

## Assessing Recidivism Risk Across Female Pathways to Crime

***Michael D. Reisig, Kristy Holtfreter and  
Merry Morash***

Actuarial tools, such as the Level of Supervision Inventory–Revised (LSI-R), are regularly used to classify offenders as “high,” “medium,” and “low” recidivism risks. Its supporters argue the theory upon which the LSI-R rests (i.e., social learning theory) accounts for criminal behavior among men and women. In short, the LSI-R is gender-neutral. Feminist criminologists question the LSI-R’s validity for female offender populations, especially women under community supervision. Guided by Daly’s (1992, 1994) pathways to crime framework, we use a sample of women under community supervision in Minnesota and Oregon to evaluate the LSI-R’s performance across offender subgroups. The results show that the LSI-R misclassifies a significant portion of socially and economically marginalized women with gendered offending contexts. Predictive accuracy was observed for women who did not follow gendered pathways into criminality, whose offending context was similar to males, and who occupied a relatively advantaged social location.

*Keywords* community corrections; LSI-R; recidivism; risk; women offenders

The number of women under correctional supervision in the United States continues to grow. The Bureau of Justice Statistics (BJS) estimates that an additional 285,000 women were added to community supervision caseloads

Michael Reisig is an Associate Professor in the College of Criminology and Criminal Justice at Florida State University. His corrections research has appeared in a variety of journals, including *Criminology*, *Criminology and Public Policy*, and *Punishment and Society*. Kristy Holtfreter is an Assistant Professor of Criminology and Criminal Justice at Florida State University where she is also affiliated with the Women’s Studies program. Her research examines white-collar crime, fraud victimization, and female criminality. Recent articles have appeared in *Criminology and Public Policy*, *Journal of Criminal Justice*, and the *Journal of Financial Crime*. Merry Morash is a Professor of Criminal Justice at Michigan State University. Her research projects include programming to meet the needs of women offenders, and domestic violence among different racial and ethnic groups. She has conducted research with funding from the National Institute of Justice, the National Science Foundation, and numerous other sources. Correspondence to: Michael Reisig, College of Criminology and Criminal Justice, The Florida State University, Tallahassee, FL 32306, USA. E-mail: mreisig@fsu.edu

between 1995 and 2003, bringing the total number of women on parole and probation to over one million (BJS, 2004). The use of actuarial or evidence-based assessment tools by corrections professionals to gauge their clients' re-offending risk and identify treatment needs has become more common over the past 25 years. The Level of Supervision Inventory—Revised (LSI-R) is one of the most widely used classification instruments, and is touted as being gender-neutral.

Whether actuarial risk tools, such as the LSI-R, can effectively gauge women offenders' risks and needs continues to be debated. Critics working from a feminist perspective argue that existing actuarial risk assessments, which are derivative of male theories of crime and delinquency, ignore the gendered context of female criminality. Among other things, existing tools fail to consider women's economic disadvantages, their propensity to be involved in the justice system for drug-related offenses, and the salience of prior victimization experiences (Covington, 2003, pp. 74-76; Holtfreter & Morash, 2003). Proponents maintain, however, that the potential influence of factors highlighted by feminist scholars (e.g., victimization, poverty, and substance abuse) is captured by the LSI-R through offenders' attitudes, peer associations, and the like (Andrews & Bonta, 2003, p. 90; Andrews, Dowden, & Rettinger, 2001, pp. 194-196; Dowden & Andrews, 1999). Unfortunately, the research literature has done little to resolve the matter.

This study uses presentence investigation reports (PSIs), officer surveys and logs, and interview data for 235 women offenders under community supervision in Oregon and Minnesota to assess the predictive accuracy of the LSI-R. Guided by Kathleen Daly's (1992, 1994) pathways to crime framework, we identify meaningful subgroups within our sample that reflect different bundles of risk-need factors associated with female criminality. This analytic strategy allows us to take into account variation in women offenders' life experiences (e.g., prior victimization), offending context (e.g., victim-offender relationship), and social location (e.g., living in poverty). We address the question, how well does the LSI-R predict recidivism for women following different pathways into criminality?

### Women's Risk and Recidivism: The Debate

The debate over the use of actuarial risk tools, such as the LSI-R, for female correctional populations primarily involves two opposing camps: (1) a group of Canadian psychologists referred to as the "Ottawa School" who developed the LSI-R and argue in support of its gender-neutrality, and (2) practitioners and criminologists who believe the relative utility of such tools is highly suspect because they were developed with male theories of crime in mind and, as a result, ignore female-specific risks and needs. The following review provides a sketch of each group's position and identifies predictions to be tested.

## In Support of the LSI-R

The LSI-R is a standardized, quantitative assessment tool used to classify offenders in institutional and community corrections settings. It consists of 54 risk-need items that reflect two types of risks hypothesized to increase the likelihood of continued criminal activity. "Static" risks concern individuals' life experiences that are not subject to change (e.g., prior convictions). "Dynamic" risks, in contrast, are sensitive to change over time (e.g., peer interactions). When compared to traditional, clinically based practices that rely heavily on professional judgment and discretion, the LSI-R's developers contend that available research supports the use of evidence-based actuarial approaches (see, e.g., Grove, Zald, Lebow, Snitz, & Nelson, 2000).

A large number of community corrections practitioners administer the LSI-R to gauge their clients' recidivism risk, plan supervision strategies, and determine programmatic interventions (Jones, Johnson, Latessa, & Travis, 1999, p. 8). LSI-R scores are frequently used to classify offenders as low-, medium-, or high-risk. Different cut points can be found in the recidivism research, especially studies examining women offenders. Coulson, Ilacqua, Nutbrown, Giulekas, and Cudjoe (1996, p. 434), for example, classified women with LSI scores less than or equal to 12 as low risk. In contrast, Lowenkamp, Holsinger, and Latessa (2001, p. 550) used the following LSI-R scores to group their female study participants: scores less than or equal to 20 were deemed low risk offenders, 21-30 were medium risk, and women with scores exceeding 30 were high risks. In other reports, it is difficult to decipher how risk categories were defined (see, e.g., Andrews et al., 2001, pp. 194-196).

LSI-R supporters argue that earlier approaches to risk assessment are inferior because these tools rely too heavily on static risk items (e.g., arrest history) and lack a firm theoretical footing (Andrews & Bonta, 2003, p. 237). Theories of criminal behavior, Bonta (2002, p. 361) rightly argues, tell us what factors should be monitored and suggest which treatment interventions may prove successful. The theoretical model upon which the LSI-R is based has been termed the "Personal, Interpersonal, and Community-Reinforcement" perspective (or PIC-R) (Andrews & Bonta, 2003, pp. 165-168). The PIC-R, which is conceived as a variant of social learning theory, posits that offending stems from an assortment of incentives and disincentives regarding criminal and conventional behavior that arise from various sources, especially family members and peers (Andrews & Bonta, 2003, p. 240). Part of the PIC-R's appeal is that the underlying causal mechanisms at work are said to explain offending behavior for all individuals regardless of their gender, race and ethnicity, or their pathway to crime. In short, supporters claim that the LSI-R is gender-neutral and applies equally to all racial, ethnic, and social class groups.

The predictive accuracy of the LSI-R for samples of male offenders is well documented in the research literature. For example, Gendreau, Little, and Goggin's (1996, pp. 585-587) meta-analysis, which included 4,579 research subjects, revealed that LSI-R scores were more strongly correlated with recidivism ( $r = .35$ )

than other commonly used risk tools and antisocial personality scales. Despite this good showing, Gendreau and colleagues (1996, p. 587) caution that their data were "virtually silent on the prediction of recidivism among female offenders."

The research addressing the predictive accuracy of risk assessment tools using samples of women offenders is relatively limited. While research shows some risk tools generalize poorly to female offenders (Bonta, Pang, & Wallace-Capretta, 1995), support for the LSI-R has been reported, especially among those recently released from correctional facilities. Coulson et al.'s (1996, p. 433) analysis, which focused on women discharged from a medium security facility in Canada, revealed that recidivism in the first year following release was significantly correlated with LSI scores. In a similar study, Andrews et al. (2001, p. 195) found that recidivism rates increased with women's risk classification (a 5-point scale ranging from "very low" to "very high"). Finally, Lowenkamp, Holsinger, and Latessa's (2001) study of 125 women released from an Ohio minimum-security correctional center found a healthy correlation between the LSI-R and reincarceration ( $r = .37$ ). The positive effect persisted in the authors' multivariate model that controlled for child abuse (Lowenkamp et al., 2001, p. 559). Coupled with meta-analyses investigating the effects of social learning variables on female delinquency (Hubbard & Pratt, 2002; Simourd & Andrews, 1994) and women offenders (Dowden & Andrews, 1999), the creators of the LSI-R contend that their instrument can reliably assess recidivism risk for women offenders (also see Andrews & Bonta, 2003, pp. 75-76, 322).<sup>1</sup> But this is only one side of the story.

## Feminist Critique

Despite its supporters' theoretical and empirical claims, some scholars remain skeptical as to whether the LSI-R predicts recidivism for special populations. Feminist criminologists are one such group. Their concerns are couched in a broader debate regarding the LSI-R's theoretical roots and the gendered context of female criminality.

Feminists argue that mainstream criminological theories (e.g., learning and control theories) are androcentric; that is, these theories were developed by men who relied on their own assumptions of social life and used samples of men and boys to test their hypotheses. Accordingly, feminists reject the notion that the same ordered sets of propositions explain both male and female criminality (Belknap, 2001; Chesney-Lind, 1989; Daly & Chesney-Lind, 1988; Simpson, 1989), and argue that male-centered theories fail to appreciate a variety of elements unique to female criminality, including the greater relative likelihood

1. Schmidt, Hoge, and Gomes (2005) report the following bivariate correlations between scores derived from the youth version of the LSI-R (i.e., the Youth Level of Service/Case Management Inventory) and recidivism for their sample of 38 "disturbed" and "serious" female juvenile Canadian offenders:  $r = .14$  for reoffense,  $r = .35$  for serious reoffense, and  $r = .20$  for number of new offenses (p. 338; also see Jung & Rawana, 1999).

of young women fleeing abusive homes and experiencing domestic abuse as adults (Daly, 1992, p. 62).

Research shows that physical and sexual abuse during and after childhood affects a greater proportion of women offenders (BJS, 1999a), and abuse is linked to subsequent offending (Daly, 1992; Hubbard & Pratt, 2002; Owen & Bloom, 1995). Substance abuse is another key factor in many women offenders' lives (Owen, 1998, p. 44). About one-half of all women offenders describe themselves as "a daily user of drugs" (BJS, 1999b, p. 9). Economic disadvantage is also common. When compared to male offenders, women are less likely to be employed on a full-time basis prior to incarceration, and far more likely to depend on public assistance for survival (BJS, 1999b, p. 8). The financial difficulties faced by many women offenders are complicated by their role as primary caregiver to dependent children (BJS, 2000). Overall, the evidence supports the contention that a large portion of female criminality is connected to victimization (both as a child and during adulthood), abuse and addiction to alcohol and other drugs, and poverty (Covington, 2001, p. 85).

Research also suggests the context of offending differs for females and males. For example, gender differences emerge in the level of violence used in criminal incidents. A greater proportion of violent women offenders (72 percent) commit simple assault when compared to violent men (55 percent) (BJS, 1999b, p. 2). Triplett and Myers (1995, p. 75) found that males are more likely to use a weapon or beat their victims. Women are more likely to use guns when they commit crimes with males (Koons-Witt & Schram, 2003). Another contextual factor differentiating female from male offending is the victim-offender relationship. Approximately 62 percent of violent female offenders victimized an intimate, friend, or relative. Only 36 percent of violent males knew their victim (BJS, 1999b, p. 3). Variation in offending context between genders is most apparent in violent crimes, but far less prevalent when violations are minor, such as incidents involving theft (Triplett & Myers, 1995).

Other gender differences in the use of violence exist. For example, the onset of violence and desistance take place earlier for females. And over the course of their criminal career, females commit significantly less violence compared to males (Steffensmeier & Allan, 1996, p. 464). Although the context of theft offenses is similar for both genders, the motives behind such acts sometimes differ. For example, male embezzlers steal from their employers to maintain their status, whereas women convicted of similar offenses report that they did so to meet the financial needs of intimate partners, family members, and friends (Daly, 1989, p. 787; Zietz, 1981).

Feminists and other skeptics point to several adverse outcomes associated with using actuarial risk tools developed with male-centered theories in mind, such as the LSI-R, to gauge women offenders' risks and needs. Over-classifying women offenders is one negative consequence, which can result in unnecessarily subjecting offenders to more intense supervision, more custodial treatment environments, and squandering scarce correctional resources (Andrews & Bonta, 2003, p. 247; Brennan, 1998, p. 188-189). Underclassified women, on the other

hand, may not be adequately supervised and/or receive limited or no services. Practitioners who believe offenders have been misclassified often disregard actuarial scores and revert to their own professional judgment (Brennan, 1998; Farr, 2000, p. 7), which could either correct or magnify classification errors.

Gender differences in offending may also contribute to misclassification. As noted previously, violence among women differs from men's (i.e., onset, desistence, frequency of participation, and harm inflicted). The context of violence also varies by gender: women are more likely to use violence against family members and intimates, often in response to physical, sexual, or emotional abuse (Farr, 2000, p. 5). And women charged with serious violent offenses are often accessories who did not instigate matters (Brennan, 1998). It follows, then, that scoring a woman as "previously convicted of an assault" may not be as salient as for a man. Despite these arguments, the LSI-R's supporters hold that there is "no empirical evidence to support the over-classification argument" (Blanchette, 2002, p. 32).

Another related line of criticism follows that the LSI-R and other actuarial tools fall short in their attempt to simultaneously gauge women's risks and needs (Hannah-Moffat, 1999; Holtfreter & Morash, 2003). Women enter the criminal justice system with a variety of special needs, including psychological, medical, and financial problems that set them apart from male offenders (Austin, Bloom, & Donahue, 1992, pp. 3-4; Bloom, Owen, & Covington, 2004). Bloom (2000, p. 128) argues that the "philosophy of criminogenic risks and needs" guiding actuarial tool use does not consider women offenders' economic marginalization. Research suggests that leaving these needs unattended can be detrimental. Andrews et al. (2001, p. 195) found that "frequent unemployment" was a significant predictor of recidivism among Canadian women even after controlling for risk-need level (also see Holtfreter, Reisig, & Morash, 2004). These findings support criminologists who posit that economically marginalized women offenders experience greater difficulty refraining from criminal activity and living conventional lifestyles compared to their more advantaged counterparts (Giordano, Cernkovich, & Rudolph, 2002, p. 1026).

To sum up, criminologists working from a feminist perspective argue that the LSI-R and other risk assessments rely on male-centered theories of crime and delinquency, and as a result fail to take into account a host of critical factors that lead women into crime and shape the context of their (re)offending.

### Variations in Women's Offending

Should we dismiss quantitative research, such as Smith and Paternoster (1987), demonstrating that variables derived from traditional theories predict minor forms of offending for both males and females? Can we shelve criticisms that traditional criminological theories do not take into account gender variation in the nature of offending? Recent theoretical advances suggest that the answer to both of these questions is, quite simply, no (Broidy & Agnew, 1997; Giordano

et al., 2002; Steffensmeier & Allan, 1995, 1996; also see Hay, 2003). These noteworthy contributions find value in traditional theoretical models and also respect the gendered context of female offending.

Returning to our question of interest, does the LSI-R predict recidivism for all women offenders? What about women who have extensive abuse histories, live in poverty, and who are addicted to drugs and/or alcohol? What about women who are comparatively advantaged and commit crime out of greed? To investigate the predictive accuracy of the LSI-R, we must consider within-group variation in prior life experiences, offending context, and social location in populations of women offenders. Kathleen Daly's (1992, 1994, pp. 43-61) pathways framework is one of the best-known and respected attempts to organize the varying "conditions and circumstances that spawn violence and illegal forms of economic gain" among women (Daly, 1992, p. 21). Her multi-dimensional framework shows how abuse experiences (i.e., emotional, physical, and sexual), substance addiction, familial and intimate relationships, and economic marginalization are differentially packaged across women offenders. We use this framework to assess the relative utility of the LSI-R.

Daly's (1992, 1994) *street women* pathway includes females who fled abusive homes, became addicts, and used criminal means (e.g., prostitution, drug dealing, and theft) to survive on the streets (Miller, 1986; Owen, 1998, pp. 60-61). Street women usually have extensive arrest and conviction records, and have almost always been incarcerated. Daly's *drug-connected* pathway includes women involved in using, manufacturing, and/or distributing drugs in the context of an intimate partner relationship or family-based arrangement. The onset of drug use for these women is more recent compared to street women, and prior evidence of antisocial behavior (e.g., arrest record) is modest.

Evidence of abuse and/or neglect in the offenders' background is also common in two other pathways. As children, *harmed and harming* women were subjected to turbulent, chaotic living conditions that included abuse and/or neglect. They were considered "difficult children" by their teachers and family members, and, in some cases, the juvenile courts. By adolescence, these women used violence or exhibited a tough, bully-like demeanor. *Battered women* differ in that their abuse history is often confined to relationships with violent intimate partners. Although intimate partner violence was fairly common for female offenders, these women "would not have appeared before the court had they not been in relationships with violent men" (Daly, 1992, p. 30). Not all of Daly's pathways incorporate gendered factors of criminality.

The final pathway, which Daly (1994, p. 48) simply labels "*other*," includes women who commit crime out of greed or to cope with poverty. Some describe these women as *economically motivated* (see, e.g., Morash & Schram, 2002, p. 37), and they differ from those following other pathways because they lack any notable abuse history, were not violent themselves, and did not have any identifiable problem with drugs or alcohol. Some women following this pathway are economically marginalized, but others maintain full-time jobs. Women in the latter group frequently use positions of trust to perpetuate different forms of

criminal activity (e.g., embezzlement). The offending context may be more similar to male patterns than the context of women following alternative pathways characterized by gendered causal processes.

## Current Study

This study will assess whether the LSI-R predicts recidivism among women who followed "gendered pathways" into crime. These pathways, according to Daly (1992), reflect gendered conditions and circumstances that contribute to female criminality. Feminist criminologists claim that the LSI-R misclassifies women's risk-need levels because it fails to account for these important differences between genders. But not all women follow uniquely gendered pathways. Economically motivated women often have modest arrest histories, experience less economic marginality, and frequently lack other factors (e.g., physical abuse) prominent in explanations of women's criminality. When assessing the LSI-R for this group, we anticipate that it will be effective in predicting recidivism.

## Data and Methods

### Sample

Approximately 400 women ( $N = 402$ ) were interviewed prior to beginning community supervision in two research sites, the Minneapolis/St. Paul area and two counties in the State of Oregon (hereafter "initial interview"). Over the next 18 months, nearly two-thirds (62 percent) of the women ( $N = 248$ ) were re-interviewed and questioned about their social situations, their program involvement, their quality of life (e.g., exposure to intimate partner violence), and their involvement in criminal activity (hereafter "follow-up interview").<sup>2</sup> All of the interviews were conducted by trained research staff and lasted between 60 and 90 minutes. Both open- and closed-ended questions were used. The former allowed women to respond in their own words. Women who agreed to be interviewed were paid a small stipend of \$25.

The scoring of the LSI-R was conducted during the initial interview. Procedures closely followed the instructions established by the LSI-R's developers (Andrews & Bonta, 1995). For example, questions were administered in a semistructured interview format, and offenders' self-reports (e.g., criminal history items) were checked against other sources, such as official records, to ensure reliability.

2. The original research design called for three follow-up interviews at six month intervals. Financial constraints prevented completion of all three interviews for every participant. As a result, the average observation period for the women included in the analyses that follow was eleven months ( $SD = 3.3$  months).

The rate of participant attrition between the initial and follow-up interviews was nearly 42 percent. Of the 167 women who were dropped from the study, 51 were transferred to other jurisdictions, 37 successfully completed a reduced sentence, 29 were designated "absent without leave" by their supervising officer, 24 were contacted but declined to participate, 6 were reincarcerated and interviewers were denied access, and 3 women died. Seventeen women could not be located for unknown reasons. To determine whether attrition biased the sample, we compared the distributions of key variables for the initial and follow-up interview samples (Ahern & Brocque, 2005). The results in Table 1 reveal only modest and statistically insignificant differences between the two samples. For example, recidivism risk, as indicated by LSI-R scores, is very similar between the two samples. Nevertheless, the extent to which attrition has altered the covariance of the variables used in the analysis remains unknown.

We also use three other data sources (i.e., officer surveys, PSIs, and officer logs).<sup>3</sup> Overall, we had complete information for 95 percent of the women who were re-interviewed ( $N = 235$ ). Most of the women included in the sample (80 percent;  $N = 188$ ) were on probation, and the remainder (20 percent;  $N = 47$ ) were released on parole.

### Coding Pathways

To determine the pathway each woman followed to the felony conviction resulting in her recent supervision, detailed biographies were written using the data sources previously noted.<sup>4</sup> Researchers gleaned information regarding women's

**Table 1** Sample characteristics and attrition

		Initial interview ( $N = 402$ )	Follow-up interview ( $N = 235$ )	<i>t</i> -statistic
Age (in years)	mean =	31.28	31.86	1.11
Percent minority		33.60	31.91	-.55
Education	mean =	12.98	12.98	.00
Risk-need (LSI-R)	mean =	17.60	17.75	.39

3. Officer surveys were administered after each study participant was interviewed. Community corrections officers were asked a variety of questions about their clients, but most importantly for our purposes officers were asked about official recidivism events (e.g., supervision violations and rearrest). Logs consisted of correctional officers' notes regarding study participants. This source provided information regarding participants' life circumstances (e.g., familial and intimate relationships) prior to the felony conviction that made them eligible for the study.

4. Our method of constructing biographies closely resembled Daly's (1992, pp. 18-19) strategy. Only the information related to circumstances occurring prior to a woman's felony conviction was incorporated into her biography. While Daly relied solely on PSIs, we accessed data from multiple sources (e.g., correctional staff, PSIs, and participants).

childhoods, family and intimate partner relationships, substance abuse histories, work experience, criminal histories, and other factors. This task took approximately 175 hours. Next, two research team members reviewed each biography, discussed the important characteristics of the case, and placed the offender into one of Daly's (1992, 1994) five pathway trajectories. In situations where consensus was not easily reached, researchers returned to the data archives to search for additional clues. After this work was complete, 35 randomly selected biographies were blindly coded by the third author. To assess the level of rater agreement, the kappa statistic ( $\kappa$ ) was selected because it corrects for levels of agreement on the basis of chance alone (Cohen, 1960). The coefficient ( $\kappa = .76$ ), which can range from  $-1.00$  to  $1.00$ , indicates "excellent" agreement (Kaplan & Saccuzzo, 2001, pp. 115-118).

Researchers were able to classify 87 percent of the sample (or 205 women). The distribution of classified cases by pathway trajectories is as follows: street women (8 percent,  $N = 16$ ), drug-connected (44 percent,  $N = 90$ ), harmed and harming (17 percent,  $N = 34$ ), battered (7 percent,  $N = 15$ ), and economically motivated (24 percent,  $N = 50$ ). When compared to Daly's (1992, 1994) sample, which by design included more serious offenders, our sample contains a higher proportion of economically motivated and drug-connected women.

Only 30 women had biographies that could not be classified. The majority of these women ( $N = 16$ ) had incomplete files, such as missing PSIs and officer logs, and the research team could not make a reliable determination. Six of the 30 women committed minor crimes that their probation officers characterized as "isolated incidents." In criminal career terms, these women could be considered "one-shot offenders" (Weisburd, Chayet, & Waring, 1990, p. 342). Another five women had backgrounds that were too complex for Daly's framework (i.e., chaotic and/or sporadic offending patterns) and forced placement into one pathway over another seemed arbitrary. Finally, three women could be best described as "mentally disordered" (see Hare, 1991; Heilbrun et al., 1998). Put simply, we found evidence of serious mental illness in these women's files. Given their small number, we group these women together in a residual group and refer to them as "unclassified" offenders.

### Measuring Recidivism

The best way to measure recidivism is debatable. Some researchers argue that reincarceration is the most reliable measure of antisocial activity, and that rearrest is "too lenient" (Lowenkamp et al., 2001, p. 561). Others claim, however, that less stringent criteria, such as technical violations of supervision conditions, are acceptable because they "serve to prevent new occurrences of criminal conduct" (Bonta et al., 1995, p. 284). Technical violations often involve criminal activities (e.g., drug use) and are treated as supervision violations by corrections officers who are exercising their discretion and/

or following departmental policies. Finally, others claim that the type of recidivism measure used to assess the predictive accuracy of the LSI-R "makes little difference" (Bonta, 1997, p. 2; cf. Andrews, Bonta, & Wormith, 2006, p. 17).

We operationalize recidivism using a combination of items. A woman offender was deemed a recidivist (1 = yes, 0 = no) if there was official evidence that any one of the following events occurred during the observation period: (1) violation of supervision conditions (mean = .38,  $SD = .49$ ), (2) rearrest (mean = .32,  $SD = .47$ ), (3) reconviction (mean = .09,  $SD = .28$ ), or (4) revocation of community supervision (mean = .09,  $SD = .29$ ). Although 29 percent of the women met more than one of these criteria (e.g., they violated the conditions of supervision and were rearrested), no attempt was made to classify participants into "more" or "less" crime categorizations. From an empirical vantage point, collapsing these items into a single recidivism measure is justified: The items are correlated with one another (average inter-item correlation = .34) and possess an adequate level of internal consistency (Cronbach's  $\alpha = .68$ ). Our base rate of 46 percent ( $SD = .50$ ) approximates those reported in other recidivism studies of female offenders (see, e.g., Bonta et al., 1995, p. 287).

### Classifying Risk Groups

One challenge of using the LSI-R to classify women offenders as low, medium, and high risks is the lack of direction provided by extant research. For guidance, we turned to Laub and Sampson's (2003, pp. 93-95) long-term trajectories for high-risk male offenders (i.e., risk operationalized as a weighted composite featuring 13 childhood factors). Laub and Sampson (2003, p. 93) classified the children with scores in the upper 20th percentile as high risk. We also classify offenders with scores in the top 20th percentile. The sample mean of the LSI-R was 17.75 ( $SD = 6.00$ , scores ranging from 5 to 39).<sup>5</sup> Offenders with scores of 23 or higher were deemed high risks. Previous assessments of the LSI-R used the same cut-point (i.e., score of 23) to classify high-risk offenders (Austin, Coleman, Peyton, & Johnson, 2003, p. 10). Women with scores in the bottom 20th percentile (i.e., LSI-scores of 12 or lower) were deemed low risk, which is similar to Coulson et al.'s (1996, p. 432) classification. Finally, women falling in between the bottom and top 20th percentiles were considered "moderate" risks. Despite efforts to objectively identify cut-points in risk-need scores, the exercise is inherently arbitrary. Accordingly, we also operationalize the LSI-R as a continuous variable.

5. The sample mean is similar to those reported in other studies assessing the LSI-R's predictive accuracy of recidivism for women, such as Coulson et al. (1996, p. 432) (mean = 15.50) and Lowenkamp et al. (2001, p. 552) (mean = 25.05).

## Findings

### Subgroup Characteristics

We begin by examining variation in offender and offense characteristics across pathways and those women who could not be classified. Group differences for the variables in Table 2 were assessed using one-way analysis of variance, and all are statistically significant ( $p < .05$ ). Recent domestic violence victimization (i.e., within 6 months of the initial interview) was reported by women in all groups, but a much greater proportion of battered women experienced recent victimization. The four women in this pathway reporting otherwise were separated from their abusive spouses for periods exceeding 6 months. Suicide attempts were highest for street women and the harmed and harming group. These women also began using alcohol at an earlier age. Street women stand apart in terms of juvenile arrests and number of prior arrests. Looking at current offenses, harmed and harming women were most often convicted of violent crimes and drug-connected women for drug/alcohol-related offenses. Overall, the distribution of these characteristics is consistent with Daly's (1992, pp. 27-28) descriptions of each pathway.

Table 2 also shows that economically motivated women are unique in many ways compared to the four gendered pathway groups. A smaller proportion of these offenders report recent domestic violence and suicide attempts, and appear to have significantly fewer problems associated with substance abuse. In relative terms, they are less economically marginalized: the proportion of these women living below the poverty line and dependent on public assistance is significantly lower. Their criminal histories are also modest. And as expected, most of them were recently convicted of theft-related offenses. In sum, economically motivated women are less socially marginalized and more financially stable.

As the name implies, women following the economically motivated pathway engage in criminal activity to acquire cash and material goods. But variations in motivation were noted. A majority of these women (66 percent,  $N = 33$ ) used criminal means, such as embezzlement and forgery, to support lifestyles they otherwise could not afford. Zietz (1981, p. 81) refers to these women as "greedy opportunists" who become "addicted to the good life" that swindling other people's money provides. Fewer of the economically motivated offenders (22 percent,  $N = 11$ ) committed crimes to support deviant activities, such as gambling and drug use. Least common were women engaging in theft-related offenses out of economic necessity (12 percent,  $N = 6$ ). Most of the women in this last group committed relatively petty offenses, such as shoplifting.

### Gauging Predictive Accuracy

Consistent with prior research, we begin by assessing recidivism rates across risk-need categories (see, e.g., Andrews & Bonta, 2003, p. 89; Andrews et al. 2001,

p. 195; Bonta, LaPrairie, & Wallace-Capretta, 1997, p. 137; Coulson et al., 1996, p. 433). Predictive accuracy exists if recidivism increases with risk-need level. The bottom row in Table 3 shows that the relationship between risk-need and recidivism is not statistically significant for the full sample. The strength of the relationship is fairly weak (Pearson's  $r = .07$  and  $.05$ , respectively).<sup>6</sup> But a different trend is observed for the economically motivated subsample: recidivism rate increases with risk-need (low = 22 percent, moderate = 27 percent, and high = 80 percent). The chi-square test indicates that the association between the LSI-R and recidivism is significant for this group. The magnitude of the relationship is more than adequate. The weight of the evidence indicates that the LSI-R is a valid predictor of recidivism for economically motivated women. What is more, we see no evidence of misclassification with this group. For example, the percentage of "false positives" does not exceed "valid positives" for high-risk offenders. But given the very small number of high-risk economically motivated women ( $N = 5$ ), this particular conclusion is very tentative.

Table 3 also presents the results for women following Daly's four gendered paths into crime (i.e., drug connected, harmed and harming, battered, and street women), which were grouped together. We refer to this group as "gendered pathways." Although it would be preferable to assess these groups independently, combining them into a single group increases cell counts and confidence in the accuracy of the findings. Looking at recidivism rates across risk-need categories, we do not find evidence of a positive correlation (low = 58

**Table 3** Group recidivism rates by risk-need classification

Group	LSI-R risk-need classification			$\chi^2$	$r^a$	$r^b$
	Low	Moderate	High			
Economically motivated	.22 (23)	.27 (22)	.80 (5)	6.78*	.29*	.24*
Gendered pathways	.58 (19)	.53 (93)	.37 (43)	3.50	-.14	-.13
Unclassified	.17 (6)	.60 (20)	1.00 (4)	7.06*	.49*	.41*
Full sample	.35 (48)	.50 (135)	.46 (52)	2.88	.07	.05

*Note.* Recidivism rates are proportions at each risk classification and sample sizes in parentheses.  $\chi^2$  is for recidivism-by-risk levels ( $2 \times 3$ ) contingency table.

<sup>a</sup>Pearson's  $r$  is for recidivism-by-risk where the LSI-R is a categorical variable.

<sup>b</sup>Pearson's  $r$  is for recidivism-by-risk where the LSI-R is a continuous variable.

\* $p < .05$ .

6. Although examples litter the classification research literature, the practice of collapsing continuous measures (e.g., the LSI-R) into ordered categories unnecessarily discards information and can produce misleading results (see Reynolds, 1977). To guard against potential bias, we present correlations between recidivism and two versions of the LSI-R (i.e., coded as both categorical and continuous variables). When the items used to construct our recidivism outcome are assessed individually, we observed the following bivariate associations with the LSI-R (coded as a continuous variable): violation of supervision conditions ( $r = .03$ ), rearrest ( $r = .05$ ), reconviction ( $r = -.01$ ), and revocation of community supervision ( $r = .05$ ).

percent, moderate = 53 percent, and high = 37 percent). Two instances of misclassification are apparent. First, the proportion of low-risk offenders in the gendered pathways grouping who recidivated exceeds 50 percent, which is evidence of underclassification. Second, overclassification appears evident in that a higher proportion of high-risk women did not recidivate. Thus far, the evidence suggests that the LSI-R performs poorly for this subgroup.

When we disaggregate the pathways that comprise the gendered subsample, some interesting patterns emerge. First, we find the following bivariate correlations between recidivism and the LSI-R (coded as a continuous variable) across the gendered pathways: battered ( $r = -.29$ ), harmed and harming ( $r = -.21$ ), street women ( $r = -.18$ ), and drug-connected ( $r = -.05$ ). Although the small number of women in some of these pathways necessitate caution when interpreting the findings (see Green, 1991), the uniformity in the direction of the association between risk and recidivism demonstrates that combining gendered pathways into a single group is empirically justifiable. Second, we find evidence that the LSI-R overclassifies harmed and harming women. More specifically, 3 of the 12 women in this pathway deemed high risk actually recidivated. Finally, the underclassification observed in Table 3 for gendered pathways was largely driven by drug-connected women (low = 60 percent, moderate = 51 percent, and high = 50 percent). What do we know about this group of low-risk, drug-connected recidivists? Most of them violated conditions of their supervision, such as failing a drug test. The substance most frequently detected was methamphetamine. None of these women were charged with committing a violent act over the course of the observation period. Although these findings regarding over- and underclassification shed light on between pathway variations in the gendered grouping, the cell counts are fairly small, so inferences should be made with caution.

It should also be noted that the relationship between the LSI-R and recidivism for "unclassified" women was positive and statistically significant. Because we know very little about 53 percent of this subsample, it is difficult to negotiate these findings.

Overall, the findings from Table 3 provide support for both sides of the ongoing debate. The predictive accuracy observed among economically motivated women is consistent with the Ottawa School's expectations, and the lack of association among the gendered pathways (in both aggregate and disaggregate form) supports feminist critiques. But the analyses in Table 3 suffer at least one shortcoming. As noted previously, the observation period in this study varied. Taking into account the time each woman was at risk will bolster confidence in the findings. To address this limitation and determine whether the findings from Table 3 persist in a multivariate context, we proceed by estimating three logistic regression equations.

### Logistic Regression Equations

For the multivariate analyses, the LSI-R is coded as a continuous level variable (termed "risk-need"). Both risk-need scores ( $F = 23.72$ ,  $p < .01$ ) and recidivism

base rates ( $F = 5.65, p < .05$ ) are significantly higher for women in the gendered pathways group relative to those who are economically motivated (see Table 4). We include four additional variables that reflect offender attributes in the multivariate models to help ensure that our estimates between risk and recidivism are unbiased. Age is a continuous variable reflecting each participant's age (in years) at the time of the initial interview. Minority is a dummy variable where racial or ethnic minorities are coded 1, and Whites coded 0. Time at risk reflects the number of days each woman was observed. Distributions in both samples were adjusted using natural log transformation to induce normality. Finally, education ranges from no formal education (coded 0) to doctoral degree (coded 19). As Table 4 shows, the means and standard deviations for these four control variables are very similar between subsamples.

Table 5 features three logistic regression models. Consistent with what was observed in Table 3, the relationship between risk-need and recidivism is not statistically significant for the full sample model. But risk-need predicts recidivism for economically motivated women. More specifically, each unit increase in the LSI-R corresponds to a 15 percent increase in the odds of recidivism for this group. The effect of risk-need on recidivism in the gendered pathways model is not distinguishable from zero. The effect of risk-need on recidivism is significantly different between economically motivated women relative to those following gendered pathways ( $z = 2.48, p < .05$ ; see Clogg, Petkova, & Haritou, 1995). It is also worth noting that the model explains three times as much variance associated with recidivism for economically motivated offenders. In sum, the results from Table 5 provide additional support that critics' concerns regarding the alleged failure of the LSI-R to account for women's life experiences and immediate circumstances that lead to female criminality have merit. The LSI-R performs much better among women who have not suffered such hardships and whose criminal behavior appears to be motivated by greed. One control variable (i.e., time at risk) reached statistical significance, which

**Table 4** Descriptive statistics

Variables	Full sample		Economically motivated		Gendered pathways	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Recidivism (1 = yes)	.46	.50	.30	.46	.49	.50
Age	31.86	7.98	32.96	9.56	31.28	7.41
Minority (1 = yes)	.32	.47	.30	.46	.32	.47
Education	12.98	2.64	13.28	2.91	12.90	2.55
Time at risk <sup>a</sup>	5.76	.37	5.70	.38	5.75	.37
Risk-need (LSI-R)	17.75	6.00	14.34	5.61	19.09	5.79
Sample size	235		50		155	

<sup>a</sup>Natural log.

**Table 5** Recidivism logistic regression equations

Variables	Full sample		Economically motivated		Gendered pathways	
	<i>b</i>	<i>t</i> -ratio	<i>b</i>	<i>t</i> -ratio	<i>b</i>	<i>t</i> -ratio
Constant	-7.54 (2.49)	-	-16.35 (7.76)	-	-5.36 (2.98)	-
Age	.01 (.02)	.29	.07 (.04)	1.69	-.01 (.02)	-.22
Minority	-.05 (.29)	-.18	.78 (.85)	.92	-.49 (.36)	-1.36
Education	.06 (.05)	1.20	.28 (.15)	1.82	.07 (.07)	1.11
Time at risk	1.04 (.39)	2.63*	1.22 (1.06)	1.16	.95 (.47)	2.03*
Risk-need (LSI-R)	.03 (.02)	1.13	.14 (.07)	2.09*	-.04 (.03)	-1.40
Nagelkerke $R^2$	.06		.27		.09	
Sample size	235		50		155	

Note. Entries are unstandardized coefficients (*b*) and standard errors in parentheses.

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

underscores the need to adjust multivariate models predicting recidivism for the variability in the length of observation time.

## Discussion

The results showed that the LSI-R predicts recidivism for economically motivated women offenders. It seems safe to say, then, that community corrections officers' use of the LSI-R to gauge recidivism risk for such women is empirically justified. The same cannot be said, however, for women following gendered pathways into crime. Among this subsample, the LSI-R's predictive accuracy left much to be desired. Specifically, we found evidence of misclassification, especially among drug-connected and harmed and harming women. Such findings support earlier, critical claims (Brennan, 1998; Farr, 2000; Holtfreter & Morash, 2003; Van Voorhis & Presser, 2001). With regards to practice, the evidence is cause for concern. Corrections officials frequently rely on the LSI-R to manage correctional costs: scarce resources (e.g., monitoring and treatment) are targeted toward high-risk offenders, and fewer resources are appropriated to low-risk women. If the LSI-R is to be successfully used to classify women following gendered pathways, then more research is needed.

The results call into question the generalizability of the theoretical framework upon which the LSI-R rests. Advocates of social learning theory maintain that it

"is applicable to all types of criminal and deviant behavior" and that "variations in the social structure, culture, and locations of individuals and groups in the social system explain variations in crime rates, principally through their influence on differences among individuals in the social learning variables" (Akers, 1998, pp. xx, 312). Our findings simply do not support this claim, but are more consistent with feminist critiques. For example, Morash (1999, p. 458) argues that social learning theory "ignores a great deal of information about the lives, aspirations, and resources that girls and women have, and how these differ from the circumstances and characteristics of boys and men." Other researchers who have used samples consisting of both men and women have demonstrated that the pathways out of crime followed by these two groups are often quite different (Giordano et al., 2002), and that some social processes that influence criminal behavior (e.g., friendships) operate differently for males and females (Giordano, Cernkovich, & Holland, 2003; also see McCarthy, Felmlee, & Hagan, 2004).

Questions about the applicability of social learning theory with regards to persistent offending among women should be considered in public policy debates. Social learning theory suggests that intervention and prevention efforts should be designed to help offenders relearn conventional behaviors. In effect, offenders are responsible for changing themselves. But given the low level of predictive accuracy of the LSI-R, which is rooted in social learning theory, the research showing that women offenders are members of social networks deficient in social capital (Reisig, Holtfreter, & Morash, 2002), and research reporting that poor women offenders are significantly more likely to reoffend relative to their more economically advantaged counterparts (Holtfreter, Reisig, & Morash, 2004), we support those who advocate for greater governmental resources (or state capital) to meet the needs of women offenders (Morash, 1999, p. 458; also see Hagan & Coleman, 2001).

Another contribution of the present study concerns the replication of Daly's (1992, 1994) pathways framework. Daly's pathways framework is a useful way of capturing heterogeneity in women offenders' prior experiences (e.g., parental and spousal abuse and criminal history), offending context (e.g., presence of a male partner or family member) and social location (e.g., poverty status). We agree with others that constructing subgroups in such a fashion provides, at best, a "loose reflection of reality" (Laub & Sampson, 2003, p. 248), but note that doing so helps reduce the complexity associated with the different factors that give rise to female criminal activity.

Clearly, additional research must be completed to improve the understanding of recidivism among women offenders. We conclude by noting that our motivation here was not to denounce the LSI-R or other risk assessment tools. In fact, we commend the good intentions of the LSI-R's creators. We concur that developing and employing empirically validated actuarial tools rooted in strong theoretical traditions to gauge offenders' risks and needs in a manner that informs correctional practices to potentially reduce discriminatory decision-making, make better use of scarce resources, and help ex-offenders become productive members of their community are noble objectives. Coupled with

existing literature, the results from this study suggest that more work needs to be completed before one can convincingly argue that we have achieved the desired ends.

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