

# GENDER, RELIGIOSITY, AND REACTIONS TO STRAIN AMONG AFRICAN AMERICANS

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Drawing on Broidy and Agnew's (1997) extension of general strain theory to explain gender differences in deviance and crime, we tested hypotheses explaining why women are more distressed than men, but less likely to commit deviance in reaction to strain. Applying structural equation modeling to analyze data from a national survey of African Americans, we find that African-American women are more distressed than men, but less likely to engage in interpersonal aggression, because they are better protected by religiosity's distress buffering as well as deviance-reducing effects, and more likely to experience self-directed distress (depression and anxiety) in response to strain, which is less likely to lead to other-directed deviance, like interpersonal aggression, than other-directed distress (anger).

Agnew's (1992) general strain theory (GST) posits that strain generates negative emotions that provide motivation for criminal and deviant acts, because such emotional distress creates pressure for "corrective" action. Thus, the more distressed one becomes, the more likely it is for the individual to engage in crime and deviance. We also know from sociological research that women are more distressed than men, and this observed difference cannot be fully explained by gender differences in emotional expressiveness (Mirowsky and Ross 1995). According to the basic proposition of GST, then, women should be more likely to commit crime and deviant acts than men, but the opposite has been consistently observed as one of the best-established facts in criminology.

This study is intended to address the issue of gender-distress-deviance inconsistency (i.e., women tend to report *higher* levels of distress than men, but show *lower* levels of criminal and deviant acts) by examining two of three propositions advanced by Broidy and Agnew (1997) to explain gender differences in crime and deviance. Specifically, they proposed that the differences be explained in terms of gender differences in mediating and conditioning factors as well as in type of emotional reactions to strain. Thus, focusing

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on interpersonal aggression as a behavioral reaction to strain-generated distress, we first hypothesize that women are less likely than men to commit deviant acts in response to strain, because of documented gender differences in religiosity. Knowing that women consistently report higher levels of religiosity than men, it may be that religious influences represent an important source of coping resources, coping skills, and social support. It is also hypothesized that women are more likely to respond to strain with self-directed emotions, such as depression and anxiety, and thus less likely than men to engage in other-directed deviant acts like interpersonal aggression.

To test these hypotheses, we analyze data from a national survey of African-American adults. This ethnic group is important to study because African Americans tend to report higher average levels of strain, distress, and deviance—especially violent crime—than other groups. Our focus on religiosity is also of special relevance, given the higher levels of religious involvement and the symbolic centrality that religious institutions, especially churches, occupy within African-American communities (Sherkat and Ellison 1999).

## GENERAL STRAIN THEORY

Unlike classic theories of strain (Merton 1938; Cohen 1955; Cloward and Ohlin 1960), Agnew's (1992) GST defines the concept of strain broadly to include all types of stressors, which generate negative emotions or emotional distress. In Agnew's theoretical model, emotional distress is specified as the key intervening variable between strain and deviant behavior. Thus, for GST, what is important is the extent to which emotional distress mediates the effects of strain on deviant behavior, because unmediated effects of strain might reflect the causal processes of social control and social learning (Agnew 1995).

Further, Agnew (1992) conceptualizes different types of emotional distress in two ways. First, he distinguishes between self- (e.g., depression or anxiety) and other-directed emotions (e.g., anger), suggesting that the latter should be more likely to result in an other-directed deviant act like interpersonal aggression, rather than a self-directed act like drug use (Jang and Johnson 2003). Second, using anger as the example, Agnew (1995:384) proposes that researchers should "measure both long-term or chronic anger, and the frequency of angry episodes" because both types should increase the likelihood of deviant acts. Based on this proposition, we focus on two types of emotional distress: state and situational distress. State distress refers to an "unpleasant subjective *state*" (Mirowsky and Ross 1989:21, emphasis added), which is typically measured by asking a respondent how often he or she felt distressed during a certain period of time (e.g., Mirowsky and Ross 1995). On the other hand, situational distress is produced by strain that "function[s] as a *situational event*" (Agnew 1992:60). For instance, when situational anger is measured in a survey, a respondent is asked about the degree of his or her (actual or expected) angry reaction to some specific (self-reported or researcher-provided) annoying or frustrating situation (e.g., Capowich, Mazerolle, and Piquero 2001).

To this strain-distress-deviance relationship, Agnew (1992) suggests that conditioning factors should be added to explain why not all strained individuals turn to deviance. Classic strain theorists have failed to explain systematically the social fact that only some

people adapt to strain by committing deviant acts. In his theory, Agnew proposes that various conditioning factors affect the choice between deviant and nondeviant coping strategies. In essence, the conventionality of an individual's attributes (e.g., self-efficacy) and relations with others (e.g., social support), as well as structural/situational constraints, make it unlikely for the individual to turn to deviance in coping with distress, and in converting it into actions like interpersonal aggression. In this study, therefore, we focus on religiosity as a conditioning factor.

Previous researchers tend to find that religiosity conditions, specifically, weakens or buffers the effects of strain on distress, whether the sample comes from Christians or Muslims, or whether it is local or national (Jamal and Badawi 1993; Shams and Jackson 1993; Hettler and Cohen 1998; Chang, Skinner, and Boehmer 2001; but see Ellison et al. 2001). On the other hand, while there is some recent evidence that religiosity or spiritual coping significantly buffers the effects of emotional distress on interpersonal aggression or criminal offending (Piquero and Sealock 2000; Jang and Johnson 2003), the distress-buffering effects of religiosity on deviant coping behavior has been understudied relative to the strain-buffering effects of religiosity.

## GENDER AND GENERAL STRAIN THEORY

In their application of Agnew's (1992) GST to explain gender differences in crime and deviance, Broidy and Agnew (1997) advance three propositions, two of which we examine in this study.<sup>1</sup> First, they propose that women are less likely to respond to strain/anger with crime than men due to gender differences in social support and coping styles, and that the relationship between strain/anger and crime is conditioned by resources, coping skills, and support. We examine whether religiosity is a key conditioning factor for explaining gender differences in crime and deviance among African Americans. We also examine whether the negative effects of religiosity on deviant coping behavior are larger for women than men.

Why should we expect such gender differences in religious effects? Although religious effects should apply to both males and females, we propose the effects to be greater for women, because of the higher levels of religiosity consistently reported by women. Women attend religious services and participate in religious activities more frequently, and are more deeply embedded in religious community than men (Sherkat and Ellison 1999). Thus, women are more likely than men to find themselves in "moral communities" where other coreligionists reinforce their religious beliefs and practices (Stark, Kent, and Doyle 1982; Ellison and Taylor 1996; Stark 1996).

In another proposition, Broidy and Agnew (1997) emphasize that gender differences in crime cannot be explained in terms of the amount of distress experienced, since women report higher levels of distress than men (Mirowsky and Ross 1986, 1989; Pearlin 1989; Aneshensel 1992). One study shows that women are more distressed than men in other- as well as self-directed emotions (e.g., Mirowsky and Ross 1995), which is inconsistent with the so-called "gendered response" hypothesis that men and women respond to strain with gender-specific, that is, masculine (i.e., other-directed) and feminine (i.e.,

self-directed) emotions (Dohrenwend and Dohrenwend 1976). The same study also reports that the gender differences in distress cannot be explained away by gender differences in emotional expressiveness (Mirowsky and Ross 1995).

Thus, Broidy and Agnew (1997:297) propose that gender differences in crime and deviance are, partly, a function of their distinct emotional responses to strain. They suggest that the anger of females is more likely to be accompanied by emotions such as depression, guilt, anxiety, and shame, and that these emotions reduce the likelihood of other-directed crime. While this proposition has not been directly examined, previous findings tend to be consistent with Broidy and Agnew's suggestion (Aseltine, Gore, and Gordon 2000; Broidy 2001; Jang and Johnson 2003; Piquero and Sealock 2004). Specifically, for example, they tend to show that other-directed emotions like anger tend to have stronger effects on other-directed deviant acts like interpersonal aggression, than on self-directed acts like drug use.

### **AFRICAN AMERICANS AND GENERAL STRAIN THEORY**

While Agnew's (1992) GST is proposed as a general theory for all racial and ethnic groups, it may be more applicable to African Americans who tend to report higher levels of psychological distress often stemming from experiences of racism and economic disadvantage than whites (Mirowsky and Ross 1989; Hagan and Peterson 1995). Further, according to GST, the disproportionately high levels of violence observed among African Americans are not only due to factors of control and social learning, but also the higher levels of strain and resultant negative emotions than whites (Agnew 1999). The present study focuses on African Americans, since previous research on GST generally neglects this ethnic group relative to whites.

GST posits that strained individuals are more likely to experience other-directed than self-directed emotions when they externalize strain by blaming others for their adversity, rather than when they internalize strain by blaming themselves. Larger effects of strain externalization on other- than self-directed emotions are expected, given that other-blaming "increases the individual's level of felt injury, creates a desire for retaliation/revenge, energizes the individual for action, and lowers inhibitions, in part, because individuals believe that others will feel their aggression is justified" (Agnew 1992:60). Researchers suggest that African Americans are more likely than other racial groups to externalize their adversity, because of their relatively well-developed racial consciousness<sup>2</sup> based on the history of involuntary immigration and slavery, as well as racial prejudice and discrimination (Ogbu 1990; Hagan and Peterson 1995; Neighbors et al. 1996). African Americans, therefore, are more likely to experience other-directed than self-directed emotions in reaction to strain, and these negative emotions (which tend to be other- rather than self-directed) are more likely to result in other- than self-directed deviant coping among African Americans.

Our focus on religiosity as a conditioning factor is also of special importance for African Americans, given the higher levels of religious involvement and the symbolic centrality that religious institutions, especially black churches, occupy within African-

American communities (Ellison 1993; Sherkat and Ellison 1999; Jang and Johnson, 2003). Previous research shows that African Americans not only report higher levels of religiosity than whites in the form of service attendance, membership in religious organizations, prayer, and Bible study, but they are also more likely to employ religious coping strategies than whites, reporting considerable satisfaction with the outcomes of religious coping efforts (Ellison 1993; Connell and Gibson 1997). These findings imply that the buffering effect of religiosity may be especially relevant to African Americans.

## THEORETICAL MODEL

To empirically evaluate Broidy and Agnew's (1997) proposed application of GST to explain gender differences in crime and deviance, we examine the relationships among gender, religiosity, strain, and distress to interpersonal aggression by testing the following hypotheses:

- Hypothesis 1. Religiosity's distress-buffering effects are larger for women than men.
- Hypothesis 2. The inverse effects of religiosity on interpersonal aggression are larger for women than for men.
- Hypothesis 3. In reaction to strain, women are more likely than men to experience self-directed distress, which is less likely to lead to other-directed, interpersonal aggression than other-directed distress.

Figure 1 presents a theoretical model of gender, religiosity, and emotional and behavioral reactions to strain. The figure encompasses a structural model of the hypothesized relationships among the key constructs and measurement models of all latent constructs. One of the latent constructs is a factor called "expression," which is intended to unobtrusively appraise and control for gender differences in emotional expressiveness, in estimating the hypothesized relationships.<sup>3</sup>

In our crossed 2 (factors)  $\times$  5 (indicators) measurement model, respondents who report more of both emotions, positive (measured by the two indicators of general happiness and life satisfaction) and negative moods (measured by the three indicators of distress), are considered more emotionally expressive. This "model defines expression and [situational distress] as crosscutting factors, each indicated by reports both of [negative and positive moods]: Expression increases reports of [negative and positive moods] net of the level of [situational distress], whereas [situational distress] increases reports of [negative moods] and *decreases* reports of [positive moods] net of the level of expression" (Mirowsky and Ross 1995:454).

To test Hypothesis 1, we included in the model the interactions of religiosity and (situational) distress, indicated by the saw-toothed arrows, to represent the nonlinear direct relations of the two latent constructs ( $L_1$  and  $L_2$ ) to their product interaction term ( $L_1L_2$ ), following Bollen's (1995) notation. To estimate the hypothesized interactions of latent variables in structural equation modeling, we apply a two-stage least squares (2SLS) method, which Bollen (1995) and Bollen and Paxton (1998) proposed as a largely non-technical and methodologically favorable approach, compared to previous methods (see Appendix A for a detailed description of our application).<sup>4</sup> Specifically, the 2SLS estima-

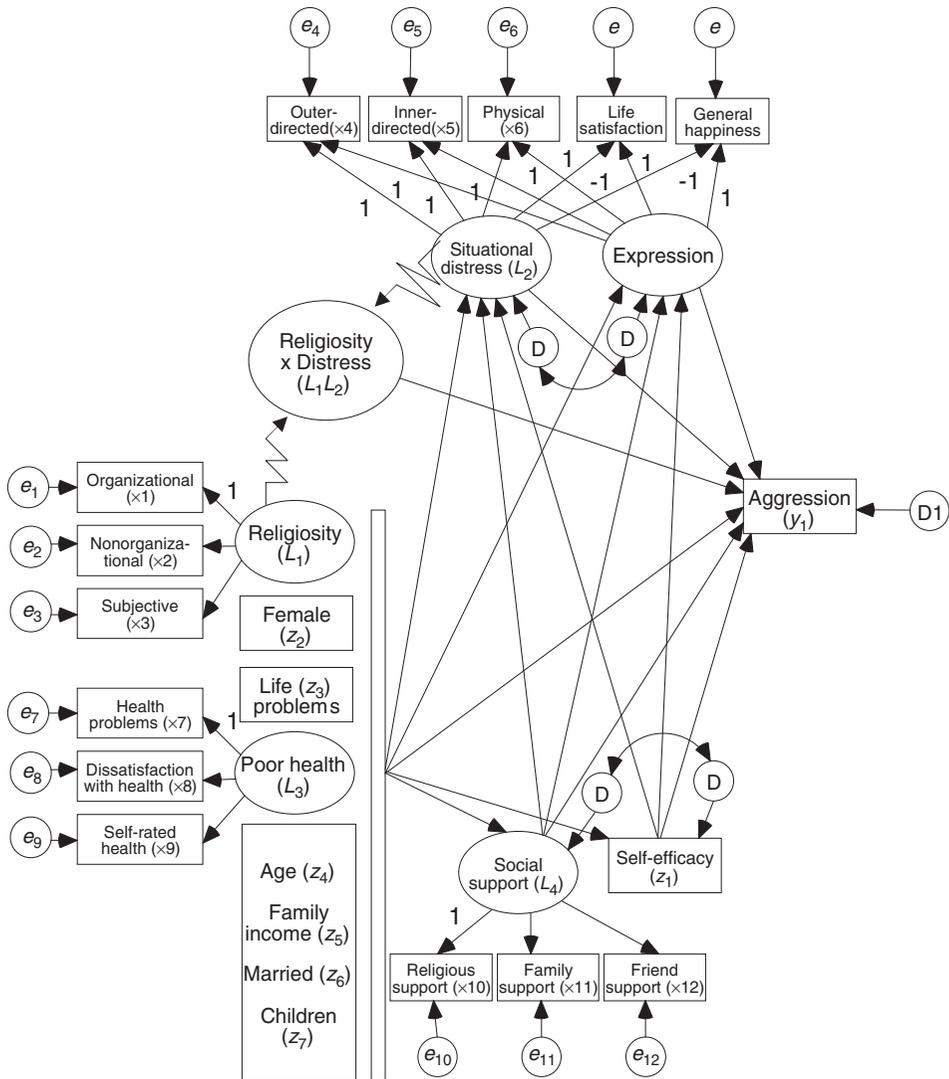


FIGURE 1. A Theoretical Model of Gender, Religiosity, and Reactions to Strain.

tor calculates unbiased and consistent estimates even when observed variables come from nonnormal distributions. Using the 2SLS procedure will provide correct asymptotic standard errors for significance tests (Bollen 1995; Bollen and Paxton 1998).

A multisample analysis of structural equation modeling is conducted to test the second hypothesis about gender differences in the effect of religiosity on interpersonal aggression, using the method of equality constraint, to compare the structural coefficient of the religious effect between males and females. We also conduct a multisample analysis to test Hypothesis 3 by estimating two modified models of situational distress (not shown

in figure), for which we have indicators of both self- and other-directed emotional as well as physical distress. The first modified model specifies two, instead of one (as shown in Figure 1), latent constructs of distress, self-directed (measured by the eight items of inner-directed emotional and physical distresses; see Appendix B) and other-directed (measured by the three items of anger; see Appendix B), whereas in the second modified model, the self-directed distress construct is split into two, self-directed emotional and physical distress constructs.

To study these gender differences in distress, our model includes interpersonal aggression as a behavioral outcome of distress. This inclusion is important because gender differences in distress might be confounded with gender differences in behavioral outcomes of distress, such as aggression (Mirowsky and Ross 1995). For example, do women experience more distress because they are less likely to convert distress into various forms of behavioral expression than men? Perhaps women are more likely to suffer from emotional disorders (e.g., anxiety disorder), whereas men are at greater risk of behavioral disorders than women (e.g., alcoholism) (Aneshensel, Rutter, and Lachenbruch 1991; Aneshensel 1992). To date, however, research has failed to document that the gendered pattern of behavioral expressiveness accounts for gender differences in distress (Mirowsky and Ross 1995).<sup>5</sup>

Finally, besides strain and sociodemographic variables, the theoretical model also includes social support and self-efficacy, which sociologists suggest explain social patterns of distress, such as individual or group differences in distress (Mirowsky and Ross 1986, 1989; Pearlin 1989; Aneshensel 1992). For example, a recent study provides empirical evidence that the effects of religiosity on distress can be explained in terms of these two variables (Jang and Johnson 2004). Specifically, the study found, in terms of anger, depression, and anxiety, religiously committed African Americans exhibit lower levels of distress than their less religious or nonreligious counterparts, because the former tend to have higher levels of social support and self-efficacy, which consequently reduces distress, than the latter. By including social support and self-efficacy in our model, we bring specificity to the mechanisms linking religious effects to distress and aggression.

## METHODS

### Data

The data to test our hypotheses come from the last of four waves of the National Survey of Black Americans (NSBA), a nationally representative panel survey of adult African Americans. A multistage area probability sampling was conducted based on the national distribution of African Americans indicated in the 1970 Census. Every African-American household in the continental United States had the same probability of being selected, and among eligible respondents (18 years of age or older, self-identified black, and U.S. citizens) of each selected household, one person was randomly chosen for face-to-face interview (see Jackson 1991 for a detailed description of the NSBA). For the initial wave of the survey, a total of 2,107 respondents were interviewed in 1979 and in 1980, with a response rate of 67 percent. Although this rate is relatively low (due partly to the African-

Americans' residential concentration within urban areas), Jackson (1991:25) reports, "Overall, the national sample is fairly representative of the black population as reported by the 1980 Census," despite a slight tendency to overrepresent older women, low-income groups, and southern residents.

In all three subsequent waves, a telephone survey was used. For the second wave of the survey (conducted in 1987 and 1988), 57 percent (1,210) of the original respondents were located and asked for an interview,<sup>6</sup> and 77 percent (935) of them were interviewed, along with 16 new respondents (N = 951). In the third wave, 83 percent (779) of the original respondents from the second wave as well as 14 others (12 of the 16 new respondents added at the second wave and two new added at the third wave) were interviewed in 1988 and 1989 (N = 793). The final wave of data was collected in 1992 from a total sample of 659 respondents, and 94 percent (623, which is 80 percent of those original respondents from the third wave) of them participated in all four waves of the survey (the other 36 respondents included 28 last interviewed at the second wave, one last interviewed at the first wave, six of the 16 additional respondents added at the second wave, and one new added at the fourth wave).

According to Jackson, Brown, Williams, Torres, Sellers, and Brown (1996), the 623 respondents who participated in all four waves of data collection tend to be female, younger, and better off in terms of physical and mental health, as well as socioeconomic status, while they are not different from the others in regional distribution and perceptions, and experiences of racism. Thus, it is important to control for sociodemographic variables in our analysis based on the fourth wave of data, and these changes in sample characteristics, as a result of attrition, should be kept in mind when interpreting and generalizing the findings reported below. For example, because the present sample generally represents a somewhat advantaged group of African Americans relative to the original sample, our analyses are likely to yield a more conservative estimate of the relationships that we explore. However, this potential underestimation might be partly cancelled out by the fact that those survivors over the period of 12 to 13 years were found to be doing worse at the time of the last or most recent wave of data collection, with regard to physical and mental health, and involvement in social support networks (Jackson and Neighbors 1996; Taylor, Chatters, and Jackson 1997).

Rather than analyzing all four waves of data, we focus on the last wave for two reasons. First, the second wave includes only one of eight religiosity items that we used in this study (i.e., religion as guide for living), whereas the third wave adds just one more—frequency of attending religious services—to the second wave's item. This makes it inappropriate to use these two waves of data, because religiosity is one of our key concepts. Second, although the first wave includes various measures of religiosity like the last wave, a significant time interval between the two waves makes it impractical to conduct a meaningful longitudinal analysis (e.g., the effects of distress measured in 1979 or 1980 on aggression, reported 12 or 13 years later) as Levin and Taylor (1998) suggest. In addition, while distress was measured in both waves, only the last wave offers an opportunity to examine state as well as situational distress. This is important because data on situational distress were collected only from those respondents who self-reported serious

personal problems, unlike data on state distress that were collected from all respondents (see below for detailed explanation). Given our use of a single wave of data, causal interpretation of estimated relationships should be made with caution. Agnew, however, suggests that it is appropriate to make causal relationships among strain, distress, and deviant coping, since these relationships can be conceptualized as contemporaneous in nature, and, thus, observed over relatively short time periods like three months (1992:65).

Our sample ( $N = 659$ ) consists of respondents whose age ranges from 29 to 90, with a mean age of 53. The sample is 68 percent female (450), overrepresenting women, who made up 56 percent of the total non-Hispanic black resident population, age 30 and older, in 1992 (U. S. Department of Commerce 1994).

### Measurement

In the NSBA, each respondent was asked about serious “personal problems” that came up not only in a respondent’s life, but also in the lives of his or her significant others. Forty-two percent (274) of the total respondents reported up to two problems of various types, including financial, residential, job-related, health-related, and interpersonal problems. Those respondents were then asked how often they fought and argued with other people during the time that they were having those problems (1 = never, 2 = hardly ever, 3 = not too often, 4 = fairly often, 5 = very often). We use this single item to measure our ultimate endogenous variable, *aggression*.<sup>7</sup>

The NSBA data enable us to construct two measurement models of distress, state and situational distress, recognized by Agnew (1992). First, the NSBA includes nine items asking each respondent, “During the past month, how much of the time [have you felt distressed in various ways]?” (See Appendix B for the wording of items used.) To construct two indicators of the state distress construct, *depression* and *anxiety*, which Mirowsky and Ross (1989:21) called the “two major forms” of state distress, we used four and five items, whose factor loadings range from .68 to .82 ( $a = .85$ ) and from .63 to .80 ( $a = .82$ ), respectively. Second, the NSBA also includes 11 items asking those who reported that they had serious personal problems (see above) how often they felt distressed during that time. We used them to construct three indicators of the situational distress construct: *other-directed* emotional (anger) as well as *self-directed* emotional (depression and anxiety), and *physical distress* (e.g., poor appetite or restless sleep). The factor loadings of these composite measures range from .49 to .89 with inter-item reliability coefficients of .70, .82, and .71, respectively (see Appendix B for details).

We use these measures of distress and two single-item indicators of positive feelings, *life satisfaction* and *general happiness*, as indicators of the “expression” factor as well as the distress construct. Consistent with the underlying logic of the crosscutting factor model (i.e., emotionally expressive people, by definition, have a tendency to express freely their feelings, both positive and negative; and distressed people, by definition, are likely to express negative feelings, but unlikely to express positive feelings), the model fixes the metric loadings of the distress indicators to +1 on both the distress and expression factors, whereas it fixes the metric loadings of *life satisfaction* and *general happiness* to -1 on the

distress factor (i.e., distressed people are less likely to be satisfied with their lives and generally happy) and +1 on the expression factor (see Figure 1 and Appendix C).

We constructed an index of *self-efficacy* by calculating the mean of three items measuring the extent of each respondent's confidence that his or her life would work out as he or she plans or expects. Factor loadings of the items range from .30 to .63 with a low inter-item reliability coefficient of .47, which might be partly because all the three items were asked in different parts of the survey. We measure the social support construct by three indicators, *religious*, *family*, and *friend support*, each of which includes the same set of five items tapping the extent of potential (i.e., the levels of contact, intimacy, and satisfaction with church members, family, and friends) as well as perceived and actual support. The factor loadings of the items range from .43 to .80 with one exception,<sup>8</sup> whereas their inter-item reliability coefficients are .70, .66, and .70 (see Appendix B for details).

Guided by Levin, Taylor, and Chatters (1995), who identified three dimensions of religious involvement using the first wave of the NSBA data, we constructed three indicators of religiosity, using eight items: *organizational* (attending religious services and participation in other activities), *nonorganizational* (reading religious materials, watching or listening to religious programs on TV or radio, praying, and asking someone to pray), and *subjective religiosity* (perceived religiousness and religion as guide for living). The items of the three indicators yield reliability coefficients of .68, .71, and .54, respectively, whereas the *nonorganizational religiosity* indicator item's factor loadings range from .56 to .72 (which cannot be computed for the other two indicators, because they have only two items each, one less than the minimum number of items required for factor model to be identified). The estimated single-factor model of religiosity indicates that the *organizational*, *nonorganizational*, and *subjective religiosity* indicators all have high factor loadings, .68, .86, and .63, respectively (not presented in table).

We included two constructs of strain in our analysis, social and nonsocial strain. First, the NSBA asked each respondent whether he or she had any of nine listed problems (including problems with money, job, family or marriage, and racism) during a month period prior to the survey. If the respondent reported that he or she did have a problem, they were then asked how much the problem upset him or her. Instead of simply counting the number of problems acknowledged, we constructed an index of *life problems* by calculating the mean of the nine items, which we believe to be akin to the concept of strain (Aneshensel et al. 1991).

Second, we use three indicators to measure the poor health construct—*health problems*, *dissatisfaction with health*, and *self-rated health*—since Agnew suggested that non-social determinants of strain, like illness, for example, should be studied (1992:75). The first indicator is an index of 11 items about diseases or conditions (including arthritis, ulcers, cancers, high blood pressure, and stroke),<sup>9</sup> while the other two are single-item indicators. For the same reason that we focused on the undesirability of life problems, we constructed the indicator of health problems to measure the degree of health impairment, rather than the number of health problems, by using items asking how much a reported health problem keeps the respondent from working or carrying out his or her daily tasks.

Finally, in addition to our key demographic variable, gender (0 = male; 1 = *female*), we include other sociodemographic variables that have been shown to be associated with the above variables (Mirowsky and Ross 1986, 1989; Ross, Mirowsky, and Goldsteen 1990; Levin, Taylor, and Chatters 1995; Jackson and Neighbors 1996; Broidy and Agnew 1997; Taylor, Chatters, and Jackson 1997): *age* at the time of interview, *family income* (total income from all sources in 1991), marital status (0 = separated, divorced, widowed, or never married; 1 = *married*), and number of *children* living in the same household (0 = none; 1 = one; 2 = two; 3 = three; 4 = four; 5 = five; 6 = six or more).<sup>10</sup>

### Model Estimation

Our estimation of the theoretical model is based on latent-variable structural equation modeling, using Amos Version 4.0 (Arbuckle and Wothke 1995).<sup>11</sup> For the treatment of missing data, Amos 4.0 applies a full information maximum likelihood (FIML) approach. Previous studies demonstrate that relative to other approaches (including data imputation as well as listwise and pairwise deletion), this approach yields unbiased, efficient, and consistent estimates (Arbuckle and Wothke 1995). This is important because of missing data on the situational distress and aggression items, where 58 percent of the total respondents reported no serious personal problems (see above). For statistical significance ( $\alpha = .05$ ), we conducted one-tailed tests for hypothesized relationships, and two-tailed tests for nonhypothesized ones, including any relationship whose direction is opposite to our expectation.

## RESULTS

We first report the basic findings from our theoretical model, which is estimated for the total sample in three steps (see Table 1). In the first step, the distress construct and the expression factor were regressed on all exogenous variables (see Model 1 of Table 1). Then, self-efficacy and social support were added to the initial model (see Model 2 of Table 1) to see whether these two variables mediate the effects of religiosity on distress (Jang and Johnson 2004). In the third step, we estimated the full model with interpersonal aggression as the ultimate endogenous variable (see Model 3 of Table 1). Each panel shows two estimated models, the state distress model and the situational distress model (which is placed in a box). All of the models have acceptable values of goodness-of-fit in terms of Root Mean Square Error of Approximation (RMSEA), Normed Fit Index (NFI), and fit ratio, and factor loadings are generally high, ranging from .37 to .90 in absolute value (see Appendix C).

Model 1 of Table 1 shows that African-American women report higher levels of state (.10) or situational (.28) distress than men, controlling for the greater tendency among females to express freely their emotions when compared to males (.08 and .26). Additionally, religiously committed African Americans report lower levels of distress, whether state (-.11) or situational (-.18), than their less religious or nonreligious counterparts (Mirowsky and Ross, 1986, 1989; Pearlin 1989; Aneshensel 1992). Further analysis revealed that the gender effects on distress would have been underestimated (e.g., .06

TABLE 1. Unstandardized Parameter Estimates of the Structural Model of Gender, Religiosity, and Reactions to Strain: Total Sample (N = 659)

Endogenous variable	Exogenous variables										Endogenous variables					Model fit		
	Age	Family income	Married	Children	Life problems	Poor health	Female	Religiosity	Self-efficacy	Social support	Expression	Distress	R <sup>2</sup>	End. res.	Cov.	RMSEA	NFI	Fit ratio
<i>Model 1: Without sense of control &amp; social support</i>																		
1. Expression	.00	-.01+	.07+	.01	.01+	-.04+	.08*	.03					.11	.05+	.062	.982	3.56	
2. State distress	-.00+	-.01	.04	-.01	.05*	.09*	.10*	-.11*					.47					
1. Expression	.01+	.01	-.02	.06+	.02+	-.06+	.26*	-.04					.19	.12+	.066	.978	3.90	
2. Situational distress	.01+	.01	-.04	.04	.05*	.06*	.28*	-.18*					.39					
<i>Model 2: With sense of control &amp; social support</i>																		
1. Self-efficacy	.02+	.09*	-.46+	.01	-.08*	-.16*	-.06	.25*					.14	.47+	.071	.965	4.31	
2. Social support	.01	.12*	-.75+	-.01	-.06+	.00	-.20	3.15*					.54					
3. Expression	-.01+	-.03+	.08+	-.02	.01+	-.02	.02	.08	.01	-.01			.15	.05+				
4. State distress	-.01+	-.02*	-.00	-.05+	.03*	.09*	.01	.11	-.03*	-.06*			.54					
1. Self-efficacy	.02+	.09*	-.46+	.00	-.08*	-.16*	-.08	.26*					.13	.47+	.066	.967	3.89	
2. Social support	-.00	.08*	-.71+	-.08	-.08+	.02	-.31	3.17*					.54					
3. Expression	.01+	.01	-.04	.06+	.01+	-.06	.26*	-.03	-.03	.00			.20	.11+				
4. Situational distress	.01+	.02+	-.11	.04	.04*	.05*	.27*	-.01	-.06*	-.04*			.47					
<i>Model 3: Full model</i>																		
1. Self-efficacy	.02+	.09*	-.45+	.01	-.08*	-.16*	-.06	.25*					.14	.47+	.069	.966	4.09	
2. Social support	.01	.12*	-.74+	-.01	-.06+	.00	-.20	3.16*					.54					
3. Expression	-.01+	-.03+	.07+	-.02	.01+	-.02	.02	.08	.01	-.01			.15	.05+				
4. State distress	-.01+	-.02*	-.00	-.05+	.03*	.09*	.01	.11	-.03*	-.06*			.54					
5. Aggression	-.02*	.02	.07	-.01	.02	.06	.00	-.31	-.10*	.07	.57	.14	.19					
1. Self-efficacy	.02+	.08*	-.44+	.00	-.08*	-.16*	-.08	.26*					.13	.47+	.066	.966	3.87	
2. Social support	-.00	.08*	-.71+	-.08	-.08+	.02	-.31	3.18*					.54					
3. Expression	.01+	.01	-.03	.07+	.01+	-.06+	.26*	-.03	-.03+	.00			.20	.11+				
4. Situational distress	.01+	.02+	-.11	.04	.04*	.05*	.27*	-.02	-.06*	-.04*			.48					
5. Aggression	-.02*	.04	.10	-.03	.01	.08	-.24	-.26	-.05	.06	.98+	.48*	.36					

\*p < .05 (one-tailed test), +p < .05 (two-tailed test).

instead of .10 for state distress) if our model omitted religiosity, which suppresses the gender–distress relationship. This suggests that African-American women would have been much more distressed if they were not more religious than men. We also found that non-social as well as social strain, specifically, poor health (.09 and .06), as well as life problems (.05 and .05), has positive effects on both state and situational distress.

As expected, Model 2 of Table 1 shows that self-efficacy and social support fully account for the effects of religiosity on distress, while partly explaining gender differences in distress, and, to a lesser extent, the effects of the two strain measures on distress (see Equation 4 of Model 2 in Table 1). In the full model of state distress (see Model 3 of Table 1), we found that the effects of strain, that is, life problems and poor health, and religiosity on aggression, are mediated by self-efficacy, which has a significant direct effect (–.10) on aggression.<sup>12</sup> That is, those with a high sense of control over their lives are less likely to turn to ineffective, noninstrumental, deviant coping behavior (like aggression toward other people in reaction to personal problems) (Wheaton 1983; Mirowsky and Ross 1989). On the other hand, the full model of situational distress shows that those effects are mediated by distress, consistent with Agnew's (1992; 1995) general strain theory.

Presented separately for females and males, as well as the total sample, Table 2 summarizes 2SLS results for the state and situational distress models. We focus on the coefficient of the multiplicative interaction term ( $x_1x_4$ ), which estimates the hypothesized interactions of two latent variables, religiosity and distress (Bollen and Paxton 1998).<sup>13</sup> As can be seen in the table, religiosity has significant distress-buffering effects in the situational distress model (–.34), although not in the state distress model (.09), for the total sample. Importantly, the distress-buffering effects of religiosity are significant for African-American women (–.61), but not for men (.20), and are consistent with Hypothesis 1.

The significant interactions involving distress and religiosity are graphically presented in Figure 2, which shows the effect of distress on aggression at low, medium, and high levels of religiosity (top), and that of religiosity on aggression at low, medium, and high levels of distress (bottom).<sup>14</sup> The first graph indicates that the impact of distress on aggression (i.e., slope) tends to increase as we move from high to low religiosity: that is, non- or less religious African Americans are more vulnerable to the deviance-inducing effects of distress than their more religious counterparts. Put differently, as the second graph shows, the protective effects of religiosity tend to increase as the levels of distress increase. This finding adds to the research literature on religiosity by confirming a recent finding—religiosity's buffering effects tend to increase as the levels of neighborhood disorder (which causes distress) increase (Jang and Johnson 2001).

To test Hypothesis 2, we conducted a multisample analysis using an equality constraint to examine gender differences in the structural coefficient associated with the direct effects of religiosity on aggression (results not presented in a table). The multisample model is found to have acceptable values of model fit for both state (RMSEA = .051; NFI = .956; fit ratio = 2.70) and situational distress (RMSEA = .049; NFI = .957; fit ratio = 2.64). The estimated model of state and situational distress showed that the coef-

TABLE 2. Two-Stage Least Squares (2SLS) Results

Variables	Total sample (N = 659)	Females (N = 450)	Males (N = 209)
<i>State distress model</i>			
Organizational religiosity ( $x_1$ )	-.56* (.23)	-.74* (.26)	.01 (.59)
Depression ( $x_4$ )	.02 (.17)	.05 (.25)	.45 (.57)
Org. religiosity $\times$ depression ( $x_1x_4$ )	.09 (.23)	.12 (.33)	.54 (.35)
Health problems ( $x_6$ )	.08 (.08)	.10 (.11)	.43 (.34)
Religious support ( $x_9$ )	.04 (.07)	.02 (.08)	.07 (.16)
Self-efficacy ( $z_1$ )	-.07 (.05)	-.05 (.07)	-.07 (.10)
Female ( $z_2$ )	.09 (.23)		
Life problems ( $z_3$ )	.03* (.02)	.02 (.02)	.06 (.06)
Age ( $z_4$ )	-.03* (.01)	-.03* (.01)	-.05* (.03)
Family income ( $z_5$ )	.04 (.03)	.04 (.04)	.09 (.07)
Married ( $z_6$ )	.13 (.22)	.21 (.27)	.07 (.60)
Children ( $z_7$ )	.00 (.07)	-.05 (.09)	.23 (.20)
Constant	2.56* (.54)	2.87* (.74)	2.57* (1.10)
<i>Situational distress model</i>			
Organizational religiosity ( $x_1$ )	-.31 (.21)	-.63* (.25)	.28 (.36)
Other-directed distress ( $x_4$ )	.39* (.13)	.46* (.17)	.55* (.25)
Org. religiosity $\times$ Other distress ( $x_1x_4$ )	-.34* (.19)	-.61* (.28)	.20 (.29)
Health problems ( $x_6$ )	.10 (.07)	.17* (.10)	.01 (.16)
Religious support ( $x_9$ )	.03 (.06)	.03 (.07)	-.06 (.10)
Self-efficacy ( $z_1$ )	-.03 (.05)	.00 (.07)	-.06 (.08)
Female ( $z_2$ )	.01 (.01)		
Life problems ( $z_3$ )	.02 (.01)	.01 (.02)	.05 (.03)
Age ( $z_4$ )	-.02* (.01)	-.02* (.01)	-.01 (.02)
Family income ( $z_5$ )	.07+ (.03)	.06 (.04)	.04 (.05)
Married ( $z_6$ )	.07 (.19)	.37 (.28)	.05 (.43)
Children ( $z_7$ )	.01 (.19)	-.02 (.09)	-.02 (.16)
Constant	.94 (.68)	.86 (1.04)	.21 (1.06)

\* $p < .05$  (one-tailed test), + $p < .05$  (two-tailed test).

Note: Parameter estimates presented above are unstandardized coefficients, and standard errors are in parentheses.

cient is significant in the female sample ( $-.71$  and  $-.64$ ), but not in the male sample ( $.76$  and  $.65$ ). When we imposed an equality constraint on the coefficient in the state distress model, the model's chi-square increased to 620.437 with d.f. = 229, showing a significant increment ( $\Delta\chi^2 = 5.474$ , d.f. = 1,  $p < .05$ ), and the equality constraint also resulted in a significant chi-square increment ( $\Delta\chi^2 = 6.702$ , d.f. = 1,  $p < .05$ ) in the situational distress model. These findings provide empirical support for Hypothesis 2, that is, religiosity tends to have stronger effects on aggression for African-American women than men.

Table 3 shows that the overall pattern of structural coefficients is generally the same, and the overall fit of these alternative models tends to be better, compared to findings pre-

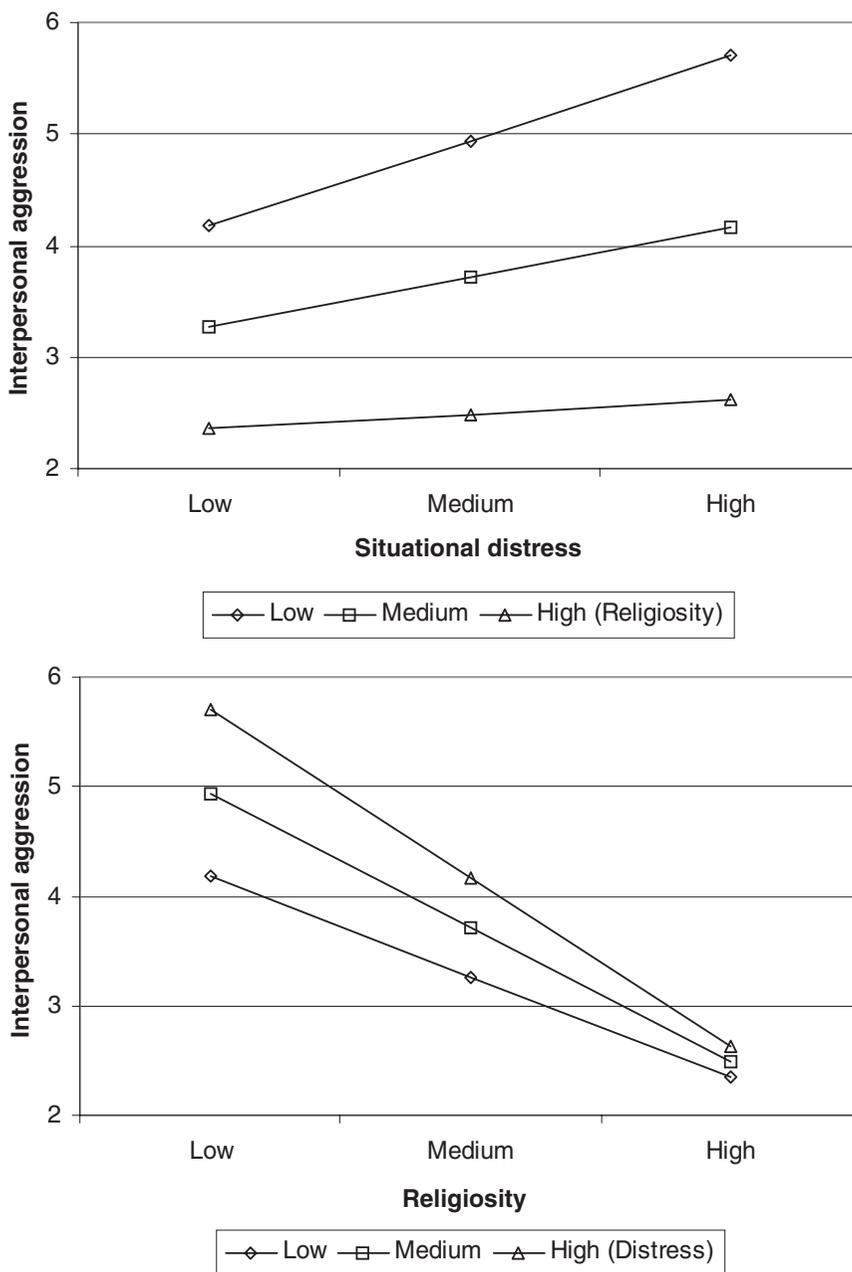


FIGURE 2. Interaction Effects Involving Situational Distress and Religiosity on Interpersonal Aggression Estimated by Two-Stage Least Squares (2SLS) for Total Sample.

Note: Low, medium, and high levels of situational distress and religiosity are estimated at one standard deviation below the mean, the mean, and one standard deviation above the mean of their scaling indicators (i.e., other-directed distress and organizational religiosity), respectively. All the other variations are held constant at their means.

TABLE 3. Unstandardized Parameter Estimates of the Structural Model of Situational Distress: Total Sample (N = 659)

Endogenous variable	Exogenous variables										Endogenous variables					R <sup>2</sup>
	Age	Family income	Married	Children	Life problems	Poor health	Female	Religiosity	Self-efficacy	Social support	Expression	Self-dir. emotions	Physical distress	Self-dir. distress	Other-dir. distress	
<i>Model 1: Full model with self-directed emotional and physical distresses combined</i>																
<b>(RMSEA = .051; NFI = .957; fit ratio = 2.70)</b>																
1. Self-efficacy	.02+	.09*	-.45+	.00	-.08*	-.16*	-.08	.26*							.13	
2. Social support	-.00	.08*	-.71+	-.08	-.08+	.01	-.30	3.14*							.54	
3. Expression	.01+	.01	-.01	.06	.02+	-.05	.28*	-.08	-.05+	.00					.18	
4. Self-dir. distress	.02+	.03+	-.22*	.04	.03*	.05*	.25*	.13	-.04*	-.07*					.43	
5. Other-dir. distress	-.01+	-.01	.14	-.01	.02*	.01	.03	-.19*	-.04*	.02					.35	
6. Aggression	.01	.08+	-.26	.00	.01	.14*	-.08	.09	-.04	-.03	1.23+		-.71	.89*	.54	
Endogenous residual covariances/correlations <sup>a</sup>																
1. Self-efficacy																
2. Social support	.13*															
3. Expression	.47*															
4. Self-dir. distress	.13*															
5. Other-dir. distress	.09*															
<i>Model 2: Full model with inner-directed emotional and physical distresses separate</i>																
<b>(RMSEA = .050; NFI = .960; fit ratio = 2.65)</b>																
1. Self-efficacy	.02+	.09*	-.45+	.00	-.08*	-.16*	-.08	.26*					.64*	.50*	.13	
											1.23+		-.03			

TABLE 3. Continued

Endogenous variable	Exogenous variables							Endogenous variables					R <sup>2</sup>				
	Age	Family income	Married	Children	Life problems	Poor health	Female	Religiosity	Self-efficacy	Social support	Expression	Self-dir. emotions		Physical distress	Self-dir. distress	Other-dir. distress	
2. Social support	-.00	.08*	-.72+	-.08	-.08+	.01	-.30	3.13*							.54		
3. Expression	.01+	.01	-.04	.06	.03+	-.02	.35*	-.08	-.06+	-.01					.22		
4. Self-dir. emotions	.01+	.03+	-.22*	.05	.03*	-.03	.11	.20	-.05*	-.07*					.37		
5. Physical distress	.01+	.01	-.06	.01	.01*	.15*	.28*	-.06	-.00	-.02					.46		
6. Other-dir. distress	-.01+	-.02	.18	-.02	.02*	-.02	-.04	-.20	-.04*	.04					.32		
7. Aggression	.01	.07+	-.25	-.00	.01	.15	-.08	.08	-.04	-.03	1.24+	-.58	-.50	.87*	.53		
Endogenous residual covariances/correlations <sup>a</sup>																	
1. Self-efficacy																	
2. Social support		.13*															
3. Expression			.47*														
4. Self-dir. emotions				.63*												.19*	
5. Physical distress					.14*											.62*	-.12
6. Other-dir. distress						.12*										.44*	-.44+
							.04*									-.06+	

<sup>a</sup>Residual covariances are presented below diagonal, whereas residual correlations are shown above diagonal.

\*p < .05 (one-tailed test), +p < .05 (two-tailed test).

sented earlier (the boxed Model 3 in Table 1). First, as hypothesized (Hypothesis 3), African-American women are more likely than men to experience self-directed distress (.25 in the Equation 4 of Model 1 in Table 3), specifically, physical distress (.28 in the Equation 5 of Model 2 in Table 3), in reaction to strain. On the other hand, we found no significant gender differences in self-directed emotional and other-directed emotional responses to strain (.11 and  $-.04$  in the Equations 4 and 6 of Model 2 in Table 3). Second, as expected, other-directed emotional distress has positive effects on aggression in both models (.89 and .87 in the Equation 6 of Model 1 and the Equation 7 of Model 2 in Table 3, respectively), whereas inner-directed emotional and physical distress, whether jointly or separately, failed to have significant effects on aggression.

However, if we a priori expected self-directed distress to have negative effects on aggression, the effects would have been considered significant ( $-.71$ , standard error = .38, critical ratio =  $-1.86$ ), thereby supporting Hypothesis 3, that is, African-American women are less likely than men to engage in aggression in reaction to strain, partly, because they are more likely to experience self-directed distress, which *decreases* aggression. Given the negative residual correlation between physical and outer-directed emotional distress ( $-.44$  in Model 2 of Table 3), we can conclude that under strain, African-American women are less likely than men to turn to aggression, partly, because they are more likely to experience physical distress, which is less likely to be accompanied by other-directed emotional distress that increases aggression (Broidy and Agnew 1997). Although this finding is not exactly consistent with our stated hypothesis, it does provide a partial ex post facto explanation of why African-American women tend to report higher levels of distress, but are less likely than men to engage in aggression in reaction to strain.

In addition to these major findings, we observe that our measure of social strain, life problems, has significant effects on both other- and self-directed distress (both emotional and physical). On the other hand, the measure of nonsocial strain, poor health, has significant effect on self-directed, specifically, physical distress, but not on other-directed emotional distress, as Agnew (1992) suspected.

## DISCUSSION AND CONCLUSION

This study was intended to evaluate Broidy and Agnew's (1997) application of GST (Agnew 1992) in explaining gender differences in deviance and crime. Specifically, we examined the issue of gender-distress-deviance inconsistency, that is, why women tend to report *higher* levels of distress (generated by strain) than men, but commit *lower* levels of deviant acts in reaction to distress. To address this issue, we hypothesized that even though African-American women are more distressed than African-American men, they are less likely to engage in interpersonal aggression in response to strain, because they are better protected by religiosity's distress-buffering as well as deviance-reducing effects (Hypotheses 1 and 2). It was also hypothesized that African-American women are more likely than men to experience self-directed distress (e.g., depression) in response to strain, which is less likely to lead to other-directed deviance, like interpersonal aggression, than other-directed distress (e.g., anger) (Hypothesis 3).

Overall results support our hypotheses, that is, we found that African-American women are less likely to fight and argue with other people when they are strained and distressed, partly, because they are more religious than men. They also benefit more than men from their religiosity that weakens or buffers the effects of distress on aggression. In addition, while African-American women become angry as often as men do when they experience strain, their anger is more likely to be accompanied by emotions such as depression or anxiety (Broidy and Agnew 1997). As a result, African-American females are less likely than their male counterparts to commit interpersonal aggression in response to anger. This is partly because the accompanied self-directed emotions are less likely than other-directed angry emotions to lead to other-directed deviant coping behavior like aggression.

These findings provide empirical support of Broidy and Agnew's (1997) proposition that we should focus on gender differences in *types*, and not the amount of emotional responses to strain, when applying GST to the explanation of gender differences in crime. Broidy and Agnew also suggested that differences in *types* of crime between males and females are a function of gender differences in *types* of strain. The present findings lend partial evidence to this proposition by showing the differential effects of distinct emotional responses to strain on a specific type of behavioral coping, that is, other-directed behavior is more likely to be a function of other- rather than self-directed emotions among African Americans. Future studies need to further examine whether and how different types of strain result in different types of emotional responses to strain, which in turn lead to different types of criminal and deviant coping behaviors. This is an important research topic for GST as well as its application to gender differences in crime, given that some types of strain will not be related to crime (Agnew 2001).

The present findings are also consistent with Broidy and Agnew's proposition that females are less likely than males to respond to a given level of strain/anger with serious and violent crime, as a result, partly, of gender differences in conditioning factors. Agnew's (1992) original proposal of internal (e.g., self-efficacy) and external factors (e.g., social support), as conditioning the effects of strain and distress on their outcomes, is crucial to explain why not all strained individuals turn to deviance and crime. Despite the theoretical significance of conditioning factors for GST, empirical evidence has been, at best, inconsistent, except for some factors like social control and delinquent peer association. In this study we focused on religiosity as a conditioning factor. Although not mentioned in Agnew's original proposal, we found religiosity to be relevant in explaining why some strained African Americans are less likely than others to turn to deviant coping of strain-generated distress (Jang and Johnson 2003).

Religiosity can also be further extended as a macro-level conditioning factor to explain differences in rates, as well as individual levels of crime and deviance, in response to strain and distress. For example, community-level religiosity can be measured in terms of the proportion of residents involved in religious institutions (e.g., church membership). This would make it possible to examine whether the effects of community-level strain (e.g., structural disadvantages like community-level poverty) and distress (e.g., aggregated measures of anger and depression) on community crime rates are condi-

tioned by community-level religiosity (Agnew 1999). Alternatively, multilevel modeling could be applied to examine cross-level interactions between community-level religiosity and individual-level predictors of crime and deviance. For instance, we may examine whether community-level religiosity buffers the effects of individual-level distress on criminal or deviant coping behavior. Similarly, based on the moral community thesis (Stark 1996), we could test whether community-level religiosity strengthens the inverse effects of individual-level religiosity on criminal or deviant coping behavior in response to strain.

This proposed extension of religiosity, as a conditioning factor to macro-level and multilevel research on GST, will make a significant contribution to the theory, because Agnew's proposal of macro-level conditioning factors has received little attention from previous researchers. Specifically, Agnew (1992:72) suggested, "The larger social environment may affect the probability of [deviant versus nondeviant] coping by affecting all of the [individual-level conditioning] factors." We believe community-level religiosity is just one of these social environments. He also proposed that the larger social environment is a key to explain different rates of deviant coping of strain and distress among social groups (e.g., the urban underclass versus others). When put in this context, this study can be said to provide indirect evidence of this proposition, given that it explains differences between gender groups using religiosity as a proxy of a larger social environment in terms of social support network (Jang and Johnson 2004).

Another example concerns differences among ethnic groups. While this study focused on African Americans, we still need more comparative research on different ethnic groups. For example, we suggested earlier that the GST explanation of crime, especially violence, may be more applicable to African Americans, because they are more likely than whites to externalize strain, and, thus, experience other-directed emotions like anger, which in turn leads to other-directed behaviors like interpersonal aggression or violence. To examine this possibility, future research needs to analyze data on both African Americans and whites. African Americans could also be compared with Asian Americans, who are likely to internalize strain by blaming themselves rather than others, because of their relatively collectivist culture (Sastry and Ross 1998; Jang 2002). Specifically, collectivist culture emphasizes an individual's subordination to society, community, and family for the sake of the collective's harmony and unity. Thus, the culture negatively sanctions those who attribute their own adversity to others, whether other people or society, because such other-blaming is considered as a threat to group harmony and unity. As a result, Asian Americans are likely to be socialized to accept personal responsibility for adversity, rather than blaming others, relative to African Americans. This type of comparative research is important to examine the role of ethnic culture as a larger social environment, which Agnew (1992) proposed as a macro-level conditioning factor.

Next, while explaining gender differences in distress was not our primary interest, it was observed that the effects of gender on state distress were explained fully by self-efficacy and social support, whereas the effects on situational distress were not. This difference might imply that state and situational distress are not simply interchangeable, but

rather, tap different conceptual domains, that is, state distress measures a person's levels of distress observed during a given period of time, whereas situational distress indicates a person's reaction to specific strain. If this is the case, gender differences in levels of distress reported for a previous week or month could be different from gender differences in distress as reactions to a stressful episode. For example, gender differences in distress might become more pronounced when a specific event is referenced (i.e., situational distress), compared to when no such frame of reference is used (i.e., state distress), perhaps, because women tend to have better episodic memory of personal experience than men (Herlitz, Nilsson, and Bäckman 1997; Herlitz and Yonker 2002). It follows, then, that gender differences in situational distress are likely to be larger than gender differences in state distress, which is what we found.<sup>15</sup>

Finally, our study of a national sample of African-American adults is a partial replication of Mirowsky and Ross' (1995) research on gender differences in distress based on survey data from a nationally representative, and, thus, predominantly white sample. Specifically, African-American women were found to be more expressive and less reserved about emotions than men, but these differences do not explain away higher levels of distress, especially self-directed distress among African-American women than men.<sup>16</sup> Also, like Mirowsky and Ross, we found no evidence supportive of gender-response theory (i.e., women get depressed, but men get angry when they are distressed) based on data collected from African Americans.

In conclusion, we believe that our study contributes to the current literatures on gender, religiosity, and deviance as well as distress as reactions to strain. Our findings, based on African-American data, enhance our explanation of why women are more distressed than men, but less prone to engage in aggressive behavior under distress. Methodologically, our application of structural equation modeling, to estimate interactions between the latent variables of religiosity and distress, provides another contribution to the literature. Finally, we recommend that future researchers include religiosity in their theoretical models of gender and distress to avoid model misspecification, specifically, the underestimation of gender differences in distress.

## ACKNOWLEDGMENTS

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## NOTES

<sup>1</sup>The proposition not examined here is: "males and females experience different *types* of strain, which leads to distinct behavior outcomes . . . with males [being] more often subject to type of strain that are conducive to serious crime. Among other things, research indicates that males are more often subject to financial strain, which is conducive to . . . severe interpersonal conflict, which is conducive to violence" (Broidy and Agnew 1997:297).

<sup>2</sup>Gurin and Hatchett (1982, cited in Neighbors et al. 1996:171) define racial consciousness as "a set of beliefs about the relative position of African Americans in society. Specifically, consciousness is

a collective interpretation of personal experience that includes power grievances about a group's relative disadvantaged status, which influences blacks to keep stress external rather than allowing it to become internalized."

<sup>3</sup>We adopted this creative application of structural equation modeling directly from Mirowsky and Ross (1995:454), who constructed "an *unobtrusive latent factor* implicit in the reports of positive and negative moods (happiness and sadness)" by building a "crosscutting factor model."

<sup>4</sup>At this point, two caveats related to Figure 1 are warranted. First, in our 2SLS model, all of Figure 1's endogenous variables except aggression are specified as exogenous variables that are correlated to one another. Second, we dropped the expression factor because the crosscutting factor could not be specified in our 2SLS model.

<sup>5</sup>This proposed explanation of gender differences in distress is based on an implicit assumption of catharsis, that is, behavioral expression of negative emotions would reduce the subsequent levels of distress. However, previous studies indicate that deviant behavioral expressions of negative emotions tend to increase, not decrease, the levels of distress (Mirowsky and Ross 1995). For example, Bushman, Baumeister, and Stack's (1999) experimental study finds that people who vent their anger by hitting a punching bag show elevated aggression toward not only the person at whom they were angry but also toward an innocent third person.

<sup>6</sup>Taylor, Chatters, and Jackson (1997:299–300) report, "Of the remaining original NSBA sample, approximately 7% were thought to be deceased; another 34% either had no telephone, their whereabouts were unknown to relatives, or both; while only 2% refused involvement at the initial tracking stage."

<sup>7</sup>We acknowledge that this single-item measure is limited in terms of the scope of measurement relative to multi-item measure, but it is the only item measuring other-directed behavioral reaction to the reported personal problem. In our description of measurement, the names of variables are all italicized.

<sup>8</sup>The exception is the factor loading of .29 associated with the first item of the *family support* indicator (see Appendix B). While this is low, although not necessarily unacceptable, relative to other factor loadings, we decided to include it in our analysis for consistency in constituent items across the three indicators of social support.

<sup>9</sup>We did not conduct factor analysis nor computed inter-item reliability coefficient for these items, because they are items of an index, not scale, and, thus, not expected to be highly correlated with one another. For example, those who have ulcers are not necessarily expected to have other health problems, such as cancers, diabetes, or arthritis, while some health problems are likely to coexist (e.g., high blood pressure and blood circulation problem).

<sup>10</sup>We also included region of residence (0 = non-South; 1 = South) in our preliminary analyses, because African Americans living in the South, who tend to be more religious than those in the non-South, were disproportionately more selected into the NSBA sample (Jackson 1991; Jackson and Neighbors 1996; Sherkat and Ellison 1999). However, we dropped the variable, because its inclusion did not affect the overall relationships among our key variables.

<sup>11</sup>For each model's goodness-of-fit, we report Steiger's Root Mean Square Error of Approximation (RMSEA), Bentler-Bonett's Normed Fit Index (NFI), and the chi-square, divided by its degrees of freedom (fit ratio). An RMSEA smaller than .05 indicates a close fit, while an RMSEA between .05 and .08 shows a reasonable fit (Browne and Cudeck 1992). However, given that one study suggested a cutoff value close to .06 for RMSEA as a relatively good fit (Hu and Bentler 1998), each model's fit should be evaluated by considering other measures of goodness-of-fit, such as NFI and fit ratio. The acceptable minimum value of NFI is .90 (Bentler and Bonett 1980), and fit ratio

whose value exceeds 5 is questionable, although there is no consensus on a “good” fit ratio (Bollen 1989).

<sup>12</sup>To further investigate this null finding for Agnew’s (1992) theory (i.e., state distress failed to have significant effects on aggression, .14), we estimated the full model without the expression factor. We examined this modified model because gender no longer had a significant effect on expression (which was included in the model to control for gender differences in expressiveness) once sense of control and social support were included (.08 in Model 1 versus .02 in both Models 2 and 3 of Table 1). We found that the only major change in the modified model is the effect of distress on aggression, which became significant (.32), that is, those who report higher levels of depression and anxiety in any given month were found to be more likely to fight and argue with other people when they experience strain.

It is also possible that the nonsignificant coefficient of state distress in Model 3 in Table 1 is a methodological artifact, given that information about aggression came only from those who reported serious personal problems, whereas data on state distress are from all respondents. So, we reestimated Model 3 using data from the reduced sample ( $N = 274$ ). However, the coefficient of state distress on aggression remained nonsignificant, while the model fit became worse ( $RMSEA = .079$ ) than the one based on the total sample ( $RMSEA = .069$ ).

<sup>13</sup>The (distress  $\neq$  religiosity) interactions were estimated separately for both state and situational distress, which are measured by two (depression and anxiety) and three indicators (physical as well as self- and other-directed emotional distress), respectively. In this sense, all types of distress were used in estimating the interactions. Specifically, given that Bollen and Paxton’s (1998) 2SLS method requires the use of a scaling indicator for each latent construct involved in the interactions, we alternated scaling indicators to ensure that our choice of scaling indicators does not affect overall findings (see note 14 for results from this sensitivity analysis).

<sup>14</sup>Low, medium, and high levels of distress and religiosity were estimated at one standard deviation below the mean, the mean, and one standard deviation above the mean of their scaling indicators (i.e., other-directed distress and organizational religiosity), respectively. All the other variations were held constant at their means. Since our choice of scaling indicators of latent variables involved in interactions is likely to affect the 2SLS results (Bollen and Paxton 1998), we conducted sensitivity analyses by alternating scaling indicators. We found that religiosity’s significant distress-buffering effects are robust across different selections of scaling indicators for the situational distress model, while the effects remain nonsignificant for the state distress model.

<sup>15</sup>Alternatively, the larger gender differences in situational, rather than state distress, might be simply because of the different scope of measurement: we used two self-directed emotional distress indicators to measure state distress (i.e., depression and anxiety), while using other- as well as self-directed emotional and physical distress indicators to measure situational distress. Consequently, we reestimated models of situational distress by using only self-directed emotional indicators. We found that this difference in measurement did not change the overall results. For example, the reestimated Model 1 in Table 3 (i.e., the model without sense of control and social support) showed that the effects of gender on situational distress decreased only by .02, from .28 to .26, and remained larger than the effects on state distress (.10, see Model 1 in Table 1) when we dropped other-directed emotional and physical distress indicators. The reestimated full model (i.e., Model 3 in Table 1) also indicated little change in the gender effects, regardless of whether we controlled for expression (from .27 to .24.) or not (from .53 to .44). These findings suggest that the observed differences in the gender effects on distress between the measures of state and situational distress should not be dismissed as measurement artifact.

<sup>16</sup>Unlike Mirowsky and Ross, who found gender differences in anger as well as sadness (or depression), anxiety, malaise, and aches, we found gender differences in self-directed distress, especially physical distress (i.e., malaise and aches), but not in other-directed distress (see Piquero and Sealock 2004 for similar findings). This could be attributed to differences in measurement and modeling approach between the two studies. First, Mirowsky and Ross included a measure of *state* anger in their analysis, whereas we measured anger as *situational* distress (no item of state anger available in our data). But, it is not immediately clear how this might have resulted in different findings about gender differences in anger. Second, while Mirowsky and Ross applied structural equation modeling approach to estimate model as we did, their models do not include variables potentially explaining gender differences in distress, unlike ours that control for self-efficacy and social support in estimating the effects of gender on distress. In this sense, our test of gender differences in distress is likely to be conservative, relative to Mirowsky and Ross's.

## REFERENCES

- Agnew, Robert. 1992. "Foundation for a General Strain Theory of Crime and Delinquency." *Criminology* 30: 47–87.
- . 1995. "Testing the Leading Crime Theories: An Alternative Strategy Focusing on Motivational Processes." *Journal of Research in Crime and Delinquency* 32: 363–98.
- . 1999. "A General Strain Theory of Community Differences in Crime Rates." *Journal of Research in Crime and Delinquency* 36: 123–55.
- . 2001. "Building on the Foundation of General Strain Theory: Specifying the Types of Strain Most Likely to Lead to Crime and Delinquency." *Journal of Research in Crime and Delinquency* 38: 319–61.
- Aneshensel, Carol S. 1992. "Social Distress: Theory and Research." *Annual Review of Sociology* 18: 15–38.
- Aneshensel, Carol S., Carolyn M. Rutter, and Peter A. Lachenbruch. 1991. "Social Structure, Stress, and Mental Health: Competing Conceptual and Analytic Models." *American Sociological Review* 56: 166–78.
- Arbuckle, James L. and Werner Wothke. 1995. *Amos 4.0 User's Guide*. Chicago: Smallwaters Corporation.
- Aseltine, Robert H., Suan Gore, and Jennifer Gordon. 2000. "Life Stress, Anger and Anxiety, and Delinquency: An Empirical Test of General Strain Theory." *Journal of Health and Social Behavior* 41: 256–75.
- Bentler, Peter M. and Douglas G. Bonett. 1980. "Significance Tests and Goodness of Fit in the Analysis of Covariance Structures." *Psychological Bulletin* 88: 588–606.
- Bollen, Kenneth A. 1989. *Structural Equations with Latent Variables*. New York: John Wiley.
- . 1995. "Structural Equation Models That Are Nonlinear in Latent Variables: A Least-Squares Estimator." Pp. 223–51 in *Sociological Methodology*, edited by Peter M. Marsden. Oxford: Blackwell.
- Bollen, Kenneth A. and Pamela Paxton. 1998. "Interactions of Latent Variables in Structural Equation Models." *Structural Equation Modeling* 5: 267–93.
- Broidy, Lisa. 2001. "A Test of General Strain Theory." *Criminology* 39: 9–35.
- Broidy, Lisa and Robert Agnew. 1997. "Gender and Crime: A General Strain Theory Perspective." *Journal of Research in Crime and Delinquency* 34: 275–306.

- Browne, Michael W. and Robert Cudeck. 1992. "Alternative Ways of Assessing Model Fit." *Sociological Methods and Research* 21: 230–58.
- Bushman, Brad J., Roy F. Baumeister, and Angela D. Stack. 1999. "Catharsis, Aggression, and Persuasive Influence: Self-Fulfilling or Self-Defeating Prophecies?" *Journal of Personality and Social Psychology* 76: 367–76.
- Capowich, George E., Paul Mazerolle, and Alex Piquero. 2001. "General Strain Theory, Situational Anger, and Social Networks: An Assessment of Conditional Influences." *Journal of Criminal Justice* 29: 445–61.
- Chang, B. H., K. M. Skinner, and U. Boehmer. 2001. "Religion and Mental Health among Women Veterans with Sexual Assault Experience." *International Journal of Psychiatry in Medicine* 31: 77–95.
- Cloward, Richard A. and Lloyd E. Ohlin. 1960. *Delinquency and Opportunity*. Glencoe, IL: Free Press.
- Cohen, Albert K. 1955. *Delinquent Boys*. New York: Free Press.
- Connell, C. M. and G. D. Gibson. 1997. "Racial, Ethnic, and Cultural Differences in Dementia Caregiving: Review and Analysis." *Gerontologist* 37: 355–64.
- Dohrenwend, Bruce and Barbara S. Dohrenwend. 1976. "Sex Differences in Psychiatric Disorder." *American Journal of Sociology* 82: 1447–59.
- Ellison, Christopher G. 1993. "Religious Involvement and Self-Perception among Black Americans." *Social Forces* 71: 1027–55.
- Ellison, Christopher G. and Robert Joseph Taylor. 1996. "Turning to Prayer: Social and Situational Antecedents of Religious Coping among African Americans." *Review of Religious Research* 38: 111–31.
- Ellison, Christopher G., Jason D. Boardman, David R. Williams, and James S. Jackson. 2001. "Religious Involvement, Stress, and Mental Health: Findings from the 1995 Detroit Area Study." *Social Forces* 80: 215–49.
- Hagan, John and Ruth D. Peterson. 1995. "Criminology Inequality in America: Patterns and Consequences." Pp. 14–36 in *Crime and Inequality*, edited by John Hagan and Ruth D. Peterson. Stanford, CA: Stanford University Press.
- Herlitz, Agneta and Julie E. Yonker. 2002. "Sex Differences in Episodic Memory: The Influence of Intelligence." *Journal of Clinical and Experimental Neuropsychology* 24: 107–14.
- Herlitz, Agneta, Lars-Göran Nilsson, and L. Bäckman. 2002. "Gender Differences in Episodic Memory." *Memory and Cognition* 25: 801–11.
- Hettler, Tanya R. and Lawrence H. Cohen. 1998. "Intrinsic Religiousness as a Stress-Moderator for Adult Protestant Churchgoers." *Journal of Community Psychology* 26: 597–609.
- Hu, Li-tze and Peter M. Bentler. 1998. "Fit Indices in Covariance Structural Modeling: Sensitivity to Underparameterized Model Misspecification." *Psychological Methods* 3: 424–53.
- Jackson, James S. 1991. "Methodological Approach." Pp. 13–30 in *Life in Black America*, edited by Harold W. Neighbors and James S. Jackson. Newbury Park, CA: Sage.
- Jackson, James S. and Harold W. Neighbors. 1996. "Changes in African American Resources and Mental Health 1979 to 1992." Pp. 189–212 in *Mental Health in Black America*, edited by Harold W. Neighbors and James S. Jackson. Newbury Park, CA: Sage.
- Jackson, James S., Tony N. Brown, David R. Williams, Miriam Torres, Sherrill L. Sellers, and Kendrick Brown. 1996. "Perceptions and Experiences of Racism and the Physical and Mental Health Status of African Americans: A Thirteen-Year National Panel Study." *Ethnicity and Disease* 6: 132–47.

- Jamal, M. and J. Badawi. 1993. "Job Stress among Muslim Immigrants in North-America—Moderating Effects of Religiosity." *Stress Medicine* 9: 145–51.
- Jang, Sung Joon. 2002. "Race, Ethnicity, and Deviance: A Study of Asian and Non-Asian Adolescents in America." *Sociological Forum* 17: 647–80.
- Jang, Sung Joon and Byron R. Johnson. 2001. "Neighborhood Disorder, Individual Religiosity, and Adolescent Use of Illicit Drugs: A Test of Multilevel Hypotheses." *Criminology* 39: 109–43.
- . 2003. "Strain, Negative Emotions, and Deviant Coping among African Americans: A Test of General Strain Theory." *Journal of Quantitative Criminology* 19: 79–105.
- . 2004. "Explaining Religious Effects on Distress among African Americans." *Journal for the Scientific Study of Religion* 43: 239–60.
- Levin, Jeffrey S. and Robert Joseph Taylor. 1998. "Panel Analyses of Religious Involvement and Well-Being in African Americans: Contemporaneous versus Longitudinal Effects." *Journal for the Scientific Study of Religion* 37: 695–709.
- Levin, Jeffrey S., Robert Joseph Taylor, and Linda M. Chatters. 1995. "A Multidimensional Measure of Religious Involvement for African Americans." *Sociological Quarterly* 36: 157–73.
- Merton, Robert K. 1938. "Social Structure and Anomie." *American Sociological Review* 3: 672–82.
- Mirowsky, John and Catherine E. Ross. 1986. "Social Patterns of Distress." *Annual Review of Sociology* 12: 23–45.
- . 1989. *Social Causes of Psychological Distress*. New York: Aldine de Gruyter.
- . 1995. "Sex Differences in Distress: Real or Artifact?" *American Sociological Review* 60: 449–68.
- Neighbors, Harold W., James S. Jackson, Clifford Broman, and Estina Thompson. 1996. "Racism and the Mental Health of African Americans: The Role of Self and System Blame." *Ethnicity and Disease* 6: 167–75.
- Ogbu, John U. 1990. "Minority Education in Comparative Perspective." *Journal of Negro Education* 59: 45–57.
- Pearlin, Leonard I. 1989. "The Sociological Study of Stress." *Journal of Health and Social Behavior* 30: 241–56.
- Piquero, Nicole Leeper and Miriam D. Sealock. 2000. "Generalizing General Strain Theory: An Examination of an Offending Population." *Justice Quarterly* 17: 449–84.
- . 2004. "Gender and General Strain Theory: A Preliminary Test of Broidy and Agnew's Gender/GST Hypotheses." *Justice Quarterly* 21: 125–58.
- Ross, Catherine E., John Mirowsky, and Karen Goldsteen. 1990. "The Impact of the Family on Health: The Decade in Review." *Journal of Marriage and the Family* 52: 1059–78.
- Sastry, Jaya and Catherine E. Ross. 1998. "Asian Ethnicity and the Sense of Personal Control." *Social Psychological Quarterly* 61: 101–20.
- Shams, M. and P. R. Jackson. 1993. "Religiosity as a Predictor of Well-Being and Moderator of the Psychological Impact of Unemployment." *British Journal of Medical Psychology* 66: 341–52.
- Sherkat, Darren E. and Christopher G. Ellison. 1999. "Recent Developments and Current Controversies in the Sociology of Religion." *Annual Review of Sociology* 25: 363–94.
- Stark, Rodney. 1996. "Religion as Context: Hellfire and Delinquency One More Time." *Sociology of Religion* 57: 163–73.
- Stark, Rodney, Lori Kent, and Daniel P. Doyle. 1982. "Religion and Delinquency: The Ecology of a 'Lost' Relationship." *Journal of Research in Crime and Delinquency* 19: 4–24.
- Taylor, Robert Joseph, Linda M. Chatters, and James S. Jackson. 1997. "Changes over Time in Support Network Involvement among Black Americans." Pp. 293–316 in *Family Life in Black America*, edited by R. J. Taylor, J. S. Jackson, and L. M. Chatters. Newbury Park: Sage.

U. S. Department of Commerce. 1994. *Statistical Abstract of the United States 1994*. U.S. Government Printing.

Wheaton, Blair. 1983. "Stress, Personal Coping Resources, and Psychiatric Symptoms: An Investigation of Interactive Models." *Journal of Health and Social Behavior* 24: 208–29.

## APPENDICES

### Appendix A. Two-Stage Least Squares (2SLS) Method

Following Bollen and Paxton (1998), we began with the structural equation of aggression ( $y_1$ ), measured as an observed variable,

$$y_1 = \alpha_{y_1} + \beta_{11}L_1 + \beta_{12}L_2 + \beta_{13}L_1L_2 + \beta_{14}L_3 + \beta_{15}L_4 + \gamma_{11}z_1 + \gamma_{12}z_2 + \dots + \gamma_{17}z_7 + D_1 \quad (1)$$

where  $L_1$ ,  $L_2$ ,  $L_3$ , and  $L_4$  are latent random variables,  $L_1L_2$  is the product interaction term of  $L_1$  and  $L_2$  (whose disturbance term is not included in Figure 1 because it is an exact non-linear function of  $L_1$  and  $L_2$ , i.e.,  $L_1L_2 = L_1 \times L_2$ ),  $\alpha_{y_1}$  is the interception term, and  $D_1$  is a random disturbance term with a mean of 0, having a constant variance, and without autocorrelation. The latent variables are each measured with three indicators as follows:

$$x_1 = L_1 + e_1 \quad (2) \quad \rightarrow L_1 = x_1 - e_1$$

$$x_2 = \alpha_2 + \lambda_{21}L_1 + e_2 \quad (3)$$

$$x_3 = \alpha_3 + \lambda_{31}L_1 + e_3 \quad (4)$$

$$x_4 = L_2 + e_4 \quad (5) \quad \rightarrow L_2 = x_4 - e_4$$

$$x_5 = \alpha_5 + \lambda_{52}L_2 + e_5 \quad (6)$$

$$x_6 = \alpha_6 + \lambda_{62}L_2 + e_6 \quad (7)$$

$$x_7 = L_3 + e_7 \quad (8) \quad \rightarrow L_3 = x_7 - e_7$$

$$x_8 = \alpha_8 + \lambda_{83}L_3 + e_8 \quad (9)$$

$$x_9 = \alpha_9 + \lambda_{93}L_3 + e_9 \quad (10)$$

$$x_{10} = L_4 + e_{10} \quad (11) \quad \rightarrow L_4 = x_{10} - e_{10}$$

$$x_{11} = \alpha_{11} + \lambda_{114}L_4 + e_{11} \quad (12)$$

$$x_{12} = \alpha_{12} + \lambda_{123}L_4 + e_{12} \quad (13)$$

where  $\alpha_i$  ( $i = 2, 3, 5, 6, 8, 9, 11, 12$ ) are intercept terms;  $E(e_j)$  is zero ( $j = 1, 2, \dots, 12$ );  $e_j$  and  $D_1$  are distributed independently of  $L_1, \dots, L_4$  and of each other; and  $L_1, \dots, L_4, e_j$  are each identically and independently distributed random variables.

By substituting Equations 2, 5, 8, and 11 for  $L_1, L_2, L_3,$  and  $L_4$  in Equation 1, respectively, and solving it for  $y_1$ , we can rewrite the latent variable model of Equation 1 into an equation of observed variables and a disturbance term as follows:

$$y_1 = \alpha_{y_1} + \beta_{11}x_1 + \beta_{12}x_4 + \beta_{13}x_1x_4 + \beta_{14}x_7 + \beta_{15}x_{10} + \gamma_{11}z_1 + \gamma_{12}z_2 + \dots + \gamma_{17}z_7 + u_1 \quad (14)$$

$$\text{where } u_1 = -\beta_{11}e_1 - \beta_{12}e_4 - \beta_{13}(x_1e_4 + x_4e_1 + e_1e_4) - \beta_{14}e_7 - \beta_{15}e_{10} + D_1 \quad (15)$$

Notice that the coefficient of our primary interest, that is, interactions of  $L_1$  and  $L_2$  ( $\beta_{13}$ ) has been rewritten as the coefficient of  $x_1x_4$ . However, ordinary least squares (OLS) regression cannot be directly applied to estimate Equation 14 because  $x_1, x_4,$  and thus  $x_1x_4$  are correlated with the equation's disturbance,  $u_1$ , which violates a key assumption of OLS regression (see Equation 15).

Thus we employed 2SLS estimator using instrumental variables (IVs), which are other observed variables that are correlated with  $x_1$  and  $x_4$  but not with  $u_1$ . Specifically, following Bollen and Paxton's (1998) rules for selection, we included a total of 15 IVs in our equation, that is, four cross-product terms of nonscaling indicators of  $L_1$  ( $x_2$  and  $x_3$ ) and  $L_2$  ( $x_5$  and  $x_6$ ) (i.e.,  $x_2x_5, x_2x_6, x_3x_5,$  and  $x_3x_6$ ); all the four nonscaling indicators of  $L_3$  and  $L_4$  ( $x_8, x_9, x_{11},$  and  $x_{12}$ ), and all the seven exogenous observed variables ( $z_1, \dots$  and  $z_7$ ). In the first stage, regressing each of  $x_1, x_4,$  and  $x_1x_4$  on the IVs generated their predicted variables, which are uncorrelated with the disturbance term of Equation 14 because they are linear combination of IVs. In the second stage the original variables ( $x_1, x_4,$  and  $x_1x_4$ ) were replaced by their predicted variables to apply OLS regression to estimate this modified version of Equation 14. The coefficient estimates from the second stage are the 2SLS estimates, which we present in Table 2.

### Appendix B. Items Used for Analysis

Variable/Indicator	Description of item (Response categories)	Factor loading	$\alpha$
STATE DISTRESS	"During the past month, how much of the time ____" (1 = none; 2 = some of the time; 3 = most of the time; 4 = all of the time)		
Depression	(1) have you been in low or very low spirits? (2) have you been moody or brooded about things? (3) have you felt downhearted and blue? (4) did you feel depressed during the past month?	.76 .68 .82 .81	.85
Anxiety	(1) did you feel you were under strain, stress, or pressure? (2) have you felt tense or high strung? (3) have you been bothered by nervousness or your nerves? (4) have you felt restless and upset?	.63 .64 .65 .74	.82

Appendix B. *Continued*

Variable/Indicator	Description of item (Response categories)	Factor loading	$\alpha$
	(5) have you been anxious or worried?	.80	
SITUATIONAL DISTRESS	“Problems often come up in life. Sometimes they are personal problems. Since the last time we talked with you . . . , was there a time when you felt: you were about at the point of a nervous breakdown; so nervous you couldn’t do much of anything; [or] down and depressed, so low that you felt like you just couldn’t get going? . . . did you have a serious personal problem you could not handle by yourself? . . . did you have what you thought was a serious personal problem that you tried to handle by yourself? . . . During that time, how often ____” (1 = never; 2 = hardly ever; 3 = not too often; 4 = fairly often; 5 = very often)		
Self-directed emotional distress	(1) did you feel lonely? (2) did you feel that you just couldn’t get going? (3) were you depressed? (4) were you jumpy or jittery? (5) did you cry easily or have crying spells?	.70 .77 .82 .64 .56	.82
Other-directed emotional distress	(1) did you lose your temper? (2) did you get angrier than you were willing to admit? (3) did you boil inside, but did not show it?	.49 .89 .65	.70
Physical distress	(1) did you feel like not eating or have a poor appetite? (2) did you have restless sleep or trouble getting to sleep? (3) did you actually feel physically sick?	.64 .74 .64	.71
LIFE SATISFACTION	“In general, how satisfied are you with your life as a whole these days? Would you say that you are very satisfied (= 4), somewhat satisfied (= 3), somewhat dissatisfied (= 2), or very dissatisfied (= 1)?”		
GENERAL HAPPINESS	“Now I would like to ask you a few questions about how you are feeling these days. Taking all things together, how would you say things are these days—would you say you are very happy (= 3), pretty happy (= 2), or not too happy (= 1) these days?”		
SELF-EFFICACY	“Please tell me whether you agree or disagree with [the statement that ____].” (1 = disagree; 2 = agree)		
	When I make plans, I am almost certain that I can make them work.	.52	.47
	“When you make plans ahead, do you usually get to carry out things the way you expected, or do things usually come up to make you change your plans?” (0 = have to change plans; 1 = carry out way expected)	.63	

Appendix B. *Continued*

Variable/Indicator	Description of item (Response categories)	Factor loading	$\alpha$
SOCIAL SUPPORT	“Have you usually felt pretty sure your life would work out the way you want it to, or have there been times when you have not been sure about it?” (0 = haven’t been sure; 1 = pretty sure)	.30	.70
	“How often do you see, write, or talk on the telephone with members of your church (or place of worship)?” (1 = a few times a year; 2 = at least once a month; 3 = a few times a month; 4 = at least once a week; 5 = nearly every day)	.44	
	“How many people in your church (or place of worship) would help you out if you needed help?” (the actual number of people; 0, 1, . . . , 7, and 8 or more)	.52	
	“[When people in your church (or place of worship) help you out,] [h]ow much help are they/would they be do you?” (1 = only a little help; 2 = some help; 3 = a lot of help)	.57	
	“Would you say people in your church (or place of worship) are very close (= 4) in their feelings toward each other, fairly close (= 3), not too close (= 2), or not close at all (= 1)?”	.62	
Family support	“How satisfied are you with the quality of the relationship you have with the people in your church (or place of worship)?” (1 = very dissatisfied; 2 = somewhat dissatisfied; 3 = somewhat satisfied; 4 = very satisfied)	.70	.66
	“How often do you see, write, or talk on the telephone with family or relatives who do not live with you?” (1 = never; 2 = hardly ever; 3 = a few times a year; 4 = at least once a month; 5 = a few times a month; 6 = at least once a week; 7 = nearly every day)	.29	
	“How many people in your family would help you out if you needed help?” (1 = none; 2 = one to two; 3 = three to five; 4 = five to seven; 5 = eight or more)	.43	
	“[When people in your family help you out], [h]ow much help are they/would they be do you?” (1 = only a little help; 2 = some help; 3 = a lot of help)	.45	
	“Would you say your family members are very close (= 4) in their feelings toward each other, fairly close (= 3), not too close (= 2), or not close at all (= 1)?”	.80	
	“How satisfied are you with the quality of the relationship you have with the people in your family?”		

Appendix B. *Continued*

Variable/Indicator	Description of item (Response categories)	Factor loading	$\alpha$
	(1 = very dissatisfied; 2 = somewhat dissatisfied; 3 = somewhat satisfied; 4 = very satisfied)	.68	
Friend support	“How often do you see, write, or talk on the telephone with your friends?”		
	(1 = never; 2 = hardly ever; 3 = a few times a year; 4 = at least once a month; 5 = a few times a month; 6 = at least once a week; 7 = nearly every day)	.43	.70
	“How many people in your friends would help you out if you needed help?”		
	(the actual number of people; 0, 1, . . . , 7, and 8 or more)	.45	
	“[When people in your family help you out], [h]ow much help are they/would they be do you?”		
	(1 = only a little help; 2 = some help; 3 = a lot of help)	.63	
	“Would you say your friends are very close (= 4) in their feelings toward each other, fairly close (= 3), not too close (= 2), or not close at all (= 1)?”	.62	
	“How satisfied are you with the quality of the relationship you have with your friends?”		
	(1 = very dissatisfied; 2 = somewhat dissatisfied; 3 = somewhat satisfied; 4 = very satisfied)	.68	
RELIGIOSITY	“How often do you usually attend religious services?”		
Organizational religiosity	(0 = never; 1 = less than once a year; 2 = a few times a year; 3 = a few times a month; 4 = at least once a week; 5 = nearly every day)	n.a.	.68
	“Besides regular service, how often do you take part in other activities at your place of worship?”		
	(1 = never; 2 = a few times a year; 3 = a few times a month; 4 = at least once a year; 5 = nearly every day)	n.a.	
Nonorganizational religiosity	“How often do you ___?”		
	(1 = never; 2 = a few times a year; 3 = a few times a month; 4 = at least once a week; 5 = nearly every day)		
	(1) read religious books or other religious materials	.72	.71
	(2) watch or listen to religious programs on TV or radio	.62	
	(3) pray	.59	
	(4) ask someone to pray for you	.56	
Subjective religiosity	“How religious would you say you are?”		
	(1 = not religious at all; 2 = not too religious; 3 = fairly religious; 4 = very religious)	n.a.	.54
	“Would you say your religion provides some guidance (= 1) in your day-to-day living, quite a bit of guidance (= 2), or a great deal of guidance (= 3) in day-to-day living?”	n.a.	

Appendix B. *Continued*

Variable/Indicator	Description of item (Response categories)	Factor loading	$\alpha$
LIFE PROBLEMS	<p>“Over the past month or so, have ___? How much did that upset you?”</p> <p>(0 = no problem reported; 1 = not upset at all; 2 = upset only a little; 3 = upset a lot; 4 = upset a great deal)</p> <p>(1) you had money problems            (2) you had job problems            (3) you had family or marriage problems            (4) you had problems with people outside your family            (5) you had problems with your children            (6) you or your family been the victim of a crime            (7) you had problems with the police            (8) you had problems with your love life            (9) you or your family been treated badly because of your race</p>		
POOR HEALTH <i>Health problems</i>	<p>“Please tell me whether a doctor has told you since the last time we talked with you . . . that you have ___. How much does this keep you from working or carrying out your daily tasks?”</p> <p>(0 = no health problem reported; 1 = not at all; 2 = a little; 3 = a great deal)</p> <p>(1) arthritis or rheumatism (2) ulcers (3) cancers (4) hypertension or “high blood pressure”            (5) diabetes or “sugar” (6) a liver problem (7) a kidney problem (8) a stroke            (9) a blood circulation problem or “hardening of the arteries” (10) sickle cell anemia            (11) heart trouble or heart attack</p>		
Dissatisfaction with health	<p>“In general, how satisfied are you with your health?”</p> <p>(1 = very satisfied; 2 = somewhat satisfied; 3 = somewhat dissatisfied; 4 = very dissatisfied)</p>		
Self-rated health	<p>“How would you rate your health at the present time?”</p> <p>(1 = excellent; 2 = very good; 3 = good; 4 = fair; 5 = poor)</p>		

**Appendix C. Unstandardized and Standardized (in Parentheses) Parameter Estimates of the Measurement Models of State and Situational Distress: Total Sample (N = 659)**

Indicators	Poor health	Religiosity	Social support	Expression	State distress	Situational distress	Self-directed emotions	Physical distress	Self-directed distress	Other-directed distress	R <sup>2</sup>
<b>Model of State Distress</b>											
Health problems	1.00 <sup>a</sup> (.48)										.23
Dissat. with health	.42* (.74)										.54
Self-rated health	.63* (.82)										.68
Org. religiosity		1.00 <sup>a</sup> (.73)									.53
Nonorg. religiosity		.89* (.80)									.64
Subj. religiosity		.85* (.64)									.42
Religious support			1.00 <sup>a</sup> (.84)								.70
Family support			.46* (.40)								.16
Friend support			.60* (.51)								.26
Life satisfaction				1.00 <sup>a</sup> (.40)	-1.00 <sup>a</sup> (-.68)						.38
General happiness				1.00 <sup>a</sup> (.49)	-1.00 <sup>a</sup> (-.84)						.57
Depression				1.00 <sup>a</sup> (.37)	1.00 <sup>a</sup> (.63)						.74
Anxiety				1.00 <sup>a</sup> (.38)	1.00 <sup>a</sup> (.64)						.77
<b>Model of Situational Distress<sup>b</sup></b>											
Life satisfaction				1.00 <sup>a</sup> (.56)		-1.00 <sup>a</sup> (-.74)					.38
General happiness				1.00 <sup>a</sup> (.68)		-1.00 <sup>a</sup> (-.90)					.56

Appendix C. Continued

Indicators	Poor health	Religiosity	Social support	Expression	State distress	Situational distress	Self-directed emotions	Physical distress	Self-directed distress	Other-directed distress	R <sup>2</sup>
Other-directed distress				1.00 <sup>a</sup> (.37)		1.00 <sup>a</sup> (.49)					.59
Self-directed emotional distress				1.00 <sup>a</sup> (.41)		1.00 <sup>a</sup> (.54)					.72
Physical distress				1.00 <sup>a</sup> (.37)		1.00 <sup>a</sup> (.49)					.60
<b>Modified Model 1 of Situational Distress<sup>b</sup></b>											
Life satisfaction				1.00 <sup>a</sup> (.70)					-1.00 <sup>a</sup> (-.73)	-1.00 <sup>a</sup> (-.61)	.38
General happiness				1.00 <sup>a</sup> (.86)					-1.00 <sup>a</sup> (-.89)	-1.00 <sup>a</sup> (-.74)	.56
Feel lonely				1.00 <sup>a</sup> (.38)					1.00 <sup>a</sup> (.39)		.48
Couldn't get going				1.00 <sup>a</sup> (.42)					1.00 <sup>a</sup> (.43)		.59
Depressed				1.00 <sup>a</sup> (.44)					1.00 <sup>a</sup> (.45)		.65
Jumpy or jittery				1.00 <sup>a</sup> (.40)					1.00 <sup>a</sup> (.41)		.54
Cry easily				1.00 <sup>a</sup> (.36)					1.00 <sup>a</sup> (.37)		.43
Poor appetite				1.00 <sup>a</sup> (.35)					1.00 <sup>a</sup> (.36)		.41
Restless sleep				1.00 <sup>a</sup> (.39)					1.00 <sup>a</sup> (.41)		.52
Feel physically sick				1.00 <sup>a</sup> (.37)					1.00 <sup>a</sup> (.38)		.46
Lose temper				1.00 <sup>a</sup> (.44)					1.00 <sup>a</sup> (.38)	1.00 <sup>a</sup> (.38)	.48
Get angrier				1.00 <sup>a</sup> (.43)					1.00 <sup>a</sup> (.37)	1.00 <sup>a</sup> (.37)	.47
Boil inside				1.00 <sup>a</sup> (.39)					1.00 <sup>a</sup> (.38)	1.00 <sup>a</sup> (.34)	.38

Appendix C. Continued

Indicators	Poor health	Religiosity	Social support	Expression	State distress	Situational distress	Self-directed emotions	Physical distress	Self-directed distress	Other-directed distress	R <sup>2</sup>
<b>Modified Model 2 of Situational Distress<sup>b</sup></b>											
Life satisfaction				1.00 <sup>a</sup> (.82)			-1.00 <sup>a</sup> (-.64)	-1.00 <sup>a</sup> (-.60)		-1.00 <sup>a</sup> (-.64)	.38
General happiness				1.00 <sup>a</sup> (.99)			-1.00 <sup>a</sup> (-.78)	-1.00 <sup>a</sup> (-.74)		-1.00 <sup>a</sup> (-.77)	.56
Feel lonely				1.00 <sup>a</sup> (.44)			1.00 <sup>a</sup> (.34)				.51
Couldn't get going				1.00 <sup>a</sup> (.48)			1.00 <sup>a</sup> (.38)				.61
Depressed				1.00 <sup>a</sup> (.50)			1.00 <sup>a</sup> (.39)				.68
Jumpy or jittery				1.00 <sup>a</sup> (.46)			1.00 <sup>a</sup> (.36)				.55
Cry easily				1.00 <sup>a</sup> (.41)			1.00 <sup>a</sup> (.32)				.44
Poor appetite				1.00 <sup>a</sup> (.42)				1.00 <sup>a</sup> (.31)			.43
Restless sleep				1.00 <sup>a</sup> (.47)				1.00 <sup>a</sup> (.35)			.54
Feel physically sick				1.00 <sup>a</sup> (.45)				1.00 <sup>a</sup> (.33)			.50
Lose temper				1.00 <sup>a</sup> (.51)						1.00 <sup>a</sup> (.40)	.48
Get angrier				1.00 <sup>a</sup> (.50)						1.00 <sup>a</sup> (.39)	.47
Boil inside				1.00 <sup>a</sup> (.45)						1.00 <sup>a</sup> (.35)	.38

<sup>a</sup>refers to fixed coefficient.

<sup>b</sup>shows only the crosscutting factor model because the other part of estimated measurement model remains the same as the model of state distress.

\*p < .05 (one-tailed test).