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SUICIDAL AND CRIMINAL BEHAVIOR AMONG FEMALE OFFENDERS: THE ROLE OF ABUSE AND PSYCHOPATHOLOGY

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Childhood abuse is relatively prevalent among women and is an important risk factor for both criminal behavior and suicide-related behavior (SRB). Based on a sample of 266 female offenders, we address one theoretical and one practical issue. First, from a theoretical perspective, we assess whether internalizing (depression and anxiety) and externalizing (substance abuse and antisocial behavior) psychopathology mediate the relation between abuse on the one hand, and SRB or criminal behavior, on the other. Results indicate that externalizing problems mediate the relation between childhood abuse and both lifetime SRB (fully) and lifetime criminality (partially). Second, at a practical level, results indicate that a subscale of the Revised Psychopathy Checklist (PCL-R; Hare, 1991) that assesses lifetime criminal behavior adds incremental utility to postdicting SRB, beyond the variance accounted for by self-report measures of abuse and externalizing problems. However, none of the measures—including the PCL-R—predicted future recidivism.

There has been a dramatic increase in the number of women in all areas of correctional supervision in the United States (Harrison & Beck, 2006). The proportion of incarcerated offenders who are women has been rising steadily over the years, with an annual growth rate averaging 4.8% from

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1995 to 2004. In fact, since 1995, the total number of female prisoners has grown nearly 53%, and in 2004, women constituted 7.0% of all inmates (Harrison & Beck, 2006). In criminal justice settings, women commonly present with special needs. For instance, compared with their male counterparts, female offenders are about twice as likely to suffer from serious psychopathology (DiCataldo, Greer, & Profit, 1995; Jordan, Schlenger, Fairbank, & Caddell, 1996; Maden, Swinton, & Gunn, 1994a, 1994b; Teplin, Abram, & McClelland, 1997). Women are also more likely to report a history of childhood physical and sexual abuse than men (Fickenscher, Lapidus, Silk-Walker, & Becker, 2001; Harlow, 1999; McClellan, Farabee, & Crouch, 1997; Snell & Morton, 1994; Warren et al., 2002).

Childhood abuse is a risk factor for two outcomes of serious concern for offenders: criminal reoffense, or recidivism (Panel on Research on Child Abuse and Neglect, 1993; Widom, 1989, 1991; Widom & Maxfield, 1996) and suicide-related behavior, or physical self-harm (SRB; see Blaauw, Arensman, Kraaij, Winkel, & Bout, 2002; Polusny & Follette, 1995; Romans, Martin, Anderson, & Herbison, 1995; Santa Mina & Gallop, 1998). Recidivism is an obvious indicator of poor outcome for offenders, with an average of 57.6% of women rearrested three years post prison release compared with 68.4% of men (Langan & Levin, 2002). Although recidivism is more prevalent among men than women (Beck & Shipley, 1989), SRB usually is more prevalent among female than male inmates (Daigle, Alarie, & Lefebvre, 1999; Daigle & Cote, 2006; Liebling, 1994). Often, over half of female jail detainees report a lifetime history of suicidal ideation or behavior, and 20–50% report at least one prior suicide attempt (Blaauw et al., 2002; Charles, Abram, Mcclelland, & Teplin, 2003). Given these common adverse outcomes, understanding their potential causes is particularly important. Internalizing and externalizing psychopathology are two such mechanisms warranting investigation, as described below.

INTERNALIZING AND EXTERNALIZING PSYCHOPATHOLOGY MAY MEDIATE THE ABUSE-SRB RELATIONSHIP

Childhood abuse is a risk factor not only for suicide-related behavior (SRB) and criminal behavior, but also may be a risk factor for some types of psychopathology (see Cicchetti & Rogosch, 1994). However, the relation between abuse and psychopathology is complex and controversial: at least one meta-analysis suggests that childhood sexual abuse (in particular) relates only weakly to adult psychopathology (e.g., Rind & Tromovitch, 1997; Rind, Tromovitch, & Bauserman, 1998 but see Dallam et al., 2001) for critiques.

There is more consistent evidence that certain diagnostic categories are underpinned by two correlated dimensions (Krueger & Markon, 2006). Specifically, factor analytic and behavior genetic studies suggest that "for both genders, mood and anxiety disorders can be modeled as elements within an etiologically coherent internalizing spectrum, and substance use

and antisocial behavior disorders can be modeled as elements within an etiologically coherent externalizing spectrum" (Kramer, Krueger, & Hicks, 2008, p. 51). Similar findings emerge from studies of offenders, using such self report measures as the Personality Assessment Inventory (PAI; Morey, 1991) to assess psychopathology (Ruiz & Edens, 2008). Frameworks for understanding the overlap between personality and psychopathology (see Clark, 2007) suggest that (a) there is substantial comorbidity between Axis I and Axis II disorders, and (b) personality traits do not invariably relate more strongly to Axis II than Axis I disorders (Clark, 2005).

PSYCHOPATHOLOGY AND SRB

Mental disorders in the internalizing spectrum—particularly those involving depression — have been linked with SRB (Beautrais, Joyce, Mulder, & Fergusson, 1996; Ivanoff & Jang, 1991; Mann, Waternaux, Haas, & Malone, 1999; Molnar, Berkman, & Buka, 2001). With respect to female offenders, Daigle and Côté (2006) found that an Axis I mental disorder (schizophrenia and major mood disorders) distinguished female inmates with a history of SRB from those without a history of SRB. Although most studies of SRB have focused on internalizing disorders, SRB also relates to externalizing disorders.

EXTERNALIZING PSYCHOPATHOLOGY

Externalizing typically is operationalized as the covariance among symptoms of alcohol and drug disorders, childhood conduct disorder, and adult antisocial personality disorder (APD; Kendler, Prescott, Myers, & Neale, 2003; Kramer et al., 2008; Krueger, 1999; Krueger et al., 2002; Krueger & Markon, 2006; Young, Stallings, Corley, Krauter, & Hewitt, 2000). In the current study, we adopt this original conceptualization of externalizing, derived from research on mental disorders defined within current nosologies, as opposed to more recent conceptualizations that also include impulsive and aggressive (disinhibitory personality) traits (Krueger, Markon, Patrick, Benning, & Kramer, 2007; Patrick, Hicks, Krueger, & Lang, 2005). Based on an epidemiological survey ($N = 4{,}745$), Verona, Sachs-Ericsson, and Joiner (2004) found that an externalizing factor significantly postdicted suicide attempts for both genders, even after controlling for an internalizing factor. Moreover, APD (Bland, Newman, Thompson, & Dyck, 1998; Bukstein, Brent, Perper, & Moritz, 1993; Verona, Patrick, & Joiner, 2001) and substance abuse disorders (Brent, 1995; Brent, Perper, Moritz, & Allman, 1993) have been identified as important risk factors for SRB. With respect to female offenders, Daigle and Côté (2006) found that APD and borderline personality disorder, as well as hostile and impulsive traits, distinguished female inmates with a history of SRB from those without such a history.

The externalizing dimension is also assessed by the most widely used

measure of psychopathy, the Psychopathy Checklist-Revised (PCL-R; Hare, 1991, 2003). The PCL-R is organized into two main correlated subscales. Factor 1 encompasses core interpersonal and emotional features of psychopathy or emotional detachment, whereas Factor 2 is more closely aligned with APD and assesses antisocial, impulsive-irresponsible, and criminal behavior (Hare, 1991, 2003; Hare et al., 1990; Harpur, Hakstian, & Hare, 1988). Criminal behavior is referenced throughout many of the Factor 2 items (Skeem & Cooke, 2010a). Patrick et al. (2005) found that a general factor extracted from the PCL-R was strongly correlated with a latent externalizing variable; moreover, the unique variance in the antisocial behavior scale (Factor 2) was almost perfectly associated with a latent externalizing factor, whereas the emotional detachment scale (Factor 1) showed no unique association with externalizing (Patrick et al., 2005). In turn, this externalizing-laden scale is significantly associated with SRB among offenders. SRB relates negligibly or negatively to emotional detachment (Factor 1) scores and positively to antisocial behavior (Factor 2; Douglas, Herbozo, Poythress, Belfrage, & Edens, 2006; Douglas et al., in press; Verona, Hicks, & Patrick, 2005; Verona et al., 2001)

PSYCHOPATHOLOGY AS MEDIATOR OF ABUSE AND SRB

SRB relates not only to internalizing and externalizing psychopathology, but also to childhood abuse and victimization (e.g., Daigle & Côté, 2006). Based on a sample of 226 female prison inmates, Verona et al. (2005) found that a history of suicide attempts related not only to externalizing (PCL-R Factor 2 scores, partial $r = .30$, $p < .01$), but also to a history of physical ($r = .33$, $p < .01$) and sexual abuse ($r = .42$, $p < .01$). Further, the relationship between physical abuse and suicide attempts was partially mediated by personality features of negative emotionality and low behavioral constraint. Those personality features, in turn, are at least slightly linked with internalizing and externalizing psychopathology, respectively ($r = .22$ & $.20$ for women; Krueger, McGue, & Iacono, 2001).

Could psychopathology—both internalizing and externalizing—at least partially mediate the relationship between abuse and SRB? There are two basic processes by which the experience of childhood adversity (e.g., abuse) and psychopathology may relate to the development of SRB (Fergusson & Lynskey, 1995). First, there may be a direct causal relationship between abuse and SRB, such that abuse independently increases the risk of SRB. Second, there may be an indirect relationship between abuse and SRB, such that the experience of abuse increases susceptibility to psychopathology, which in turn, increases risk for SRB. Here, the observed relationship between abuse (an independent variable, X) and SRB (a dependent variable, Y) is mediated by the inclusion of psychopathology (a third explanatory variable or process, known as a mediator variable, M). In essence, mediation occurs when X relates significantly to M, which in turn relates significantly to Y (Baron & Kenny, 1986).

There is some evidence that psychopathology mediates the relation between abuse and SRB. For example, using longitudinal data from a subsample ($n = 965$) of 15- to 21-year-olds followed since birth, Fergusson, Woodward, & Howard (2000) found that after controlling for psychopathology (i.e., disorders in both the internalizing and externalizing spectrum) and exposure to stressful life events, childhood sexual abuse was no longer predictive of SRB. These results suggest that psychopathology and stress fully mediate the association between sexual abuse and later SRB. Similarly, in a three-year longitudinal epidemiological study ($N = 7,076$), Enns et al. (2006) found that psychopathology (i.e., 13 disorders from both spectrums) partially mediated the relation between childhood abuse and recent SRB. Other studies have identified constructs conceptually related to externalizing as mediators of the relation between abuse and SRB, including impulsivity (Brodsky, Mann, & Stanley, 2008; Roy, 2005), aggression (Keilp et al., 2006), substance abuse (Makhija, 2007), and borderline personality disorder (Brodsky, Malone, & Ellis, 1997; Brodsky & Stanley, 2001). To date, however, there have been no direct examinations of whether internalizing and externalizing psychopathology (as broad dimensions) mediate the relation between childhood abuse and SRB. This is an important gap in the literature, particularly for female offenders, who have disproportionate rates of childhood abuse, psychopathology, and SRB.

EXTERNALIZING MAY MEDIATE THE ABUSE-CRIMINAL BEHAVIOR RELATIONSHIP

In recent years, the PCL-R has become a commonly used tool with offenders, chiefly because of its predictive utility for recidivism among men (e.g., Barbaree, 2005; Beggs & Grace, 2008; Campbell, French, & Gendreau, 2007; Douglas, Vincent, & Edens, 2006; Hare, 2003). It is possible that much of the predictive utility of the PCL-R is attributable to its assessment of broader externalizing problems. In support of this proposition, several meta-analytic investigations have documented the superiority of Factor 2 (antisocial behavior) over Factor 1 (emotional detachment) in predicting general and violent recidivism (Gendreau, Goggin, & Smith, 2002; Hemphill, Hare, & Wong, 1998; Walters, Knight, Grann, & Dahle, 2008). Beyond criminality, externalizing problems have been tied to childhood abuse (Jaffee, Caspi, Moffitt, & Taylor, 2004; Krischer & Sevecke, 2008).

In this study, we examine whether externalizing psychopathology mediates the relation between abuse and criminal behavior for female offenders. Although we could locate no prior investigations of this issue, two studies were obliquely relevant. Based on a longitudinal study of 140 high risk individuals followed from before birth to age 17, Egeland, Yates, Appleyard, and van Dulmen (2002) found that the relation between early childhood abuse and later delinquent behavior was mediated by preschool levels of alienation from the primary caregiver and emotional dysregulation. Alienation is a marker of negative emotionality (Tellegen & Waller,

2008), which in turn is associated with both externalizing and internalizing psychopathology. In their study of female prison inmates, Verona et al. (2005) found that negative emotionality and behavioral constraint mediated the relation between physical abuse and antisocial behavior (i.e., PCL-R Factor 2).

THE PRESENT STUDY

The present study has two aims, one theoretical and one practical. Our primary (theoretical) interest lies in whether internalizing and externalizing psychopathology mediate the relation between abuse and lifetime indices of SRB and criminal behavior, using Baron and Kenny's (1986) conditions to test for mediation. We predict that (a) abuse will relate to externalizing-internalizing psychopathology on the one hand, and both SRB and criminal behavior on the other, (b) externalizing will mediate the relation between abuse and criminal behavior, and (c) internalizing and externalizing will mediate the relation between abuse and SRB. In addition to examining lifetime criminal behavior, we prospectively examine recidivism during the year after prison release.

Our secondary and practical interest lies in determining how best to identify women at risk for SRB and recidivism. We focus on determining whether measures of constructs that apply broadly to female offenders—abuse, and (particularly externalizing) psychopathology—are better able to predict recidivism and SRB than the PCL-R, given widespread use of the latter measure as a risk assessment tool (DeMatteo & Edens, 2006; Tolman & Mullendore, 2003). Setting aside broader concerns about the extent to which the PCL validly measures psychopathy among women (see Lorenz & Newman, 2002; Salekin, Rogers, Ustad, & Sewell, 1998; Vitale & Newman, 2001), we note that PCL total scores do not significantly predict recidivism among female juvenile offenders (Edens, Campbell, & Weir, 2007; Odgers, Reppucci, & Moretti, 2005; Vincent, Odgers, McCormick, & Corrado, 2008) and inconsistently predict recidivism among female adult offenders in the handful of prospective studies that are available (Loucks & Zamble, 2000; Richards, Casey, & Lucente, 2003; Salekin et al., 1998). Compared with recidivism, the PCL may be more useful in predicting women's SRB: Verona et al. (2005) found that adult female inmates' PCL-R scores significantly postdicted suicide attempts. To address such practical issues, we examine whether scales of the PCL-R add incremental utility to measures of abuse and psychopathology in postdicting lifetime SRB and in predicting recidivism one year postrelease.

METHOD

PARTICIPANTS

Participants were 266 adult female offenders either incarcerated in prison (n = 129) or housed in a substance abuse treatment facility (n = 137). Participation was limited to English-speaking individuals age 21 or older and

to Euro-American or African-American racial groups. Participants also had to obtain an estimated IQ ≥ 70 (see below). At all sites, individuals receiving psychotropic medication for active symptoms of psychosis were excluded from the study.

PROCEDURE

Research assistants received extensive training (4.5 days) on the entire study protocol, with 2.5 days of training on the PCL-R alone. At each site, eligible participants were randomly recruited from lists of individuals who met basic inclusion criteria (i.e., age, race). Enrollment interviews were conducted in a private room and informed consent was obtained using procedures approved by a university institutional review board. After informed consent was obtained, participants were administered the IQ screening. Participants were allowed to complete the self-report questionnaires if (a) they had either a GED or had completed the 10th grade in regular curriculum classes (i.e., not in special education classes) and (b) demonstrated that they could easily read the first few items of the Personality Assessment Inventory (see below). Participants not meeting these criteria were required to read silently a 9th-grade level passage from the Basic Reading Inventory (BRI; Johns, 1997) and then complete an oral test of comprehension. A research assistant read aloud items from self-report measures to participants who did not demonstrate a 9th-grade reading level. On determination of a participant's reading ability, the research protocol was administered. The PAI was administered as a paper-and-pencil measure; the CATS items were entered into a software program and completed by participants using a laptop computer. The entire protocol, which took on average 4.5 hours to complete, was usually administered in two sessions. Participants were paid $20 for study participation.

MEASURES

The research reported here is based on a sub-study involving selected instruments from a larger research protocol used to investigate antisocial personality disorder and psychopathy in both men and women (see Guy, Poythress, Douglas, Skeem, & Edens, 2008; Poythress et al., 2007). Here, we describe only the measures used in this sub-study.

MEASURES OF PARTICIPANT CHARACTERISTICS AND ELIGIBILITY

Demographics. Basic demographic information (e.g., age, race) was obtained from each participant by self-report and validated through official records in agencies in which the participants resided. The sample was roughly one third African American ($n = 88$) and two thirds Caucasian ($n = 177$). One participant did not report her race.

Intelligence Screen. The Quick Test (Ammons & Ammons, 1962) is a brief screening measure of intellectual functioning. One female participant obtained an estimated IQ < 70 on the Quick Test and was excused from the study.

MEASURES OF STUDY CONSTRUCTS

Abuse. The Child Abuse and Trauma Scale (CATS; Sanders & Becker-Lausen, 1995; Sanders & Giolas, 1991) is a self-report measure containing 38 items that address childhood physical abuse or punishment, verbal or psychological abuse, sexual abuse, neglect, and a negative home environment. A five-point scale is used to rate from never to always the frequency with which particular types of events occurred during the respondent's youth. The CATS has been used widely in studies of relationships among childhood abusive experiences, personality features, and victimization (e.g., Becker-Lausen, Sanders, & Chinsky, 1995; Ruiz, Pincus, & Ray, 1999). The CATS includes three original subscales (sexual abuse/6 items, punishment/6 items, neglect/14 items), and 12 additional items that contribute to a total abuse score. This original hierarchical three-factor structure was found by Poythress, Skeem, and Lilienfeld (2006) to demonstrate poor fit with the sample of 615 male offenders from the larger research protocol (χ^2 = 3,196.85, df = 662, p <. 001; RMSEA = .08; CFI = .82). Based on an integration of empirical (e.g., fit statistics; representation of factors with four or more items) and theoretical (e.g., relation to models of abuse) criteria, they identified a four-factor hierarchical structure defining abuse by its physical, verbal, sexual, and emotional components, which demonstrated adequate fit to their data (χ^2 = 244.96, df = 73, p < . 001; RMSEA = . 05; CFI = .97). This model also demonstrated adequate fit in the current sample of female offenders (χ^2 = 191.59, df = 73, p < . 001; RMSEA = .07; CFI = .96). The four-factor measurement model, with physical (e.g., parents hit or beat you), verbal (e.g., parents insulted you or called you names), sexual (e.g., traumatic or upsetting sex) and emotional (e.g., felt unwanted or emotionally neglected) items as indicators of the latent construct of abuse, was specified in structural equation models described below.

Externalizing and Internalizing Problems. The Personality Assessment Inventory (PAI; Morey, 1991) was used to assess internalizing and externalizing problems, and to exclude cases with questionable protocol validity, given the self-report format of the measures of child abuse and personality traits. The PAI is a 344-item self-report inventory designed to assess symptoms of psychopathology, personality traits, and other variables of clinical interest (e.g., response style). It has 22 nonoverlapping scales. To eliminate the possibility that participants randomly or inconsistently responded to test items, individuals exceeding a cut score of 79 on Inconsistency (INC) or Infrequency (INF) validity scales were excluded from analyses (n = 9). The PAI has demonstrated adequate internal consistency, test-retest reli-

ability, and construct validity in census, college, and clinical samples (Morey, 1991). Extensive evidence concerning its psychometric properties with male and female offender samples has accumulated in recent years (Edens & Ruiz, 2005; Skopp, Edens, & Ruiz, 2007).

Externalizing problems were conceptualized as comprising three PAI scales: Antisocial Features (ANT), Alcohol Problems (ALC), and Drug Problems (DRG). We eliminated ANT-E (Egocentricity) from our operationalization of externalizing to focus on features conceptually closer to APD than psychopathy. The scales we used demonstrated good internal consistency in the clinical standardization sample of the PAI ($\alpha \geq .80$ for all scales; Morey, 1991). ANT-A (Antisocial Behaviors), ANT-S (Stimulus-Seeking), ALC, and DRG scales were (a) specified as indicators of the latent construct of externalizing problems in structural equation models, and (b) scale *T* scores were summed to form a general externalizing scale for logistic regression analyses reported below.

Internalizing problems were conceptualized as comprising three PAI scales: Depression (DEP), Anxiety (ANX), and Anxiety-Related Disorders (ARD). These scales measure symptoms and phenomenology common to the experience of depressive disorders and generalized and specific anxiety disorders. These scales demonstrated good internal consistency in the clinical standardization sample of the PAI ($\alpha \geq .93$ for all scales; Morey, 1991). ANX, DEP, and ARD scales were (a) specified as indicators of the latent construct of internalizing problems in structural equation models, and (b) scale *T* scores were summed to form a general internalizing scale for logistic regression analyses reported below.

Psychopathy and Lifetime Criminal Behavior. The PCL-R (Hare, 2003) was used to assess psychopathy and lifetime criminal behavior. The PCL-R is an interview- and file review-based measure consisting of 20 items that are rated on a three point scale (0/item does not apply, 1/item applies somewhat, or 2/item definitely applies). Ratings are assigned by trained raters based on information gathered during a lengthy (about 1.5 hours) semi-structured interview and review of available file information. Participants' average PCL-R score in the current sample was 18.88 ($SD = 7.68$), which is in keeping with previous studies of incarcerated women (e.g., Salekin et al., 1998).

There is considerable debate about whether the PCL-R's structure is best captured by three (Cooke & Michie, 2001), or four (Hare, 2003; Skeem & Cooke, 2010a) factors (see Hare & Neumann, 2010; Skeem & Cooke, 2010a, 2010b). Given (a) that the three factor model appears to fit this study's data better than the four factor model (Skeem, Douglas, & Poythress, 2004), and (b) our study aims, which distinguish between personality features of psychopathy and lifetime criminality, we used the three factor model. Specifically, ratings on the PCL-R affective, interpersonal, and lifestyle scales were used to operationalize psychopathy. For analyses, the 13-item total score was used (Cooke & Michie, 2001). Hare's (2003)

Antisocial scale, which includes such items as criminal versatility and failure on conditional release, served as a proxy for lifetime criminal behavior. We examine lifetime criminal behavior to parallel our examination of lifetime SRB.

Raters received face-to-face didactic and clinical training from an expert on the PCL-R (Stephen Hart), and subsequent supervised scoring of practice tapes obtained from the author of the PCL-R (Robert Hare). RAs completed ten practice cases with group supervision sessions following the 2nd, 5th, and 10th cases. RAs had to have achieved an interrater reliability coefficient of $ICC_1 = .80$ with criterion ratings prior to data collection. To maintain interrater reliability and avoid rater drift during the course of the study, the project coordinator conducted regular site visits (approximately every 6 months) to observe interviews and independently score the PCL-R. Based on 51 cases collected over the course of data collection, interrater reliability for PCL-R Total scores was $ICC_1 = .88$. Alpha and mean interitem correlation (MIC) for PCL-R scores were as follows: Total score ($\alpha = .81$, MIC = .18), Factor 1 ($\alpha = .80$, MIC = .34), Factor 2 ($\alpha = .69$, MIC = .20), Interpersonal ($\alpha = .70$, MIC = .36), Affective ($\alpha = .77$, MIC = .45), Lifestyle ($\alpha = .64$, MIC = .27), and Antisocial ($\alpha = .61$, MIC = .24).

Recidivism. Official arrest data for the one-year follow-up were obtained from the FBI's National Crime Information Center (NCIC) database. These data were available for a subset of 214 women who were (a) released to the community during the study period, and (b) either rearrested within one year of release or at risk of rearrest for at least one year. These data indicated whether the individual was arrested (sample base rate = 37.2%; violent arrest base rate = 1%) during the follow-up. Given the extremely low base rate of violent recidivism, we did not conduct analyses using this variable.

Suicide-Related Behavior. Given problems inherent in defining various forms of suicide-related behavior (SRB), we adopted O'Carroll and colleagues' (1996) definition of SRB as potentially self-injurious behavior in which the person either intended at some nonzero level to kill herself (attempt), or wished to use such an act to attain some other end (instrumental suicide-related behavior). In this study, as in Verona et al. (2001, 2005), SRB was coded from participants' response to the PCL-R interview question, "Have you ever tried to commit suicide?" Those who answered in the affirmative were coded to have engaged in some past act of self-harm. However, the intent behind these acts was often unclear. Thus, instead of attempting subjectively to distinguish between suicide attempts (in which there is a nonzero level of intent to die) and instrumental suicide-related behavior, we grouped all potentially self-injurious behavior elicited in response to questioning about suicidality together as SRB, as defined above. SRB was coded retrospectively and dichotomously as having ever occurred. Data on SRB were available for a subset of 168 women as this interview question was not administered at two sites. In the present sample, 25.9% ($n = 69$) of participants engaged in SRB.

RESULTS

PRELIMINARY ANALYSES

Prior to addressing the study aims, the correlations among the main study measures were examined. Correlations among abuse, internalizing, externalizing, and psychopathy scales are presented in Table 1. Childhood abuse scales generally correlated positively with (a) PCL-R lifestyle and total scores (but not interpersonal and affective scores), and (b) PAI internalizing problems (anxiety, anxiety-related disorders, depression) and nonsubstance abuse-related externalizing problems (i.e., antisocial scales).

Correlations between predictor variables and "outcomes" (lifetime SRB and criminality, recidivism) are presented in Table 2. Abuse scales were weakly to moderately associated with lifetime SRB and criminality, but did not predict future criminal recidivism. The same pattern of relationships was apparent for PCL-R scale scores, internalizing, and externalizing problems.

PRIMARY AIM: DOES PSYCHOPATHOLOGY MEDIATE THE ASSOCIATION BETWEEN ABUSE AND SUICIDAL OR CRIMINAL BEHAVIOR FOR FEMALE OFFENDERS?

In the current study, we tested for mediation within a structural equation modeling (SEM) framework because it permits simultaneous tests of both internalizing and externalizing as mediators, and focuses on the latent constructs of interest by correcting for measurement error (see MacKinnon, 2008, pp. 105, 180). Mediation is established when the following conditions are met: (a) the independent variable (X: abuse) must relate significantly to the dependent variable (Y: lifetime SRB, criminality, or recidivism). To test this direct effect we fit a simple SEM model that specified abuse (X) postdicting or predicting the dependent variable of interest (Y); (b) X must relate significantly to the first mediator (M_1; internalizing) and the second mediator (M_2; externalizing). To test for mediation we fit a more complex SEM model including correlated mediator variables (see Figure 1). In this second two-mediator structural model: a_1 is the parameter relating the IV to M_1, and a_2 is the parameter relating the IV to M_2 (MacKinnon, 2008, p.105); (c) The mediator must relate significantly to Y when X is controlled. As shown in Figure 1, b_1 is the parameter relating M_1 to the DV adjusted for the IV and M_2, and b_2 is the parameter relating M_2 to the DV adjusted for the IV and M_1; (d) The direct effect must become nonsignificant (full mediation) or reduced in significance (partial mediation) when the effects of M_1 and M_2 are controlled (see MacKinnon, 2008, pp. 109–110). In Figure 1, c' is the parameter relating the IV and the DV adjusted for the two mediators, M_1 and M_2. This parameter was compared with parameter, c, relating the IV and the DV in the original simple SEM model. For each dependent variable, two models were fitted.

All models were tested using Mplus 5.1 (Muthen & Muthen, 2003).

TABLE 1. Correlations Among Putative Predictor Variables

	PA	VA	SA	EA	CATS	ANX	ARD	DEP	INT	ANTA	ANTS	ALC	DRG	EXT	INT	AFF	LIFE
VA	**.76**																
SA	**.51**	**.42**															
EA	**.79**	**.80**	**.57**														
CATS	**.90**	**.86**	**.67**	**.92**													
ANX	*.16*	**.25**	**.22**	**.26**	**.25**												
ARD	**.24**	**.32**	**.36**	**.34**	**.36**	**.71**											
DEP	*.19*	**.25**	**.22**	**.25**	**.26**	**.80**	**.61**										
INT	**.22**	**.31**	**.30**	**.32**	**.33**	**.93**	**.87**	**.89**									
ANTA	.16*	**.25**	**.21**	**.28**	**.28**	**.24**	**.23**	**.22**	**.26**								
ANTS	.16*	**.21**	*.18*	**.23**	**.23**	**.27**	**.25**	**.33**	**.32**	**.52**							
ALC	.03	.05	.08	.07	.07	*.17*	.13*	.16*	*.17*	**.23**	**.25**						
DRG	.06	.09	.13*	.13*	.11	**.25**	*.16*	**.22**	**.24**	**.35**	**.37**	**.43**					
EXT	.12*	*.18*	*.19*	**.21**	**.21**	**.31**	**.25**	**.31**	**.33**	**.63**	**.69**	**.75**	**.79**				
ADI	.00	–.03	.11	.04	.04	.00	.04	.00	.02	**.30**	.15*	–.10	–.04	.05			
DAE	.05	–.01	.06	.05	.07	–.02	.02	.07	.02	**.22**	*.18*	–.10	–.15*	.00	**.62**		
IIL	*.20*	.08	**.25**	**.22**	**.23**	*.20*	*.18*	**.21**	**.22**	**.32**	**.37**	.05	**.24**	**.30**	**.46**	**.50**	
PCLR	.11	.02	*.17*	.13*	.14*	.07	.09	.11	.10	**.34**	**.28**	–.07	.02	.14*	**.83**	**.86**	**.80**

Note. Correlations in bold print are significant at the $p < .001$ level; Italicized correlations are significant at the $p < .01$ level; *$p < .05$; [a]$p = .05$. PA = Physical Abuse; VA = Verbal; SA = Sexual; EA = Emotional; CATS = CATS Total Abuse Score; ANX = Anxiety; ARD = Anxiety-Related Disorders; DEP = Depression; INT = Internalizing; ANT-A = Antisocial Behaviors; ANT-S = Stimulus-Seeking; ALC = Alcohol Problems; DRG = Drug Problems; EXT = Externalizing; ADI = PCL-R Arrogant and Deceitful Interpersonal Style; DAE = PCL-R Deficient Affective Experience; IIL = PCL-R Impulsive and Irresponsible Lifestyle; PCLR = PCL-R Total Score (based on Cooke & Michie, 2001 13-item total).

TABLE 2. Correlations Among Putative Predictor and Putative Outcome Variables

Variable	Lifetime Criminality (PCL-R)	Future Criminal Recidivism (Y/N)	Lifetime SRB (Y/N)
CATS Total Abuse	.31***	.04	.26***
Physical Abuse	.29***	.01	.19*
Verbal Abuse	.18**	.04	.20**
Sexual Abuse	.28***	–.01	.20**
Emotional Abuse	.25***	.01	.23**
PCL-R Total	.48***	–.02	.24**
Interpersonal	.39***	–.03	.16*
Affective	.38***	–.02	.15*
Lifestyle	.42***	.00	.27***
PAI Internalizing	.13*	–.05	.20*
Anxiety	.08	–.05	.12
Anxiety-Related Disorders	.18**	.00	.25***
Depression	.09	–.08	.15
PAI Externalizing	.20**	.05	.26***
Antisocial Behaviors	.29***	.06	.18*
Stimulus Seeking	.30***	.07	.22**
Alcohol Problems	.07	.05	.15*
Drug Problems	.02	–.02	.17*

Note. PCL-R Antisocial scale served as a proxy for lifetime criminality. CATS = Child Abuse and Trauma Scale; PCL-R = Psychopathy Checklist-Revised (Total based on 13-items); PAI = Personality Assessment Inventory.
*$p < .05$; **$p < .01$; ***$p < .001$; [a]$p = .06$; [b]$p = .07$.

Weighted least squares with means and variance adjusted (WLSMV) estimation was used for categorical dependent variables (SRB and recidivism), and maximum likelihood estimation was used for continuous dependent variables (lifetime criminality). The indirect path, parameter c' in Figure 1, was tested using the MODEL INDIRECT/ VIA commands in Mplus. We assessed quality of fit using multiple indices, as each index has limitations (Kline, 1998; MacCallum & Austin, 2000) and there is no consensus criterion for evaluating model fit. Different aspects of fit were evaluated, including absolute fit (χ^2) and fit relative to a null model (Comparative Fit Index, or CFI, and root mean square error of approximation, or RMSEA). Following convention, the criterion for adequate fit was defined as CFI > .90 or .95 and RMSEA < .08 or .06 (Byrne, 1994; Hu & Bentler, 1999, respectively).

LIFETIME SRB

First, to test the direct effect, we fit a model with abuse (X) specified as a latent exogenous variable postdicting the binary outcome (Y) of lifetime SRB ($\chi^2 = 2.47$, $df = 2$, *n.s.*, CFI = .99, RMSEA = .03). This model indicated a significant direct effect of abuse on SRB ($\beta = .30$, $p = .001$). Second, to test for mediation, we specified a second structural model that added internalizing (M_1) and externalizing problems (M_2) as endogenous latent mediator variables (see Figure 2). All latent variables were scaled to have one

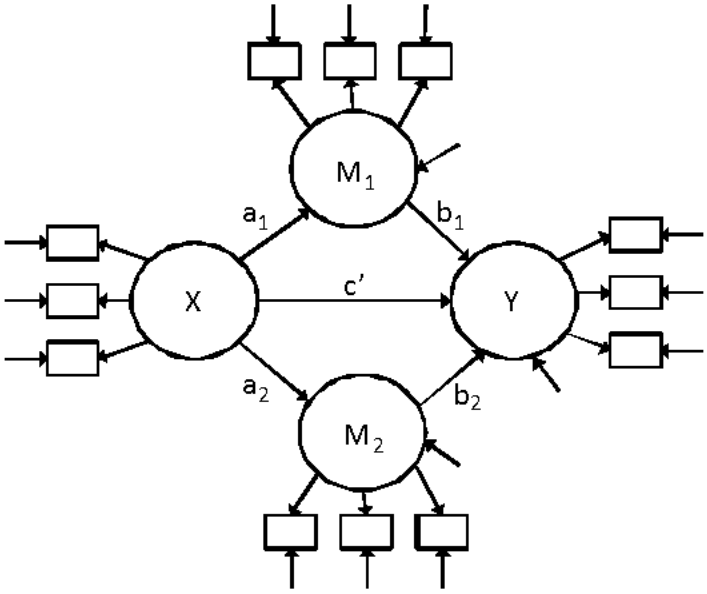

FIGURE 1. Two Mediator Structural Equation Model.

indicator with a fixed 1.0 loading (physical for abuse; alcohol for EXT; anxiety for INT). To achieve adequate model fit, the error terms of the PAI substance abuse scales, ALC and DRG, were allowed to correlate. These items have similar wording (e.g., I have trouble controlling my use of alcohol vs. My drug use is out of control) and content (i.e., substance abuse) that may reflect method overlap in their unique variances beyond that shared by the latent construct of externalizing. The resulting model fit was adequate ($\chi^2 = 33.73$, $df = 21$, $p < .05$, CFI = .94, RMSEA = .05).

Applying MacKinnon's (2008) guidelines, there was support for full mediation of SRB by externalizing, but not internalizing. Specifically, abuse was significantly associated with SRB (condition a above), and with both internalizing ($\beta = .37$, $p < .001$) and externalizing ($\beta = .33$, $p < .00$; condition b). Moreover, externalizing problems significantly postdicted SRB ($\beta = .29$, $p < .05$; condition c), although internalizing problems did not. Full mediation (condition d) was apparent for externalizing, given (a) a significant indirect effect from abuse to SRB via externalizing ($\beta' = .10$, $p < .05$) and (b) the reduction of the direct effect of abuse on SRB to nonsignificance (from $\beta = .30$, $p = .001$ in the first model to $\beta = .19$, $p = .06$ in the second model above).

LIFETIME CRIMINALITY

The measurement and structural models we used to test lifetime criminality are identical to those described earlier for SRB, with correlated error

terms specified for ALC and DRG. In the first model in which the relation between abuse and criminality was examined ($\chi^2 = 25.91$, $df = 5$, $p < .001$, CFI = .97, RMSEA = .13), there was a significant direct effect of abuse (β = .28, $p = .001$; meeting condition a), although model fit was adequate by one fit index and inadequate by another. The second mediation model adding internalizing and externalizing problems as endogenous latent mediator variables is depicted in Figure 3. The model fit was adequate ($\chi^2 = 102.61$, $df = 48$, $p < .001$, CFI = .96, RMSEA = .06).

The results suggest that externalizing partially mediates the relation between abuse and lifetime criminality. Abuse was significantly associated with both internalizing (β = .31, $p < .001$) and externalizing (β = .33, $p < .001$; condition b). Moreover, externalizing problems significantly postdicted criminality (β = .35, $p < .001$; condition c), although internalizing problems did not. Partial mediation was apparent for externalizing, given (a) a significant indirect effect from abuse to criminality via externalizing (β' = .12, $p < .01$), and (b) the reduction of the direct effect of abuse on criminality (β = .28, $p = .001$), although the direct effect remained significant (β = .19, $p = .01$).

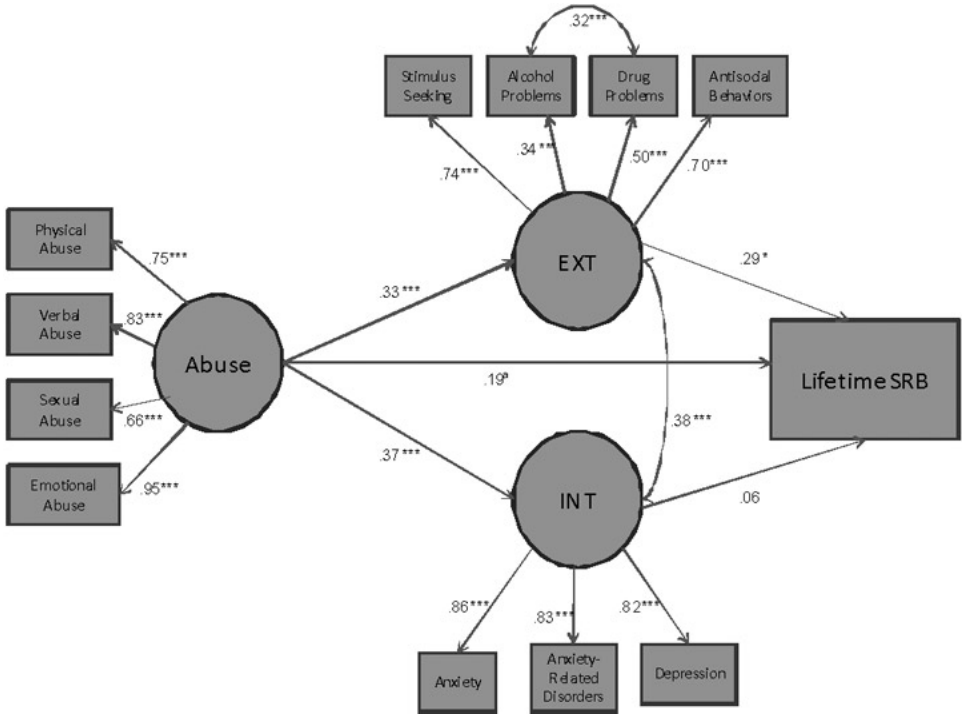

FIGURE 2. Mediational Model Postdicting SRB.

Notes. EXT = Externalizing Problems; INT = Internalizing Problems; SRB = Suicide-Related Behavior.

[a]$p = .06$; *$p < .05$; ***$p < .001$.

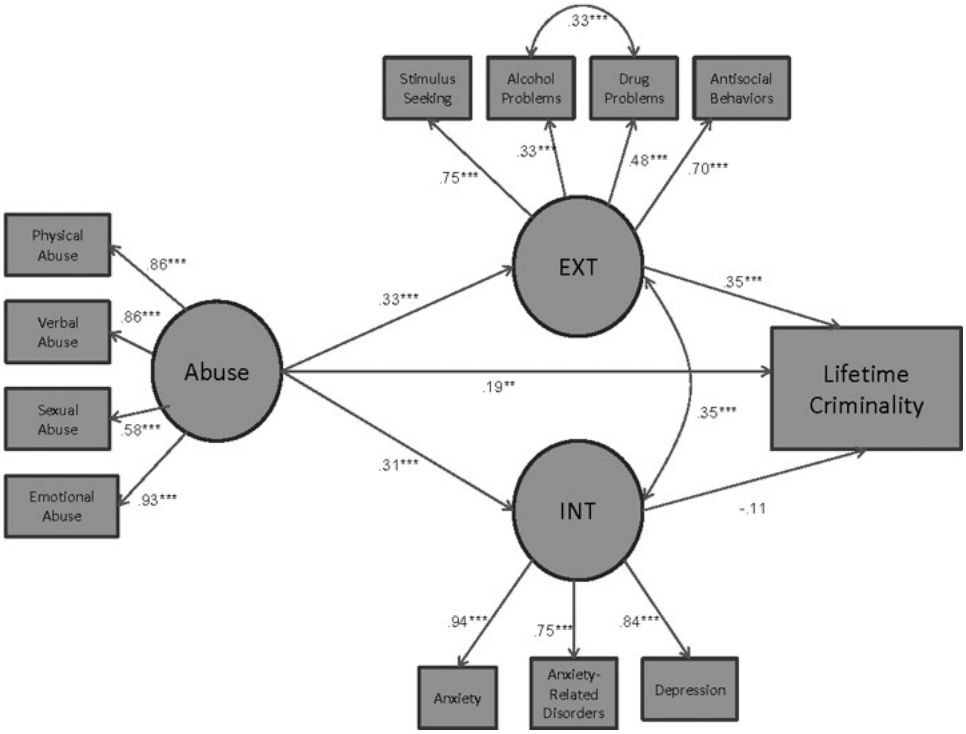

FIGURE 3. Mediational Model Postdicting Lifetime Criminality.

Notes. EXT = Externalizing Problems; INT = Internalizing Problems; Lifetime Criminality was assessed with the PCL-R antisocial scale.
$^{**}p < .01$; $^{***}p < .001$.

RECIDIVISM

Although the variables of interest generally did not predict recidivism during the one-year follow-up period (see Table 2; condition a), this finding could be attributable to third variable effects such as suppression. A suppressor variable is defined as a variable that increases the predictive validity of another variable (or set of variables) by its inclusion in a regression equation (Tzelgov & Henik, 1991). Running models for recidivism that paralleled those described above indicated that externalizing (and internalizing) problems did not mediate any relationship between abuse and future recidivism.

SECONDARY AIM: DOES THE PCL-R POSSESS INCREMENTAL UTILITY IN PREDICTING WOMEN'S SUICIDAL BEHAVIOR, BEYOND MEASURES OF ABUSE AND PSYCHOPATHOLOGY?

Our second aim focused specifically on lifetime SRB, given that (a) none of the measures, including the PCL-R, predicted criminal recidivism, and (b)

the PCL-R antisocial scale served as our measure of lifetime criminal behavior, and shared significant (method and other) variance with the PCL-R 13-item total ($r = .48$; see Table 2). To determine whether the PCL-R personality scales (interpersonal, affective, lifestyle) and criminal behavior scale (antisocial) added incremental variance in postdicting SRB beyond measures of externalizing, internalizing, and abuse, we conducted two hierarchical logistic regression analyses. We selected a regression approach for these analyses because of our practical interest in the predictive utility of distinct measures as opposed to constructs. In the first model, CATS total abuse score, PAI internalizing, and PAI externalizing were entered in Block 1 and PCL-R interpersonal, affective, and lifestyle scales were entered in Block 2. In the second model, the PCL-R antisocial scale was entered in Block 2. The results of the logistic regression analyses are summarized in Table 3.

As demonstrated in Table 3, as a group in Block 1, CATS, internalizing, and externalizing measures significantly postdicted a history of SRB, χ^2 (3, $N = 167$) = 19.61, $p < .001$; Nagelkerke $R^2 = .15$. The CATS (OR = 1.01, $p < .05$) and externalizing scales (OR = 1.04, $p < .05$) explained most of this effect. As a group in Block 2, interpersonal, affective, and lifestyle scales of the PCL-R did not demonstrate incremental utility beyond the effects of the abuse and psychopathology measures, χ^2 (3, $N = 167$) = 6.85, *n.s.*; Δ Nagelkerke $R^2 = .05$; ORs ranging from 1.03 to 1.13. However, in the second model, when entered as Block 2, the antisocial scale of PCL-R incre-

TABLE 3. Logistic Regression Analyses Results Postdicting SRB

	Block 1		Block 2	
Variable	**B**	**OR**	**B**	**OR**
Model 1				
Step 1:				
CATS Total	.01	1.01*	.01	1.01*
PAI Internalizing	.01	1.01	.01	1.01
PAI Externalizing	.04	1.04*	.04	1.04[a]
Step 2:				
PCL-R Interpersonal			.12	1.13
PCL-R Affective			.03	1.03
PCL-R Lifestyle			.12	1.12
Chi-square (*df*)	19.61 (3)***		6.85 (3)	
Nagelkerke R^2	.15		.20	
% correctly Predicted	67.1		68.9	
Model 2				
Step 1:				
CATS Total	.01	1.01*	.01	1.01
PAI Internalizing	.01	1.01	.01	1.01
PAI Externalizing	.04	1.04*	.04	1.04*
Step 2:				
PCL-R Antisocial (Lifetime Criminality)			.20	1.22**
Chi-square (*df*)	19.61 (3)***		χ^2 = 7.11 (1)**	
Nagelkerke R^2	.15		.20	
% correctly Predicted	67.1		70.7	

Note. CATS = Child Abuse and Trauma Scale; PAI = Personality Assessment Inventory; PCL-R = Psychopathy Checklist-Revised.
[a]$p = .05$; *$p < .05$; **$p < .01$; ***$p < .001$. $N = 167$.

mentally improved on the postdiction of lifetime SRB, χ^2 (1, $N = 167$) = 7.11, $p < .01$; Δ Nagelkerke $R^2 = .05$; OR = 1.22, $p < .01$. In summary, scores on the CATS and PAI externalizing scale significantly postdicted SRB. Beyond the effects of abuse and externalizing, only the PCL-R subscale that focuses on criminal behavior achieved incremental utility in postdicting SRB.

DISCUSSION

Longitudinal studies provide preliminary evidence that childhood abuse is a risk factor for psychopathology which, in turn, may contribute to both SRB (Enns, Cox, & Clara, 2002; Fergusson et al., 2000) and criminal behavior (Egeland et al., 2002). Women who are involved in the criminal justice system are a growing population with disproportionately high rates of abuse histories, psychopathology, and SRB. With a focus on these women, this study is the first to examine whether psychopathology mediates the relation between abuse on the one hand, and SRB and criminal behavior on the other. Rather than operationalize psychopathology broadly as multiple discrete disorders (Enns et al., 2002; Fergusson et al., 2000), we examined broad-band internalizing and externalizing dimensions, given evidence that these dimensions are meaningful (Krueger et al., 2001).

Our primary findings may be organized into three points, one theoretical and two practical. First, the results suggest that childhood abuse for these women may operate through a mechanism of externalizing symptomatology to yield lifetime SRB (full mediation) and criminal behavior (partial mediation). Although internalizing psychopathology was associated with lifetime SRB and criminal behavior, it did not mediate the relation between abuse and those outcomes. Second, self report measures of abuse and psychopathology significantly postdicted womens' SRB, and a PCL-R subscale that assesses criminal behavior added only a modest amount of postdictive utility to these measures. Third, none of the study measures—including the PCL-R — predicted women's future criminal recidivism.

Before discussing these findings, we note four study limitations that must be considered while interpreting the results. First, key parts of this study are cross-sectional, and it is possible that models specifying alternate paths (e.g., proneness to externalizing psychopathology $\rightarrow$ abuse) would yield similar levels of fit to the meditational models tested here. This concern is only partially addressed by the consistency of our results with those of longitudinal studies suggesting that abuse predates psychopathology (Enns et al., 2002; Fergusson & Lynskey, 1995; Fergusson et al., 2000) which, in turn, predates SRB (Bronisch, Schwender, Höfler, Wittchen, & Lieb, 2005; Fergusson & Lynskey, 1995; Scocco, Marietta, Tonietto, Buono, & De Leo, 2000) or criminal behavior (Babinski, Hartsough, & Lambert, 1999; Moffitt, Caspi, Harrington, & Milne, 2002). Nature and nurture are notoriously difficult to disentangle, and a risk factor that predates and increases the likelihood of an outcome is not necessarily a

causal risk factor (Kraemer et al., 1997). For example, childhood abuse may simply predate, but not cause, antisocial behavior. If a child inherits a predisposition for antisocial behavior from a parent, who is more prone to abuse, given such a predisposition (Jaffee et al., 2004), then abuse may be merely a proxy for genetic influences. Partially mitigating against this specific possibility are findings, based on a large behavior genetic study, suggesting that childhood physical abuse may play a causal role in later antisocial behavior (Jaffee et al., 2004).

Second, our measures of abuse and SRB were based on retrospective recall, introducing the possibility of reporting bias and shared method variance (both with one another and our measures of psychopathology). Moreover, it is possible that certain personality traits (e.g., negative emotionality) contribute to both SRB and to the tendency to report relatively mild levels of past parental mistreatment (e.g., criticism) as abusive. Still, our results are consistent with associations among measures of abuse, psychopathology, and SRB that do not share method variance (e.g., Brown, Cohen, Johnson, & Smailes, 1999; Enns et al., 2002). Third, we did not examine sexual and physical abuse separately, even though some evidence suggests that these forms of abuse have differential correlates (e.g., sexual abuse may relate more strongly to SRB; see Verona et al., 2005). In the present sample, the two forms of abuse were moderately associated (see Table 1) and were approximately equally associated with the outcomes of interest, lifetime criminality, and SRB (see Table 2). Still, it is possible that meditational results would differ had we disaggregated sexual and other forms of abuse for female offenders. Verona et al. (2005) found that broad personality traits (negative emotionality and low constraint) mediated the relationship between physical abuse&mdashbut not sexual abuse&mdashand both SRB and antisocial behavior (PCL-R Factor 2). Fourth, even though we excluded indices of overt aggressive behavior from our externalizing measure, its content still overlaps (i.e., property damage and theft, legal trouble) with our lifetime criminality "outcome" (PCL-R antisocial factor), such that the relation between externalizing and lifetime criminality be partially attributable to criterion contamination. With these limitations in mind, we discuss the chief findings.

EXTERNALIZING AS A MEDIATOR BETWEEN ABUSE AND SUICIDAL AND CRIMINAL BEHAVIOR

We found that externalizing psychopathology mediated the relationship between childhood abuse —including sexual abuse&mdashand both SRB and criminal behavior (PCL-R antisocial subscale). Associations with abuse were fully (SRB) or partially (criminal behavior) mediated by this "propensity to express distress outwards that unites" antisocial personality and substance abuse disorders (Krueger et al., 2001, p. 1248). In contrast, internalizing, or the "propensity to express distress *inwards* that unites" anxiety and depressive disorders (Krueger et al., 2001, p. 1248)

related directly to SRB and criminal behavior but did not act as a channel for abuse.

As noted earlier, past longitudinal research with large community samples suggests that—as a group—a variety of mental disorders fully (Fergusson et al., 2000; depression, anxiety, conduct disorder, substance use) or partially mediates (Enns et al., 2006; schizophrenia and mood, anxiety, substance abuse, and eating disorders) the relationship between abuse and SRB. To our knowledge, this study is the first to examine separately the differential relations of internalizing and externalizing psychopathology. Given that externalizing is disproportionately represented in this sample of female offenders (T-score $M = 71.59$, $SD = 11.25$) compared with internalizing (T-score $M = 62.31$, $SD = 11.91$), the extent to which externalizing, but not internalizing, will act as a mediator in general community samples is unclear.

Still, our results are broadly consistent with those that have identified personality traits conceptually related to externalizing (e.g., impulsivity, trait aggression, low constraint, alienation, emotional dysregulation) as mediators of the relation between childhood abuse and later SRB (Brodsky et al., 1997; Brodsky, Oquendo, & Ellis, 2001; Verona et al., 2005) and criminal behavior (Egeland et al., 2002; Widom, 1989; Widom & Maxfield, 1996). In fact, our finding that externalizing psychopathology mediates the relation between abuse and these outcomes could be partly attributable to trait impulsivity and aggression, which is associated with the variables of interest (i.e., externalizing, abuse, SRB, and criminal behavior; see Brodsky & Stanley, 2008). As observed by Brodsky and Stanley (2008), the association between abuse and SRB "may be mediated in part by a relationship between the trauma and the development of the biologic and psychologic aspects of the traits of impulsivity and aggression" (p. 227). For example, research with rhesus monkeys suggests that early maternal deprivation can cause low serotonergic functioning and is associated with long-term impulsive and aggressive behavior (Higley, Suomi, & Linnoila, 1992). Individuals may inherit diatheses that make them particularly vulnerable to such environmental effects. For example, based on a sample of 132 men with substance abuse disorders, Roy, Hu, and Janal (2007) found that childhood abuse interacted statistically with a serotonin transporter genotype (low expressing 5-HTTLPR) to postdict lifetime SRB. This interpretation is consistent with diathesis-stress models of SRB (e.g., Mann et al., 1999) and findings from twin studies indicating that both genetic factors and child abuse account for variance in SRB (for a review, see Brodsky & Stanley, 2008). Similar mechanisms may be at work for the association between abuse and criminal behavior (see Caspi et al., 2002), although our design does not allow us to disentangle genetic from environmental influences.

Moreover, externalizing and internalizing psychopathology are not synonymous with conceptually related, higher order personality traits. For example, women's internalizing relates positively but weakly ($r = .22$) to the

trait of negative emotionality (anxiety, anger, and feelings of alienation) and externalizing relates weakly (r = .20) to the trait of low constraint (impulsivity, a pattern of risky behavior, and nontraditional values; Krueger et al., 2001). Thus, it remains for future research to determine whether personality traits (e.g., low constraint, impulsivity, aggression) mainly explain externalizing's mediating role between abuse on the one hand, and SRB and criminal behavior, on the other.

On the surface, however, the present results suggest that a history of abuse, channeled through externalizing psychopathology, raises the likelihood of suicidal and criminal behavior among female offenders. These findings have implications for risk reduction and risk monitoring. First, for girls and women who have experienced childhood abuse, treatment efforts that target externalizing (i.e., co-occurring substance abuse and antisocial traits) may prevent or reduce the risk of SRB and criminal behavior. Although developed largely for men, state of the art correctional treatment programs that target externalizing-relevant criminogenic needs such as substance abuse (see Landenberger & Lipsey, 2005) may reduce risk of SRB and crime for women, particularly if they are tailored to be gender responsive (see Covington & Bloom, 2007). Second, the recent focus on providing trauma-sensitive treatment for female offenders—treatment that focuses on reducing the symptoms of sexual or physical victimization and improving mental health—may be well-placed, particularly if it includes a focus on externalizing (Austin, Bloom, & Donahue, 1992; Clark, 2002; Harris, 1998). Although they must be replicated, our findings suggest that focusing exclusively on internalizing in these programs may not be the optimal approach in reducing risk of SRB or criminal behavior. Third, in correctional settings, women who have a history of childhood abuse and currently manifest externalizing psychopathology should be monitored relatively closely for SRB. Correctional programs are most effective when they match the intensity of monitoring and treatment to offenders' level of risk (Andrews, Bonta, & Wormith, 2006).

ASSESSING RISK OF SRB AND RECIDIVISM: THE PCL-R VS. MEASURES OF ABUSE AND EXTERNALIZING

These findings raise a question about how the risk of SRB and recidivism can best be assessed for female offenders. None of the primary study measures (of abuse, psychopathology, or psychopathy) significantly predicted these women's criminal recidivism over a one-year follow-up period (base rate = 37%). This finding is most relevant to the PCL-R given its wide use as a risk assessment tool (Tolman & Mullendore, 2003). The PCL-R predicts violent and other criminal behavior in male offender samples, based largely on its antisocial behavior subscale (Walters, 2003; Walters et al., 2008). Our finding that the PCL-R did not predict general female offenders' recidivism is consistent with past research indicating that total scores on the PCL do not significantly predict criminal behavior for girls (Edens et

al., 2007; Odgers et al., 2005; Vincent et al., 2008) and women (Salekin et al., 1998: cf. Loucks & Zamble, 2000). Unlike two past studies (Richards et al., 2003; Salekin et al., 1998), we did not find that the emotional detachment subscale of the PCL-R predicts women's recidivism. In combination with evidence that questions the generalizability of the PCL-R to women as a measure of psychopathy (Edens, Skeem, & Kennealy, 2009), these results suggest that the PCL-R may have limited utility as part of a risk assessment strategy for female offenders' future recidivism.

In contrast to the results for future recidivism, all of the study's primary measures (of abuse, psychopathology, and psychopathy) significantly postdicted SRB. In keeping with the general results of past research, the antisocial behavior subscales of the PCL-R related more strongly to SRB (Antisocial; $r = 28$, $p < .001$ and Factor 2; $r = .33$, $p < .001$ vs. Factor 1; $r = .18$, $p < .05$; Δr = n.s. for both comparisons) than those that assess emotional detachment (Douglas, Herboz, et al., 2006; Douglas et al., 2008; Verona et al., 2005). Unlike Verona et al. (2005) we did not find an inverse association between SRB and the emotional detachment subscale of the PCL-R for these women. Until these conflicting findings are reconciled, there seems little reason to invoke the concept of psychopathy per se, at least its core affective and interpersonal features, when assessing women's risk of SRB.

After controlling for self report measures of abuse and externalizing-internalizing psychopathology, we found that a PCL-R subscale that assesses criminal behavior explains a modest, but statistically significant, amount of variance in postdicting women's SRB. Future research could examine whether simple self report measures of past criminality (Walters, 2006) evince similar incremental utility. Self report measures of abuse (i.e., CATS) and psychopathology (i.e., PAI) may be particularly useful for identifying women at risk of SRB in correctional settings. First, these measures are less resource-intensive to administer than the PCL-R, and resources are an important consideration for correctional agencies that handle increasingly burgeoning populations. Second, these self report measures share much of the PCL-R's utility in postdicting SRB, and relate to constructs—abuse and externalizing—that are theoretically relevant to prevention and intervention. Third, and in a related sense, these measures are also useful in postdicting women's lifetime criminality (see Table 2).

In conclusion, although our results must be qualified by the various methodological limitations noted earlier including its cross-sectional design, our findings provide theoretical and practical insights into the complex relationships among abuse, dimensions of psychopathology, and important outcomes among female offenders. We hope that future studies will extend this line of work, particularly using more sophisticated methodologies (e.g., prospective designs) that will ameliorate several of this study's limitations.

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