GENDER DISPARITY IN THE PREDICTION OF RECIDIVISM: THE ACCURACY OF LSI-R MODIFIED

by

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ABSTRACT

During the last 50 years, the rate at which females enter the correctional system has increased exponentially. Despite this influx, risk assessment instruments remain geared toward male offenders. The Level of Service Inventory-Revised (LSI-R) is considered by some to be one of the most predictive and comprehensive risk instruments, but critics assert that this instrument neglects risk factors salient for female offenders. This study examined whether modifying the LSI-R to assess gender responsive variables (i.e., victimization, economic marginality, and "gendered" substance abuse) would result in an improved assessment of recidivism risk over the original LSI-R. Participants were 37 male and 26 female offenders incarcerated at community corrections centers and county jails in a southeastern state.

The study found that the inclusion of all the gender responsive crime variables did not increase the predictive accuracy of the LSI-R. However, the victimization domain performed better than the other gender responsive variables in increasing the predictive accuracy of the LSI-R, while not impacting the predictive accuracy for male offenders. Furthermore, the victimization domain accounted for a significant amount of variability in the rearrest status, of both male and female offenders, above and beyond that predicted by the LSI-R risk score. Implications regarding the assessment of dynamic victimization factors in risk evaluation practices are discussed.

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LIST OF ABBREVIATIONS AND SYMBOLS

a	Index of internal consistency
AUC	Area under the curve: In an ROC analysis, the probability that a classifier will rank a randomly chosen positive instance higher than a randomly chosen negative one
x^2	Chi-square coefficient: Indicates if the model with the predictors is significantly different from the model with only the intercept.
M	Mean: the sum of a set of measurements divided by the number of measurements in the set
SD	Standard deviation: the measurement of variability or dispersion of a data set
p	Probability associated with the occurrence under the null hypothesis of a value as extreme as or more extreme than the observed value
r^2	Pearson product-moment correlation squared: coefficient of determination
Z	Standard score: difference between one value in a distribution and the mean of the distribution divided by the *SD*
t	Computed value of *t* test
>	Greater than
<	Less than
=	Equal to

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CHAPTER 1

INTRODUCTION

As society has changed over the last 50 years, so has the rate at which females enter the correctional system. Although females encompass a small percentage of offenders, accounting for 23.2% of all arrests and 6.9% of all prison inmates (National Criminal Justice Reference Service, 2006), their increase in the system is cause for concern. During 2006 alone, the number of females in federal and state prisons increased 4.5%, while the number of men in prison rose only 2.7% (Bureau of Justice Statistics [BJS], 2007). As such, it is important that research be conducted to develop a better understanding of the issues that may contribute to the rise in female incarceration, particularly with regard to risk assessment and rehabilitation programs. Through adequate risk assessments and appropriate rehabilitation programs the correctional system may be able to abate the expanding female offender population. To understand how these issues apply to females, one must first understand the history of correctional rehabilitation and correctional risk assessment.

In the 1970s, there was a shift away from rehabilitation in corrections to an emphasis on the increased use of sanctions. This stemmed from public and political doubt regarding the effectiveness of rehabilitation, most notably Martinson's influential "nothing works doctrine" which stated that "the rehabilitative efforts that have been reported so far have had no appreciable effect on recidivism" (Martinson, 1974, p. 25 as cited in Cullen & Gendreau, 2001). However, the subsequent 30 years have provided evidence of the positive impact of rehabilitation programs on recidivism (Aos, Miller, & Drake, 2006; Bonta & Cormier, 1999;

Bourgon & Armstrong, 2005; Cullen & Gendreau, 2001; Welsh, 2004). Even Martinson, by 1979, "had publicly rejected the 'nothing works doctrine' based on data from a follow-up study that, due to his death, was never published" (Cullen, 2005, p. 8).

One of the problems with initial attempts at rehabilitation intervention was the use of a one-size-fits-all model, which failed to take into account "that the level of treatment should match the risk level of the offender" (Bonta, 1997, p. 1). "Risk" refers to the probability of reoffending and not necessarily to the seriousness of the crime, as is often assumed (Lowenkamp & Latessa, 2004). The relation between risk assessment and treatment planning has been outlined by the Risk Principle, which states "higher risk offenders require intensive levels of treatment services while low risk offenders require minimal levels of treatment" (Bonta, 1997, p.1). Also, treatment must address the offender's criminogenic needs (Blanchette & Taylor, 2005; Bonta, 1997; Pealer & Latessa, 2004), a concept referred to as the Need Principle (Bonta, 1997). Criminogenic needs, also known as dynamic risks, are offender risk factors that, when changed, are associated with changes in recidivism.

Rehabilitation programs that adhere to the Risk and Need Principles have been found to be superior to other programs in terms of reducing recidivism (Andrews at al., 1990; Andrews, Bonta & Wormith, 2006; Bourgon & Armstrong, 2005). For example, programs such as Cognitive Behavioral Therapy, Aggression Replacement Training, Moral Reconation Training, and Reasoning and Rehabilitation select dynamic risk factors (e.g., antisocial attitudes, peer associations, and current substance dependence) as intermediate targets of change and provide services that are commensurate with an individual's level of risk (Milkman & Wanberg, 2007). A meta-analysis by Dowden and Andrews (1999) examined the effectiveness of rehabilitation programs in reducing recidivism and revealed that the mean effect size of programs that adhered

to the risk principle (r = .19) or need principle (r = .26) were significantly larger than the mean effect size: of programs that did not adhere to the risk principle (r =- .04) or need principle (r = .04). Bourgon and Armstrong (2005) found that individuals who had been appropriately matched to level of service (e.g., 5, 10 or 15 weeks program) were significantly less likely to recidivate than those who had not been appropriately matched to level of service. Therefore, the ability to effectively help offenders is directly linked to the assessment of risk of recidivism and need for treatment.

Measuring risk

There are two distinct paradigms utilized in current risk assessments in correctional settings: violence risk assessment and correctional risk classification. Violence risk assessment measures were developed to predict the likelihood that a psychiatric patient or violent offender would commit a violent act. Research into the prediction of dangerousness stemmed from the Supreme Court decision in *Baxstrom v. Herald* (1966) which held that an individual could only be committed to a psychiatric institution if deemed to be 'dangerously mentally ill' by a judicial review instead of being informally deemed 'dangerous' by a clinician. This decision caused the determination of 'dangerousness' to face an unprecedented level of legal scrutiny and, as such, the issue of 'dangerousness' continued to take the forefront in cases such as *Dixon v. Attorney General of the Commonwealth of Pennsylvania* (1971), *O'Conner v. Donaldson* (1975), *Addington v. Texas* (1979) and *Barefoot v. Estelle* (1983). The aforementioned cases highlighted the inaccuracies of clinical predictions of 'dangerousness' and the need for further research (Conroy & Murrie, 2007; Douglas, Cox & Webster, 1999). In response to this legal pressure, researchers began to empirically examine the risk factors associated with violent acts and to develop actuarial violence risk assessment measures that decreased the subjective clinical determination of 'dangerousness' (see Conroy & Murrie, 2007; Douglas et al., 1999; Heilbrun, Ogloff & Picarello, 1999; Quinsey, Harris, Rice & Cormier, 1998 for detailed history of the violence risk assessment paradigm).

Despite the contributions of the violence risk assessment paradigm, a substantial portion of prisoners in the United States (47%; BJS, 2007) and Canada (75%; Statistics Canada, 2007)

are considered nonviolent offenders[1] and engage in nonviolent misconduct (e.g., rule violations in prison, parole/probation violation, drug trafficking, drug possession, burglary, fraud and larceny). As such, a separate paradigm of risk assessment evolved with a different history and different set of empirically supported risk factors. Although violence risk assessments instruments (e.g., PCL-R, VRAG, HCR-20) will be discussed, these measures will be addressed within the context of the correctional risk classification paradigm, not their role in predicting violence.

The correctional risk classification paradigm began in the 1970s, when the political doubt in the effectiveness of offender rehabilitation and concurrent legal scrutiny prompted exploration into how correctional facilities function. Court cases, such as *Palmigiano v. Garrahy* (1977), *Pugh v. Locke* (1976), and *Ramos v. Lamm* (1981) found that a large number of state prisons were in such deplorable conditions, these facilities could be considered inhumane and unconstitutional (Clements, 1996). Court officials in *Palmigiano v. Garrahy* (1977) and *Ramos v. Lamm* (1981) demanded that prisons address and correct their arbitrary classification systems. These court cases emphasized the need for empirically supported classification systems to determine the most cost-efficient allocation of scarce correctional resources (Clements, 1996) and, as such, the topic of correctional risk classification received considerable empirical attention.

According to Bonta (1997), the history of risk classification can be described as consisting of three generations of risk assessments. Thirty years ago, the correctional system relied upon the "first generation" approach of subjectively assessing an offender's risk (Bonta, 1997). Using this approach a professional within the correctional system, based on past

[1] "Defined as an offender convicted of property, drug, and public order offenses that did not involve a threat of harm or an actual attack upon a victim" (BJS, 2004b, p. 1).

experiences and training, would make a judgment of the offender's risk level. A variation of this approach, entitled 'structured professional judgment,' involves the use of measures, such as the Historical, Clinical, and Risk Management scheme (HCR-20; Webster, Douglas, Eaves & Hart, 1997), which attempts to structure a professional's clinical judgment (Andrews et al., 2006). This measure consists of 20 factors and causes the professional to focus on three areas related to risk: historical (e.g., past offenses, prior release failures), clinical (e.g., mental status), and risk management (e.g., potential stressors in community). Although non-structured professional judgment has never been empirically validated, according to Andrews and Bonta (2003) this approach is widely used in risk assessments in correctional settings.

Unlike first generation risk assessments, second generation risk assessments involve the consideration of objective criteria (e.g., prior criminal charges or other antisocial behavior, age at first offense, and severity of offense) that research indicates is criminogenic (i.e., related to criminal behavior). Most importantly, the presence or absence of these risk factors then determines a composite score that helps guide conclusions about risk classification level. Examples of these types of assessment instruments include the Psychopathy Checklist–Revised (PCL-R; Hare, 1991), Violence Risk Appraisal Guide (VRAG; Quinsey et al., 1998), Statistical Information on Recidivism (SIR; Nuffield, 1982), and Salient Factor Score (SFS; Hoffman, 1994).

While these actuarial risk scales developed during the second generation have been shown to be better at predicting recidivism than subjective judgment, they are limited by their reliance on static risk factors (Bonta, 2002). Static risk factors are variables that cannot be changed and, while correlated with risk, do not provide any information about possible treatment plans: Examples of static factors include age of first offense, type of offense committed and other

criminal history items. Examining only static factors causes the correctional system to subscribe to the narrow “once a criminal, always a criminal” philosophy.

Third generation assessment instruments improved upon second generation methods by assessing both dynamic and static risk factors (Bonta, 2002; Lowenkamp & Latessa, 2004). Dynamic risk factors (e.g., peer interactions, current drug problems, attitude toward sentence, recent employment) are variables that can change with or without intervention. As mentioned earlier, dynamic risk factors must be addressed in treatment in order to lower recidivism (Blanchette & Taylor, 2005; Bonta, 1997; Pealer & Latessa, 2004). According to Bonta (1997), third generation assessment instruments contain all the advantages of the second generation instruments, and also assist in treatment planning by identifying offender specific risk factors that will serve as a guide for treatment.

One assessment instrument that is based on the risk-needs orientation is the Level of Service Inventory-Revised (LSI-R; Andrews & Bonta, 1995). The LSI-R is a commercially available, semi-structured interview that assesses 54 risk-need items within 10 domains: Criminal History; Education/Employment; Financial; Family/Marital; Accommodation; Leisure/Recreation; Companions; Alcohol/Drug Problems; Emotional/Personal; and Attitudes/Orientation. Of note, while research studies refer to this instrument by different names (e.g., Level of Supervision [LSI], LSI-R), Andrews and Bonta (2001) state “all of the research studies used essentially the same instrument” (p. 35) and, as such, they used the findings from these studies to describe the psychometric properties and utility of the LSI-R. Although initially designed for determining the level of supervision required for probationers and offenders with sentences of less than two years, the LSI-R has been shown to be effective in predicting violence (Andrews et al., 2006; Bonta, 1989; Bonta & Motiuk, 1992; Gendreau, Little, & Goggin, 1996;

Gendreau, Goggin, & Smith, 2002; Mills, Kroner, & Hemmati, 2003), as well as general recidivism (Andrews et al., 2006; Andrews & Bonta, 2001; Barnoski & Aos, 2003; Bonta & Motiuk, 1992; Gendreau et al., 1996; Gendreau et al., 2002; Hemphill & Hare, 2004; Kroner, Mills, & Reddon, 2005; Mills et al., 2003; O'Keefe, Klebe, & Hromas, 1998; Simourd, 2004).

Support for the LSI-R

A review of the literature indicates that since 1982, over fifty published studies or agency reports examined the psychometric properties and/or predictive utility of the LSI-R; the majority of these studies used samples of male offenders from the United States or Canada. In general, the findings have been positive and support the use of the LSI-R in predicting recidivism for male offenders. With regard to the instrument's psychometric properties, the internal consistency for the LSI-R composite score ranged from an alpha of .71 to .96 (e.g., Andrews, 1982; Andrews & Bonta, 2001; Bonta & Motiuk, 1985; Kelly & Welsch, 2008; Loza & Simourd, 1994; Simourd, 2004; Stevenson & Wormith, 1987). One month test-retest reliability has ranged from an alpha of .88 to .99 (Andrews, 1982; Andrews & Bonta, 2001; Andrews & Robinson, 1984) and an alpha of .80 was found when offenders were reassessed after two months (Andrews, 1982; Andrews & Bonta, 2001). Inter-rater reliability has ranged from an alpha of .80 to .92 (Andrews, 1982; Andrews & Bonta, 2001; Andrews & Robinson, 1984).

Along with the reliability of the LSI-R, the predictive validity of the measure has also been explored. With regard to male offenders and recidivism, validity estimates using Pearson correlation coefficients ranged from .26 to .50 on measures of general rearrest (e.g., Andrews et al., 2006; Andrews & Bonta, 2001; Barnoski & Aos, 2003; Gendreau et al., 2002; Hemphill & Hare, 2004; Mills et al., 2003; Simourd, 2004) and ranged from .31 to .46 on measures of reconviction (Andrews & Bonta, 2001; Kroner & Mills, 2001; Kroner et al., 2005). The validity

estimates on measures of violent recidivism (e.g., rearrest for assault) were lower (range of .16 to .29), but still deemed acceptable by researchers (Andrews et al., 2006; Bonta, 1989; Bonta & Motiuk, 1992; Gendreau et al., 1996; Gendreau et al., 2002; Mills et al., 2003). Validity estimates ranged from .19 to .41 on measures of institutional misconduct (Andrews & Bonta, 2001; Bonta, 1989; Bonta & Motiuk, 1987; Bonta & Motiuk, 1992; Gendreau, Goggin, & Law, 1997; Kroner & Mills, 2001) and ranged from .29 to .52 on measures of parole violations or halfway house revocation (Andrews & Bonta, 2001; Bonta & Motiuk, 1985; Bonta & Motiuk, 1987; Kroner & Mills, 2001; Kroner et al., 2005).

The predictive utility of the LSI-R has been compared with other risk assessment measures, most commonly the Psychopathy Checklist–Revised (PCL-R; Hare, 1991). The PCL-R is a second generation risk instrument that assesses psychopathy and is commonly used to gauge the risk level for offender populations (Andrews et al., 2006; Blanchette & Brown, 2006; Gendreau et al., 2002). The PCL-R, also a semi-structured interview, consists of 20 items that are scored on a three-point scale (e.g., 0 = item does not apply, 1 = item applies somewhat, 2 = item fully applies; Blanchette & Brown, 2006). Although the LSI-R and PCL-R highly correlate with one another (r = .78, Loza & Simourd, 1994; or r = .76 Basile, 2005), research has shown that the LSI-R is a slightly better predictor of general recidivism (r = .36 or r = .38) than the PCL-R (r = .27 or r = .25; Andrews et al., 2006; Gendreau et al, 2002). However, there was essentially no difference between the LSI-R and PCL-R in predicting violent recidivism (r = .25 vs. r = .27, respectively; Andrews et al., 2006).

Besides the PCL-R, the LSI-R has been compared to other risk assessment measures such as the HCR-20, SFS, and VRAG. Although the LSI-R produced slightly higher correlations than some measures, it should be noted that none of these results indicated that the LSI-R was

significantly superior to the other risk assessment measures. The HCR-20 and LSI-R highly correlate with one another (r = .80; Dahle, 2002), but Dahle (2002) found that the LSI-R was slightly more associated with reincarceration than the HCR-20 (r = .41 vs. r = .37, respectively). Kroner and Mills (2001) revealed that the LSI-R and the HCR-20 had similar predictive accuracy on measures of violent reconviction (r = .19 vs. r=.16, respectively), nonviolent reconvictions (r = .24 vs. r = .21, respectively), and parole violations (r = .45 vs. r = .39, respectively). In addition, the LSI-R was more strongly associated with measures of recidivism than the SFS (r = .33 vs. r = .26 respectively; Gendreau et al, 1996) and the LSI-R was more strongly associated with measures of reconviction than the VRAG (r = .34 vs. r =.28 respectively; Kroner & Mills, 2001).

Although the majority of research involving the LSI-R has used male American or Canadian samples, some research has been devoted to exploring the predictive validity of the LSI-R in minority and European offender samples. Bonta (1989) stated that the LSI-R has predictive utility for the Aboriginal people of Canada for measures of institutional misconduct (r =.26), parole violations (r = .51), and recidivism (r = .35). Research conducted in Europe indicates that the LSI-R is acceptable for use with German male offenders when predicting reincarceration (i.e., correlation range from .29 to .41; Dahle, 2002), and for use with British male offenders when predicting reconviction (r = .36; Raynor, 2007).

In addition to minority and European offenders, subsequent research on the LSI-R has included female samples. Research has found statistically significant predictive accuracy for female offenders in terms of general recidivism (Barnoski & Aos, 2003; Coulson, Ilacqua, Nutbrown, Giulekas, & Cudjoe, 1996), reconviction (Folsom & Atkinson, 2007; Palmer & Hollin, 2007; Raynor, 2007), reincarceration (Flores, Lowenkamp, Smith, & Latessa, 2006;

Lowenkamp, Holsinger & Latessa, 2001), parole failure (Coulson et al., 1996; Salisbury, Van Voorhis, & Spiropoulos, 2008), prison misconduct (Salisbury et al., 2008), and halfway house failures (Coulson et al., 1996). According to Andrews and Bonta (2001), LSI-R norms have been established for female offenders based the data of 1414 female offenders. Due to the aforementioned results from research utilizing female samples, researchers (e.g., Andrews & Bonta, 2001; Gendreau et al., 1996) consider the LSI-R to be gender neutral (i.e., as applicable to male offenders as female offenders).

Proponents of the LSI-R credit its reliance on Social Learning Theory (SLT; Bandura, 1977) as the reason the measure has high predictive validity and is applicable to diverse offender populations (Andrews et al., 2006; Andrews & Bonta, 2003; Bonta, 2002). The LSI-R, like all treatment and risk assessments, relies on the assumption that the reasons individuals commit crimes can be understood and assessed. According to SLT, behavior is learned and individuals develop patterns of behavior through imitation. Andrews and Bonta (2003) apply the principles of SLT to explain criminal behavior through a theoretical model entitled the "Personal, Interpersonal and Community-Reinforcement" perspective (PIC-R). According to this model, imitation of deviant behaviors is made possible when an individual associates with other individuals who commit, model, and/or support criminal activities, and this is particularly true when criminal activities are more prevalent than prosocial behaviors (Andrews & Bonta, 2003; Blanchette & Brown, 2006). The learned criminal behaviors become entrenched when people see that criminal behavior can result in positive outcomes (e.g., gaining control of others, and providing material gains) and when punishment (e.g., peer disapproval, legal sanctions) for this behavior is deemed unlikely (Andrews & Bonta, 2003; Currie, 2006). As the individual's beliefs, attitudes, and rationalizations become more favorable toward committing crime, the likelihood of

the individual remaining on a criminal trajectory increases (Andrews & Bonta, 2003; Blanchette & Brown, 2006).

Criticism of LSI-R

Even though the LSI-R has been described as having the "strongest research pedigree" (Hollin, 2002, p. 309), Austin and McGinnis (2004, p. 18) point out that most of the research conducted on the LSI-R has been by "researchers with a direct financial interest in its profitability" (i.e., Don Andrews and James Bonta). As such, agencies (e.g., state departments of corrections) that have examined the psychometric properties of the LSI-R tend to indicate less impressive reliability estimates (e.g., Austin, Coleman, Peyton, & Johnson, 2003; O'Keefe et al., 1998) than those found by other researchers. For example, Austin and colleagues (2003) indicate that members of the Pennsylvania Board of Probation and Parole had acceptable inter-rater reliability (i.e., alpha greater than .8) on only 18 of 54 LSI-R items. Even after intensive training, these members had acceptable reliabilities on only 34 of 54 items.

Although internal consistency for the overall measure has been empirically established for male offenders (e.g., Andrews & Bonta, 2001; Bonta & Motiuk, 1985; Kelly & Welsch, 2008; Loza & Simourd, 1994), research indicates that the internal consistency of the LSI-R domains vary substantially (α = .26 to .86; Andrews & Bonta, 2001; Simourd, 2004; Stevenson & Wormith, 1987). The consistency for the financial domain was lowest (α = -.26 to .46) and this has been attributed to the fact that this domain has only two items (Andrews & Bonta, 2001; Simourd, 2004). The family/marital domain also tends to have low internal consistency ranging from .28 to .59 (Andrews & Bonta, 2001; Simourd, 2004; Stevenson & Wormith, 1987). The highest internal consistency was for the alcohol/drug domain which ranged from .80 to .86 (Andrews & Bonta, 2001; Simourd, 2004; Stevenson & Wormith, 1987).

In addition to different domain internal consistency estimates, the domains differed in their predictive utility when comparing minority offenders to their Anglo-Saxon counterparts (Bonta, 1989; Schlager & Simourd, 2007). For example, Bonta (1989) found that the financial and accommodation domains were unable to predict recidivism (i.e., parole violations, reincarceration) for Aboriginal Canadians, but these domains had acceptable predictive utility for the non-minority sample. Holsinger, Lowenkamp, and Latessa (2003) revealed that Native Americans scored significantly higher on seven of the ten domains (i.e., criminal history, education, financial, family/marital, accommodation, leisure/recreation, alcohol/drug) than their non-minority counterparts. A follow-up study by Holsinger, Lowenkamp, and Latessa (2006) indicated that there was a nonsignificant correlation between LSI-R composite scores and rearrest for Native Americans (r = .11), while a significant correlation was found for non-Native Americans (r = .22); No specific information was provided about the predictive utility of individual domains. Research utilizing African American and Hispanic offender samples indicated nonsignificant predictive validity estimates and an increased rate of misclassification (Schlager & Simourd, 2007; Whiteacrea, 2006). Schlager and Simourd (2007) found that only two domains (i.e., education and family/marital) could distinguish African Americans who were rearrested from their non-rearrested counterparts. No domains were able to distinguish Hispanic recidivists from nonrecidivists. Furthermore, with regard to the Hispanic sample, two domains (i.e., accommodation and leisure/recreation) were found to have a negative internal consistency rating.

Although the proponents of the LSI-R claim that the measure is bias-free and gender neutral, the aforementioned research (e.g., Bonta, 1989; Holsinger et al., 2003; Holsinger et al., 2006; Schlager & Simourd, 2007; Whiteacrea, 2006) indicates that racial differences exist and

critics (e.g., Reisig, Holtfreter, & Morash, 2006; Salisbury et al., 2008) postulate that the LSI-R also exhibits gender differences. In order to understand the position of these critics, one must address the following factors related to the LSI-R literature. First, there are methodological concerns regarding Coulson and colleagues' (1996) study, which is considered the strongest evidence that the LSI-R is gender neutral. Second, research examining the predictive utility of the LSI-R revealed nonsignificant associations between LSI-R composite scores and recidivism, which indicates that the LSI-R may produce an unacceptable level of misclassification for female offenders (Holsinger et al., 2006; Holtfreter, Reisig, & Morash, 2004; O'Keefe et al., 1998; Reisig et al., 2006; Salisbury et al., 2008). Third, the domains of the LSI-R have also been found to differ significantly between gender with regard to mean scores and predictive utility (Heilbrun et al., 2008; Holsinger et al., 2006; Holtfreter et al., 2004; Palmer & Hollin, 2007; Salisbury et al., 2008). Fourth, research (e.g., Holtfreter & Morash, 2003; Holtfreter et al., 2004; Reisig et al., 2006; Salisbury et al., 2008; Van Voorhis, Peiler, Presser, Spiropoulis, & Sutherland, 2002) "suggest[s] that the LSI-R might be more predictive for women with the inclusion of gender-responsive variables (e.g., relationships, parenting, child abuse, and self-efficacy)" (Van Voorhis, 2002, p. 25). Finally, some of the criticism of the LSI-R stems from a broader critique regarding the applicability of SLT to explain female offending (Reisig et al., 2006).

Coulson and colleagues' (1996) article is most often cited as the study that found the LSI-R to be empirically justified for use with female offenders (e.g., cited in Andrews & Bonta, 2001; Girard & Wormith, 2004; Schlager & Simourd, 2007; Simourd, 2004). What is often overlooked, however, is that the researchers did not use the standard form of the LSI-R, but instead made important changes to the scoring and administration of the measure. Instead of the typical paper and pencil, semi-structured interview, the LSI-R was self-administered on a

computer (Coulson et al., 1996). Furthermore, a scoring adjustment was made to the employment domain of the LSI-R. In this study, full-time child care was considered employment because the authors wanted to "reflect the reality of women's involvement in child rearing" (Coulson et al., 1996, p. 436). There was no comparison data of these LSI-R scores with a traditional administration of the LSI-R.

Although Coulson and colleagues (1996) found atypically high correlations for parole failure (r = .53) and recidivism (r =.51), some research has found nonsignificant correlations when utilizing the LSI-R with female offenders (Holsinger et al., 2006; Holtfreter et al., 2004; O'Keefe et al., 1998; Reisig et al., 2006; Salisbury et al., 2008). The nonsignificant validity estimates ranged from .05 to .16 on measures of rearrest (Holsinger et al., 2006; Holtfreter et al., 2004; Reisig et al., 2006; Salisbury et al., 2008), and was .08 for reincarceration (O'Keefe et al., 1998). Furthermore, Holsinger and colleagues (2006) found a nonsignificant negative correlation between LSI-R composite scores and rearrest (r = -.13) for Native American female offenders.

Even the research that demonstrated significant predictive utility for the LSI-R suggested that there are gender differences with regard to the LSI-R domains. For example, research has indicated that male offenders tend to have higher mean scores on the criminal history domain than female offenders (Heilbrun et al., 2008; Holsinger et al., 2003; Palmer & Hollin, 2007). Although "the criminal history domain has the strongest association with [nonviolent and violent] recidivism" for male offenders (Barnoski & Aos, 2003, p. 4), research has found only nonsignificant correlations for female offenders (Holtfreter et al., 2004; Salisbury et al., 2008). Male offenders also had significantly higher mean scores on the leisure/recreation and attitudes domains in comparison to female offenders (Holsinger et al., 2003). The leisure/recreation domain has been found to have a significant negative correlation with recidivism for female

offenders (Salisbury et al., 2008). As Palmer and Hollin (2007, p. 981) stated "together these findings suggest that among women prisoners, some LSI-R subscales are less important for the overall construct of risk."

Due to concerns about the applicability of the LSI-R with female offenders, researchers have examined the predictive accuracy of the LSI-R with the inclusion of, or as a comparison to, gender responsive variables (Holtfreter & Morash, 2003; Holtfreter et al., 2004; Reisig et al., 2006; Salisbury et al., 2008; Van Voorhis et al., 2002). Reisig and colleagues (2006) examined the LSI-R as it relates to a female offender's history of childhood physical and sexual victimization, adult intimate relationship victimization, and a "gendered" [2] context of drug use (i.e., later drug onset, familial introduction to substance use). Reisig and colleagues (2006) found evidence that the LSI-R over-classified[3] female offenders with a history of childhood (physical and/or sexual) victimization and under-classified[4] female offenders with a "gendered" context of drug use. According to the authors, these misclassifications may occur because the criteria included in the criminal history domain of the LSI-R are not as salient for female offenders. For example, seriousness of the current offense may not be as salient for a female who committed a one-time act against an abuser. Reisig and colleagues (2006) further hypothesized that females who follow a "gendered" context into substance use tend to be under-classified because their arrest record is usually modest and their onset of drug use is more recent (Reisig et al., 2006).

[2] "Gendered" is defined as the 'characteristic of, suited to, or biased toward one gender or the other" (Random House Dictionary, 2009). This term or "gender specific" is commonly used in the literature (e.g., Blanchette, 2000; Belknap & Holsinger, 2008; Bloom, Owen, & Covington, 2003; Hubbard & Matthews, 2008; Neffe & Waite, 2007) and the term "gendered" will be used to convey characteristics or contexts that are unique to females.

[3] In brief, over-classification is the erroneous determination that someone is a high risk offender when in fact he or she will not re-offend. This results in longer sentences, or more strict supervision than is necessary and in turn, results in the unnecessary spending of financial resources.

[4] In contrast, under-classification is the erroneous determination that an individual is a low risk offender when in fact he or she will recidivate.

Van Voorhis and colleagues (2002) found that the addition of gender responsive needs, including child abuse and an expanded substance abuse section, to the LSI-R scores created a classification model with an enhanced ability to predict prison rule violations above the predictive ability of the original LSI-R. Salisbury and colleagues (2008) found a significant correlation between adult intimate relationship victimization and rearrest (r = .17), but found only a nonsignificant correlation between LSI-R composite scores and rearrest; the nonsignificant correlation coefficient was not reported by the authors. Lastly, Holtfreter and colleagues' (2004) findings "suggest that the LSI-R does not adequately take into account the economic marginality of women offenders" (p. 185) and because of this, the "LSI-R should be adjusted or its use modified" (p. 202).

Finally, some of the criticism of the LSI-R is an extension of the critique that SLT, the theoretical basis of the LSI-R, does not adequately explain female criminality (Holtfreter & Cupp, 2007; Morash, 1999; Reisig et al., 2006). There is ample evidence to support the role of SLT in male criminal behavior (Akers & Jensen, 2003; Andrews & Bonta, 2003; Pratt & Cullen, 2000); however, there is a dearth of such research regarding female offenders (Blanchette & Brown, 2006; Holtfreter & Cupp, 2007; Reisig et al., 2006). Some researchers argue that SLT "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" (Morash, 1999, p. 458). The critics of applying SLT to female offenders argue that male-centered theories fail to account for factors that are unique to female criminality, such as domestic abuse, running away from abusive homes, and employment discrimination resulting from gender stereotypes (Chesney-Lind, 1989; Daly & Chesney-Lind, 1988; Funk, 1999; Holtfreter & Morash, 2003; Reisig et al., 2006).

Although there may be debate on whether the LSI-R is an appropriate measure to assess risk potential in female offenders, there is consensus that some risk factors that may be salient for females are being neglected in the existing measures. These potentially neglected or under-assessed factors include victimization (e.g., childhood physical abuse, childhood sexual abuse and domestic abuse), economic marginality, and substance abuse (Benda, 2005; Belknap, 2007; Bloom, 1999; Chesney-Lind, 1997; Cohen, 1998; Covington, 2001; Daly, 1994; Farr, 2001; Hardyman & Van Voorhis, 2004; Henderson, 1998; Holtfreter & Cupp, 2007; Holtfreter & Morash, 2003; Holtfreter et al., 2004; Hubbard & Pratt, 2002; McClellan, Farabee, & Crouch, 1997; Owen & Bloom, 1995; Simpson, 1989; Van Voorhis et al., 2002). Although these factors also affect men, research has indicated that they are more prevalent, and tend to be more severe, in female offenders (Benda, 2005; BJS, 1999b; McClellan et al., 1997). To provide a better understanding of how these factors are connected to female criminality, a brief examination of the prevalence, severity, and criminogenic nature of these factors in female offenders is required.

Victimization

When compared with both male offenders and non-incarcerated females, the rate of childhood sexual abuse and battery in adult intimate relationships among female offenders is high (Browne, Miller, & Maguin, 1999; Chesney-Lind, 1997; Farr, 2001; Forcier, 1995; McClellan et al., 1997; Morash, Bynum, & Koons, 1998). For example, childhood sexual abuse was experienced by 54.3% and 59% of female offenders (Browne et al., 1999; Chesney-Lind, 1997). Additionally, battery in adult intimate relationships was experienced by 75% of female offenders (Browne et al., 1999). Although McClellan and colleagues (1997) found that the prevalence rate of childhood physical abuse did not significantly differ between male and female offenders, research has found that the prevalence of childhood sexual abuse and battery in adult intimate relationships was significantly higher for female offenders than male offenders. Some research indicates that the prevalence rate of childhood sexual abuse ranged from 43% to 65% for female offenders while the prevalence rate for male offenders ranged from 12% to 24% (Belknap & Holsinger, 2008; Dembo, Williams, Wothke, Schmeidler, & Brown, 1992; Morash et al., 1998).

Sampling is an issue that directly impacts the generalizability of victimization prevalence rates for offenders. One of the reasons for the large range in prevalence rates is the manner in which victimization has been assessed. Some research (e.g., McClellan et al., 1997; Morash et al., 1998) involved asking participants if they have been abused, while other research (e.g., Browne et al., 1999; Chesney-Lind, 1997) utilized validated measures or interview questions that assessed the presence or absence of specific behaviors or events without labeling the behavior as

“inappropriate” (i.e., “abuse”). The latter method of asking about specific behaviors tends to produce a higher prevalence rate of abuse for two reasons. First, individuals tend to not label their experiences as “abusive” and, as such, individuals may deny experiencing abuse despite having experienced events that researchers would define as abusive (Browne et al., 1999; Fricker, Smith, Davis, & Hanson, 2003; Hamby & Gray-Little, 2000). Second, this method requires more questions to be asked and as the number of the questions increases the endorsement of abusive behaviors increases (Browne et al., 1999; Finkelhor, 1994; Fricker et al., 2003). Due to the different types and numbers of questions used to assess abuse (e.g., “Have you been physically abused” vs. “Have you ever been repeatedly slapped, hit, kicked or punched”), the rate of abuse for the general public also varies widely (Hinkelman & Bruno, 2008). Specifically, reports of childhood victimization in the general public ranged from 3% to 62% in various studies of childhood sexual and/or physical abuse (Aspelmeier, Elliot, & Smith, 2007; Gorey & Leslie, 1997; Haugaard & Emery, 1989; Kercher & McShane, 1984; Nuttall & Jackson, 1994; Sachs-Ericsson, Tackett, & Hernandez, 2007).

Research has also shown that a history of physical and/or sexual abuse has been linked to subsequent offending for females (e.g., Archwamety & Katsiyannis, 1998; Chesney-Lind, 1997; Gilfus, 1992; Hubbard & Pratt, 2002; Maxfield & Widom, 1996; Owen & Bloom, 1995; Rebellon & Van Gundy, 2005; Siegel & Williams, 2003; Widom, 2000; Widom & Maxfield, 2001) and males (e.g., Dodge, Bates, & Pettit, 1990; Rebellon & Van Gundy, 2005; Rivera & Widom, 1990; Smith & Thornberry, 1995; Widom & Maxfield, 2001). Even though childhood victimization is detrimental for both genders, research indicates that abuse and neglect are more predictive of future offending for females than males (Benda, 2005; Maxfield & Widom, 1996; McClellan et al., 1997). Furthermore, as Hubbard and Pratt (2002) indicate, the higher

prevalence rate of childhood abuse “may disproportionately increase the probability that girls will engage in delinquent behavior as a result of the abuse” (p. 3).

Although some research indicates that victimization is associated with subsequent female offending (e.g., Archwamety & Katsiyannis, 1998; Benda, 2005; Chesney-Lind, 1997; Gilfus, 1992; Hubbard & Pratt, 2002; McClellan et al., 1997; Owen & Bloom, 1995; Richie, 2003; Rivera & Widom, 1990; Widom, 2000; Widom & Maxfield, 2001), Lowenkamp and colleagues (2001) found that childhood physical/sexual abuse did not significantly predict reincarceration in a logistic regression model (p = .58). However, the manner in which abuse was assessed in this study may have influenced the results (Holtfreter & Cupp, 2007). Specifically, Lowenkamp and colleagues (2001) conducted an archival study that analyzed LSI-R scores and an intake interview that included the single question: “Were you a victim of sexual abuse, physical abuse, or incest during childhood?” As noted by the authors, “the results pertaining to abuse might be different if measures of severity, onset, and length of abuse were available, as well as more specific measures of abuse” (Lowenkamp et al., 2001, p. 561). In short, it is unlikely that the complexity of victimization was captured by a single question with no elaboration and, as such, the results of this study should be viewed with caution.

Economic Marginality

Most of the females who are incarcerated in the United States come from low-income communities that are plagued with problems that are linked to persistent poverty and chronic unemployment (Holtfreter et al., 2004; Hunnicutt & Broidy, 2004; Kuhlmann, 2005; McLanahan, Sorensen, & Watson, 1989; Owen & Bloom, 1995; Richie, 2003; Steffenmeier & Haynie, 2000). Although male offenders may also come from low-income communities, economic disadvantage has been found to be more common in female offenders than in male offenders (BJS, 1999b; Owen & Bloom, 1995). For example, BJS (1999b) found that female offenders were more likely to have a monthly income of less than $600 (37%) and to receive welfare assistance (30%) than were male offenders (28% and 8%, respectively).

This economic disadvantage in female offenders has been attributed primarily to caregiver status. That is, female offenders are typically the primary or sole caregiver of dependent children and, as a result, have many absences from work due to unavoidable child care responsibilities (BJS, 1999b; Lo & Zhong, 2006; McGuire, 2002; Owen & Bloom, 1995; Stoloff, Glanville, & Bienenstock, 1999). Recent data indicates that 1.3 million children have an incarcerated mother and seven in ten female offenders have minor children (BJS, 1999b). Also, a higher percentage of female offenders (55.3%), compared to their male counterparts (35.5%), lived with their children during the month prior to their arrest (BJS, 2008a). These incarcerated mothers (41.7%) were more likely to be single parents than were incarcerated fathers (17.2%; BJS, 2008a). Ultimately, the poorest population tends to be single mothers (i.e., average annual income of $13,376), in particular when compared to couples with children (i.e., average annual

income of $28,751) or single individuals without children (i.e., average annual income of $27,992; U.S. Bureau of Labor Statistics, 2005).

Researchers have shown that economic marginality is linked with recidivism for both male and female offenders (Farrington & Painter, 2004; Gendreau et al., 1997; Holtfreter et al., 2004; Reisig et al., 2006). For example, female offenders who lived in poverty[5] were 5.5 times more likely to be rearrested than their non-poverty counterparts (Holtfreter et al., 2004). Furthermore, Wright, Salisbury, & Van Voorhis (2007) found that employment/financial difficulties were correlated with increased prison misconduct for female offenders; a similar relationship between financial difficulties and prison misconduct was revealed for male offenders (Gendreau et al., 1997). Although most research indicates that financial difficulties are problematic for both genders, the results of a longitudinal study found that low childhood family income predicted youthful and adulthood offending more strongly for sisters than for brothers (Farrington & Painter, 2004).

[5] As defined by the U.S. Census Bureau guidelines (2003), poverty is determined by computing the household income before taxes and comparing it to household composition (e.g., size and ages of members). For example, in 2003 a single individual under age 65 who made less than $9,573 fell into poverty status and a single adult (under 65 years) household with eight children who made less than $35,573 fell into poverty status.

Substance Abuse

Substance abuse has been identified as another significant risk factor for reoffending for both male and female offenders (Andrews et al., 2006; Blanchette, 2002). In 2004, nearly one third of state prisoners committed their index offense under the influence of drugs (excluding alcohol) and 17% of state prisoners committed their crime to obtain money for drugs (Mumola & Karberg, 2006). Despite the relative importance for both genders, research indicates that there are substantial differences between male and female offenders regarding substance use. For example, drug use for female offenders is considered more widespread (BJS, 1999b; Blanchette, 1997; Johnson, 2004; Morash et al., 1998; Sanders, McNeil, Rienzi, & Delouth,1997) and more severe than drug use in male offenders (Blanchette, 1997; McClellan et al., 1997; Morash et al., 1998). Female offenders were more likely to receive a drug related charge (29% vs. 19%, BJS, 2008b) and significantly more likely to use substances within a month prior to their sentence than male offenders (43% vs. 34%, McClellan et al., 1997).

With regard to severity of drug use, female offenders have been found to use more hard drugs[6] (e.g., methamphetamine, heroin, crack cocaine) and to be more dependent on illicit drugs than male offenders (BJS, 2006; McClellan et al., 1997). For example, female offenders (17%) were more likely than male offenders (10%) to report use of methamphetamines in the month before their offense (BJS, 2006). McClellan and colleagues (1997) found that heroin and crack cocaine use was significantly higher among female offenders (35% and 54%, respectively) than

[6] Hard drugs are conceptualized as substances that have more severe physical addictive and medical consequences. Although the distinction is not made in U.S. drug policy, the distinction between hard and soft drugs is fundamental to the drug policy of various countries (e.g., Netherlands, Canada, Belgium, and Germany) and is a distinction commonly used in the substance use literature (e.g., Peretti-Watel, 2005; Timmermans, Van Lier, & Koot, 2007)

male offenders (23% and 32.6%, respectively). The authors also found that female offenders (45.4%) were significantly more likely to meet DSM-III-R criteria for dependency on illicit drugs than were male offenders (32.19%). The only substance that was shown to be more problematic (e.g., dependent status, recency of use) for male offenders than female offenders was alcohol (McClellan et al., 1997).

Although most risk measures, including the LSI-R, contain questions that assess substance use, these measures do not account for gender-specific aspects of substance use such as trajectory of entry and the role of childhood abuse. With regard to trajectory of entry, research indicates that females tend to be introduced to drugs through familial or intimate partner relationships (Covington, 2002; Henderson & Boyd, 1995; Henderson, Boyd, & Mieczkowski, 1994; Hser, Anglin, & McGlothlin, 1987; Langan & Pelisser, 2001; Wanberg & Milkman, 1998). Family members or partners may continue to supply the female with substances and, in turn, the female may assist in the manufacturing and/or distributing of the substances (Covington, 2002; Langan & Pelisser, 2001; Reisig et al., 2006; Wanberg & Milkman, 1998).

Furthermore, research indicates that childhood physical and/or sexual abuse is related to subsequent substance abuse for female and male offenders (BJS, 1999a; Covington, 2002; Ireland & Widom, 1994; Langan & Pelisser, 2001; McClellan et al., 1997). An estimated 76% of abused male offenders and 89% of abused female offenders used illegal drugs regularly, compared to 68% and 65% of their non-abused counterparts, respectively (BJS, 1999a). Although abused individuals, regardless of gender, are more likely to succumb to substance abuse, the association between prior childhood physical and/or sexual abuse and substance use has been found to be stronger for female offenders than male offenders (Ireland & Widom, 1994; McClellan et al., 1997). For example, Ireland and Widom (1994) found that females who

experienced childhood abuse were 2.8 times more likely to be arrested for an alcohol and/or drug offense than were non-abused females. Abused males, however, were not significantly more likely to be arrested for these offenses than non-abused males.

Purpose of the Current Study

Risk assessment instruments are utilized to determine appropriate levels of supervision and treatment planning. As previously noted, the Level of Service Inventory-Revised (LSI-R) is thought by some to be the most predictive and comprehensive risk instrument available, but there are concerns regarding its utility with female offenders (Holsinger et al., 2006; Holtfreter et al., 2004; O'Keefe et al., 1998; Reisig et al., 2006; Salisbury et al., 2008). The main purpose of this study was to determine whether modifying the LSI-R to assess gender responsive crime variables will result in a better assessment of recidivism risk than the original LSI-R. The LSI-R was modified to include items that assess victimization, economic marginality, and "gendered" substance abuse. The modified LSI-R is referred to as the LSI-R Mod in the remainder of this document.

Hypothesis 1

Previous research has questioned the LSI-R's applicability for female offenders and suggested that the inclusion of victimization, economic marginality and "gendered" substance use would increase the predictive accuracy of the LSI-R for female offenders. The LSI-R Mod, which includes gender responsive variables, will be more accurate than the LSI-R in predicting recidivism for female offenders than for male offenders. Recidivism is defined as rearrest during the first six months post-release.

Hypothesis 2

Research suggests that the criminal history domain is not as salient a factor for female offenders in comparison to male offenders (Heilbrun et al., 2008; Holsinger et al., 2003; Holtfreter et al., 2004; Palmer & Hollin, 2007; Reisig et al., 2006; Salisbury et al., 2008). In fact, this domain has been blamed for the over-classification of abused women as potential recidivists (Reisig et al., 2006). Therefore, it is hypothesized that as scores increase on the Childhood Experience of Care and Abuse Questionnaire (CECA.Q), the predictive ability of the criminal history domain will decrease for female offenders.

Hypothesis 3

Past research has suggested that female offenders who have a "gendered" context of substance use are under-classified with the LSI-R. This may be due to the absence of other risk factors (e.g., age of first offense, type of offense) in the female offender that are considered salient in the LSI-R. A characteristic of the "gendered" context of substance use is a later age of drug onset, a factor that is not assessed in the LSI-R. Therefore, as the age of onset of substance use increases, the predictive ability of the criminal history domain will decrease for female offenders.

Hypothesis 4

Lowenkamp and collegues (2001) indicated that the mere presence of abuse is not sufficient to improve the predictive accuracy of the LSI-R. However, there is research which suggests that female offenders experience more abuse, and for a longer duration, than the general population. Therefore, as the scores increase on the CECA.Q and Women's Experience with Battery Scale (WEB), the accuracy of the LSI-R Mod to predict rearrest status will increase for

female offenders. Furthermore, as the length of abuse history increases, the accuracy of the LSI-R Mod to predict recidivism will increase for female offenders.

CHAPTER 2

Method

Participants

Participants were selected from county jails and community corrections sites in a southern state in the United States. Although there may be differences between offenders sentenced to community corrections and offenders sentenced to county jail, these individuals tend to be nonviolent offenders (BJS, 2004a; Nieto, 1996) and, as such, are considered to be a homogenous population for research purposes (e.g., BJS, 1999a). Participants were eligible for the study if they had been court-ordered to serve a sentence in community corrections or in the county jail; offenders who were awaiting trial in the county jail were excluded.

Eighty-nine individuals (40 females, 49 males) were approached to participate in the study and of these, 74 (35 females, 39 males) agreed and completed the assessment battery. The 15 potential participants who refused stated that their decision was based on their desire to maintain privacy. The data obtained on 11 participants (nine females, two males) were excluded because they had not been in the community for at least six months or longer. The final sample size consisted of 63 participants (26 females, 37 males). Demographic information collected on the sample included age, gender, dependent status, racial composition, education level, relationship status, length of sentence, and current charge (see Table 1).

Table 1

Demographic Variables for Overall Sample, Female Offenders and Male Offenders

Variable	Overall *N* = 63	Females *N* = 26	Males *N* = 37
	Age and education		
Age Mean	33.4 years	32.46 years	34.14 years
Age Range	19 to 54	21 to 52	19 to 54
Percent with minor children	61.9 %	76.9 %	51.4 %
Mean years of education completed	11	10.73	11.14
Education range	6 years to Masters Degree	6 years to Associate Degree	7 years to Masters Degree
	Racial Composition		
African American	15.9 %	11.5 %	18.9 %
Caucasian	84.1 %	88.5 %	81.1 %
	Relationship status		
Single (never married)	19.0 %	11.5 %	24.4 %
Living with partner (never married)	12.7 %	19.2 %	8.1 %
Married	11.1 %	19.2 %	8.1 %
Divorced or separated	57.2 %	53.8 %	59.4 %
	Current charge[a]		
Violation of probation	38.1 %	34.6 %	40.5 %
Drug offense	55.6 %	53.8 %	56.8 %
Non violent crime (e.g., check fraud)	57.2 %	57.7 %	56.8 %
Violent crime	11.1 %	3.8 %	16.2 %
Mean length of sentence	154.07 days	74.56 days	186.63 days
	Recidivism		
Rearrested	20.6 %	30.8 %	13.5 %
Number of rearrests	.29[b]	.38	.22
Number of charges	.37	.42	.32

[a] Note: For participants with multiple charges, each charge was considered separately.
[b] The variables “number of rearrest” and “number of charges” produced a positively skewed distribution. Fifty participants (79.4%; 32 males, 18 females) did not recidivate.

Research Site

The study was conducted in community corrections centers and county jails throughout a southern state. Written permission for access to these sites was granted by the Director of Correctional Psychology Services and the Director of Community Corrections. The county jail and community corrections sites utilized depended on the interest of the directors of these sites and/or the sheriff of the county. Sheriffs and directors who declined to participate cited safety concerns (i.e., thought it would be dangerous to have the researcher near the offenders), and staff inconvenience as primary reasons for their decision. Of the fifty-one sheriffs contacted, eight signed a letter of approval granting the researcher permission to conduct the study in the county jail. Of the 12 community corrections directors contacted, permission was obtained from three directors, but participants were successfully recruited from only two of the three community corrections sites. Participants were not recruited from the 3rd site due to the limited numbers of eligible participants and refusal by potential participants (i.e., five out of the 15 participants who refused were from this site).

Procedure

The assessment battery required approximately one to two hours to complete (average of one-and- a-half hours) and was conducted on an individual basis, either in a private space (e.g., attorney room) or in a private visitation room. Prior to beginning the study, participants were informed that they would receive one snack food and one beverage to compensate them for their time. The informed consent document and all other measures were read aloud to each participant by the researcher. Reading the documents aloud provided control over any problems that could arise due to low literacy.

After obtaining informed consent, all participants completed a demographics questionnaire (see Appendix A) that included the following variables: (1) gender; (2) end of sentence date; (3) education level; (4) marital status; (5) type of offense; and (6) length of sentence. Due to possible carryover effects (i.e., the positive or negative effect that the completion of one measure may have on subsequent measures) and maturation threat (i.e., the negative effect that fatigue or inattention may have on latter measures), the order of the remaining measures differed for each participant. Specifically, 50% of the participants were given the LSI-R[7] followed by the gender responsive measures in the following order: (1) victimization (see Appendices B to D); (2) economic marginality (see Appendix E); and (3) drug history (see Appendix F). The other half of the participants were given the gender responsive measures (in the same order as above), followed by the LSI-R. Although a large carryover effect was not expected, the possibility that the emotional content of one measure (e.g., childhood sexual abuse) may have affected the results of another measure (e.g., LSI-R) warranted controlling for an order effect.

Once the measures were completed, participants were read and asked to sign another consent form (see Appendix G) which requested permission to review their criminal record for the second phase of the study. After meeting with the participant, the researcher obtained collateral information about criminal history variables through a review of the participant's file located at the county jail or community corrections center. It should be noted that three sheriffs and one Director allowed for these reviews and, as such, only 35 participants' (29 male offenders, six female offenders) data were verified. Although there were no major discrepancies between the 35 participants' statements and the information in their records, the researcher statistically controlled for whether or not the information was verified in order to assure that this

[7] The LSI-R is not included in the appendices due to copyright protection.

factor did not affect the results. Rearrest data was collected six months post-release through the Criminal Justice Information System (CJIS).

Measures

Demographic Questionnaire (see Appendix A). The demographic questionnaire was designed by the researcher and consisted of items concerning the participants' age, gender, dependent status, racial composition, education level, relationship status, end of sentence date, current charge, and beginning of sentence date.

Level of Service Inventory-Revised. The LSI-R is a 54-item semi-structured interview that requires between 45 to 90 minutes to complete. The LSI-R is designed to assess the level of service required for an offender (e.g., probation decisions, halfway house placements, security level classification) and is used in community corrections, probation, jail, and prison settings. The items on the LSI-R are either scored dichotomously (i.e., "*yes*" or "*no")* or on a Likert scale that ranges from *0* to *3* (*0* = a very unsatisfactory situation; *3* = a satisfactory situation) in descriptors. The *0* to *3* rating scale is transformed into a "yes" (i.e., 0 or 1) or "no" (i.e., 2 or 3) and answers for the 54 items are computed into a total score. The items on the LSI-R are grouped under the following 10 domains: (a) Criminal History; (b) Education/Employment; (c) Financial; (d) Family/Marital; (e) Accommodation; (f) Leisure/Recreation; (g) Companions; (h) Alcohol/Drug Problems; (i) Emotional/Personal; and (j) Attitudes/Orientation. Higher scores on the entire measure reflect a higher risk for re-offending and a greater need for treatment (e.g., for male inmates a score above 34 indicates a high risk, a score between 14 to 33 indicates medium risk and a score below 13 indicates a low risk of recidivism). The LSI-R contains both dynamic (e.g., peer association and antisocial attitude) and static risk factors (e.g., age at first offense and type of offense).

The LSI-R was normed on 956 Canadian male offenders and on 1414 Canadian female offenders. According to the manual, the LSI-R is appropriate for use with individuals over age 18 regardless of gender, ethnicity/racial background, or type of offense. The internal consistency for the LSI-R composite score ranged from .71 to .96. Test-retest reliability ranged from .88 to .99 when offenders were reassessed within one month, and was equal to .80 when offenders were reassessed after two months. Inter-rater reliability ranged from .80 to .92.

According to the manual, the validity of the LSI-R "has been well established through a large number of research studies and use of a number of different techniques" (Andrews & Bonta, 2001, p. 37). Convergent validity was examined through four studies (i.e., Andrews, Kiessling, Mickus, & Robinson, 1983, 1986; Andrews & Robinson, 1984; Bonta & Motiuk, 1985 as cited in Andrews & Bonta, 2001) that compared LSI-R domains to relevant measures (e.g., MMPI). These studies revealed low to moderate correlations (.14 to .66) between the LSI-R domains and the relevant measures. The lowest correlation was found for the attitudes domain and a measure of 'tolerance of law violations', while the highest correlation was found for the criminal history domain and 'self reported convictions.' The manual states that the "correlation between subcomponents and measures of other concepts were much lower" (p. 38), but no data regarding divergent validity are provided. Criterion and predictive validity was established by predicting the following factors above chance level: "officer judgment of appropriate levels of supervision, officer judgment of success of supervision, actual amount of supervision activity as reflected in casebook entries, early termination of probation versus regular terminations, early closure of probation files versus active supervision, recidivism, multiple reconvictions, reincarceration, self reports of criminal activity, success in correctional halfway houses, and misbehaviors while incarcerated" (p. 38). With regard to discriminant validity, the manual states

that “the false negative rate for the LSI-R is usually found to be 2 to 3 percent” and the “LSI-R has a high (approximately 30 percent) false positive rate” (p. 47).

Childhood Experience of Care and Abuse Questionnaire (CECA.Q; Bifulco, Bernazzani, Moran, & Jacobs, 2005; see Appendix B). The CECA.Q is a self-report questionnaire that assesses lack of parental care (i.e., neglect and antipathy), parental physical abuse, and sexual abuse from any adult before age 17 (Bifulco et al., 2005**)**. The CECA.Q was developed to “mirror an existing validated interview measure: the childhood experience of care and abuse (CECA)” (Bifulco et al., 2005, p. 563). The CECA.Q is designed to assess for the presence of childhood severe neglect, physical abuse, or sexual abuse and is used in research, community survey, and community mental health settings (Bifulco et al., 2005).

The measure consists of three scales: (1) parental care which has the subscales of antipathic mother, antipathic father, neglectful mother, and neglectful father; (2) physical abuse which has the subscales of physically abusive mother, and physically abusive father; and (3) sexual abuse. The parental care scale consists of 16 items that assess a mix of antipathy (eight items, although one item involving comparisons between siblings is omitted if the participant has no siblings) and neglect (eight items) from mother (or surrogate mother where appropriate). The 16 items are then repeated in order to assess the parental care from father (or surrogate father where appropriate). The items that assess parental antipathy and neglect are scored using a Likert scale ranging from 1 (“*Yes, definitely”*) to 5 (“*Not at all”).* As such, antipathy raw scores range from 7 to 40 for mother (cut off of 28 indicates presence of antipathic mother), and father (cut off of 30 indicates presence of antipathic father). Neglect raw scores range from 8 to 40 for mother (cut off of 25 indicates presence of neglectful mother) and father (cut off of 26 indicates presence of neglectful father). Physical abuse was assessed through a screener question, “When

you were a child or teenager were you ever hit repeatedly with an implement (such as belt or stick), or punched, kicked or burnt by someone in the household?' If the participant endorses 'yes,' then four further questions are asked to determine characteristics of the physical punishment by mother figure and then by father figure. As such, the physical abuse subscales scores range from 0 to 4 (cut off of 3 indicates presence of physical abuse). Sexual abuse was assessed through three separate screener questions and if the participant endorses 'yes' or 'unsure,' then sixteen further questions are asked to determine the severity of the sexual abuse. The sexual abuse scores range from 0 to 16 (cut off of 2 indicates presence of sexual abuse).

The CECA.Q was normed on 179 females in Islington, North London. This sample was a subsection of the original 303 females who participated in the norming process for the CECA (Bifulco, Brown & Harris, 1994). Although originally normed on females, studies (e.g., Gerra et al., 2007; Smith, Lam, Bifulco, & Checkly, 2002) have used the CECA.Q with male samples and, as such, the measure is deemed appropriate for use with males and females over the age of 18. With regard to the psychometric properties of the CECA.Q, the internal consistency estimate was .80 (antipathy scales) and .81 (neglect scales). Test–retest reliability ranged from .51 to .84 when females were reassessed after two years. Construct and convergent validity were examined by comparing the CECA.Q to the CECA and Parental Bonding Instrument (PBI; Parker, Tupling, & Brown, 1990). The correlation coefficients between the PBI and CECA.Q parental care scale ranged from .51 to .66 and the correlation coefficients between the CECA and CECA.Q ranged from .62 to .78 (Bifulco et al., 2005).

Women's Experience with Battering scale (WEB; Smith, Earp, & DeVellis, 1995; see Appendix C). The WEB is a self-report questionnaire designed to identify battered women and is used in research, medical, and community mental health settings. The WEB consists of ten items

which are scored on a six point Likert scale (agree strongly to disagree strongly) with a total score that ranges from ten to 60. Scores above 20 indicate the possible presence of battering.

The WEB was normed on 1443 females between the ages of 18 to 65 in North Carolina. The authors indicate that the measure is appropriate for use with females above the age of 18. With regard to psychometric properties of the WEB, Smith and colleagues (1995) have suggested that the WEB has adequate internal consistency, construct validity, and discriminant validity. The internal consistency estimate ranged from .91 to .99 (Coker, Smith et al., 2000; Smith et al., 1995, 2002). Construct validity is indicated by a correlation coefficient of .67 between the WEB and the Index of Spouse Abuse, Partner Abuse Scale: Physical (ISA-P; Hudson, 1991 as cited in Coker et al., 2001). According to Smith and colleagues (1995), a cut off score of 20 resulted in the measure having a sensitivity of 94.6% (i.e., false negative rate of 5.4%) and a specificity of 96.1% (i.e., false positive rate of 3.9%).

Abuse Assessment Screen (AAS; McFarlane, Parker, Soeken, & Bullock, 1992; see Appendix C). Since there are no measures of battering validated on a male population, three questions for the Abuse Assessment Screen (AAS; McFarlane, Parker, Soeken, & Bullock, 1992) appeared alongside the WEB questionnaire to better capture any domestic abuse that males may have experienced. However, female offenders and male offenders received both the WEB questionnaire and the AAS questions. This 3-item version of the AAS has previously been validated on one sample of male victims of domestic abuse and the authors found that 4.9% of males experienced intimate partner violence (Coker, Derrick, Lumpkin, Aldrich, & Oldendick, 2000).The authors did not provide the psychometric properties of this 3-item version and, as such, it is unclear if the psychometric properties of the original AAS would be applicable to the modified version.

Follow-up Abuse Questionnaire (see Appendix D). The follow-up abuse questionnaire was designed by this researcher (designed for use in this study) and consists of ten questions that assess the dynamic components of victimization. Only participants that endorsed at least one incident of physical or sexual abuse on the CECA.Q, or scored higher than 20 on WEB, were administered this measure. This measure includes the following questions: (1) current physical and/or sexual abuse; (2) current reaction to current and previous abuse; (3) current or prior therapy that specifically addressed past abuse; and (4) participants' belief regarding the impact of abuse on their criminality.

Financial Questionnaire (see Appendix E). The Financial Questionnaire was designed by this researcher for use in this study and consists of ten questions that assess financial status. The questions include the following: (1) prior income (i.e., illegal, household, and personal); (2) number of dependent children; (3) external financial support; and (4) current debt level.

Substance Abuse Questionnaire (see Appendix F). The substance abuse questionnaire was designed for use in this study and it is a comprehensive, nine page measure designed to assess for a "gendered" context of substance use. The questionnaire includes questions regarding prior use of the following nine substances: (1) alcohol; (2) marijuana; (3) methamphetamine; (4) powder cocaine; (5) crack cocaine; (6) acid; (7) ecstasy; (8) heroin; and (9) "other." If the participant responded "yes" to having used a substance, they were then asked eight to ten further questions that assessed length of substance use, crimes committed while under the influence of the substance, arrests due to the possession of the substance, medical consequences associated with use of the substance, prevalence of use, and social arenas in which use first occurred. The questions were repeated for all substances used.

Level of Service Inventory – Revised Modified. The LSI-R Mod contains 71 items which are grouped under the following 11 domains: (a) Criminal History; (b) Education/Employment; (c) Financial; (d) Family/Marital; (e) Accommodation; (f) Leisure/Recreation; (g) Companions; (h) Alcohol/Drug Problems; (i) Emotional/Personal; (j) Attitudes/Orientation; and (k) Victimization. As previously mentioned, the 71 items includes the 54 items of the LSI-R. The modification process includes the addition of 17 items, nine of which were added to the original LSI-R domains (i.e., four items were added to the Financial domain and five items were added to Alcohol/Drug Problems domain). The remaining eight items were grouped into a new scale titled Victimization (see Appendix H for the Modification Table explaining how all LSI-R Mod items were created). The additional items on the LSI-R Mod are scored dichotomously (i.e., "*yes*" or "*no")* and answers for the 71 items are computed into a total score.

Recidivism. Recidivism, the dependent variable, was operationally defined as the presence of 'rearrest.' The emphasis on rearrest was due to the six-month follow-up period after the end of sentence date. Due to the slowness of the criminal justice system, reconvictions would likely represent an underestimate of an individual's involvement in the criminal justice system. Information regarding the number of charges, types of charges and number of arrests during that six-month period was also gathered.

Statistical Analyses

Researchers who investigate the predictive ability of risk measures suggest that both regression and Receiver Operating Characteristic (ROC) analyses should be conducted (Blanchette & Taylor, 2005; Dolan & Doyle, 2000). ROC analysis is primarily utilized to assist physicians in making diagnostic decisions, in areas such as cancer, tuberculosis, and sepis (Heeger, 2003; Hopley & Van Schalkwyk, 2001), but ROC analysis has also been found to be

applicable to recidivism prediction since decisions in correctional settings are made despite some uncertainty (Blanchette & Taylor, 2005; Dolan & Doyle, 2000).

Instead of creating an arbitrary cut-off criterion, an ROC analysis allows one to see the full range of cut scores in a single curve. In the recidivism literature, the area under the ROC curve (AUC) reflects the ability of the test to discriminate between offenders who will reoffend and those who will not. A value of 1.0 for the area under the curve represents perfect (100%) accuracy, whereas a value of .50 suggests that the test does not predict at a level greater than chance. All ROC analyses were conducted through "Analyze-It" software which utilizes the Delong, Delong, and Clarke-Pearson (1988) Method when comparing AUC values. The decision to use this method is based on the observation that researchers (e.g., Karim Hajian-Tilaki, Joseph Lawrence, James Hanlet, and Jean Paul Collet) in the ROC literature assert that the Delong Delong Clarke-Pearson Method is the best method to compare AUC values; specifically, these researchers consider this method superior to the Hanley and McNeil approach (Hajian-Tilaki, Hanley, Joseph, & Collet, 1997; Stephan, Wesseling, Schink, & Jung, 2003).

CHAPTER 3

Results

As previously mentioned, statistical analyses were performed on 63 participants. There were no significant differences between males (n = 37) and females (n = 26) with regard to the demographic variables (see Table 1), except that sentence length was significantly shorter for female offenders (M = 74.56 days, SD = 96.6) than male offenders (M = 186.63 days, SD = 130.28), t (46) = 3.04, $p < .01$). These demographic variables were not significantly correlated with recidivism. Means scores for participant responses are listed in Table 2.

Table 2

Means and Standard Deviation of Measures and Domains

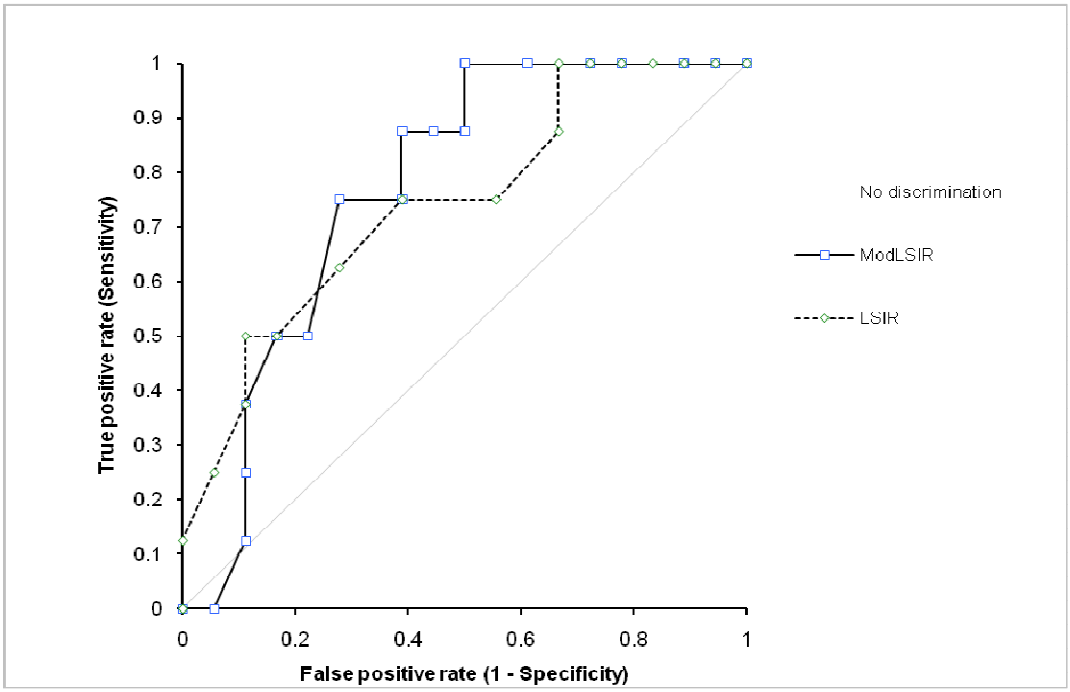
Measures and Domains	Females N=26		Males N=37	
	Mean	SD	Mean	SD
	Measures			
LSI-R Mod [0-71]	30.96	8.77	28.38	8.38
LSI-R [0-54]	22.77	6.71	24.00	7.02
	LSI-R Domains			
Criminal History [0-10]	2.73	2.164	4.81	1.93
Education / Employment [0-10]	5.04	2.54	3.54	2.33
Financial [0-2]	.31	.62	.24	.49
Family / Marital [0-4]	1.92	1.13	1.95	1.20
Accommodation [0-3]	.85	1.01	.81	.81
Leisure / Recreation [0-2]	1.19	.80	1.11	.66
Companions [0-5]	3.62	.70	3.62	.72
Alcohol / Drug Problems [0-9]	3.92	2.26	4.73	2.60
Emotional / Personal [0-5]	1.88	1.56	1.62	1.50
Attitudes / Orientation [0-4]	1.19	1.10	1.51	1.12
	LSI-R Mod Domain			
Financial [0-4]	2.19	1.20	1.16	.87
Substance Use [0-5]	6.35	3.52	7.00	3.76
Victimization [0-8]	3.27	2.75	.62	1.19

Hypotheses

Hypothesis 1: The main hypothesis of this study is that the LSI-R has a stronger predictive accuracy for male offenders than female offenders, and that the LSI-R Mod is more accurate than the LSI-R in predicting recidivism for female offenders. Results from the ROC analysis revealed no differences in predictive ability of the LSI-R Mod based on gender (i.e., female offenders *AUC* = .77 and male offenders *AUC* = .76), and the LSI-R and LSI-R Mod produced *AUC* scores that were highly similar (i.e., LSI-R = .74 and LSI-R Mod = .77; see Graph 1). None of these differences between *AUC*s were significant. Despite the similarities between the predictive accuracy of the LSI-R and LSI-R Mod, the LSI-R Mod had better discriminant validity than the LSI-R for the female offender sample. An examination of Graph 1 indicates that the LSI-R Mod (50%) had better specificity (i.e., accurate identification of non-recidivist being unlikely to recidivate) than LSI-R (33%).

Graph 1

Comparison of the LSI-R and LSI-R Mod AUCs for female offenders



Hypothesis 2: The second hypothesis is that as the level of childhood victimization increased, the accuracy of the criminal history domain to predict recidivism would decrease. Level of childhood victimization was reflected in the composite score obtained from the sum of seven abuse scales derived from the CECA.Q. Specifically, the sum of: (1) antipathic mother [7-40]; (2) mother neglect [8-40]; (3) physical abuse by mother [0-4]; (4) antipathic father [7-40]; (5) father neglect [8-40]; (6) physical abuse by father [0-4]; and (7) sexual abuse [0-17]. Mean scores for participant responses to the CECA.Q are presented in Table 3. A logistical regression was conducted with level of victimization and the criminal history domain as the two independent variables and rearrest status six months post-release as the dependent variable. This hypothesis was not supported with the results of a logistic regression demonstrating no significant interaction effect, x^2 (1, N = 26) = 1.91, p = .17, *pseudo* r^2 = *.10*.

Table 3

Means and Standard Deviation for CECA.Q and CECA.Q scales

	Females N=26			Males N=37		
CECA.Q and Scales	Mean	SD	Frequency[a]	Mean	SD	Frequency[a]
CECA.Q [30-184]	65.96	32.30	57.7 %	51.47	16.89	10.8 %
CECA.Q scales						
Antipathic mother [7-40]	14.96	8.94	15.4 %	11.38	4.51	2.7 %
Mother neglect [8-40]	13.38	8.23	15.4 %	10.54	4.57	2.7 %
Physical abuse by mother [0-4]	1.15	2.20	11.5 %	.32	.75	0 %
Antipathic father [7-40]	16.64	9.68	15.4 %	13.71	5.15	0 %
Father neglect [8-40]	15.72	9.53	15.4 %	13.68	6.04	2.7 %
Physical abuse by father [0-4]	1.58	2.45	7.7 %	.97	1.34	5.4 %
Sexual abuse [0-16]	3.35	4.53	42.3 %	.27	1.24	5.4 %

Note: The skewed nature of the physical abuse scales is discussed in the Exploratory Analysis subsection.
[a] Frequency of the sample that met the criteria for optimising levels for disorder outcomes (i.e., indicated presence) of each type of abuse as determined by CECA.Q scoring schema (Bifulco et al., 2005). The specific cut-offs were 28 for antipathic mother, 25 for mother neglect, 3 for physical abuse by mother, 30 for antipathic father, 26 for father neglect, 3 for physical abuse by father, and 2 for sexual abuse. The frequency for CECA.Q refers to the percentage of individuals that met the criteria for any of the abuse subscales.

Hypothesis 3: The third hypothesis is that as the age of drug use onset increased, the accuracy of the criminal history domain to predict recidivism would decrease. Drug onset was determined by the earliest age that a participant reported using any of the substances as derived from the SUQ (see Table 4). Two logistical regressions were conducted with age of drug onset

(for substances used recreationally and for substances used excessively) and the criminal history domain as the two independent variables, while rearrest status six months post-release was the dependent variable. The results of the logistic regressions did not support either hypotheses; no interactions were found for age of onset for substances used excessively (x^2 [1, N = 22] = .37, p = .54, *pseudo* r^2 = .03) or the age of onset for substances used recreationally (x^2 [1, N = 26] = .78, p = .38, *pseudo* r^2 < .01).

Table 4

Means and Standard Deviation for Age of Onset of Substances

	Females N=26			Males N=37		
Type of substance	Mean	SD	Frequency[a]	Mean	SD	Frequency[a]
Recreational use of substance						
Any substance	16.38	4.52	100 %	14.78	4.25	100 %
Alcohol	14.77	4.24	100 %	13.86	4.14	100 %
Marijuana	16.08	4.53	92.3 %	15.36	3.59	97.3 %
Methamphetamine	24.92	9.89	50 %	25.07	8.52	43.3 %
Powder cocaine	21.67	5.33	69.2 %	21.01	4.76	73 %
Crack cocaine	24.00	10.61	50 %	24.81	9.46	45.9 %
Acid	19.30	5.03	38.5 %	18.77	4.09	35.1 %
Ecstasy	23.67	7.52	30.8 %	22.46	6.02	35.1 %
Heroin	22.00	2.65	11.5 %	23.00	4.58	8.1 %
Prescription pills (illegally obtained)	21.83	8.73	65.4 %	22.25	7.73	51.4 %
Excessive use of substances						
Any substance	14.15	8.17	84.9 %	14.78	4.25	91.9 %
Alcohol	12.83	3.60	23.1 %	12.96	4.33	66.2 %
Marijuana	15.06	4.47	69.2 %	13.90	3.38	62.2 %
Methamphetamine	22.33	6.51	15.4 %	22.83	4.96	13.5 %
Powder cocaine	19.78	4.24	30.8 %	22.64	5.48	21.6 %
Crack cocaine	22.58	11.56	34.6 %	28.22	11.27	21.6 %
Acid	22[b]	*	3.8 %	*	*	0 %
Ecstasy	*	*	0 %	19[c]	*	2.7 %
Heroin	*	*	0 %	*	*	0 %
Prescription pills (illegally obtained)	20.58	5.23	50 %	20.86	6.32	43.2 %

Note: The excessive use of substances refers to the age of onset of a substance that the participant would use excessively at some point in their lives. It does not refer to age of onset in which the participant began to use the substance excessively.

[a] Frequency of the sample that endorsed use or excessive use (i.e., more than 4 days per week) of the substance.

[b] Only one female participant used acid excessively.

[c] Only one male offender used ecstasy excessively.

* No male offenders used acid excessively. No female offenders used ecstasy excessively. None of the participants used heroin excessively.

Hypothesis 4: The fourth hypothesis examined the relation between victimization level and the ability of the LSI-R Mod to predict recidivism. Specifically, it was postulated that as the severity of victimization (e.g., repeated injuries from physical abuse, penetration in sexual abuse, authority figure as culprit of abuse) or length of victimization for female offenders increased, the accuracy of the LSI-R Mod to predict recidivism would increase. Severity of victimization was determined by a composite score which was the sum of the aforementioned childhood victimization score, WEB score, and AAS score (see Table 5). Two logistical regressions were conducted with severity of victimization or length of victimization and the criminal history domain as the two independent variables and rearrest status six months post-release as the dependent variable. The results of the logistic regression did not support either hypothesis; no interactions were found for victimization severity (x^2 [1, N = 26] = 1.88, p = .17, *pseudo* r^2 < .01) or victimization length (x^2 [1, N = 26] = 1.34, p = .25, *pseudo* r^2 = .02).

Table 5

Means and Standard Deviation for WEB, AAS and Overall Victimization

	Females N=26		Males N=37	
Victimization	Mean	SD	Mean	SD
Any type of Victimization [30-248]	101.12	45.86	69.12	19.93
WEB[a] [10-60]	33.00	20.08	16.57	8.44
AAS [0-3]	1.38	1.20	.49	.77

[a] 65.4 % of female offenders and 27 % of male offenders met the criteria for battery (i.e., cut -off of 20) as determined by WEB scoring schema (Smith, Earp & DeVellis, 1995).

Exploratory analyses

Since these hypotheses may have been impacted by unreliability of the measures and domains, internal consistency was evaluated. Internal consistency measures the extent to which different items on the same measure of a domain are correlated. Since the items on a measure or domain are suppose to measure the same general construct, it is assumed that the score on one item will be related to the score on another item. Internal consistency is usually measured through Cronbach's alpha when items have score ranges larger than two and Kuder-Richardson Formula 20 (KR-20) alpha is used when a measure has dichotomous items (Thorndike, 2005). The numbers of items on a measure or domain influences internal consistency and, as such, domains with few items tend to have lower alphas.

The LSI-R Mod, and the LSI-R were found to have adequate (i.e., $\alpha > .70$) internal consistency for the overall sample, female offenders, and male offenders (see Table 6). Of the 13 domains, eight domains did not demonstrate adequate internal consistency for the overall sample. With regard to the domains that did not have adequate internal consistency, analyses were conducted in order to determine if the exclusion of an item would allow the domain to have adequate internal consistency. For example, for male offenders the Mod Victimization domain did not achieve adequate reliability, but if the item that assessed prior domestic violence (i.e., Presence of Domestic Abuse as determined by WEB scoring schema (score > 20) or the endorsement of two items on AAS questions) was omitted, the domain achieved adequate reliability ($\alpha = .70$). Some of the reliability alphas were unexpected considering the literature (e.g., the reliability of the criminal history domain being larger for female offenders than male

offenders) and, as such, an examination of item endorsement was conducted in order to assess the response differences between genders (see Table 7). The examination of item endorsement was conducted primarily for qualitative rather than statistical purposes. However, statistical analyses in the form of independent sample t-tests were utilized in order to assess for significant endorsement differences between male and female offenders. Since 71 analyses were conducted, a Bonferroni correction (.05/74 = .000676) was performed and only differences that exceeded a *p* value of .000676 were considered significantly different.

Table 6

Internal Consistency for Measures and Domains

Measure or Domain	Overall Sample N=63	Females N=26	Males N=37
	Measures		
LSI-R Mod	.82	.83	.82
LSI-R	.78	.79	.79
	LSI-R Domains		
Criminal History	.70	.72	.55
Education/Employment	.71	.70	.68
Financial	.42	.59	.36
Family/Marital	.38	.28	.46
Accommodation	.53	.65	.43
Leisure/Recreation	.34	.56	.15
Companions	.44	.55	.33
Alcohol/Drug Problems	.77	.75	.79
Emotional/Personal	.70	.74	.69
Attitudes/Orientation.	.41	.45	.38
	LSI-R Mod Domains		
Financial	.30	.21	.10
Substance Use	.67	.67	.68
Victimization	.87	.87	.65

Note. All reliability coefficient presented in the form of KR-20 alphas.

Table 7

Mean of LSI-R domains and percent scoring ‘‘yes’’ (one point of risk) for each item

Items	Females N=26	Males N=37
LSI-R Criminal history		
Domain mean**	2.7	4.8
1. Any prior adult convictions	65.4	86.5
2. Two or more prior adult convictions	46.2	75.7
3. Three or more prior convictions	30.8	62.2
4. Three or more present offenses	11.5	21.6
5. Arrested under age sixteen	7.7	24.3
6. Ever incarcerated upon conviction	38.5	70.3
7. Escape history from correctional facility	3.8	10.8
8. Ever punished institutional misconduct	23.1	43.2
9. Charges received while under supervision	42.3	56.8
10. Official record assault/violence	15.4	35.1
LSI-R Education/employment		
Domain mean	5	3.5
11. Currently unemployed	53.8	24.3
12. Frequently unemployed	50.0	32.4
13. Never employed for a full year	30.8	13.5
14. Ever fired	34.6	40.5
15. Less than regular grade ten	23.1	21.6
16. Less than regular grade twelve	73.1	62.2
17. Suspended from school	61.5	59.5
18. Unsatisfactory Participation/performance	65.4	35.1
19. Unsatisfactory Peer interactions	53.8	29.7
20. Unsatisfactory Authority interactions	57.7	35.1
LSI-R Financial		
Domain mean	.3	.2
21. Problems (%)	11.5	8.1
22. Reliance on social assistance (%)	19.2	16.2
LSI-R Family/marital		
Domain mean	1.9	1.9
23. Dissatisfaction sig. Relationship (%)	61.5	56.8
24. Nonrewarding parental (%)	42.3	35.1
25. Nonrewarding other relative (%)	38.5	35.1
26. Criminal family/spouse (%)	50.0	67.6

LSI-R Accommodation		
Domain mean	.9	.8
27. Unsatisfactory accommodation	46.2	56.8
28. Three or more address change last	23.1	10.8
29. High-crime neighborhood	15.4	13.5
LSI-R Leisure/recreation		
Domain mean	1.2	1.1
30. Lack participation org. activity	73.1	78.4
31. Could make better use of time	46.2	32.4
LSI-R Companions		
Domain mean	3.6	3.6
32. Social isolate	26.9	21.6
33. Some criminal acquaintances	92.3	94.6
34. Some criminal friends	61.5	75.7
35. Absence of prosocial acquaintances	96.2	94.6
36. Absence of prosocial friends	84.6	75.7
LSI-R Alcohol/drug		
Domain mean	3.9	4.7
37. Alcohol problem, ever	26.9	59.5
38. Drug problem, ever	80.8	67.6
39. Alcohol problem current	7.7	35.1
40. Drug problem current	53.8	45.9
41. Law violations	76.9	75.7
42. Marital/family	65.4	73.0
43. School/work	15.4	45.9
44. Medical	26.9	18.9
45. Other	38.5	51.5
LSI-R Emotional/personal		
Domain mean	1.9	1.6
46. Moderate interference (%)	69.2	45.9
47. Severe interference (%)	38.5	18.9
48. Mental health treatment, past (%)	46.2	51.4
49. Mental health treatment, present (%)	3.8	10.8
50. Psychological assessment indicated (%)	30.8	35.1

LSI-R Attitudes/orientations		
Domain mean	1.2	1.5
51. Supportive of crime	30.8	45.9
52. Unfavorable toward convention	7.7	21.6
53. Poor, toward sentence	38.5	54.1
54. Poor, toward supervision	42.3	29.7
LSI-R Mod Financial		
Domain mean**	2.2	1.2
55. Poverty Status	65.4	27.0
56. Dependent Children	50.0	13.5
57. External financial support	53.8	35.1
58. Severe debt (debt level more than annual income)	73.1	51.4
LSI0R Mod Substance Use		
Domain mean	6.4	7.0
59. Used at least three hard drugs	30.8	27.0
60. Excessive drug use	69.2	64.9
61. Intimate social context	61.5	43.2
62. Polysubstance (more than 4 excessive use) (%)	11.5	5.4
63. Recent drug use (within month) (%)	57.7	56.8
LSI-R Mod Victimization		
Domain mean**	3.3	.6
64. Childhood physical abuse (%)	19.2	5.4
65. Childhood sexual abuse (%)	42.3**	5.4**
66. Domestic Violence (%)	61.5	27
67. Severe Abuse (%)	38.5	2.7
68. Abuse longer than 2 years (%)	53.8	5.4
69. Current abuse (%)	7.7	2.7
70. Negative Reaction to abuse (%)	57.7**	10.8**
71. Severe negative reaction to abuse (%)	46.2**	2.7**

**Indicates statistically significant difference at $p < .0006$ between male offenders and female offenders.

Exploratory analyses of Hypothesis 1: Since the aforementioned hypotheses were not supported, supplementary analyses were conducted to explore possible reasons for the null findings. A review of the literature indicated that, although there was empirical basis to include economic marginality and substance use, victimization had more empirical support than the other two gender-responsive domains. As such, ROC analyses were conducted with a version of the LSI-R Mod that included only the addition of the victimization domain into the original LSI-R. Results from ROC analysis revealed that, for female offenders, this version of the LSI-R Mod (*AUC* = .8) was slightly more accurate in predicting recidivism than the LSI-R Mod that included all the gender responsive domains (*AUC* = .77) and more accurate than the LSI-R (*AUC* = .74). It is unclear if these differences have true clinical significance. For male offenders, this version of the LSI-R Mod had the same predictive accuracy (*AUC* = .72) as the original LSI-R (*AUC* = .72).

Furthermore, sequential logistic regression analyses were conducted in order to assess whether the victimization domain accounted for unique variance in predicting recidivism that was not captured by the LSI-R risk score. Results from a logistic regression analysis indicated that the victimization domain accounted for a significant amount of variability in the rearrest status of the overall sample above that predicted by the LSI-R risk score. Specifically, the victimization domain accounted for 10.6% of unique variance in predicting rearrest status (x^2 [1, N = 63] = 3.03, p =.02) while the LSI-R accounted for 13.4% of unique variance (x^2 [1, N = 63] = 6.28, p = .01). The two variables shared 4.1% of the variance in predicting rearrest.

Exploratory analyses of Hypothesis 2: Results of the analysis conducted for the second hypothesis indicated that as the level of childhood victimization increased, the accuracy of the criminal history domain to predict recidivism did not decrease, x^2 (1, N = 26) = 1.91, p = .17,

pseudo r^2 = *.10*. The different CECA.Q score ranges and skewed nature of the distribution of the physical abuse scales indicated a need to transform the scale scores into z-scores (see Table 3). A logistic regression was conducted using a childhood victimization composite score that was the sum of the z-scores of the seven different types of abuse. Results revealed that there was still no significant interaction between level of childhood victimization and the criminal history domain, x^2 (1, N = 26) = 1.55, p = .21. A possible reason for the nonsignificant interactions was that there were no significant main effects for the criminal history domain (x^2 [1, N = 26] = 3.16, p = .08 in the model with the original composition score) or level of childhood victimization (x^2 [1, N = 26] = 2.09, p = .15 in the model with the original composition score) regardless of what method was used to derive the childhood victimization composite score. It should also be noted that restriction of range may have also impacted the results since only 20.6% of the sample recidivated.

Exploratory analyses of Hypothesis 3: The formation of the third hypothesis was primarily based on Reisig and colleagues' (2006) research that indicates that the criminal history domain is not as salient for females who have a "gendered" context of substance use. The construct of "gendered" context of substance use has two main components: (1) females are introduced to substances at a later age and, (2) females are introduced to substances by family members or intimate partners (i.e., current or past boyfriend or spouse). The original third hypothesis only accounted for the first component of this construct, that of a later age of substance use onset. As such, this hypothesis was reformulated to account for the second component, that of family member or intimate partner introduction of substance use. Since introduction to substance use was a categorical variable with four levels, chi-square analyses were conducted. Results from chi-square analyses indicated female offenders were significantly

more likely to be introduced to substances through an intimate partner or family member as opposed to males, with regard to marijuana (x^2 [3, N = 60] = 12.88, $p < .01$), methamphetamine (x^2 [3, N=26] = 9.01, p = .03), and crack cocaine (x^2 [3, N = 30] = 14.73, $p < .01$; see Table 8 and Table 9 for frequency of types of introduction).

Table 8

Frequency of the Type of Individual to Introduce Females to Substances

Type of Substance	Family Member or Intimate Partner	Friend or acquaintance
Alcohol (n=26)	42.3 %	57.7 %
Marijuana (n=24)	54.2 %	45.8 %
Methamphetamine (n=13)	61.5 %	38.5 %
Powder cocaine (n=18)	38.9 %	61.1 %
Crack cocaine (n=13)	53.8 %	46.2 %
Acid (n=10)	40.0 %	60.0 %
Ecstasy (n=17)	22.2 %	77.8 %
Heroin (n=3)	0.0 %	100 %
Prescription pills (illegally obtained) (n=8)	16.7 %	83.3 %

Table 9

Frequency of the Type of Individual to Introduce Males to Substances

Type of Substance	Family Member or Intimate Partner	Friend or acquaintance
Alcohol (n=37)	43.2 %	56.7 %
Marijuana (n=36)	22.2 %	77.8 %
Methamphetamine (n=16)	31.3 %	68.5 %
Powder cocaine (n=27)	7.4 %	92.6 %
Crack cocaine (n=17)	0.0 %	100 %
Acid (n=13)	15.4 %	84.6 %
Ecstasy (n=13)	30.8 %	69.2 %
Heroin (n=3)	0.0 %	100 %
Prescription pills (illegally obtained) (n=20)	0.0 %	70.0 %

Logistic regression analyses were conducted in order to compare the predictive ability of the criminal history domain of female offenders who were introduced to substances through a family member or intimate partner and females offenders that were introduced to substances through a different social context (i.e., friends or acquaintances). Results revealed that for female offenders who were introduced to substances through a family member or intimate partner, the ability of the criminal history domain to predict recidivism was nonsignificant, (x^2 [1, N = 16] = .70, p = .41, *pseudo* r^2 = .06). However, the criminal history domain significantly predicted

rearrest status for female offenders who were not introduced to substance use in this social context (x^2 [1, N = 10] = 7.24, p < .01, *pseudo* r^2 = .814). Similar results were obtained after controlling for the possible influence of the level of childhood victimization (x^2 [1, N = 16] = 1.30, p = .25 *vs.* x^2 [1, N = 10] = 6.92, p = .01). Furthermore, a logistic regression revealed that a similar relation existed regarding the ability of the LSI-R to predict rearrest status (x^2 [1, N = 16] = .67, p = .41 *vs.* x^2 [1, N = 10] = 10.01, p < .01).

Exploratory analyses of Hypothesis 4: Results of the analyses conducted for the fourth hypothesis indicated that there was no significant interaction between the ability of LSI-R Mod to predict recidivism and severity of victimization. Severity of victimization was defined as the sum of all scales related to abuse which included the seven scales of the CECA.Q and the total scores on both the WEB and the AAS. However, research has indicated that certain types of abuse tend to be considered more detrimental to the mental health of females than other types (e.g., sexual abuse has been found to have a stronger negative impact on females than does physical abuse; Benda, 2005; Chesney-Lind, 1997). As such, secondary analyses were conducted using the level of sexual abuse (i.e., score on the sexual abuse scale of CECA.Q) as the operational definition for severity of victimization (possible range of 0-16, sample range of 0-13). Results from a logistic regression revealed that that was a significant interaction: as the level of sexual abuse increased, the accuracy of LSI-R Mod to predict rearrest status increased, x^2 (1, N = 26) = 11.81, p < .01.

Victimization: Exploratory analyses were conducted in order to gain further information regarding the gender responsive domains and in order to compare findings from this study to that in the prior literature. Analyses were conducted in order to examine the relation between recidivism and different types of abuse (see Table 10) and other aspects of abuse (e.g., length of

abuse, current reaction to abuse, current abusive relationship). Results indicate no individual type of abuse was significantly correlated with recidivism when accounting for Bonferroni correction (.05/66 = .00076 *p* value).

With regard to other aspects of victimization (i.e., dynamic factors such as current abuse, nightmares about abuse, intrusive thoughts about abuse, length of abuse, severity of domestic abuse), results from a logistic regression indicated that whether a female offender was currently in an abusive relationship significantly predicted recidivism, x^2 (1, N = 26) = 5.1, p =.02. Also, the extent of a female offender's current negative reaction to abuse (e.g., nightmares, intrusive thoughts) significantly predicted recidivism, x^2 (1, N = 26) = 3.98, p = .05. For the overall sample, results from a logistic regression indicated that the length of abuse (x^2 [1, N = 63] = 5.5, p = .02) and severity of domestic abuse (x^2 [1, N = 63] = 3.83, p = .05) significantly predicted recidivism. Logistic regression revealed that the dynamic factors of the LSI-R Mod Victimization domain (x^2 [3, N = 26] = 8.25, p = .04, *pseudo* r^2= .38) were slightly better in predicting recidivism than the static factors of the LSI-R Mod Victimization domain (x^2 [5, N = 26] = 8.40, p = .13, *pseudo* r^2= .39).

Table 10

Correlation between different types of victimization and recidivism

	Overall Sample N=63		Females N=26		Males N=37	
Type of Victimization	Rearrest[a]	Charges	Rearrest[a]	Charges	Rearrest[a]	Charges
			Childhood Victimization			
Childhood abuse[b]	.20	.01	.21	.00	.05	-.01
Antipathy mother	.16	.05	.20	.1	-.07	-.10
Neglect Mother	-.03	-.06	-.13	-.15	-.01	-.04
Physical abuse – mother	-.03	-.08	.11	.03	-.17	-.15
Antipathy father	.25	.15	.28	.18	.13	.10
Neglect father	.15	.05	.23	.11	-.02	-.05
Physical abuse – father	.26	.24	.08	.00	¤ .47	.41
Sexual abuse	.20	.01	.19	.00	-.09	-.07
			Intimate Partner Violenece			
Domestic Violence[c]	.26	.13	.31	.11	-.08	-.09
AAS	.25	.21	.31	.21	.27	.27
WEB	.29	.13	.31	.21	-.11	-.11

Note. All correlations are presented in the form of Pearson *r*. Although correlations that contain dichotomous variables are computed through the Point Biserial Correlation method, SPSS accounts for dichotomous variables through the Pearson *r* method.
[a] Rearrest is scored dichotomously in that 1 = at least one rearrest and 0 = no rearrests.
[b]This consists of all types of childhood abuse added together [20-185].
[c]This consists of an addition of the AAS and WEB measures of domestic violence [10-63].

Prior research indicated that the prevalence rates of abuse were different between gender and, as such, analyses were conducted to examine potential differences in this sample. Results from chi-square analyses indicated that female offenders were significantly more likely to have had an antipathic father (x^2 [1, N = 63] = 6.08, p =.01) and more likely to have experienced sexual abuse (x^2 [1, N = 63] = 12.7, p < .01). Results from between subjects t-tests indicated that female offenders (M = 4.29 years, SD = 7.63) were abused for a significantly longer amount of

time than male offenders (M = .05 years, SD = .33), t (61) = -3.39, p < .01. Female offenders also experienced a significantly more severe level of domestic abuse (t [61] = 4.48, p < .01) than male offenders. In this sample, 50% of the female offenders who experienced victimization indicated that they believed their abuse was related to their criminal activity, while 16.7 % of the male offenders who experienced victimization indicated that they believed their abuse was related to their criminal activity.

Of interest was the examination of how the different types of victimization relate with one another (see Table 11). Results indicated that the correlation between father neglect and father antipathy was significantly stronger for female offenders as opposed to male offenders, Z = 3.37, p < .01 (using a two-tailed test)[8]. The correlation between the WEB score and the AAS score was also significantly stronger for female offenders as opposed to male offenders, Z = 2.16, p = .03 (using a two tailed test).

[8] Comparisons between correlations were analyzed through the utilization of an excel spreadsheet provided by Jamie DeCoster. SPSS does not calculate such comparisons.

Table 11

Correlation between different types of victimization for overall sample

	Childhood abuse [a]	Antipathy mother	Neglect Mother	Physical abuse mother	Antipathy father	Neglect father	Physical abuse father	Sexual abuse	Domestic Violence[b]	Domestic Violence (WEB)
Antipathy mother	.83**									
Neglect Mother	.64**	.79**								
Physical abuse mother	.55**	.56**	.35							
Antipathy father	.79**	.39	.13	.32						
Neglect father	.80**	.39	.19	.35	.86**					
Physical abuse father	.52**	.43**	.31	.31	.39	.34				
Sexual abuse	.61**	.48**	.28	.38	.35	.41	.31			
Domestic Violence[b]	.45**	.28	.10	.26	.45	.44	.18	.50**		
WEB	.44**	.29	.11	.26	.45**	.44	.17	.50**	.99**	
AAS	.36	.20	.02	.21	.40	.39	.21	.42	.81**	.79**

Note. All correlations are presented in the form of Pearson *r*

[a] This consists of all types of abuse added together

[b]This consists of an addition of the AAS and WEB measures of domestic violence

** *C*orrelations that are statistically significant when accounting for Bonferroni correction (.05/55 = .0009 p value)

Economic Marginality: Because the gender-responsive economic marginality domain did not account for a significant amount of variability in recidivism, closer inspection of the items that encompass this domain were conducted to determine which items were correlated with recidivism. Results of a logistic regression indicated that if female offenders had minor children, their likelihood of recidivism non-significantly decreased, t [24] = -.83, p = .42, r = -.17. In this sample, 37.5% of female offenders who reoffended had minor children, while 20% of male offenders who reoffended had minor children (see Table 7). Although this correlation was nonsignificant, it appears this item substantially decreased the predictive accuracy of the economic marginality domain for female offenders. For example, if this item had been excluded, the internal consistency reliability of this domain would have increased from α = .21 to α = .30.

Of interest was the exploration of possible differences between male and female offenders with regard to different financial/economic marginality aspects. There were no significant differences between gender and household income, dependence on partner (i.e., partner makes more money), or illegitimate income. However, female offenders had significantly lower personal income levels than male offenders, t [61] = 2.2, p = .03. Results indicated there was a significant difference between gender on poverty status[9], x^2 (1, N = 63) = 6.67, p = .01. Furthermore, as the number of dependent children increased, the personal income level significantly decreased for female offenders, t [24] = -2.29, p = .03, r =.42. Female offenders were significantly more likely to report current or recent unemployment (x^2 [1, N=63] = 5.74, p = .02), and more likely to report an unsatisfactory performance or participation at work, x^2 [3, N = 63] = 8.07, p = .05.

[9] As defined by the U.S. Census Bureau guidelines (2008), poverty is determined by computing the household income before taxes and comparing it to household composition (e.g., size and ages of members). For example, in 2007 a single individual under age 65 years who made less than $10,787 fell into poverty status and an one adult (under 65 years) household with eight children who made less than $40,085 fell into poverty status.

Substance Abuse: Because the gender-responsive substance use domain did not account for a significant amount of variability in recidivism, closer inspection of the items encompassing this domain were conducted in order to determine which items were correlated with recidivism. The operational definitions of the items in this domain attempted to take into account the varied definitions found in the literature. For example, the literature is varied on the amount of years that constitute "lengthy substance use" (e.g., one year in Butler, Levy, Dolan, & Kaldor, 2003; 11 years in Longshore et al., 2004). Furthermore, it may be erroneous to equate two years of excessive substance use for a 50-year-old individual to two years of excessive substance use for a 19-year-old individual. As such, length of excessive use will be presented in terms of years and percentage of lifespan (see Table 12). Results from correlational analyses indicted that if female offenders abused drugs excessively for longer than 10% of their lives, or used drugs within one month before their beginning of sentence date, their likelihood of recidivism decreased. Due to the possibility of restriction of range or an erroneous operational definition (i.e., more than 10 % of life equals "lengthy") affecting results, correlational analyses were conducted with the continuous variables that assessed the specific length of time an offender excessively used a substance. This inverse relation was still found to exist for every type of substance. These items substantially decreased the predictive accuracy of the substance use domain for female offenders.

Of interest was the exploration of possible differences between male and female offenders with regard to different aspects of substance use. Results from chi square analyses indicated that there were no significant differences between gender and specific substances reported. Results indicated that alcohol use seems to be more severe for male offenders, in that male offenders were more likely to commit a crime under the influence of alcohol (x^2 [1, N = 63] = 8.8, p < .01), to have unsuccessful cessation attempts (x^2 [1, N = 64] = 4.59, p = .03), and to

use alcohol on a daily basis (x^2 [7, N = 63] = 21.14, p < .01). Male offenders abused alcohol (i.e., consumed at least four alcoholic beverages per day for at least four days per week) for a significantly longer length of time than female offenders, t (61) = 2.61, p = .01. Male offenders were also significantly more likely to have committed a crime under the influence of marijuana (x^2 [1, N=60] = 6.15, p = .01) than were female offenders. As prior literature indicated, female offenders were significantly more likely to be introduced to substances through an intimate partner or family member; as opposed to males offenders with regard to marijuana (x^2 [3, N = 60] = 12.88, p < .01), methamphetamine (x^2 [3, N = 26] = 9.01, p = .03), and crack cocaine (x^2 [3, N = 30] = 14.73, p < .01).

Prior research also indicated that childhood abuse predicted subsequent substance abuse for female offenders and, as such, analyses were conducted to determine if such findings were true for this sample. Results from regression analyses indicated that, for female offenders, various aspects of victimization predicted excessive use of hard drugs. For example, length of abuse significantly predicted excessive use of hard drugs, t [24] = 2.65, p = .01. Furthermore, severity of sexual abuse (i.e., the score on the sexual abuse scale of the CECA.Q) (t [24] = 2.95, p < .01), severity of childhood abuse (i.e., the composite score of all scales of the CECA.Q) (t [24] = 2.13, p = .04), and severity of domestic violence (i.e., the score on the WEB and AAS) (t [24] = 2.92, p = .01) were able to significantly predict excessive use of hard drugs for female offenders.

Table 12

Mean years and mean percentage of life that participants engaged in excessive use

	Females		Males	
Substances	% of life span	years	% of life span	Years
Alcohol	4.01*	1.81*	17.14*	6.52*
Marijuana	18.97	6.88	17.23	5.72
Methamphetamine	1.46	0.85	1.16	0.75
Powder cocaine	3.24	1.43	1.13	0.79
Crack cocaine	3.24	3.96	1.13	2.43
Acid	0.0	0.0	0.0	0.08
Ecstasy	0.0	0.0	0.0	0.15
Prescription pills (illegally obtained)	5.49	4.57	3.03	8.06
Hard drugs[a]	10.20	5.52	5.33	3.44
Soft drugs[b]	18.97	6.88	17.23	5.81

*Significant differences between genders

[a] Hard drugs refers to powder cocaine, crack cocaine, heroin and methamphetamine.

[b] Soft drugs refers to marijuana, LSD, and ecstasy.

CHAPTER 4

Discussion

There are currently approximately 2.5 million individuals incarcerated in prisons, jails, or community corrections facilities (BJS, 2008b). Of the approximately 700,000 offenders released each year (BJS, 2008b), 67.5% will be rearrested within 3 years. Research has shown that rehabilitation programs that adhere to the Risk and Need Principles decrease the likelihood of recidivism (Andrews et al., 1990; Andrews et al., 2006; Bourgon & Armstrong, 2005). For that reason, the ability to effectively implement rehabilitation programs and to allocate scarce correctional resources in the most cost-efficient manner is directly linked to the accurate assessment of risks and needs. Although many risk assessment instruments may be utilized, the Level of Service Inventory-Revised (LSI-R; Andrews & Bonta, 1995) is highly regarded in the field due to the measure's ability to predict general recidivism, and to assess both static and dynamic risk factors (Andrews et al., 2006; Andrews & Bonta, 2001; Barnoski & Aos, 2003; Bonta & Motiuk, 1992; Gendreau et al., 1996; Gendreau et al., 2002; Hemphill & Hare, 2004; Kroner et al., 2005; Mills et al., 2003; O'Keefe et al., 1998; Simourd, 2004).

Although the LSI-R is well respected by some, it still faces scrutiny by researchers who assert that the original norming data (i.e., conducted with only male offenders) is less applicable for female offenders (Reisig et al., 2006; Salisbury et al., 2008). The main criticism is that the LSI-R does not appropriately take into account factors that are salient for female offenders. Specifically, gender responsive variables, such as childhood victimization, adult intimate relationship victimization, economic marginality, and a "gendered" context of substance use

have been identified as affecting the predictive validity of the LSI-R for female offenders (Holtfreter et al., 2004; Reisig et al., 2006; Salisbury et al., 2008; Van Voorhis et al., 2002). The current study was undertaken to evaluate the possibility that the inclusion of gender responsive variables would increase the predictive accuracy of the LSI-R.

General Findings: The accuracy of the LSI-R Modified

It was found that the inclusion of all three types of gender responsive variables (i.e., victimization, economic marginality and 'gendered' substance abuse) did not significantly increase the predictive accuracy of the LSI-R. Although the victimization domain was identified as accounting for unique variance in rearrest status, the blanket addition of gender responsive variables was not a good strategy to undertake when attempting to design a more gender responsive measure. Instead, the examination of individual gender responsive variables was necessary to gain a clearer understanding of the criminogenic nature of each variable.

Although the LSI-R Mod was not significantly better than the LSI-R at predicting recidivism, the LSI-R Mod had slightly better discriminant validity than the LSI-R for the female offender sample. Since classification has serious repercussions for both the offender and the agency, accurate classification is advantageous. "False positives" (i.e., offenders identified as high risk, but who do not show a negative outcome) in particular have been identified as "a recurring and serious problem in the prediction of criminal behavior" (Andrews & Bonta, 2001, p. 47; Andrews, 1982). With regard to the discriminant validity findings of this study, if an agency desired 100% sensitivity or 100% positive predictive power (i.e., accurate identification of all recidivists that would recidivate) they would have to contend with a false positive rate of 50% or 50% specificity (i.e., 50% of the offenders identified as recidivists would not reoffend) when utilizing the LSI-R Mod. If the agency utilized the LSI-R and desired 100% sensitivity,

the agency would have to contend with a false positive rate of 67% or 33% specificity. As such, the results of this study indicate that gender-responsive risk instruments, in particular instruments that take into account victimization, may slightly decrease misclassification for female offenders.

The assessment of victimization may be beneficial

The victimization domain was able to account for a similar percentage of unique variance in rearrest status (10.6%) as the entire LSI-R measure (13.4%). Although the victimization domain as a whole was beneficial, results indicate that some victimization variables may be more criminogenic than others and, as such, more important to target in treatment. Specifically, results indicate dynamic victimization factors (e.g., currently abusive relationship, current nightmares about abuse or intrusive thoughts about abuse) are more predictive of recidivism than static victimization factors. For example, results revealed that the mere presence or absence of childhood sexual abuse, childhood physical abuse or history of intimate partner victimization, were not significantly correlated with recidivism. Although this corroborates the results of Lowenkamp and colleagues (2001), this finding was in contrast to the gender responsive literature (e.g., Chesney-Lind, 1997, Daly, 1994) that suggests victimization is so detrimental to the lives of female offenders that its mere presence influences subsequent offending. Proponents of the LSI-R may argue that the dynamic conceptualization of victimization is accounted for through the emotional distress domain of the LSI-R. However, findings from this study indicate that female offenders appear to compartmentalize their abuse experience in such a way that they do not endorse general emotional distress or display symptoms of emotional distress. As such, it appears that even the emotional distress domain does not appropriately capture dynamic victimization risk factors.

The results regarding the nature of dynamic and static victimization factors is important because it indicates that the static conceptualization of victimization (e.g., severity or length) may not properly take into account the possible coping abilities or protective factors that ameliorate the impact of victimization for the individual female offender. Researchers assert that the male-dominated literature neglects risk factors salient for female offenders (Hubbard & Pratt, 2002; McClellan et al., 1997; Reisig et al., 2006; Richie, 2003; Rivera & Widom, 1990; Salisbury et al., 2008; Widom, 2000; Widom & Maxfield, 2001). However, results of this study indicate that the emphasis on static victimization variables may further neglect important factors salient for females. Although a certain similitude may be necessary to design measures applicable to large samples, the results of this study indicate that the homogeneity of victimization may be disservice for female offenders. Furthermore, this differentiation between the nature of static and dynamic victimization risk factors may partially account for discrepant findings between researchers who contend victimization is non-criminogenic (e.g., Andrews & Bonta, 2003; Lowenkamp et al., 2001) and researchers that advocate the relation between victimization and offending (e.g., Chesney-Lind, 1997; Daly, 1994; Reisig et al., 2006).

Economic Marginality may be appropriately captured by the LSI-R

The results of this study suggest the possible negative effects of economic marginality for female offenders seem to be appropriately captured by the LSI-R; a finding in contrast to criticisms stated in the gender responsive literature. The results of this study support the contention that economic marginality disproportionally affects female offenders. Specifically, the results of this study revealed that female offenders have a significantly lower personal income, are more likely to have been unemployed, and are more likely to live in poverty than male offenders. The finding from this study that a female offender's personal income decreases

as the number of children increase provides partial support for attributions of economic marginality to the strain of dependent children. However, the results of this study indicate that economic marginality plagues so many female offenders that it is not possible to use this variable to discriminate between females who will recidivate and females who will not recidivate.

Although economic marginality may be non-criminogenic for female offenders, it may be helpful to recognize some of these differences between the genders when designing vocational treatment strategies. For example, when interviewing participants it was revealed that male offenders with limited skills (i.e., minimal education, no vocational training) were able to find an employment niche in labor intensive jobs (e.g., construction) that provide an adequate level of income. Female offenders with similar skill sets reported inconsistent employment in the food service industry which did not provide an adequate level of income.

A 'gendered' context of substance abuse may impact the predictive accuracy of the LSI-R

In accordance with prior substance use research (e.g., Henderson & Boyd, 1995; Henderson et al., 1994; Hser et al., 1987; Reisig et al., 2006; Wanberg & Milkman, 1998), this study found that female offenders were significantly more likely to be introduced to substances by an intimate partner or family member than males,who were more often introduced to substances by friends or acquaintances. Similar to Reisig and colleague's (2006) findings, results of this study indicate that the predictive ability of the LSI-R decreases for females offenders who follow this social trajectory into substance use.

Although a 'gendered' context of substance use did not emerge as criminogenic in nature, differences between the genders regarding substance abuse may be beneficial to address when designing substance use treatment strategies. For example, during the interviews female offenders expressed self-doubt regarding their ability to refrain from substance use if their

partner continued to use substances in their home. As such, it may be beneficial to encourage partners of female offenders to receive substance abuse treatment and/or help female offenders design relapse prevention plans that can be implemented if their partner continues to abuse substances. Furthermore, psychoeducational information regarding the relation between emotional distress and substance abuse is encouraged.

In addition to the gender differences regarding the social initiation into substance use, this study provides support for the notion that victimization may cause female offenders to succumb to excessive use of hard drugs. For example, this study revealed childhood abuse, severity of sexual abuse, length of abuse, and severity of intimate partner violence were able to significantly predict the extent to which a female offender excessively used hard drugs. Victimization's role in the onset and maintenance of substance use for female offenders indicates that neglecting victimization may decrease the likelihood that a female offender successfully refrains from substance use after treatment.

Policy Implications to inform practice

Research supports the notion that appropriate treatment lowers the rate of recidivism (Andrews at al., 1990; Andrews et al., 2006; Bourgon & Armstrong, 2005). As the correctional population and the cost of incarceration sharply expand, the correctional system must do everything in its power to lower recidivism and conduct an appropriate disbursement of the limited financial resources available. Since risk assessments are important in treatment planning, it is critical that female offenders are not marginalized through deficient assessment procedures. Instead, assessment procedures should include identifying criminogenic gender responsive risk factors and then treatment should address these factors. Converging evidence indicates there is a

need for policies or legislation on a national and statewide level to address validated risk assessment for female and male offenders.

Although the results of the study support the need for systematic policies, the foremost utility of these results is to inform risk assessment procedures. It is suggested that assessment procedures include the administration of a validated measure, such as the LSI-R, and a questionnaire that screens for victimization. The questionnaire should ask participants if they experienced specific behaviors rather than using labels to describe the behaviors (e.g., Were you ever hit repeatedly?, Did your partner ever make you feel unsafe in your own home? As a child or adolescent, did you ever have any unwanted sexual experiences?). By not explicitly labeling these behaviors as abusive, offenders will be more forthcoming with revealing the presence of possible abuse. Offenders who endorse a number of items on the screener should receive a follow-up questionnaire that asks participants if they are experiencing dynamic victimization factors (e.g., Are you currently in an relationship that has involved physical altercations? Do you often have nightmare or dreams about your past intimate partner physical altercations, familial physical altercations or unwanted sexual experiences?). The results of this study indicate that these dynamic risk factors are more related to future offending than static factors, and as such, are more imperative to address in treatment. The potential benefits of addressing victimization during risk assessment outweighs the inconvenience that may stem from the additional time and energy spent assessing victimization.

Limitations of this study

Although this study contributes to the recidivism literature by providing a better understanding of gender responsive variables, several weaknesses of this study must be acknowledged. Two limitations of this study are the small sample size and the low rate of

recidivism. A follow-up study (to be conducted in 2009) will include analyses of all 74 participants, and will include rearrest data for individuals who had been in the community for at least one year. Although this follow-up will not completely eliminate the limitation of small sample size, it will slightly increase the sample size of this study and a longer follow-up period may provide a higher rate of recidivism.

A third limitation is that the unreliability of some measure domains may have caused an increase in Type II errors (i.e., accepting the null hypothesis when false). Also, this study had an atypical racial composition (84.1% Caucasian, 15.9% African American) that is not in line with the racial composition of the national average of offenders (43.9 % Caucasian, 38.6 % African American; BJS, 2008b). The reason behind this discrepancy between the racial composition of this sample and the national population of offenders is unclear but it is possible the despite efforts to gather a representative sample of the general offender population of this state, this study gathered a mostly rural sample. Finally, it must be acknowledged that permission to verify participant's reports through a review of their official file was only obtained for 55.6% of participants. Andrews and Bonta (2001) stress the necessity to utilize collateral services for specific domains of the LSI-R. In order to correct for the aforementioned limitations, future research should be conducted in a large facility that allows for file review on a large sample of offenders.

Future directions

With regard to gender responsive risks and needs research, future research should include the evaluation of gender responsive treatment programs in correctional facilities. In particular, research into programs that address victimization is warranted. Currently, there appears to be limited empirical work examining the effectiveness of programs addressing abuse with female

offenders. It may be common that gender responsive needs are indirectly incorporated into an overarching treatment program. For example, Community Education Centers, Inc. provides female offenders in Florida with a "behind the walls reentry treatment program that includes a 12 step program associated with AA and NA, and a comprehensive life skills education course focused on the unique needs of female offenders including addictions, physical, emotional and sexual abuse, rape, abandonment; prostitution, and violent crimes" (Reuters, 2008, ¶ 3). The Turning Point Alcohol and Drug Program provides Oregon offenders with group sessions that incorporate substance abuse education, life skills, and relapse prevention strategies along with specific groups for physical and sexual abuse survivors (Edens, Peters, & Hills, 1997).

Although the aforementioned programs should be commended for attempting to address the specific needs of female offenders, this type of programming approach makes it difficult for researchers to parse the possibly beneficial effect of each component of the program. According to Morash and Schram (2004) "prison wardens found that programs that addressed women's prior victimization were inadequate" (p. 586). Research into gender responsive treatment programs can help determine the criminogenic nature of different variables as well as determining the most efficient treatment approach for validated criminogenic variables.

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Appendix A

Demographics Questionnaire

Name:_____
SSN[10]:_____

[10] The SSN is required to assure that the criminal record data gathered by CJIS is that of the participant's and not of an individual with the same name.

Mark the answer that applies to you:

Highest Education level completed

Middle School	O
High School	O
GED	O
Some college	O
College Degree	O

Race/Ethnicity

African American	O
Caucasian	O
Hispanic	O
Asian	O
Other ethnicity_____	O

Gender

Male	O
Female	O

Was English your first language?:

Yes	O
No	O

Relationship status

Single (never married)	O
Divorced	O
Separated	O
Widow	O
Married	O
Living with a partner	O

Do you have children:

Yes	O
No	O

Please fill in all the blanks below:

End of sentence date:_____

Beginning of sentence date:
_____

Crime you were charged with:_____
_____

Date of birth:_____

Present Age:_____

Immediately prior to coming here to community corrections or county jail did you come from prison or directly from court?_____
_____
_____

Appendix B
Childhood Experience of Care and Abuse Questionnaire (CECA.Q)

1. AS YOU REMEMBER YOUR MOTHER FIGURE IN YOUR FIRST 17 YEARS:

Please circle the appropriate number. If you had more than one mother figure, choose the one you were with longest, or the one you found most difficult to live with
.

WHICH MOTHER FIGURE ARE YOU DESCRIBING BELOW?

1. Natural mother
2. Step-mother/father's live-in partner
3. Other relative e.g. aunt, grandmother
4. Other non-relative e.g. foster mother, godmother
5. Other (describe)._____

		Yes Definitely		**Unsure**		**No Not at all**
1.	She was very difficult to please.....	5	4	3	2	1
2.	She was concerned about my worries.	5	4	3	2	1
3.	She was interested in how I did at school	5	4	3	2	1
4.	She made me feel unwanted.....	5	4	3	2	1
5.	She tried to make me feel better when I was upset.....	5	4	3	2	1
6.	She was very critical of me.....	5	4	3	2	1
7.	She would leave me unsupervised before I was 10 years old.....	5	4	3	2	1
8.	She would usually have time to talk to me	5	4	3	2	1
9.	At times she made me feel I was a nuisance	5	4	3	2	1
10.	She often picked on me unfairly.....	5	4	3	2	1
11.	She was there if I needed her.....	5	4	3	2	1
12.	She was interested in who my friends were	5	4	3	2	1
13.	She was concerned about my whereabouts...	5	4	3	2	1
14.	She cared for me when I was ill.....	5	4	3	2	1
15.	She neglected my basic needs (e.g. food and clothes)	5	4	3	2	1
16.	She did not like me as much as my brothers and sisters (Leave blank if no siblings)	5	4	3	2	1

2. **AS YOU REMEMBER YOUR FATHER FIGURE IN YOUR FIRST 17 YEARS**

Please circle the appropriate number. If you had more than one father figure, choose the one you were with longest, or the one you found the most difficult to live with. If you had no father figure in the household then leave out this section.

WHICH FATHER FIGURE ARE YOU DESCRIBING BELOW?

1. Natural father
2. Step-father/ mother's live-in partner
3. Other relative e.g. uncle, grandfather
4. Other non-relative e.g. foster father, adoptive father
5. Other (describe) ._____

		Yes Definitely		**Unsure**		**No Not at all**
1.	He was very difficult to please.....	5	4	3	2	1
2.	He was concerned about my worries.....	5	4	3	2	1
3.	He was interested in how I did at school..	5	4	3	2	1
4.	He made me feel unwanted.....	5	4	3	2	1
5.	He tried to make me feel better when I was upset ….....	5	4	3	2	1
6.	He was very critical of me.....	5	4	3	2	1
7.	He would leave me unsupervised before I was 10 years old.....	5	4	3	2	1
8.	He would usually have time to talk to me	5	4	3	2	1
9.	At times he made me feel I was a nuisance	5	4	3	2	1
10.	He often picked on me unfairly.....	5	4	3	2	1
11.	He was there if I needed him.....	5	4	3	2	1
12.	He was interested in who my friends were	5	4	3	2	1
13.	He was concerned about my whereabouts..	5	4	3	2	1
14.	He cared for me when I was ill.....	5	4	3	2	1
15.	He neglected my basic needs (e.g. food and clothes)	5	4	3	2	1
16.	He did not like me as much as my brothers and sisters..... (Leave blank if no siblings)	5	4	3	2	1

3. **PHYSICAL ABUSE BEFORE AGE 17 BY MOTHER FIGURE OF FATHER FIGURE**

When you were a child or teenager were you ever hit repeatedly with an implement (such as a belt or stick) or punched, kicked or burnt by someone in the household? **YES/ NO**

IF NO THEN SKIP TO THE NEXT PAGE

IF 'YES'	**MOTHER FIGURE**	**FATHER FIGURE**
How old were you when it began?	AGE_____	AGE_____
Did the physical abuse happen on more than one occasion?	YES/ NO	YES/ NO
How were you hit?	1.Belt or stick 2.Punched/kicked 3.Hit with hand 4.Other	1.Belt or stick 2.Punched/kicked 3.Hit with hand 4.Other
Were you ever injured e.g. bruises, black eyes, broken limbs?	YES/ NO	YES/ NO
Was this person so angry they seemed out of control?	YES/ NO	YES/ NO

Can you describe these experiences?_____
_____
_____
_____
_____
_____

Did you experience this from anyone else in the household? YES/ NO
IF YES: DESCRIBE BELOW
_____
_____
_____
_____
_____

4. **UNWANTED SEXUAL EXPERIENCES BEFORE AGE 17**
(Please circle as appropriate)

WHEN YOU WERE A CHILD OR TEENAGER DID YOU EVER HAVE ANY UNWANTED SEXUAL EXPERIENCES?	YES/ NO/ UNSURE
Did anyone force you or persuade you to have sexual intercourse against your will before age 17?	YES/ NO/ UNSURE
Can you think of any upsetting sexual experiences before age 17 with an adult relative or someone in authority (e.g.teacher)?	YES/ NO/ UNSURE

IF 'YES' OR 'UNSURE' TO ABOVE THEN COMPLETE THE FOLLOWING:

	FIRST EXPERIENCE OF SEXUAL ABUSE	**OTHER OCCURANCE OF SEXUAL ABUSE**
How old were you when the sexual abuse began?	AGE_____	AGE_____
Was the person who sexual abused you someone you knew?	YES/ NO	YES/ NO
Was the person who sexual abused you a relative?	YES/ NO	YES/ NO
Did the person who sexual abused you live in your household?	YES/ NO	YES/ NO
Did this person sexually abuse you on more than one occasion?	YES/ NO	YES/ NO
Did the sexual abuse involve touching private parts of your body?	YES/ NO	YES/ NO
Did the sexual abuse involve touching private parts of the other persons body?	YES/ NO	YES/ NO
Did the sexual abuse involve sexual intercourse?	YES/ NO	YES/ NO

Please describe these experiences?

_____
_____
_____
_____

Appendix C

Women's Experience with Battery (WEB) Scale

For each statement, please indicate the answer that best describes how much you agree or disagree in general with each one as a description of your relationship with your "partner." If you do not now have a partner, think about your last one. There are no right or wrong answers; just indicate the number that seems to best describe how much you agree or disagree with it.

Description of how your Partner makes you feel.	Agree Strongly	Agree Somewhat	Agree a Little	Disagree a Little	Disagree Somewhat	Disagree Strongly
1. My partner makes me feel unsafe even in my own home.	6	5	4	3	2	1
2. I feel ashamed of the things my partner does to me.	6	5	4	3	2	1
3. I try not to rock the boat because I am afraid of what my partner might do.	6	5	4	3	2	1
4. I feel like I am programmed to react a certain way to my partner.	6	5	4	3	2	1
5. I feel like my partner keeps me prisoner.	6	5	4	3	2	1
6. My partner makes me feel like I have no control over my life, no power.	6	5	4	3	2	1
7. I hide the truth from other because I am afraid not to.	6	5	4	3	2	1
8. I feel owned and controlled by my partner.	6	5	4	3	2	1
9. My partner can scare me without laying a hand on me.	6	5	4	3	2	1
10. My partner has a look that goes straight through me and terrifies me.	6	5	4	3	2	1

In any intimate relationship that lasted at least 3 months:		
(1) Did you ever feel emotionally or psychologically abused?	YES	NO
(2) Did a partner hit, slap, kick, or otherwise physically hurt you?	YES	NO
(3) Incidents involving forced or unwanted sexual acts are often difficult to talk about. In any intimate relationship lasting at least 3 months, did a partner force you to engage in sexual intercourse or have sexual activities against your will?	YES	NO

Appendix D

Follow-up Abuse Questionnaire[11]

1) Are you currently in any abusive relationships? (Please explain)._____

2) Are you currently receiving therapy that specifically addresses your past abuse? (Please explain).

3) In the past, have you ever received therapy that specifically addressed your past abuse? (Please explain)._____

4) How long do you think your abuse lasted?

[11] If the participant does indicate any abuse on the previous measures, then this questionnaire will not be given to them.

5) Do you often have nightmare or dreams about your past abuse?_____
If yes when was the last one:
_____
_____
_____
_____
_____
_____

6) Do you often have thoughts about your history of abuse? (Please explain)._____
_____
_____
_____
_____

7) Do you feel like you have not emotionally recovered from your abuse?
_____
_____
_____
_____
_____
_____
_____
_____

8) Does your abuse still impact your life today (Please describe how it impacts you)?
_____
_____
_____
_____

9) Are you still in contact with the person that abused you? If so, in what way and how often are you in contact?
_____
_____
_____
_____

10) Do you think your abuse had anything to do with why you have engaged in criminal activity?
_____
_____
_____
_____
_____
_____

Appendix E

Financial Questionnaire[12]

1) During the year before your sentence started, what was your income (not your total family income) before taxes (for the entire year)? (The income could have come from employment and non-employment)

2) If married, what was the income provided by your spouse, during the year before your sentence started?

3) During the year before your sentence started, was there anyone (besides a spouse) that provided you with a regular income? If so, what was there relation to you and how much did they provide on average that year?

4) During the year before your sentence started, how many children lived in your household?

5) During the year before your sentence started, how many of these children were legally your dependents?

6) During the year before your sentence started, were you the primary caregiver for these children (that is are you the one who was responsible for financially supporting them)?

7) During the year before your sentence started, what outside sources of money did you receive (e.g. child support, welfare, food stamps etc).

8) Do you have any credit cards?_____
If yes: how many and what are their limits?_____

9) Currently, how much debt do you owe (e.g. credit card, car loans etc, loans from friends or family)?

10) During the year before your sentence started, did you live in public government housing?_

[12] Employment status is assessed by the LSI-R and therefore not assessed in this questionnaire.

Appendix F

Substance Use Questionnaire

Please circle the most appropriate answer. If you answer yes to a question, then please answer questions A-J under it. If you answer no to a question then continue on to the next page.

1) Have you ever drank alcohol? Yes No

A) Did you ever commit a crime while under the influence of alcohol? (Please remember that this information will have no effect on your legal situation nor will it be told to the CC[13] staff).	Yes	No
B) Did any hospitalizations result from the use of alcohol?	Yes	No
C) Did you ever unsuccessfully try to reduce or control your alcohol use?	Yes	No

D) Age alcohol was first consumed? _____

E) On average, how many days per week did you drink alcohol? _____

How many times during a day did you drink alcohol? _____

F) When was the last time you drank alcohol? How much did you drink?

_____

G) In your entire life, what was the total length of time that you drank alcohol

excessively (e.g. almost daily)? _____

H) When you had your first drink, was that drink given to you by a family member, friend, or acquaintance?_____

[13] The word "CC" will be changed to "the county jail" for participants recruited at the county jail and will be changed on every page of this measure.

2) Have you ever used marijuana? Yes No

A) Did you ever commit a crime while under the influence of marijuana? (Please remember that this information will have no effect on your legal situation nor will it be told to the CC staff).	Yes	No
B) Have you ever been arrested due to the possession, distribution or production of marijuana?	Yes	No
C) Did any hospitalizations result from the use of marijuana?	Yes	No
D) Did you ever unsuccessfully try to reduce or control your use of marijuana?	Yes	No

E) Age that marijuana was first used? _____

F) On average, how many days per week did you use marijuana? _____

How many times during a day did you use marijuana? _____

G) When was the last time that you used marijuana? _____

H) In your entire lifetime, what was the total length of time that marijuana was used excessively (e.g. almost daily)? _____

I) When you used marijuana for the first time, was the marijuana given to you by a family member, friend or acquaintance?_____

J) Are you still in contact with the person that first supplied you marijuana? _____

If yes: how easily can you contact them and how often do you see them?

_____

3) Have you used methamphetamine? Yes No

A) Did you ever commit a crime while under the influence of methamphetamine? (Please remember that this information will have no effect on your legal situation nor will it be told to the CC staff).	Yes	No
B) Have you ever been arrested due to the possession, distribution or manufacturing of methamphetamine?	Yes	No
C) Did any hospitalizations result from the use of methamphetamine?	Yes	No
D) Did you ever unsuccessfully try to reduce or control your use of methamphetamine?	Yes	No

E) Age that methamphetamine was first used? _____

F) On average, how many days per week did you use methamphetamine? _____

How many times during a day did you use methamphetamine? _____

G) When was the last time that you used methamphetamine?

_____

H) In your entire lifetime, what was the total length of time that methamphetamine was used excessively (e.g. almost daily)? _____

I) When you used methamphetamine for the first time, was the methamphetamine given to you by a family member, friend or acquaintance?_____

J) Are you still in contact with the person that first supplied you methamphetamine?

_____

If yes: how easily can you contact them and how often do you see them?

_____

4) Have you ever used powder cocaine? Yes No

A) Did you ever commit a crime while under the influence of powder cocaine? (Please remember that this information will have no effect on your legal situation nor will it be told to the CC staff).	Yes	No
B) Have you ever been arrested due to the possession, distribution or manufacturing of powder cocaine?	Yes	No
C) Did any hospitalizations result from the use of powder cocaine?	Yes	No
D) Did you ever unsuccessfully try to reduce or control your use of powder cocaine?	Yes	No

E) Age that powder cocaine was first used?_____

F) On average, how many days per week did you use powder cocaine? _____

How many times during a day did you use powder cocaine? _____

G) When was the last time that you used powder cocaine?

_____

H) In your entire life, what was the total length of time that powder cocaine was used excessively (e.g. almost daily)? _____

I) When you used powder cocaine for the first time, was the powder cocaine given to you by a family member, friend or acquaintance?_____

J) Are you still in contact with the person that first supplied you powder cocaine?

_____

If yes: how easily can you contact them and how often do you see them?

_____

5) Have you ever used crack cocaine? Yes No

A) Did you ever commit a crime while under the influence of crack cocaine? (Please remember that this information will have no effect on your legal situation nor will it be told to the CC staff).	Yes	No
B) Have you ever been arrested due to the possession, distribution or manufacturing of crack cocaine?	Yes	No
C) Did any hospitalizations result from the use of crack cocaine?	Yes	No
D) Did you ever unsuccessfully try to reduce or control your use of crack cocaine?	Yes	No

E) Age that crack cocaine was first used?_____

F) On average, how many days per week did you use crack cocaine? _____

How many times during a day did you use crack cocaine? _____

G) When was the last time that you used crack cocaine?

_____

H) In your entire life, what was the total length of time that crack cocaine was used excessively (e.g. almost daily)? _____

I) When you used crack cocaine for the first time, was the crack cocaine given to you by a family member, friend or acquaintance?_____

J) Are you still in contact with the person that first supplied you crack cocaine?

_____

If yes: how easily can you contact them and how often do you see them?

_____

6) Have you ever used acid? Yes No

A) Did you ever commit a crime while under the influence of acid? (Please remember that this information will have no effect on your legal situation nor will it be told to the CC staff).	Yes	No
B) Have you ever been arrested due to the possession, distribution or manufacturing of acid?	Yes	No
C) Did any hospitalizations result from the use of acid?	Yes	No
D) Did you ever unsuccessfully try to reduce or control your use of acid?	Yes	No

E) Age that acid was first used? _____

F) On average, how many days per week did you use acid? _____

How many times during a day did you use acid? _____

G) When was the last time that you used acid?

_____

H) In your entire life, what was the total length of time that acid was used excessively

(e.g. almost daily)? _____

I) When you used acid for the first time, was the acid given to you by a family member,

friend or acquaintance?_____

J) Are you still in contact with the person that first supplied you acid?

_____

If yes: how easily can you contact them and how often do you see them?

_____

7) Have you ever used ecstasy? Yes No

A) Did you ever commit a crime while under the influence of ecstasy? (Please remember that this information will have no effect on your legal situation nor will it be told to the CC staff).	Yes	No
B) Have you ever been arrested due to the possession, distribution or manufacturing of ecstasy?	Yes	No
C) Did any hospitalizations result from the use of ecstasy?	Yes	No
D) Did you ever unsuccessfully try to reduce or control your use of ecstasy?	Yes	No

E) Age that ecstasy was first used? _____

F) On average, how many days per week did you use ecstasy? _____

How many times during a day did you use ecstasy? _____

G) When was the last time that you used ecstasy?

_____

H) In your entire life, what was the total length of time that ecstasy was used excessively (e.g. almost daily)? _____

I) When you used ecstasy for the first time, was the ecstasy given to you by a family member, friend or acquaintance?_____

J) Are you still in contact with the person that first supplied you ecstasy?

_____

If yes: how easily can you contact them and how often do you see them?

_____

8) Have you ever used heroin? Yes No

A) Did you ever commit a crime while under the influence of heroin? (Please remember that this information will have no effect on your legal situation nor will it be told to the CC staff).	Yes	No
B) Have you ever been arrested due to the possession, distribution or manufacturing of heroin?	Yes	No
C) Did any hospitalizations result from the use of heroin?	Yes	No
D) Did you ever unsuccessfully try to reduce or control your use of heroin?	Yes	No

E) Age that heroin was first used? _____

F) On average, how many days per week did you use heroin? _____

How many times during a day did you use heroin? _____

G) When was the last time that you used heroin?

_____

H) In your entire life, what was the total length of time that heroin was used excessively (e.g. almost daily)? _____

I) When you used heroin for the first time, was the heroin given to you by a family member, friend or acquaintance?_____

J) Are you still in contact with the person that first supplied you heroin?

_____

If yes: how easily can you contact them and how often do you see them?

_____

9) Have you ever used any drugs not previously listed? Yes No

What are the other drugs not listed:_____

A) Did you ever commit a crime while under the influence of the drug? (Please remember that this information will have no effect on your legal situation nor will it be told to the CC staff).	Yes	No
B) Have you ever been arrested due to the possession, distribution or manufacturing of the drug?	Yes	No
C) Did any hospitalizations result from the use of the drug?	Yes	No
D) Did you ever unsuccessfully try to reduce or control your use of the drug?	Yes	No

E) Age the drug was first used? _____

F) On average, how many days per week did you use the drug? _____

How many times during a day did you use the drug? _____

G) When was the last time that you used the drug?

_____

H) In your entire life, what was the total length of time that the drug was used

excessively (e.g. almost daily)? _____

I) When you used the drug for the first time, was the drug given to you by a family

member, friend or acquaintance?_____

J) Are you still in contact with the person that first supplied you the drug?

_____

If yes: how easily can you contact them and how often do you see them?

_____

Appendix G

Criminal Record Consent Form

You are being asked to grant the researcher the right to view your criminal record. Your criminal record is not open to the public and therefore you have the right to decide if a researcher can look at your criminal record. By signing this form, you are voluntarily deciding to allow the researcher to see certain aspects of your criminal record. The researcher will access your criminal record in order to gather re-arrest information. The researcher is only allowed to gather information about re-arrests and convictions that occurred during the one year period after your participation in the initial phase of this study. The researcher is allowed to know what crimes you have been arrested for, and the crimes you have been convicted of, and the exact date of the arrests and convictions. The researcher is not allowed to gather any other information from your criminal record.

A third party at the Alabama Criminal Justice Information Center (CJIC) will provide the information to the researcher. Therefore, this third party will be viewing your criminal record. The Alabama Criminal Justice Information Center is **not** affiliated with Alabama Department of Corrections. The third party will be an employee at the CJIC who has the clearance to access their database. This third party will not have any access to the information that you provide for this study, and this employee will only be provided your name and SSN for the sole purpose of accessing your criminal record.

If you have questions about the study, please ask them. You can take back your consent at any time during the one year period of the study by contacting the researcher, Stephanie Evans, at 205-348-4014 (or via e-mail at saevans@bama.ua.edu) or Dr. Karen Salekin (faculty advisor for the current study) at 205-348-0679 (or via e-mail at ksalekin@bama.ua.edu).

If you have any questions about your rights as a research participant, you may contact Ms. Tanta Myles, The University of Alabama Research Compliance Officer, at (205)-348-5152. If you have any question about the third party assessing your criminal record you may contact Maury Mitchell of the Alabama Criminal Justice Information Center at (334)-242-4960.

By signing this form, you willingly give the researcher access to your criminal record for the sole purpose of gathering re-arrest information.

_____ _____
Signature of Research Subject Date

_____
Printed Name of Research Subject

_____ _____
Signature of Person Obtaining Consent Date

Appendix H

LSI-R Domain	Type of Risk Factor	Item	How item's score is determined Within the LSI-R Mod all items were scored as 0=No presence; 1=Yes
Victimization (Added)	Static	Childhood physical abuse	Presence of physical abuse disorder for mother or father as determined by *Childhood Experience of Care and Abuse questionnaire (*CECA.Q) scoring schema which utilizes information from page 3 of CECA.Q (score >3)
	Static	Childhood sexual abuse	Presence of sexual abuse as determined by CECA.Q scoring schema which utilizes information from page 4 of CECA.Q (score >1)
	Static	Domestic abuse	Presence of Domestic Abuse as determined by WEB scoring schema (score >20) Or the endorsement of two items on AAS questions
	Static	Severity of abuse	Presence of high severity level of abuse, as determined by the CECA.Q scoring schema, on one of the following variables: • Physical abuse by Mother (score of 4 on scale of 0-4) • Physical abuse by Father (score of 4 on scale of 0-4) • Sexual abuse First Incident (score above 6 on scale of 0-7) • Sexual abuse Other Incident (score above 6 on scale of 0-7) • WEB (i.e., Domestic Violence) total (scores above 50 on scale of 10-60)
	Static	Length of abuse	Presence of more than 2 years of abuse as determined by participant's response to question 4 of the Follow-up Questionnaire

	Dynamic	Current abuse	Presence of current abuse as determined by participant's response to question 1 of the Follow-up Questionnaire
	Dynamic	Reaction to abuse	Presence of one of current negative reactions to abuse (e.g., intrusive thoughts, nightmares, belief one has not emotionally recovered, belief that abuse has impact on daily life) as determined by participant's response to questions 5-8 of the Follow-up Questionnaire
	Dynamic	Severity of reaction	Presence of three of more of current negative reactions to abuse (e.g., intrusive thoughts, nightmares, belief one has not emotionally recovered, belief that abuse has impact on daily life) as determined by participant's response to questions 5-8 of the Follow-up Questionnaire
Financial (Modified)	Dynamic	Poverty status – Addition	Presence of Poverty status as determined through US Census bureau guidelines and utilizing information from questions #1, 2,and 4 of the Financial Questionnaire
	Dynamic	Dependent children – Addition	Presence of dependent children as determined by questions 4-6 of the Financial Questionnaire
	Dynamic	External Support – Modified from only social assistance to also familial assistance	Presence of external financial support as determined by question 7 of the Financial Questionnaire
	Dynamic	Severity of debt level	Presence of more than $5000 of debt as determined by question 9 of the Financial Questionnaire

Substance Abuse (Modified)	Static	Type of drug use-hard drugs used excessively	Presence of use of three or more types of hard drugs (e.g., powder cocaine, crack cocaine, heroin and methamphetamine) as determined through the Substance Use Questionnaire (SUQ)
	Static	Length of substance use	Presence of excessive use (i.e., more than four times a week) of any substance for more than 10% of a participant's lifetime as determined through the SUQ.
	Static	Relationship context of drug use	Presence of introduction of substance, excluding alcohol, by family members or intimate partners as determined through the SUQ.
	Static	Polysubstance Use	Presence of use of more than 4 different substance, excluding alcohol, as determined through the SUQ.
	Dynamic	Drug use in prior 1 month not under supervision	Presence of recent substance use, excluding alcohol, as determined through the SUQ.