more likely to experience strain, whether persons with angry temperaments were more likely to experience situational anger, and additionally whether trait anger was predictive of behavioral intentions to deviate independent of the effects of situational anger, which would suggest a somewhat different mechanism linking dispositional anger, strain, situational anger, and deviance.

Results from logistic regression models predicting behavioral intentions to shoplift revealed that measures of strain and situational anger were significantly related to intentions to shoplift net of controls for demographic characteristics and measures from alternative theories. The findings also revealed that dispositional anger was not significantly related to intentions to shoplift, whereas situational anger remained a strong and consistent predictor.

Results from models predicting intentions to assault also found that one of the two measures of strain (i.e., experiencing inequitable situations) and situational anger were predictive of intentions to assault, independent of controls. Interestingly, in these models, trait anger was a salient influence predicting intentions to assault; however, it did not appear to mediate the effects of strain. By contrast, situational anger
did mediate, at least partially, the effect of strain on intentions to assault. On initial inspection, trait anger appeared to operate in a similar fashion to situational anger although the results were somewhat weaker and the mediating influences were not observed.

In the final stage of our analysis, we used structural equation modeling techniques to examine relationships between trait anger, strain, situational anger, and behavioral intentions to assault. The key findings emerging from this analysis were that trait anger increased some forms of strain, that trait anger and strain (i.e., experiencing inequity) were related to situational anger, and that both forms of anger and strain (i.e., experiencing inequity) remained salient influences predicting behavioral intentions to assault, net of controls.

One consistent theme throughout the results was that experiencing strain in the form of being exposed to inequitable events at school is an important influence over generating negative emotions such as situational anger as well as behavioral intentions to deviate. Previous studies of GST have not included measures of experiencing inequitable situations, as most studies have focused on composite measures of exposure to negative life events or experiencing noxious conditions or negative interpersonal relationships with parents or teachers (Hoffmann & Miller, 1998; Mazerolle & Piquero, 1998; Paternoster & Mazerolle, 1994). In this study, the strain-count scale was predictive of property and not assaultive offending. It may be that the strain-count scale did not predict assault because many of the items in the strain-count scale involved types of strains that are unlikely to generate anger (Agnew, 2001). Also, if many of the strains examined in the strain-count scale had occurred 12 months ago, it would not be too surprising that they would fail to generate feelings of anger in response to the hypothetical assault vignette, which represents a more proximate and emotional situation. These results highlight the importance of measuring strain and negative emotions in different ways.

That this form of strain was consistently related to intentions to deviate in these models may be related to a possible magnified relationship or symmetry with situational anger. Feelings of inequity related to violations of one’s moral sense of right and wrong and one’s sense of procedural justice may generate intense feelings of anger related to one’s sense of unfairness. Collectively, these experiences could magnify the need for corrective action such as deviance to rectify past in-
justices. Moreover, there is reason to believe that these processes may be more acute for males, as past research suggests that the male experience of anger is more consistent with moral outrage than the female experience of anger (Broidy & Agnew, 1997).

In summary, the results of this study highlight the importance of situational anger as a critical influence in predicting varied forms of deviant behavior as suggested by GST. These influences remain even when the effects of prior deviance, exposure to peer deviance, and holding weak moral constraints against deviance are statistically controlled. Our findings reinforce Agnew’s (1992) assertion that anger is a critical influence in the explanation of crime and deviance because it magnifies feelings of felt injury and injustice and motivates individuals toward action. In addition, the brunt of our results indicate, as did prior empirical research on GST (Mazerolle & Piquero, 1998), that the anger-mediated effect of strain is more pronounced for interpersonal aggression or assault than for property offending. Thus, the relevant emotion for property offending may not be anger but perhaps frustration.

The results also highlight the fact that the measurement of anger represents a critically important issue for empirical research on GST. Relying on static indicators of anger as proxy measures of situational anger appears problematic and should be discouraged in future research on GST. Our results support the view that persons with high levels of trait anger are more likely to experience certain forms of strain and are more likely to report increased situational anger, but dispositional anger is still related to some forms of deviance (e.g., intentions to assault) independent of the effects of strain and situational anger. These findings suggest that models relying on trait-based indicators of anger to index situational anger may only be telling part of the story. On the surface, the findings appear tenable. However, on closer inspection, it is clear that the effects are significantly diluted in multivariate models. Furthermore, results from the structural equation model suggest that a somewhat different mechanism is operating, as persons with angry dispositions are more likely to report behavioral intentions to assault independent of their experiences of strain and situational anger. In short, the effects of angry dispositions partly operate through situational anger and partly reflect a direct influence on behavioral intentions to assault. Future research exploring these is-
issues needs to be cognizant of the fact that trait and situational measures of anger index somewhat different processes linking strain, anger, and deviant outcomes. Additional research is needed to examine further whether these results hold in more representative samples and whether these relationships operate in similar or different ways for males and females and across other subgroups of the population such as race.

Finally, because individuals play a role in creating, influencing, and modifying their social environments, and because individuals may act in ways that provoke negative reactions from others, it is beneficial to alter the behavior of individuals in ways that reduce the likelihood of negative reactions from others (Agnew, 1995b, p. 54). Because GST takes anger as a key ingredient of criminal activity, finding ways to reduce the problem of angry emotions turning violent is central to policy efforts. One method to accomplish this task is through negotiation and social skills training. By aiding the skills of individuals to deal with angry feelings (i.e., deal with anger), potentially violent situations can be stymied. The social skills component of Aggression Replacement Training (ART) is one approach (Goldstein, Krasner, & Garfield, 1989). ART involves direct instruction, role playing, and homework assignments for social skills used in real-life settings. Such an approach can be used as an intervention for delinquents as well as on a preventive basis for individuals at risk for responding to angry emotions with violence (Agnew, 1995b, p. 55). In sum, as GST focuses explicitly on negative relations with others, policy efforts need to also consider the individual- and social-situation interaction as the dynamic nature of these situations could or could not turn violent depending, in part, on the manner in which angry temperaments and reactions are manifested.

NOTES

1. Although it is possible to look back on college as relatively stress free compared to the demands of career, family, and civic responsibilities, there is evidence that college is a relatively stressful period in the lives of young adults (Hamilton & Fagot, 1988; Mazerolle & Piquero, 1998; UCLA, 1999).

2. In our data, we found that the anger-out subscale correlated strongly ($r = .63$) with the temper component of the low self-control scale developed by Grasmick, Tittle, Bursik, and Arneklev.
(1993), which represents a stable indicator of angry disposition used in previous research (Mazerolle & Piquero, 1997, 1998).

3. As a result of the skewed nature of the outcome variable for shoplifting, intentions to shoplift were dichotomized (0 = zero probability of intentions to shoplift; 1 = a nonzero probability of intentions to shoplift). Thus, logistic regression was employed.

4. Overall, the model provides a good fit to the data because the ratio of chi-square to degrees of freedom was below the 5.0 cutoff recommended by Smith and Patterson (1985). Additionally, the Goodness of Fit Index statistic Critical N and Root Mean Square Error of Approximation were indicative of a good fit of the model to the data. Finally, inspection of the modification indexes indicated that the model fit could not be further improved.

REFERENCES


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