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Utility of the Level of Service Inventory-Revised (L SI-R) in Predicting Recidivism: Do Gender and Offense Type Matter?

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UTILITY OF THE LEVEL OF SERVICE INVENTORY-REVISED (LSI-R) IN PREDICTING RECIDIVISM: DO GENDER AND OFFENSE TYPE MATTER?

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Title: Utility of the Level of Service Inventory-Revised (LSI-R) in Predicting Recidivism: Do Gender and Offense Type Matter?

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The creators of the LSI-R contend that this risk assessment is a 'gender neutral' tool while feminist scholars remain skeptical as to the LSI-R's empirical ability to predict female recidivism as the tool was developed on male-centered theories. Research findings on the gender effect on the predictive validity of LSI-R are mixed. Very little research is available as to the effect of offense type on the tool's predictive utility.

Using the disaggregated data by gender and offense types, this research aimed to determine the moderating effects of gender and offense type on the predictive utility of the Level of Service Inventory- Revised (LSI-R). This dissertation divided offense type into four categories: sex offense, person offense, property offense and drug offense. This dissertation used a sample of offenders (n=2,917) from the Kansas Department of Corrections (KDOC) who released in fiscal year 2008 (July 1, 2007- June 30, 2008). Data was collected for these offenders for a 36 month follow-up period to assess for any instances of recidivism.

After controlling for offense type, logistic regression analyses showed that the LSI-R is the valid risk assessment for both male and female offenders. With the major research question of moderating effect of gender, this study found that the different subscales predict recidivism between genders. Regardless of offense type, the LSI-R total

score proved to be a significant predictor of recidivism. Like the moderating effect of gender, the moderating effect of offense type in the predictive validity of LRI-R was supported.

Though this dissertation found support for the predictive utility of the LSI-R across gender and offense type, no statistically significant subscale predicting recidivism for female property offenders was found. Furthermore, because statistically significant subscale predictors of recidivism varied across offense type and gender, it is recommended that future research further examines the predictive validities of subscales. Given the finding of this study that only few subscales reached the statistical significance to predict recidivism across offense type and gender, other factors should be considered to assess need and risk. Replication of this study using different samples is recommended.

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CHAPTER I

INTRODUCTION

Currently, the United States houses more people in prison than any comparable country in the world (Johnson, 2013). In 2012, there were over 1.5 million offenders incarcerated (at the state level; not including those housed in federal prisons) in prisons throughout the United States (Carson & Golinelli, 2013). Although the number of incarcerated offenders is down 0.9 percent from 2010, many states (including Kansas, Missouri, Pennsylvania, Ohio and Texas, among others) still struggle to house offenders due to overcrowding and financial instability (The Pew Center on the States, 2011). Given that more than one in every 100 adults is incarcerated, at an average cost of over $31,000 per year, the United States is spending over $50 billion annually on prisoners (Henrichson & Delaney, 2012).

The rate of reoffending, or recidivism, is a nationwide epidemic (The Pew Center on the States, 2011). The national recidivism rate for 2004-2007 was 43.3 percent. While this number dropped 2.1 percent (from 45.4%) from previous calculations (1999-2002), many states (i.e., Pennsylvania, South Dakota and Washington) saw individual increases in recidivism (The Pew Center on the States, 2011).

Not only does recidivism vary from state to state, but also by gender and offense type. Generally, female offenders have a lower recidivism rate than males (U.S. Department of Justice, 2010). For example, female offenders in Connecticut recidivated at a rate of 26.5 percent compared to 37.9 percent for male offenders (U.S. Department of Justice, 2010). According to the Florida Department of Corrections (2010), females recidivate at a rate half that of males. Private and state prisons report similar recidivism trends for males and females. According to Spivak and Sharp (2008), men in private prisons were more likely to recidivate than those in state prisons (35.1% as opposed to 30.1%). In contrast, women in private prisons were less likely to recidivate than those females incarcerated within the state system (21.2% as opposed to 26.8%) (Spivak & Sharp, 2008). Overall, national recidivism rates for male offenders are higher than female offenders. Nonetheless, the number of female offenders who recidivate is too high to ignore.

Table 1

National UCR Arrest Trend Data (2003-2012)

Offense Charged	Males* Charged	% Change From 2003	Females* Charged	% Change from 2003
Murder & Non-Negligent Manslaughter	6,303	-14.3	830	-8.3
Robbery	59,033	-7.1	9,032	+20.2
Aggravated Assault	201,049	-16.1	59,103	-5.4
Burglary	161,450	-5.4	32,432	+14.7
Larceny	488,888	+0.4	374,332	+29.6
Sex Offenses (excluding forcible rape)	43,629	-20.4	3,740	-30.2
Vandalism	122,544	-20.2	30,460	+1.8
Drug Abuse Viol.	817,198	-7.9	211,020	+3.8

*Number of males and females charged with these offenses in 2012.
**Total number of males charged in 2012- 6,028,378.
**Total number of females charged in 2012- 2,140,934.

Though the rate of recidivism for females remains lower than that of males, national arrest rates for females have been on the rise in the past decade (UCR, 2012) (see Table 1). Over a decade ago, the Bureau of Justice statistics predicted that eleven of every 1,000 women would be incarcerated at the state or federal level at some point in their lives (BJS, 1999b). In 2003, just over two million females, and in 2012, over 2.1 million (2,140,934) females were arrested for various crimes. The nine-year difference in arrested females accounts for an increase of 2.9 percent (UCR, 2012). Males accounted for a significantly larger portion of the population of those arrested both in 2003 (6.9 million) and in 2012 (6.0 million). However, from 2003 to 2012, arrest rates for males dropped by 12.7 percent (UCR, 2012).

According to the UCR (2012), for every crime category increase in arrest rates for females, excluding larceny, a decrease in arrests was noted for males. For example, female arrests for property crimes increased by 24.7 percent from 2003 to 2012. During that same time period, arrests for property crimes decreased by 6.9 percent for males (UCR, 2012). Arrests for robbery also increased for females between 2003 and 2012 by 20.2 percent (UCR, 2011). Robbery-related arrests for males decreased by 7.1 percent during this time period. Females charged with crimes categorized as 'drug abuse violations' have increased by over three percent (3.8%). Males charged with the same crimes during the same time period have decreased by 7.9 percent (UCR, 2012). These arrest trends depict an interesting surge in female related criminal activity.

States are desperately implementing new techniques to curb recidivism rates. From interventions to sentence modification, various ways to prevent recidivism have been implemented throughout the United States. One of the most reliable and inexpensive ways to reduce recidivism is through the use of risk assessment tools (Clear, Cole, Reisig & Petrosino, 2012). Risk assessment tools allow professionals to properly identify the probability of which offenders may reoffend (Andrews & Bonta, 1995) and to place offenders into an appropriate level of supervision by gauging offender's needs, risks, strengths and areas for improvement. Assessments of risk can be administered at any point during an offender's sentence, but are usually conducted at the beginning and end of a prison term. Risk assessment tools may be general, addressing all areas of risk and need. However, they can be specific, focusing only on substance abuse or sex offender programming, for example (John Howard Society of Alberta, 2000).

The LSI-R (Level of Service Inventory-Revised) remains one of the field's most widely used risk assessment tools for those offenders sixteen and older (Poels, 2007; Reisig et al., 2006). Since its development in the 1970s, the LSI-R has been used in over 200 countries around the world. In the United States, the tool is used nationwide to assess risk, as well as need (MHS, 2013). According to Multi-Health Systems Incorporated (2013), the use of LSI-R has been normed, or validated, on over 19,000 inmates from seven corrections departments across the country. Additionally, the tool has been validated on over 4,000 probationers and parolees from seven independent samples. These samples include male and female offenders, as well as those incarcerated and those on under community corrections' supervision (MHS, 2013).

The LSI-R is a standardized, quantitative tool used to assess factors related to offenders both while incarcerated and once released. The Level of Service Inventory (-Revised) was developed by Canadian psychologists, Don Andrews and James Bonta, in the 1970s (Andrews & Bonta, 1995; Reisig et al., 2006). Initially, the Level of Service Inventory (-Revised) was designed to assess probationers and those offenders sentenced to a term of two years or less. Andrews and Bonta (2001) updated their original version of the LSI in 1995. Its designers have produced four additional versions of the original Level of Service Inventory; (1) the LSI-R, (2) the Young Offenders Level of Supervision Inventory (Y-LSI), (3) the Youth Level of Service/Case Management Inventory (YLS/CMI) and (4) the Level of Service Inventory-Ontario Revised (LSI-OR) (Girard &

Wormith, 2004).

The Level of Service Inventory (-Revised) assesses one's criminal risk and need for treatment via a survey administered and hand-scored by a trained healthcare or criminal justice professional. In measuring and analyzing both static and dynamic risk factors, the LSI-R can be used to determine an offender's placement, as well as their supervision requirements (Andrews & Bonta, 1995). The LSI-R is often used to classify offenders: placing them into groups assumed alike for the purpose of decision-making (Sechrest, 1987). Classification affords correction's professionals the ability to predict offenders' behaviors (Gottfredson, 1987). Additionally, upon release to the community, the offender can be reassessed using the LSI-R to note the changes, if any, in his/her risks and needs.

As a whole, risk assessment tools have been criticized due to their ignorance of (1) previous failures within the facility, as well as on probation and/or parole, and (2) one's influences outside facility life (family members, friends, etc.), among others (Reisig, Holtfreter, & Morash, 2006). Unlike such risk assessments, the LSI-R *does* account for one's prior convictions and previous time spent on probation and/or parole (both accounted for within the criminal history subscale). All convictions and prior supervision are scored, and thus reflected as part of one's total LSI-R score. Additionally, while one's influences outside incarceration, such as family and friends, are often not addressed in other risk assessments, two of the LSI-R's ten subscales (family/marital and companions) score the level of impact of one's companions; both inside and outside the facility.

To date, there has been no mainstream risk assessment tool designed strictly for the female offender population. Many states utilize risk assessment measures created for males without any modifications for female offenders (Bloom et al., 2003). Critics contend using one assessment tool for both genders can lead to the over or under-generalization of a female's risk (Chesney-Lind, 1989; Holtfreter et al., 2004; Lowenkamp, Holsinger & Latessa, 2001; Mazerolle, 1998). Like other risk assessment tools, the LSI-R has been questioned as to its utility to predict recidivism of female offenders. The creators of the LSI-R contend that the LSI-R is a gender-neutral tool; thus, the tool can predict recidivism risk for both the male and female offender populations. However, criminologists, especially from the feminist perspective, remain skeptical as to the LSI-R's empirical ability to predict female recidivism as the tool was developed on male-centered theories (Reisig et al., 2006).

Feminist criminologists contend that females and males have gender specific experiences that have distinct effects on each gender (e.g., sexual victimization) (Holtfreter, Reisig & Morash, 2004; Poels, 2007; Reisig et al., 2006). For example, women tend to be more connected to their children, families and community (Covington, 2003; Holtfreter & Cupp, 2007; Holtfreter & Morash, 2003; Gendreau, Little & Goggin, 1996), thus warranting careful consideration of family issues when assessing risk of recidivism. Female crime raes can be affected by economic disadvantage, divorce rates, and an increase in female-headed households (Holtfreter et al., 2004). Women and men are affected differently by teen or unwanted pregnancies, sexual abuse and assault, domestic violence and depression (Bloom, Owen & Covington, 2003; Poels, 2007). In other words, criminal risk is 'gendered' (Hannah-Moffat, 2006).

Little research exists concerning the evaluation of these risk factors in regard to female recidivism (Poels, 2007). Manchak et al. (2009) and Vose, Lowenkamp, Smith and Cullen (2009) sought to assess the predictive validity of the LSI-R for both genders and they found no statistically significant differences in the predictive validity of the LSI-R for males and females. Previously, Andrews and Bonta (2003) found correlates of criminal behavior to be similar for males and females when assessed via the LSI-R. However, criminologists, especially those with a feminist perspective, remain unsure as to its utility in predicting recidivism for female offenders as the tool was designed for the male offender population.

There are a few studies testing the predictive validity of the LSI-R across different offense types using male only samples which may not be generalizable to the female offender population as their risk factors vary so significantly (Girard & Wormith, 2004; Hollin & Palmer, 2003; Loza & Simourd, 1994; Malcolm & Simourd, 1998). Kim's (2010) study is an exception, as it assesses the predictive validity of the LSI-R across gender differences as well as two types of offenses; violent and non-violent offenses. Controlling for race, gender and two crime categories, Kim's study (2010) assessed the LSI-R as a predictor of recidivism. Kim (2010) reported LSI-R scores as being a valid predictor of recidivism for males, regardless of race or offense type. However, she concluded one's LSI-R score was only a valid predictor for females who had committed a non-violent offense. She found no statistically significant results in regard to the tool's utility in predicting recidivism for violent female offenders.

Instead of using specific offense types, Reisig et al. (2006) utilized Daly's (1992; 1994) four "gendered" categories of female offenders (street women, drug connected women, harmed and harming women and battered women), as well as females who were economically motivated, to assess the predictive validity of the LSI-R. While the authors found support for the LSI-R's utility to predict recidivism with economically motivated female offenders, they reported the tool failed to predict recidivism rates for drug-connected and harmed/harming female offenders. Since Kim's (2010) study only used a simple classification (violent vs. non-violent) and Reisig et al. (2006) classified female offenders based on motivation instead of the actual offense committed, additional research is required to test the predictive validity of the LSI-R across different offense types especially among female offenders.

As Vose et al. (2009) suggests, additional research is needed to add to the empirical foundation of gender-specific knowledge in regard to risk assessment measures. As more research is made available adding to the credibility of the LSI-R, the greater the understanding will become as to how to rehabilitate both male and female offenders effectively (Vose et al., 2009).

In sum, most of the previous studies on the LSI-R tested the tool's predictive utility using samples of male offenders. The few studies using both male and female offenders, or only female offenders, reported mixed results in terms of the LSI-R's predictive utility in predicting recidivism among female offenders (Holtfreter & Cupp, 2007; Reisig, et al., 2006). Furthermore, little to no research has been conducted on the tool's ability to predict future offending across various offense types. Kim (2010) reported that LSI-R score is a valid predictor of recidivism for male offenders and non-violent female offenders. However, she found no support for the tool's utility when assessing violent female offenders. Studying only two offense types is too simplistic. Findings rendered from Kim's (2010) study are not generalizable until researchers test additional crime types. By testing the predictive utility of the LSI-R with different offender subgroups (sex, property, drug and person offenders), this research enhances the generalizability of prior findings.

Using official data on state inmates in Kansas, the current study found the LSI-R's utility to predict the risk of recidivism for both male and female offenders. However, the LSI-R subscales found to be statistically significant in predicting recidivism varied by gender. The findings from this dissertation can assist practitioners in placing females into needs-based programming and interventions by speaking to relationships between gender and specific LSI-R subscales. In other words, statistically significant relationships among varying subscales for male and female offenders suggest the need for gender-specific programming. Gender-specific programming may allow for a more targeted approach in reducing female recidivism.

Furthermore, the findings of this study supported the moderating effect of offense types (sex, person, property and drug) as related to the predictive validity of the LSI-R. That is, the current dissertation reveals the LSI-R has sound predictive validity for both sexes as well as various offense types. However, the current study found no utility in the tool's ability to predict recidivism for female property offenders. This finding suggests the need to add more gender-specific items to the LSI-R or create an offense-specific risk assessment tool other than the LSI-R. Such a risk assessment tool may include additional questions (i.e., prior victimization; history of unwanted pregnancy; or other experiences) that are more specifically related to the female offender population. Though questions about prior sexual abuse or teen pregnancy would aim to include specific risk factors of female offenders, such questions may also be relevant to portions of the male offender population.

CHAPTER II

LITERATURE REVIEW

Introduction

Recidivism is a nationwide problem. For released offenders, the three-year (36 month) national recidivism rate for 2004-2007 was 43.3 percent (Pew Charitable Trusts, 2011). A number of states, including Montana, Illinois and California, saw rates well above fifty percent (50%) during the same periods (Pew Charitable Trusts, 2011). According to Glaze and Bonczar (2009), more than four million offenders were on probation, and approximately one million on parole, at the end of 2009. These numbers are drastically impacting state budgets and operating capacities. States across the country are experimenting with new, evidence-based practices and techniques (e.g., individualized treatment, cognitive- behavioral therapy, motivational interviewing) in hopes of curbing the high rate of return for America's offenders (Austin, 2003).

One popular technique of risk assessment tools, are instruments that allow professionals in the criminal justice field to measure an offender's likelihood to recidivate (Bonta, 2002). Such instruments provide an inexpensive, predictive method of placing offenders in treatment and supervision plans that are tailored to their individual risk and needs (Bonta, 2002; Schlager & Pacheco, 2011; Schlager & Simourd, 2007). In addition, risk assessments are indicative of an offender's success upon release and aim to decrease overall rates of recidivism.

The following chapter discusses risk assessment tools, specifically the LSI-R, its predictive utility, theoretical implications and relevant literature. This chapter also presents existing research findings on the use of the LSI-R with particular populations (i.e., male and female). A review of the importance of gender and crime (i.e., person, property, drug, etc.) differences related to risk assessments follows. In addition, limitations as related to the LSI-R and its utility are discussed. The chapter concludes with a discussion on the significance of the current study.

Risk Assessments

Why one chooses to engage in criminal behavior and recidivate are not simple questions to answer. Criminal behaviors may occur out of motivation driven by a number of varying risk factors (i.e., past criminal history, family environment, alcohol or drug abuse) (John Howard Society of Alberta, 2000). Many studies compare the recidivism rates of offenders with a particular characteristic (e.g., employment) to the recidivism rates of offenders with a different characteristic (e.g., unemployment) (Hanson, 2000; Hanson & Bussiere, 1998; Quinsey et al., 1998). These studies conclude that no one risk factor is sufficiently related to recidivism that it can explain reoffending on its own (Hanson, 2000). Risk assessment tools have the ability to assess multiple risk factors as related to recidivism (John Howard Society of Alberta, 2000). Risk assessment tools are, in essence, predictions of future behavior and/or recidivism (John Howard Society of Alberta, 2000).

Risk assessments can be administered pre-trial, prior to sentencing, when determining an appropriate supervision level, prior to release, or after any critical incident (Hart, 1998). First, risk assessments provide classification means to aid professionals in assigning individual offenders to supervision and specific intervention strategies (Flores, Lowenkamp, Holsinger & Latessa, 2006). Risk assessment measures also allow professionals within the criminal justice system to create case plans for individual offenders (Bonta, 2000). Agencies that adhere to proper assessment policies have a greater opportunity to reduce recidivism (Dowden & Andrews, 1999a).

Types of risk assessments. Risk assessments are typically one of two types: empirically guided clinical judgments and actuarial prediction tools (Hanson, 2000; Sveenivasan, Kirkish, Gamck, Weinberger & Phenix, 2000). Empirically guided clinical assessments take a more holistic approach (concerned with the offender as a whole, as opposed to individual risk factors) as compared to actuarial risk assessment tools (John Howard Society of Alberta, 2000). Clinical assessments rely on the opinion of the psychologist or psychiatrist conducting the risk assessment. Clinical tools tend to be subjective (relying more on judgment rather than fact), potentially reducing the accuracy of the tool (Quinsey, Harris, Rice & Cormier, 1998; Sveenivasan et al., 2000). When using a clinical assessment, professionals often come to different conclusions when assessing the same offender (Menzies, Webster, McMain, Stanley & Seaglione, 1994; Webster et al., 1985). Additionally, clinical assessments that mainly focus on static risk factors are not the optimal approach to use with the offender population whose risk factors change over time, due to maturation, incarceration and programming (John Howard Society of Alberta, 2000; Mann, 1995; Sutton, 1994).

The second approach, actuarial prediction, provides distinct guidelines for combining risk factors into probability estimates for recidivism (Hanson, 2000; Schlager & Simourd, 2007). Actuarial risk assessments are rooted in evidence based practices and statistical models. They are objective, data-driven, and tend to include file reviews (a collection of historical data) of those being interviewed (John Howard Society of Alberta, 2000; Sveenivasan et al., 2000). When utilizing actuarial prediction, individual risk factors are given a weight, and each response is then added together. The sum of all responses serves as the offender's total score (Hanson, 2000). Actuarial assessments include both static (unchanging factors such as past criminal history) and dynamic (factors an offender is able to change, such as employment status or education) risk assessment questions. Static variables tend to be historical and cannot be changed. An important static variable, criminal history, is useful when considering recidivism potential (Hanson, 2000).

Despite the importance of static factors, most treatment providers focus on dynamic variables (Hanson, 2000). When these factors change, the risk of recidivism also changes. Typically, actuarial assessments are based on statistical predictions of one's likelihood of reoffending (John Howard Society of Alberta, 2000). Actuarial assessments allow the assessor to categorize the offender's risk level; low, medium/moderate or high (John Howard Society of Alberta, 2000; Motiuk, 1995; Sveenivasan et al., 2000). Empirically, more accurate assessments are gleaned when using actuarial measures as opposed to clinical judgments (Grove & Meehl, 1996; Hanson, 2000). Milner and Campbell (1995), as well as Gottfredson (1987), regard actuarial assessments as the superior method.

Regardless of which type of tool is used— actuarial, clinical, and/or both—the possibility of error still exists (John Howard Society of Alberta, 2000). When a risk assessment tool categorizes an offender as high risk, yet he/she does not recidivate, a false positive has occurred. Similarly, a false negative is when an assessment tool categorizes an offender as low risk. However, post-release, the low risk offender reoffends, returning to prison (John Howard Society of Alberta, 2000). Despite the possibility of error, assessments administered correctly have the ability to serve as a guide for the development of effective and appropriate case management individualized for each offender (Lowenkamp & Latessa, 2005).

Historical overview of risk assessments. There are a number of risk assessment tools that have been validated, discredited and utilized as effective assessments throughout the nation. Prior to the 1900s, existing classification systems were subjective and unreliable (Brennan, 1987a). The first actuarial tool used for risk assessment purposes dates back to the mid-1920s (Burgess, 1925; Harris & Rice, 2007). Advancements in risk assessments can be noted in four phases (Bonta & Wormith, 2008). First generation risk assessment tools were based primarily on "structured clinical judgment" (Bonta & Wormith, 2008; McGrath, Lasher, & Cumming, 2011). In essence, they are professional judgments of the probability of offending behavior based solely on "clinical intuition" (basing an offender's risk level on the assessor's clinical background, as opposed to the offender's risks and needs) (Bonta & Wormith, 2008; McGrath et al., 2011).

Founded in the 1970s, second generation risk assessments can be categorized as empirically based assessments typically performed on an analysis of an offender's static (unchangeable) factors such as age or conviction status (Bonta & Andrews, 2007; Bonta & Wormith, 2008; Duwe, 2013). Examples of static risk assessments include the Static-99 or the Rapid Risk Assessment for Sexual Offense Recidivism (RRASOR) (Hanson, 1997; Hanson & Thornton, 2000). Both the Static-99 and the RRASOR are tools designed for the sex offender population. Few second-generation risk assessments include analysis of dynamic (changing) risk factors in addition to static factors (McGrath et al., 2011). Examples of second-generation tools that include primarily static risk factors, but also some dynamic risk factors, are the Minnesota Sex Offender Screening Tool-Revised (MnSOST-R) and the Vermont Assessment of Sex Offender Risk (VASOR) (Epperson, Kaul & Hesselton, 1998; McGrath & Hoke, 2001). However, despite these two tools including dynamic factors, McGrath et al. (2011) imply that the number of dynamic risk factors included is not enough for professionals to provide much guidance for the delivering of services.

Third-generation assessments are empirically based and include a wide range of dynamic risk items such as criminogenic needs, behaviors and cognitions, in addition to any relevant static items (i.e., age or prior conviction). The inclusion of multiple dynamic factors allows for a more comprehensive evaluation of long-term recidivism (McGrath et al., 2011). Third-generation risk assessments are theoretically informed in addition to being based on empirical information (Bonta & Wormith, 2008). Such instruments focus on both the needs and risks of an offender. In doing so, these assessments are better able to determine which offenders should be targeted for programming and treatment (Duwe, 2013). Assessing risk will allow for the prediction of future recidivism, while assessing needs enables a prediction as to who will benefit from interventions (Duwe, 2013). An example of third-generation assessments includes the LSI-R.

Finally, fourth-generation tools are those that fully integrate risk assessments with continuous case management (Bonta & Wormith, 2008; McGrath et al., 2011). Fourth-generation tools also combine actuarial and clinical judgment (Bonta & Wormith, 2008; Kim, 2010; O’Rourke, 2013). According to O’Rourke (2013), fourth-generation tools provide a higher level of guidance and structure than earlier tools. Fourth generation tools are deemed “action-oriented”; thus, they have the ability to identify areas in need of intervention (i.e., substance abuse problem). Additionally, fourth-generation assessments evaluate both dynamic and static factors and are able to provide a longitudinal perspective in regard to the likelihood an offender will recidivate (O’Rourke, 2013). The Level of Service/Case Management Inventory (LS/CMI), Correctional Assessment and Intervention System (CAIS) and the Ohio Risk Assessment System (ORAS) are examples of fourth-generation tools (Andrews, Bonta & Wormith, 2004; Duwe, 2013; Johnson, Wagner, Scharenbroch, & Healy, 2006; Latessa et al., 2009).

The Level of Service Inventory-Revised (LSI-R)

The current study tests the predictive validity of one of the most widely used risk assessment tools— the Level of Service Inventory-Revised (henceforth LSI-R). The LSI-R is one of the most well established measures of general criminal recidivism (Andrews & Bonta, 1995; Gendreau et al., 1996; Hanson, 2000). Andrews and Bonta (1996) refer to the LSI-R as being a “theoretically-based risk-needs assessment.” The LSI-R was developed within a social learning theory (Coulson, Ilacqua, Nutbrown et al., 1996) that suggests individuals acquire attitudes, behaviors and information from those around them. Therefore, the focus of the LSI-R is on personal history and interaction with others in a social context. This instrument measures the four areas of antisocial cognitions, antisocial associates, history of antisocial behavior, and antisocial personality, which are responsible for criminal behavior according to the social learning perspective (Kroner & Mills, 2001).

The LSI-R predicts one’s risk to recidivate by assessing risk factors including, but not limited to, one’s personal attributes and/or circumstances indicative of future criminal behavior (Andrews et al., 1990). Based on one's LSI-R score, offenders are classified as low, moderate or high risk. Lowenkamp and Latessa (2004) have provided specific definitions for both low and high-risk offenders. A low-risk offender generally has few serious problems and mostly pro-social behaviors. On the other hand, high-risk offenders have problems in a number of areas, both antisocial attitudes and behaviors, and likely lack the motivation to change (Lowenkamp & Latessa, 2004). Moderate offenders generally fall between these two definitions.

Definition and history of the LSI-R. The LSI-R assessment was developed in Canada by distinguished psychologists Don Andrews and James Bonta (Andrews & Bonta, 1995). Originally, this actuarial risk assessment technique was designed to assess probationers and offenders who had been sentenced to a term carrying two years or less. The LSI-R is considered a third-generation assessment (Bonta, 1996). The LSI-R not only measures overall risk but identifies dynamic (changing) elements of concern, known as criminogenic needs (Gendreau et al., 1996; Schlager & Pacheco, 2011).

The LSI-R is a standardized technique that quantifies risk factors of recidivism (Reisig et al., 2006). The LSI-R is a 54-item instrument that measures ten subscales of criminogenic factors related to recidivism (Kelly & Walsh, 2008; Mills, Jones & Kroner, 2005; Schlager & Pacheco, 2011). The ten subscales are as follows: (1) criminal history (C/H), (2) education and employment (E/E), (3) financial (F), (4) alcohol and drugs, (5) family and marital (F/M), (6) accommodation, (7) leisure and recreation (L/R), (8) emotional and personal (E/P), (9) companions (C) and (10) attitudes and orientations (A/O).

Pertaining to each subscale, a series of questions is asked to assess the risk and/or need within a particular category. Each question receiving a "yes" response is awarded a point. At the end of the survey, the points are tallied to determine the individual's score. Once completed, scores range from 0 to 54 (Bonta & Motiuk, 1987; 1990; Reisig et al., 2006). According to Andrews and Bonta (2001), a low-risk individual would possess a score ranging from 0 to 23. Given what was known about the offender population at the time of the study, the authors rendered this individual would have between an 11.7 percent and a 31.1 percent chance of reoffending. A medium risk offender would possess an LSI-R score ranging from 24 to 33, with a chance of recidivism falling between 48.1 percent and 57.3 percent.

According to Andrews and Bonta (2001), high-risk individuals would have an approximate 76.0 percent chance of reoffending; with an LSI-R score ranging between 34 and 54. Using the average rates of recidivism for those offenders scoring in each range, Andrews and Bonta (2001) were able to generalize their findings to the national offender population in Canada. While this displays a general breakdown of scores, many states (i.e., Kansas, Ohio) have adjusted these ranges to better accommodate their specific populations. Regardless of range, the higher the score, the higher the likelihood of reoffending (Andrews & Bonta, 2001).

Using the ten aforementioned subscales, the LSI-R measures two overarching types of risk/need factors. In other words, each item (54 in total) measured in the survey falls under one of two factor types—static or dynamic (Reisig et al., 2006). Static factors consist of life experiences that are not subject to change over time. An example of a static risk factor includes an offender's prior conviction status, and demographic characteristics such as race and ethnicity (Andrews & Bonta, 1994; Gendreau et al., 1996). Dynamic factors are those things that can and do change over time. Dynamic factors are sensitive to change because they include "relationships" that vary as one ages, moves or changes profession (Reisig et al., 2006; Schlager & Simourd, 2007). One's peer interactions are an example of a dynamic risk factor. Dynamic risk factors also include criminogenic needs, anti- or prosocial cognitions, or one's general behavior (Andrews & Bonta, 1994; Gendreau et al., 1996). Although the LSI-R measures both static and dynamic factors, the majority of its 54 items are measured in a dynamic fashion, assessing the most recent information for each offender (Flores et al., 2006).

LSI-R assessments are conducted via a structured interview between an offender and a trained professional. Generally, these professionals are probation or parole officers, corrections counselors or treatment specialists. Formal LSI-R training can occur in one of two ways. Individuals are only qualified to administer the survey if they are trained by a qualified LSI-R trainer or if they are trained by someone at their facility who has already completed the training. The training administrator must have completed the necessary training curriculum qualifying them to become a master trainer (Flores et al., 2006).

Prior research on the predictive utility of LSI-R. A number of previous studies support the general predictive validity of the LSI-R in predicting recidivism (Derrick, 2011; Fass, Heilbrun, Dematteo & Fretz, 2008; Flores et al., 2006; Mills et al. 2005; Haas & DeTardo-Boya, 2009; Lowenkamp, Holsinger & Latessa, 2001; Schlager & Pacheco, 2011; Schlager & Simourd, 2007; Simourd, 2006; Vose et al., 2009). However, previous studies limit the generalizability of their findings because most of those studies on the predictive validity of the LSI-R used samples of male offenders or aggregated data rather than data disaggregated by gender, which obscured the potential gender difference in the relationship of LSI-R scores and recidivism (Fass et al., 2008; Manchak, Skeem & Douglas, 2008; Schlager & Simourd, 2007).

There are few exceptions that assessed the predictive utility of the LSI-R in predicting recidivism among female offenders (Gendreau et al., 1996; Holtfreter & Cupp, 2007; Manchak, Seem, Douglas & Siranosian, 2009; Simourd, 2006; Smith, Cullen, & Latessa, 2009; Singh & Fazel, 2010; Vose et al., 2009). However, these studies fail to disaggregate the female offender data by offense types and thus ignore variation in women's offending. Studies focused exclusively on the moderating effect of offense type in the predictive validity of the LSI-R among female offenders are virtually nonexistent.

Gender and the LSI-R. Feminist criminologists have emphasized the limitations of mainstream criminological theories as well as the importance of gender-specific theories to explain female offending (Morash, 2009). Feminist criminologists contend the same risk factors from traditional criminological theories using samples of male offenders cannot explain both male and female criminality (Chesney-Lind, 1989; Daly & Chesney-Lind, 1988; Reisig et al., 2006). Recent research found a host of risk factors unique to female criminality, such as unwanted pregnancy, adolescent motherhood, self-injury, suicide, sexual abuse, sexual assault, domestic violence, and depression (Hannah-Moffat, 2006; Manchak, Skeem & Douglas et al., 2009; Poels, 2007; Reisig et al., 2006). Among those risk factors, the most apparent is the greater relative likelihood of women experiencing physical and sexual abuse during and after childhood, fleeing abusive homes and involvement in criminal activity (Reisig et al., 2006).

While the negative influences of childhood abuse are obvious in males and females (Hamilton, Falshaw & Browne, 2002; Neller, Denney, Pietz & Thomlinson, 2005; Weiler & Widom, 1996; Widom, 1998; Widom & White, 1997), prior victimization is more common among female offenders (Browne et al., 1999; Forsythe & Adams, 2009; Johnson, 2004). For example, Browne et al. (1999) found a total of 59 percent (88 of 150) of incarcerated maximum female inmates reported being sexually abused as a child. A total of 70 percent (105 of 150) reported past physical abuse, and 75 percent (113 of 150) reported a history of intimate partner violence. Of those sampled, 74 percent (111 of 150) who committed a violent act reported multiple prior experiences of victimizations (Browne et al., 1999; Byrd & Davis, 2009). Furthermore, previous studies found within-group differences in risk factors among female offenders. For example, Verona and Carbonell (2000) found violent female offenders had less extensive criminal histories than non-violent female offenders because violent behavior was found to be more likely the result of extensive previous victimization.

Previous studies imply risk factors contributing to criminal behaviors are different for males and females (Blanchette, 2004), thus treatment should differ accordingly (Sorbello, Ecceston, Ward, & Jones, 2002). Because females are more likely to suffer from physical and sexual abuse, as well as psychological issues (depression, anger, poor self-esteem), treatment and rehabilitation programs should be tailored to handle such issues (Pollock, 1998; Sorbello et al., 2002). Feminist criminologists suggest that assessing for these issues through a gender-specific risk assessment measure will better enable correctional officials and treatment professionals to place women into the appropriate interventions while under the care of the corrections' system.

Criminologists working from a feminist perspective insist that the utilization of the LSI-R relies too heavily on Social Learning Theory, thus problematic because the theory was originally created to explain male criminality. As a consequence, the tool fails to consider a variety of important risk factors that lead women into crime and shape the context of their offending and/or recidivism (Reisig et al., 2006). In addition, feminist criminologists assert many of the risk factors for males, such as history of juvenile delinquency or committing an offense involving a weapon, are found to be irrelevant with females (Poels, 2007). In contrast, the creators of the LSI-R comment that "the general criminology perspective views the factors responsible for female crime as essentially the same as those for male crime" (Bonta et al., 1995, p. 279) and in fact, empirical evidence indicates that the risk factors predicted for males were found equally relevant for females (prior criminal history, certain offense types, sentence length) (Poels, 2007, p.232).

Previous research on the LSI-R including samples of female offenders has been conducted for one of three reasons: to test the differences in the predictive validity of the LSI-R by gender, to identify specific criminogenic factors for female criminality or to assess risk score differences by gender (Kim, 2010). The predictive accuracy of the LSI-R for samples of male offenders is well documented in the research literature (Reisig et al., 2006). For example, Fass, Heibrun, Dematteo, and Fretz (2008) tested the predictive validity of the LSI-R using a sample of male offenders released from prison from 1999 to 2002 in New Jersey. The results reveal that the LSI-R correctly predicted an 81.3 percent of recidivism among those who were arrested during the two-year follow-up period.

Previous research findings suggest the LSI-R does include important risk factors for female criminality (sexual abuse, victimization, etc.), though male offenders generally scored higher on the total scores of the LSI-R than their female counterparts (Holsinger, Lowenkamp & Latessa, 2003; Holtfreter et al., 2004; Lowenkamp et al., 2003). Holsinger et al. (2003) reported an almost three point (23.59 versus 20.64) difference in scores for males and females. However, this study found that female offenders exhibited greater risk within particular subscales, implying that it is important to study each subscale of the LSI-R separately as female offenders showed greater risk on the financial, family, emotional/personal subscales.

Similar to Loza and Simourd's (1994) research, which found the LSI-R total score to be a valid predictor of recidivism for males when considering psychometric properties, Folsom and Atkinson (2007) tested the predictive validity of the LSI-R and psychometric properties but utilized a sample of female offenders (n = 100). The mean total LSI-R score for the sample of female offenders was eighteen (18), with 38 being the highest overall score. The authors reported the LSI-R as being a valid predictor of recidivism largely due in part to the predictive utility of the criminal history subscale. Furthermore, given the low mean overall LSI-R score (18), as compared to the mean score (26.2) for the male sample in Loza and Simourd's (1994) study, the authors concluded their findings spoke to lower overall risk levels for female offenders (Folsom & Atkinson, 2007).

Heilbrun, DeMatteo, Fretz et al. (2008) assessed over 2,000 offenders (1,435 males; 886 females) in an effort to examine the predictive utility of specific LSI-R subscales (employment, companion and financial). While males and females differed slightly among the financial subscale, the authors reported significant gender differences within the LSI-R's companion subscale. Female offenders scored very high risk in regard to social relationships, while male offenders scored only moderate risk for the same companion subscale (Heilbrun et al., 2008). While most men sampled were single at the time of the study, most females were divorced or widowed. Perhaps the difference in relationship status contributed to the significant difference in risk scores of the companion subscale. It is important to note that Heilbrun et al. (2008) is limited as all offenders included were classified as minimum security, or low risk (Heilbrun et al., 2008).

Sampling 526 female inmates in a medium-security prison, Coulson et al. (1996) assessed the LSI's (pre-LSI-R) validity in predicting female criminal behavior. A total of 43 percent of the sample was rendered low risk, while the remaining 57 percent scored high risk. Coulson et al. (1996) reported an average total LSI-R score of 15.5 (of 54) for the sample which was significantly lower than averages found in other research for male offenders (20.9 to 25.1) (Bonta, 1989; Bonta & Motiuk, 1987;1990). Coulson et al. (1996) suggested these significant differences were due in part to varying risk factors across gender.

Palmer and Hollin (2007) found the LSI-R to be an acceptable tool when used to predict recidivism for female offenders. Their study of 150 English female offenders rendered a mean total LSI-R score of 23. Females scored high risk on the family/marital, accommodations, companions, alcohol/drug and emotional/personal subscales (Palmer & Hollin, 2007). However, when compared to an equivalent male sample, males scored higher on the criminal history and leisure/recreation subscales. Much like Coulson et al. (1996), the authors concluded these risk-related differences could have contributed to females having gender-specific risk factors. Thus, Palmer and Hollin (2007) suggested the creation of a gender-specific tool to more accurately assess such needs.

Some of the previous studies do support the predictive validity of the LSI-R as a "gender-neutral" risk assessment. Simourd (2006) found support for the LSI-R's predictive utility with a Pennsylvania sample of both male and female inmates. Sampling just over 900 inmates, Simourd (2006) assessed the tool's predictive utility when controlling for psychometric properties. Simourd (2006) found males present a greater risk than female offenders in regard to issues related to family, leisure, friends and criminal attitudes. Women, on the other hand, presented greater risk in regard to emotional issues. Overall, both genders scored highest among the education/employment subscale, and lowest within the accommodations subscale. Given his findings, Simourd (2006) concluded the LSI-R as an acceptable tool for use across gender and race.

Similar to Simourd (2006), Lowenkamp et al. (2001) did not find statistically significant differences in total LSI-R scores between male and female offenders. The authors tested the predictive utility of the LSI-R for both males and females while controlling for prior abuse experienced as a child. Of the sample of over 400 offenders, males scored just slightly higher than females overall (25.12 versus 25.05). Abuse experienced as a child did not appear to have an effect on the predictive utility of the LSI-R for either gender (Lowenkamp et al., 2001). The authors concluded the LSI-R as a valid predictor of risk for both the male and female offenders.

Lowenkamp, Lovins and Latessa (2009), one of the more recent studies on the LSI-R, found similar results. They administered the LSI-R to approximately 500 offenders (369 males; 116 females) supervised in the community. Male offenders' overall score was just slightly higher than the female sample's overall score. Based on the insignificant gender differences rendered in this study, Lowenkamp et al. (2009) reported the LSI-R score as being a valid predictor of recidivism for both male and female offenders.

Manchak et al. (2009) examined the relationship between the LSI-R and general recidivism (conviction for any new offense during a one year follow-up period) for a sample of 1,105 male and female offenders (70 females; 1,035 males). They found one's total LSI-R score as being a significant predictor of risk as related to recidivism. The authors also concluded the predictive validity of the LSI-R was not moderated by gender. In other words, Manchak et al. (2009) suggested the LSI-R worked equally well in predicting risk for both male and females.

Vose et al. (2009) also evaluated the predictive accuracy of the LSI-R with samples of both female and male offenders. Their sample involved over 2,500 probationers and parolees, both male (n=2,448) and female (n=401). The LSI-R was administered to these offenders on two different occasions (an initial assessment and a follow-up) over a five-year period. While the majority of the sample was male, the authors reported no statistically significant difference in the predictive validity (extent to which one's overall score predicted future recidivism) of the LSI-R for males or females at either assessment time. Furthermore, unlike previous research (Holtfreter & Cupp, 2007; Koon, John, Morash & Bynum, 1997; Reisig et al., 2006) showing female offenders have criminogenic needs that differ from their male counterparts (i.e., pregnancy, history of physical or sexual abuse) (Andrews & Bonta, 2006), Vose et al.'s (2009) findings did not support these needs as making a difference in the validity of the tool. Vose et al. (2009) suggested conducting additional research in regard to the female offender population and the use of the LSI-R.

Kim (2010) examined the LSI-R's predictive utility across gender, race and two offense types (violent and non-violent). Using a large Pennsylvania sample (male offenders=12,038; female offenders=937), Kim (2010) found mixed results in regard to the tool's predictive utility for males and females. Male offenders recidivated at a rate ten percent higher than female offenders, thus Kim (2010) reported that one's gender is related to one's overall LSI-R score. However, Kim (2010) reported no statistically significant relationships between any of the ten subscales and those females who had committed a violent offense. In other words, violent female offenders did not display substantial risk for recidivating in any of the LSI-R's ten subscales (i.e., companions, alcohol/drug, etc.). Furthermore, the criminal history and leisure/recreation subscales were the only two subscales statistically related to recidivism for non-violent female offenders. On the contrary, the LSI-R appeared to be a valid predictor of recidivism for male offenders despite race or offense type (Kim, 2010). Given the mixed findings for male and female offenders, Kim (2010) concluded with concerns as to the actual gender neutrality of the tool.

The meta-analysis of Singh and Fazel (2010) revealed that the research results regarding the LSI-R's predictive accuracy vary depending on the gender of the sample utilized. Singh and Fazel (2010) contended these gender differences were due in part to the LSI-R's items being more sensitive to predicting risk for male offenders. Therefore, women may experience more specific factors leading to criminal behavior such as domestic violence, drug use or economic motivation that may not be captured by the items within the LSI-R (Holtfreter & Cupp, 2007).

While the creators of the LSI-R contend that the correlates of criminal behavior appear similar for males and females; and thus, their instrument can reliably assess recidivism risk for female offenders (Andrews & Bonta, 2003; Poels, 2007; Reisig et al., 2006), it is difficult to make a final conclusion on the utility of the LSI-R in predicting recidivism among female offenders due to the small number and the limited research available on the topic. It is apparent risk is gendered, though research has yet to propose a female-specific risk assessment tool (Hannah-Moffat, 2006). As the number of female offenders is increasing and the criminal justice system moves toward a gender-responsive approach, there is an urgent need for corrections agencies to implement risk assessment tools to effectively predict recidivism for both male and females (Morash, 2009). This research will examine the predictive validity of the LSI-R for use with both male and female offenders.

Table 2

Gender and the LSI-R

Study	Topic	Gender	Follow-up	Findings
Predictive Validity of the LSI-R by Gender				
Folsom & Atkinson (2007, Canada)	Predictive validity of LSI-R and CAT-SR (Childhood & Adolescent Taxon Scale)	Female (n=100)	6 years	Found support for the LSI-R's predictive utility with female offenders
Kim (2010, USA)	Predictive validity of the LSI-R across gender, race and offense type (violent/non-violent)	Male (n=12,038) Female (n=937)	N/A	LSI-R was found to be a valid predictor of recidivism for violent & non-violent male offenders, as well as non-violent female offenders; no relationship was found for violent female offenders
Lowenkamp et al. (2001, USA)	Predictive validity of LSI-R for males and females; examined child abuse, LSI-R and recidivism interaction	Male (n=317); Female (n=125)	1.6 years	No gender differences found; only gender differences reported in regard to child abuse; Male mean LSI-R score 25.12; Female mean LSI-R score 25.05; Overall mean score 25.10

Gender and the LSI-R (continued)

Study	Topic	Gender	Follow-up	Findings
Predictive Validity of the LSI-R by Gender (cont.)				
Lowenkamp et al. (2009, USA)	Predictive validity of LSI-R for male and female probationers; compared utility of LSI-R and LSI-SV	Male (n=369); Female (n=116)	1.5 years	No differences reported in regard to gender and the LSI-R's predictive utility
Palmer & Hollin (2007, UK)	Predictive validity of the LSI-R on an English female sample	Female (n=150)	2.5 years	Support for the tool's predictive validity with female offenders; age was negatively correlated with LSI-R total scores
Simourd (2006, USA)	Predictive validity and reliability of LSI-R across race and gender with a PA offender sample	Male (n=824) Female (n=61)	25-624 days	Suitable for use among PADOC offenders of different race & gender; Females deemed greater risk in regard to emotional issues
Vose et al. (2009, USA)	Predictive validity of LSI-R across gender by examining changes from first to second time assessed	Male (n=2,448) Female (n=401)	5 years	No statistically significant differences by gender; concluded predictive utility for males & females
Singh & Fazel (2010, UK)	Predictive accuracy by gender and ethnicity; 9 systematic reviews & 31 meta-analyses (1995-2009)	Male/Female (n=N/A)	N/A	Difference in utility depends on sample utilized; gender differences were found across reviews and meta-analyses

Gender and the LSI-R (continued)

Study	Topic	Gender	Follow-up	Findings
Identification of Specific Risk Factors				
Fass et al. (2008, USA)	Identified specific risk factors by assessing utility of LSI-R & the COMPAS	Male (n=975)	12 months	Criminal history was strongly related to arrest; predictive validity of tool varied by race
Heilbrun et al. (2008, USA)	Gender specific factors by assessing each LSI-R subscale	Male (n=1435) Female (n=886)	N/A	Risk factors varied by gender; Males- criminal history, financial, companions; females- family/marital, accommodations, alcohol/drug
Assess Risk Score Differences by Gender				
Holsinger et al. (2003, USA)	Assessed predictive utility of LSI-R scores by gender and race; Identified specific risk factors	Male (n=1093); Female (n=249)	N/A	LSI-R scores differed by gender and race; most significant subscales for males- criminal history, leisure/rec., alcohol/drug; females- financial, family/marital, emotional/personal

Offense type and the LSI-R. Although the number of studies examining the predictive accuracy of the LSI-R among female offenders has increased, most of those studies attempted to simultaneously assess women's risk by utilizing the aggregated data of offense types and, as a result, failed to take into account within-group variations among female offenders (Hannah-Moffat, 1999; Holtfreter & Morash, 2003; Reisig et al., 2006). Research that has used the aggregated data of samples consisting of different subgroups of female offenders is problematic, since the risk factors are often quite different for each type of crime (Daly, 1992; Poels, 2007; Reisig et al., 2006). For example, previous research using samples of male offenders found several violent recidivism-specific risk factors including "history of violence, anger or fear problems, active psychosis, substance abuse, psychopathy, weapon interest, criminal history, childhood problems, lifestyle instability, younger age and being male" which might not be the same for females (Motiuk, 2000; Poels, 2007, p. 234).

Though the LSI-R has questions asking about one's criminal history, by recording the number of offenses committed, it does not take into account the seriousness of each offense (Kim, 2010). There are few studies testing the predictive utility of the LSI-R across offense type even for male offenders (Girard & Wormith, 2004; Kim, 2010; Loza & Simourd, 1994; WSIPP, 2003). Loza and Simourd (1994) compared LSI scores of violent and non-violent male federal inmates. Because the LSI was initially designed for probationers, the authors were interested in the risk assessment's utility for incarcerated offenders. The average score for violent male offenders (27.44) was almost three points higher than the mean score for non-violent male offenders (23.86). Additionally, violent male offenders showed higher scores in the alcohol/drug, family/marital, and emotional/personal subscales (Loza & Simourd, 1994).

Using Loza and Simourd (1994) as a foundation for their study, Hollin and Palmer (2003) weighed the LSI-R's utility in assessing violent and non-violent male and female offenders. They, too, found statistically significant differences in LSI-R scores (29.91 for violent offenders versus 19.23 for non-violent offenders). The authors reported that violent male offenders have a higher risk in the education/employment, criminal history, alcohol/drug and attitudes/orientation subscales (Hollin & Palmer, 2003).

Researchers from the Washington State Institute for Public Policy (WSIPP) examined the predictive utility of the total score of the LSI-R, as well as its subscale scores, on a large offender sample (n=22,533 of male and female offenders; though, the authors did not provide a breakdown by gender (WSIPP, 2003). Using violent and non-violent felony offenses as their recidivism measure, each subscale (10) and all 54 items were assessed. The criminal history subscale was found to have the strongest association with both non-violent and violent recidivism. However, the financial, family/marital, and the emotional/personal subscales were the strongest predictors of non-violent recidivism, while criminal history and education/employment were the strongest predictors of violent recidivism (WSIPP, 2003).

Malcolm and Simourd (1998) examined the LSI-R's utility by comparing different male sex offender groups (n= 216) classified by victim specific characteristics (sex offenses against adult female victims, extra-familial child molesters, familial child molesters). The authors found offenders who committed sex crimes against adult female victims scored high risk within the criminal history, companion and attitudes/orientations subscales, while extra-familial child molesters scored high risk on the education/employment subscale in addition to the previous three mentioned above. Furthermore, familial child molesters were found to have the lowest scores in all subscales; scoring similar to the general offender population (Malcolm & Simourd, 1998).

To examine the predictive utility of the LSI-R with male drug offenders, Kelly and Welsh (2008) studied recidivism over a fifteen month period. The authors reported overall LSI-R scores as being a significant predictor of reincarceration (Kelly & Welsh, 2008). Furthermore, the drug/alcohol subscale was found to be a significant predictor of recidivism for drug offenders. As one's risk level increased when drug or alcohol problems persisted, chances of reincarceration also increased (Kelly & Welsh, 2008).

Previous research using samples of male offenders found several risk factors relevant with violent recidivism including "history of violence, anger or fear problems, active psychosis, substance abuse, psychopathy, weapon interest, criminal history, childhood problems, lifestyle instability, younger age and being male" (Motiuk, 2000; Poels, 2007, p. 234). However, there is little evidence to support that these risk factors associated with violent recidivism for male offenders are ones for female violent offenders (Poels, 2007). In fact, Blanchette (1997) found that a previous suicide attempt was the strongest risk factor of violent recidivism among female offenders (Poels, 2007). Similarly, Weizmann-Henelius, Viemero, and Eronen's (2004) research using a national sample of violent female offenders in Finland found a history of attempted suicide as a significant risk factor.

Girard and Wormith (2004) found no statistically significant differences in LSI-OR (Ontario's version of the LSI-R) scores for male inmates and probationers (454 inmates; 176 probationers). Assessing the predictive validity of the LSI-OR on offenders convicted of sex offenses, domestic violent offenses or those diagnosed with mental illness, Girard and Wormith (2004) tracked recidivism for two and a half years. During this time period, they found no statistically significant differences in LSI-OR scores as associated with offense type. This study excluded an available female sample due to too few offenders (Girard & Wormith, 2004).

There is little research available identifying the risk factors for recidivism among female sexual offenders (Poels, 2007). Research findings show the risk factors for female sexual recidivism are different from the risk factors for recidivism among other female offenders (Hunter & Mathews, 1997; Nathan & Ward, 2001; Poels, 2007). Risk factors for female sexual recidivism include self-harm prior to or after the offense, potential for future self-harm, emotional attachment shown to the victim, homosexual orientation, intellectual deficits, deviant arousal and fantasies, sexual dysfunction, use of force in previous sexual offending (Nathan & Ward, 2001; Poels, 2007) and psychological dysfunction (Hunter & Mathews, 1997; Poels, 2007). Williams and Nicholaichuk (2001) indicate stranger victims and unaccompanied offenders as particular risk factors for recidivism among female sexual offenders (Poels, 2007).

While it is evident males and females have differing needs, poverty and economic marginality are omitted from the LSI-R (Holtfreter et al., 2004). Holtfreter et al. (2004) assessed the effects of poverty on one’s LSI-R score. Using a sample of over 400 female criminals, the authors found poverty to be a strong predictor of female criminality. Furthermore, poor women were more likely to recidivate than their stable counterparts. Holtfreter et al. (2004) suggest modifying or adjusting the LSI-R to account for female’s economic status. Accounting for one's economic standing will allow for the appropriate assessment of female offenders whose criminal activity was caused by poverty (Holtfreter et al., 2004).

Kathleen Daly's (1992, 1994) multi-dimensional pathway framework is one of the most famous approaches used to identify the different categories of female offenders based on their varying conditions and circumstances contributing to criminality (Daly, 1992; Reisig et al., 2006). Daly's framework implies different risk factors lead women to perpetuate different forms of criminal activities (Reisig et al., 2006). She identified two major pathways, a "gendered pathway" that includes four categories of female offenders (street women, drug-connected women, harmed and harming women, and battered women) and "economically motivated women."

Daly's (1992) street women category comprises a group of female offenders who ran away from home as a youth, generally have a history of substance abuse and have turned to prostitution or other street crimes as a way of making money (Daly, 1992). Drug-connected women are those females who have used, manufactured, or dealt drugs in connection with a romantic partner. These female offenders generally turn to substance use/abuse as a way to form a bond with a partner (Daly, 1992).

Daly's third category of female offenders is the harmed or harming women. These women have experienced victimization or abuse in their childhood. They turn to violence as a coping mechanism. The battered women category has also experienced abuse (Daly, 1992). However, their abuse was experienced later in life, as an adult. Abuse typically occurs as part of an intimate relationship (Daly, 1992). Finally, economically-motivated females most closely resemble their male counterparts. According to Daly (1992), these women are more socially and economically advantaged than the other four categories of female offenders. They tend to lack a criminal history and report little to no past victimizations. Generally, economically-motivated offenders do not have substance abuse related problems (Daly, 1992).

Employing Daly's (1992, 1994) pathway framework, Reisig and his colleagues (2006) tested the comparative utility of the LSI-R in predicting recidivism among women under community supervision in Minnesota and Oregon who followed different pathways into crime. Reisig et al. (2006) found partial support toward the predictive validity of the LSI-R. The results show that the LSI-R precisely predicts recidivism for the economically motivated group of women whose offending context was similar to male offenders. However, the LSI-R failed to predict recidivism among a significant proportion of the socially and economically marginalized female offender.

As mentioned previously, Kim (2010) examined the predictive utility of the LSI-R across gender, race and violent/non-violent offenses. Included in her sample were 8,181 non-violent offenders and 4,794 violent offenders. While the criminal history and education/employment subscales were significant predictors of recidivism for non-violent males, the criminal history and leisure/recreation subscales were significant predictors of recidivism for female non-violent offenders. Kim (2010) found the criminal history and education/employment subscales, coupled with the alcohol/drug subscale, as strong predictors of recidivism for violent male offenders.

However, her study found no relationship between any of the ten LSI-R subscales and recidivism for violent female offenders. Furthermore, two subscales, attitudes/orientations and emotional/personal, had negative associations to recidivism for violent male offenders. Such findings suggest a need for future research that examines the tool's utility in predicting recidivism across offense type and gender. Because the tool found support for violent and non-violent male offenders, lack of support for the female offender sample raises questions in regard to the gender neutrality of the instrument (Kim, 2010).

The current research expands Reisig et al.'s (2006) and Kim's (2010) studies by using disaggregated data by offense type to gauge the relative accuracy of the LSI-R in predicting recidivism for each different female offending group. This research tested the relative utility of the LSI-R across four different groups of female offenders: sex offenders, person offenders, drug offenders, and property offenders.

Table 3

Offense Type & The LSI-R

Study	Topic	Gender	Offense Type	Follow-up	Findings
Girard & Wormith (2004, Canada)	Predictive validity of LSI-R with sex offenders, domestic violent offenders & mentally ill offenders	Male (n=630)	Sex, domestic violence	2.5 years	No difference in predictive utility of LSI-R by offense type; no difference in recidivism
Hollin & Palmer (2003, UK)	Profiling violent and non-violent prisoners through LSI-R total & subscale scores	Male (n=251)	Violent/Non-Violent	N/A	Significant differences between violent (28.91) and non-violent (19.23) scores
Loza & Simourd (1994, Canada)	Examined the predictive utility of the LSI-R by assessing psychometric properties	Male (n=161)	Violent/Non-Violent	N/A	Support for the reliability and and internal consistency of the LSI-R
Malcolm & Simourd (1998, Canada)	Examined the psychometric properties of sex offenders through the utility of the LSI-R	Male (n=216)	Sex	N/A	Sex offenders with adult female victims scored highest (27.34); LSI-R is a valid tool for use with sex offenders

Offense Type & the LSI-R (continued)

Study	Topic	Gender	Offense Type	Follow-up	Findings
Holtfreter et al. (2004, USA)	Predictive utility of LSI-R while controlling for the influence of poverty on female offenders	Female (n=402; 134)	N/A	6 months	Poverty was significantly related to recidivism for female offenders
Reisig et al. (2006, USA)	Predictive validity of LSI-R for women classified by Daly's (1994) gendered pathways	Female (n=400)	Gendered pathways	18 months	Over-classification for harmed/harming women; under-classification for drug offenders; valid for females who committed crimes that were economically motivated
Kim (2010, USA)	Predictive validity of the LSI-R across gender, race & offense type (violent & non-violent)	Male (n=12,038) Female (n=937)	Violent/non-violent	N/A	LSI-R was found to be a valid predictor of recidivism for violent & non-violent male offenders, as well as non-violent female offenders; no relationship was found for violent female offenders
WSIPP (2003, USA)	Predictive validity of LSI-R for violent/non-violent offenses; looked at each LSI-R subscale	Total Sample (n=22,533) Gender not separated	Violent/non-violent	36 months	CH subscale strongest predictor of recidivism for viol & non-viol offenders; moderately strong predictor overall

Significance of the Current Research

Both researchers and practitioners have emphasized the need of empirically validated risk assessment tools rooted in robust theoretical frameworks to accurately predict female offenders' risks of recidivism "in a manner that informs correctional practitioners to potentially reduce discriminatory decision-making, make better use of scarce resources, and help ex-offenders become productive members of their community" (Reisig et al., 2006, p. 401). One of the best known and respected actuarial tools to classify offenders in correctional settings is the LSI-R. A larger number of practitioners employ the LSI-R to examine recidivism risk of female offenders. However, practitioners and criminologists from the feminist perspective remain skeptical as to whether such tools predict recidivism for female offenders as the LSI-R was developed with androcentric criminological theories (i.e., social learning theory) in mind, thus ignoring female-specific motivations and risks (Austin, 2003; Brennan & Austin, 1997; Hannah-Moffat, 2005; Holsinger et al., 2006; Reisig et al., 2006; Singh & Fazel, 2010; Whiteacre, 2006; Wright, Salisbury & Van Voorhis, 2007).

According to VanVoorhis and Presser (2001), state and federal prison officials do not view female inmates as dangerous as male inmates, regardless of their risk assessment scores. Additionally, using the current risk assessment tools available, correctional officials are often unable to differentiate between high and low risk female offenders. Farr (2000) contends female offenders pose a lower risk in regard to institutional misconduct and security-related issues. With such strong doubts toward female risk evaluation and disregard toward the tool's assessment, feminists and corrections' professionals emphasize the need of a gender-specific risk assessment tool.

Many of the previous studies on the predictive utility of the LSI-R used only male samples, excluding female offenders entirely, while a small number of studies confirmed the predictive validity of the tool in predicting recidivism of female offenders (Lowenkamp et al., 2009; Vose et al., 2009). Recently, researchers have increased their focus as to the comparison of the accuracies of the LSI-R in predicting recidivism for male and female offenders. For example, Schlager and Pacheco (2011), Manchak et al. (2009) and Vose et al. (2009) included women, as well as men, in their samples. However, these studies limit the generalizability of their results mainly due to the small size of the female sample. Schlager and Pacheco (2011) only included nineteen women in their overall sample (n=179). Such a small female sample (10% of the total sample assessed) renders the authors' findings non-generalizable to the overall female offender population. Manchak et al. (2009) only included seventy females in their research, accounting for just over six percent of the total sample. Schlager and Pacheco (2011) separated their sample by offense type, but failed to test the relationship between the LSI-R and each offense type. Vose et al. (2009) assessed recidivism of both male and female offenders, but their sample, as with Schlager and Pacheco (2011) and Manchak et al. (2009), was overwhelmingly male (males accounted for 2,448 of 2,501 offenders).

Previous research found that different risk factors lead females to engage in different types of illegal behaviors (Daly, 1992; 1994; Poels, 2007). However, LSI-R studies using samples of female offenders ignored variations in women's offending. Exceptions include studies conducted by Kim (2010) and Reisig et al. (2006). Reisig et al. (2006) found the LSI-R as successful in predicting the risk of recidivism for females who committed economically motivated crimes, while for those females who followed gendered pathways, the LSI-R failed to predict recidivism.

Prior research conducted by Kim (2010) assesses only the predictive validity of the LSI-R for violent and non-violent offenses; without breaking these categories into more specific offense types. Such a classification might be too simple and render insignificant findings in regard to recidivism among violent female offenders (Kim, 2010). The current study proposes the evaluation of the predictive validity of the LSI-R across four offense types; sex, property, person and drug. Furthermore, it is critical to determine the tool's predictive utility with male and females for each of these four offense types. This dissertation is essentially an update of Kim's (2010) study, using a Midwestern sample and additional offense types.

This dissertation aims to address two major questions that remain unanswered as to whether the predictive accuracy of the LSI-R among female offenders is similar to or different from that of male offenders and whether the predictive accuracies of the LSI-R are similar or different across offense types among female offenders. Before any conclusions regarding the predictive validity of the LSI-R can be offered, a more in-depth study into female offenders is needed.

The current study contributes to the LSI-R literature in two important ways. First, using the gender-disaggregated data, the research compared the LSI-R's predictive utilities of recidivism (reconviction or violation of one's probation or parole) between male and female offenders. Second, with the disaggregated data by gender and offense type, the current study explored within-group variation among female offenders by gauging the relative predictive validity across the four different groups of female offenders (i.e., drug offenders, property offenders, sexual offenders, and person offenders).

CHAPTER III

METHODOLOGY

Introduction

This chapter discusses research questions, the research methodology, sample, and variables related to the current study. The following chapter will describe, in detail, the data analyzed for this dissertation. Variables will be discussed in depth, as well as the analytical techniques that were employed.

Research Questions

The predictive utility of the LSI-R among male offenders has been assessed through various studies on populations in Europe, Australia, and North America (Ferguson, Ogloff, & Thomson, 2009; Hollin & Palmer, 2003; Holsinger et al., 2003; Malilloux et al., 2003; Palmer & Hollin, 2007). However, a significant body of literature on this issue is lacking in regard to gender and offense type. The goal of this research is to gauge the moderating effects of gender and offense type on the tool's predictive validity.

Research Question 1. Does gender moderate the predictive utility of the LSI-R?

1-1. What is the predictive utility of the LSI-R among male offenders?

1-1.1. Which subscales predict the recidivism among male offenders?

1-2. What is the predictive utility of the LSI-R among female offenders?

1-2.1. Which subscales predict the recidivism among female offenders?

Research Question 2. Does offense type moderate the predictive utility of the LSI-R among male/female offenders?

2-1. What is the predictive utility of the LSI-R among male/female offenders who have committed a person offense?

2-1.1. Which subscales predict the recidivism among male/female offenders who have committed a person offense?

2-2. What is the predictive utility of the LSI-R among male/female offenders who have committed a sex offense?

2-2.1. Which subscales predict the recidivism among male/female offenders who have committed a sex offense?

2-3. What is the predictive utility of the LSI-R among male/female offenders who have committed a drug offense?

2-3.1. Which subscales predict the recidivism among male/female offenders who have committed a drug offense?

2-4. What is the predictive utility of the LSI-R among male/female offenders who have committed a property offense?

2-4.1. Which subscales predict the recidivism among male/female offenders who have committed a property offense?

Sample and Data

The current study addresses these research questions using a data set provided by the Kansas Department of Corrections. The present sample includes all offenders released in fiscal year 2008 (July 1, 2007- June 30, 2008) with LSI-R scores drawn from a larger database maintained by the Kansas Department of Corrections, including KASPER (Kansas Adult Supervised Population Electronic Repository) and OMIS (Offender Management Information System). Data were collected from those offenders released in fiscal year 2008 since this year provides a full 36-month follow-up period for analysis. Information for those offenders released in fiscal year 2008 was collected for fiscal years 2009, 2010 and 2011 to assess any instances of recidivism. There was no direct contact with any offender.

Information was obtained from the Department's master file, the movement file, and the LSI-R file. The master file contains sentence length, demographic, LSI-R scores, and recidivism information for all offenders released from Kansas prisons. This file also provides data on the most serious offense committed. The movement file provides all the admissions and releases for every offender within the system dating back to the 1980s. Admissions and releases are in date format. This file allowed the researcher to determine if there was an additional admission date after the release date, thus speaking to a recidivating event for all offenders who had recidivated within the pre-designated follow-up period of 36 months. The LSI-R file contains information on each LSI-R assessment an offender has had. The file contains the date the assessments were conducted, an overall score, corresponding risk level and scores for each individual subscale. These three files were merged to create one working file with all the necessary information needed to conduct the proposed research.

Setting

The state of Kansas is comprised of a mixture of urban, suburban and rural areas throughout its 81,000 square miles (US Census Bureau, 2012). Of its 2.9 million citizens, over 87 percent are white (US Census Bureau, 2012). The majority of Kansas residents owns a home (69.0%) and has a high school diploma or higher level of education (89.5%) (US Census Bureau, 2012). The median household income is $50, 594 with just over twelve percent (12.6%) of residents falling below the poverty level (US Census Bureau, 2012).

Kansas Department of Corrections. The Kansas Department of Corrections (KDOC) has nine correctional facilities under its jurisdiction. All but one, Topeka Correctional Facility, house only male inmates (KDOC, 2013). Topeka Correctional Facility (TCF) is Kansas' only female facility and is located on the outskirts of the state capitol, Topeka, Kansas. TCF has the capacity to house 773 female inmates at any given time. As of May 2013, TCF was operating just under capacity with 701 female inmates (KDOC, 2013). The remaining eight, male-only facilities are spread throughout the state, housing the states residual 8,690 offenders. Lansing Correctional Facility (LCF), the state's largest facility, has the ability to hold just over 2,400 inmates. On the contrary, Larned Correctional Mental Health Facility (L-CMHF), the state's smallest facility, has the capacity for 438 offenders (KDOC, 2012).

The average inmate in Kansas is white (5,955), is between the age of thirty and thirty-four (1,565), and did not graduate high school (4,073) (KDOC, 2012). While most of the inmates in Kansas are classified as minimum custody offenders (2,930), the KDOC manages approximately 972 offenders classified as maximum custody (KDOC, 2012). A total of 26.2 percent of KDOC offenders are serving sentences of five years of more. Just over twenty percent (20.3%) of offenders are serving sentences for three or more person felonies (i.e., rape, murder, aggravated assault, etc.) (KDOC, 2012). Person related offenses accounted for 72.6 percent of the total population's most serious active offense in fiscal year 2012. Just over twenty-one percent (21.7%) of these person offenses were sex crimes. The top three person offenses committed by male offenders for fiscal year 2012 were Murder in the First Degree, Aggravated Robbery, and Rape (KDOC, 2011). Drug offenses accounted for 18.2 percent and property offenses for 6.1 percent with the remaining 3.1 percent of offenses categorized as 'other' (KDOC, 2011).

Though it appears as the offender population in Kansas is quite violent, the KDOC has seen satisfactory improvements in the state's recidivism rate. The state of Kansas constructs its recidivism rate on three year, 36 month terms. For example, an offender who releases in 2008 will be ‘followed’ for 36 months (until 2011) as to whether or not they have returned to the criminal justice system. In Kansas, returns are categorized as new convictions as well as technical violations. A technical violation includes any violation committed while on post-release supervision that has caused a return to KDOC custody. A new conviction is a subsequent conviction for the commission of a new crime irrespective of the offender’s current or latest offense (KDOC, 2011). Currently, and more formally, the Kansas Department of Corrections defines recidivism as a return to a Kansas prison as a result of a new criminal conviction or a revocation of post-incarceration supervision status (violation of condition(s)) (Kansas Department of Corrections, 2009). This definition of recidivism will be used for the purposes of this study because the research relates specifically to the Kansas offender population.

In calendar year 2005, the three-year recidivism rate for the state of Kansas (including both technical violations and new convictions) was 38.62 percent, or the returning of 2,020 offenders (KDOC, 2011). For calendar year 2008, the three-year recidivism rate dropped to 33.64 percent, or 1,496 offenders. This difference accounts for 4.98 percent decrease over a three-year period, or a savings of 524 offenders.

Kansas Department of Corrections and the LSI-R. The Kansas Department of Corrections uses the LSI-R to assess its inmate population, its parole population, and those offenders under community and field services. The Kansas Department of Corrections does not limit the LSI-R to a specific category of offenders. All offenders, including the mentally ill and sex offenders, must participate in the LSI-R assessment process. All rules, regulations and requirements are stated in the Department’s IMPP (Internal Management Policy and Procedures) 11-113 (Kansas Department of Corrections, 2011). This document provides the stipulations as to how often an inmate is assessed, which rules dictate the scoring of an assessment, how often an assessor must be certified, and who is to oversee any quality assurance matters.

The LSI-R is utilized by the Kansas Department of Corrections to determine an offender's placement. According to the Kansas Department of Corrections (2011), the state uses the LSI-R to determine an offender's community supervision level, as well as the facility-based programs and reentry services to which an offender is referred. The scores from the LSI-R are commensurate with the offenders' supervision level: minimum, medium, or maximum. Additionally, the subscales within the LSI-R allow for the targeting of specific needs for individual offenders. For example, should an offender score particularly high in his or her education subscale, he or she may be recommended for educational or vocational classes while incarcerated (KDOC, 2011). In fiscal year 2012, the KDOC conducted approximately 19,700 facility and community based LSI-R assessments (KDOC, 2011). The contracted cost for each LSI-R assessment is $1.

The Kansas Department of Corrections requires all of its LSI-R assessors to participate in a two-day training, ten practice LSI-R assessments, a video-taped assessment, and a follow-up training day in order to become certified. Additionally, recertification is required on an annual basis to ensure every staff member administering the tool is up to date on any changes that have taken place to the scoring guide or the policy surrounding the tool (KDOC, 2011).

Variables and Measures

Dependent Variables

Recidivism. The primary criterion variable is general recidivism, defined, in accordance with the KDOC, as any new conviction or technical violation resulting in a return to a KDOC facility. Unfortunately, data are not maintained should an offender recidivate in another state. Recidivism will be coded as 0 (no) or 1 (yes) with respect to a recidivating event during the 36-

month follow-up period (2007-2010).

Independent Variables

LSI-R. The major independent variable of this study is the total LSI-R score. The LSI-R assesses 54 items related to risk and need. Each item falls under one of the LSI-R's ten subscales. Each subscale is related to a specific aspect of the individual's life. The ten subscales are as follows: (1) criminal history (C/H), (2) education and employment (E/E), (3) financial (F), (4) alcohol and drugs, (5) family and marital (F/M), (6) accommodation, (7) leisure and recreation (L/R), (8) emotional and personal (E/P), (9) companions (C), and (10) attitudes and orientations (A/O). Pertaining to each subscale, a series of questions are asked to assess the risk and/or need within a particular category. Each question receiving a "yes" response is awarded a point. At the end of the survey, the points are tallied to determine the individual's score. The scores range from 0 to 54, indicating one's risk level (Andrews & Bonta, 2001).

In Kansas, scores rendered from the LSI-R are categorized into three levels of risk: low, moderate, and high (KDOC, 2011). Low risk offenders possess a score between 0 and 18. Moderate risk offenders possess a score ranging from 19 to 33. Finally, high-risk offenders possess a score between 34 and 54. This study operationalizes the LSI-R as a continuous variable (Reisig et al., 2006).

Moderating Variables

Gender was coded as 0 = female and 1 = male. This Kansas Department of Corrections conceptualizes gender as a biological difference. The files obtained from the Kansas Department of Corrections include gender information categorized into 'male' or 'female' for every entry. Female is the reference group for this research.

Offense type was the categorical variable in the current study. Unlike Kim's (2010) study, this research included four offense types. For each primary offense, the Kansas Department of Corrections categorizes the offense as person (non-sexual) offense (0), sex offense (1), drug offense (2), or property offense (3) (KDOC, 2012). The same classifications were utilized for this dissertation. Person offenses include murder, aggravated assault, and any other offense in which the offender has physically injured another person. Sexual offenses are also person crimes, but they are sexual in nature and warrant a separate classification. Such offenses include rape, sodomy and incest. Drug offenses include those offenses involving the use, sale and manufacturing of illegal substances. Finally, property offenses include crimes such as arson and vandalism.

Control Variables

Consistent with prior research on the predictive validity of the LSI-R, this study includes three additional variables (age, race and level of education) that reflect offender attributes (Reisig et al., 2006).

Age is a continuous variable, which was coded in years.

Race was coded into three variables; white (0), black (1), and other (2). KDOC data is fairly limited with classification of race. The Kansas Department of Corrections attempts to capture the following races: American Indian, Asian, Black and White. The KDOC also has an "unknown" category. Due to the small numbers recorded for individuals who have identified themselves as American Indian and Asian, this dissertation grouped all races, including those who are listed as "unknown", other than White and Black, as "other".

Level of Education was coded into four variables; non-high school graduate (0), high school diploma or GED equivalent (1), some college (2) and college graduate and/or post-graduate work (3) . Though the KDOC collects additional educational data, such as whether the offender completed 12th grade, this dissertation grouped such data into the four, more manageable, categories mentioned above.

Table 4

Coding Scheme for Variables

Types of Variables	Variables	Measurement Level	Coding
IV	LSI-R subscale	Interval	Max. range 2 to 10
IV	LSI-R total score	Interval	1 to 54
DV	Recidivism	Nominal	0=no / 1=yes
Moderating	Gender	Nominal	0=female / 1=male
Moderating	Offense Type	Nominal	0=person / 1=sex 2= drug / 3= property
Control	Age	Interval	Older than 18 years
Control	Race	Nominal	0=white / 1=black / 2=other
Control	Level of Education	Ordinal	0=non-high school graduate 1= HS diploma/GED equiv. 2= some college/3=coll. grad.

IV=Independent Variable
DV=Dependent Variable

Data Analysis Plan

Statistical Package for the Social Science Statistics (SPSS) version 21 was used to carry out the statistical analyses for this dissertation.

Descriptive Statistics

Descriptive statistics (means and standard deviations or percentages) for all of the variables, including LSI-R scores, gender and offense type were calculated. Descriptive analyses yield tables and graphs that present demographic and legal characteristics of the sample (Kim, 2010). In addition, bivariate associations between recidivism (dependent variable) and each of the independent, moderating and control variables were conducted.

Reliability Estimates

According to available research on the LSI-R, alpha coefficients for the LSI-R are around

0.70s (Andrews & Bonta, 2001). Because there is no concise cutoff score for internal consistency estimates, it is generally accepted that an alpha value of 0.70 or greater is a reliable measure (De Vellis, 2002; Kim, 2010; Simourd, 2006). A reliability analysis of the LSI-R's ten subscales was run to examine internal consistency. Previous research has shown the majority of these subscales have good levels of internal consistency (Kim, 2010).

Inferential Statistics

Inferential statistics examine whether the differences and associations of particular variables exist in a population based on the sample statistics (Tabachnick & Fidell, 1996). This study had two specific aims that will be assessed using inferential statistics. First, this dissertation aimed to estimate the overall strength of the relationship between the LSI-R and recidivism within three years of release. To directly address the research question of "does the LSI-R predict recidivism at three years less well for both women and men?" logistic regressions using the gender-disaggregated data after controlling for offense type were conducted. For each gender model, total LSI-R scores and offense type were entered into the model. The statistical significance of one's LSI-R score is interpreted as the predictive utility of the LSI-R. In order to test the moderating effect of gender, logistic regression models, in which recidivism was the dependent variable and LSI-R subscales were independent variables, were tested for each gender and then, the statistical significance for each subscale were compared between male and female offender.

Second, before assessing whether offense type moderates the effectiveness of the LSI-R total scores in predicting recidivism within 36 months of release, the current study began with chi-square tests to examine the association between offense type and recidivism for each gender. Next, a series of logistic regression equations for the full sample and each offense type subsample was tested to examine the relationship between LSI-R total scores and recidivism (Reisig et al., 2006). For the multivariate analyses, LSI-R total score was coded as a continuous variable. The control variables included in the logistic regression models were age, race, and education. In addition, In order to test the moderating effect of offense type, logistic regression models, in which recidivism was the dependent variable and LSI-R subscales were independent variables, were tested for each offense type and then, the statistical significance for each subscale was compared across offense types.

Table 5

Summary of Analytical Procedures

Research Questions	Features of Statistics	Analytic Strategy	Goal of Analysis
Descriptive Statistics	Description of sample	Cross-tabulation, Chi-square, frequencies, correlations	Representativeness of sample
Reliability Test	Reliability of LSI-R	Cronbach's alpha	Internal consistency of LSI-R
RQ1-Moderating effect of gender in the predictive validity of LSI-R	Relationship between gender & tool	Logistic Regression	Determine the differences in the predictive validities of the LSI-R between male & female offenders
RQ2- Moderating effect of offense types in the predictive validity of LSI-R	Relationship between offense type & tool	Logistic Regression	Determine the differences in the predictive validities of the LSI-R across offense type

Human Subject Protection

The data utilized in this study is archival in nature. The data provided was collected by corrections professionals as part of routine intake and/or assessment processes within the Kansas Department of Corrections. The data will be stored in a confidential, private file on the researcher's computer. Because the data is confidential in nature, and involves no direct interaction with the offender population, there are no serious concerns regarding human subject protection as related to any portion of this dissertation. The Institutional Review Board of Indiana University of Pennsylvania approved the current dissertation through an expedited review.

Summary

This chapter provided an overview of the proposed analytical strategies concerning the LSI-R, gender and offense type. Each variable was described, as well as the intended data collection methods. The first step was to determine if the LSI-R, as administered within the Kansas Department of Corrections, is a valid predictor of recidivism for both male and female offenders. Second, the impact of four (sex, property, drug and person) offense types was examined to further test the tool's predictive utility. Finally, the intersections between gender, offense type and LSI-R scores were investigated.

CHAPTER IV

ANALYSIS AND RESULTS

Introduction

The following chapter assesses the research questions described in Chapter III. The relationship between LSI-R scores, gender and offense type has been analyzed to address the proposed research questions. The data were divided into gender categories (male and female), as well as offense types (sex offense, person offense, drug offense and property offense). These categorical divisions were then assessed as to their relationship with an offender's overall LSI-R score.

This chapter begins with the descriptive statistics of the sample. Following, the results of each hypothesis test are described in detail. The results of logistic regression analyses are presented for Research Question 1: does gender moderate the predictive utility of the LSI-R total score, and Research Question 2: does offense type moderate the predictive utility of the LSI-R total score.

Further, in regard to the moderating effect of gender on the relationship of recidivism with each LSI-R subscale score (Research Question 1), a series of logistic regression analyses was conducted. Before further investigating the moderating effects of offense types on the relationship of LSI-R subscale scores with recidivism, two chi-square tests of the association between offense type and recidivism were conducted for each gender. For the male sample, offense type with four categories (person, sex, property and drug) and recidivism were entered into the chi-square test, while the chi-square test for the female sample tested the relationship between offense type with three categories (person, property, and drug) and recidivism. Finally, an additional logistic regression analysis was conducted to further investigate the moderating effects of offense types on the relationship of the LSI-R subscales and recidivism.

Descriptive Statistics

Original Data Set

All participants in this analysis were obtained from data on offenders who were released from prisons within the Kansas Department of Corrections during fiscal year 2008 (July 1, 2007-June 1, 2008). The initial sample consisted of 4,956 offenders released during fiscal year 2008. However, a number of offenders (n=2,039) were excluded from the sample as the data provided for them was incomplete. Offenders (n=2,039) were excluded if either their gender or offense information was not provided; as gender is the main variable for this study. Additionally, only four females were categorized as sex offenders. Due to a statistical power issue, they were not included. Thus, the relationship of LSI-R score with offense type among female inmates was tested with three categories of offenses (i.e., person offense, drug offense and property offense). For male inmates; four offense types were tested.

Research Sample

After removing 2,039 cases which did not meet the inclusion criteria, the final sample was comprised of 2,917 offenders. Male offenders accounted for 86.8 percent (n=2,533) of the sample, while female offenders comprised the remaining 13.2 percent (n=384). These numbers closely resemble the current make-up of the Kansas Department of Corrections. As of February 2014, male offenders accounted for 92.3 percent of the inmate population (8,785 of 9,513). Female offenders accounted for the remaining 7.7 percent (728 of 9,513) (KDOC, 2014).

As shown in Table 6, the sample was overwhelmingly white (67.6%). Of the 2,917 offenders, 1,973 were classified as white. A total of 30.1 percent (n=877) were black and 2.3

percent (n=67) were listed as “other”. “Other” could include American Indian, Asian American and/or Pacific Islander. Racial compositions were similar for both the male and female samples. Table 6 also provides gender-specific information for the research sample’s demographics. White males comprised 68.1 percent (1,726 of 2,533) of the total male sample. Black males accounted for 29.8 percent (756 of 2,533), with the remaining 2.0 percent (51 of 2,533) listed as “other”. Similarly, white females comprised 64.3 percent (247 of 284) of the female offender sample. A total of 31.5 percent (121 of 384) were categorized as black and the remaining 4.2 percent (16 of 384) were classified as “other”.

Education was also grouped into four categories; non-high school graduate, high school graduate or GED equivalency, some college or college graduate/post-graduate degree. As shown in Table 6, those offenders (n=542) who had no education information were classified as “missing”. Those with a high school diploma or GED equivalent accounted for just over half (50.6%; n=1,475) of the entire sample. Of the 384 female offenders, 223 (58.1%) graduated from high school or obtained their GED equivalent. Similarly, of the 2,533 male offenders included in the sample, 1,252 (49.4%) obtained their diploma or GED. A total of 22.4 percent (n=652) had not graduated from high school. A higher proportion of female offenders failed to complete high school. Of the 384 female offenders, 116 (30.2%) did not graduate high school. A total of 21.2 percent (536 of 2,533) of male offenders did not finish high school. Only 8.3 percent (n=241) of the sample attended college for a period of time. Male offenders made up the majority of those who attended college for some period of time (232 of 2,533; 9.2%). Females who attended college accounted for just 2.3 (9 of 384) percent of their sample. Just 0.2 percent (n=7) of the offenders had graduated from college. All of the offenders who graduated from college were male. The remaining 18.6 percent (n=542) were classified as missing.

As seen in Table 6, the mean age for all offenders was approximately 40. The minimum age for female offenders (24) was slightly higher than that of males (22). Interestingly, the maximum age for female offenders (65) was lower than males (95).

Criminal background: Offense types and recidivism. The sample was also categorized based on four offense type classifications; sex offense, property offense, person offense and drug offense. As stated previously, offenders (n=2,039) were excluded if those cases did not have information on the offense they committed. Drug offenders comprised the highest portion of the total sample. As indicated in Table 6, a total of 37.4 percent (n=1,091) of the sample was classified as drug offenders. Person offenses accounted for 33.0 percent (n=963), property offenses for 21.2 percent (n=617) and sex offenses for the remaining 8.4 percent (n=246).

As stated previously, women classified as sex offenders were excluded from the sample as there were only four. Male offenders accounted for all 246 sexual offenders. Females accounted for an overwhelming amount of the drug offenses. Almost half, or 49.7 percent (191 of 384), of the female sample was classified as drug offenders. A greater percentage of female offenders were classified as property offenders. Accounting for 28.4 percent (109 of 384), female offenders committed property offenses at a higher rate than their male counterparts.

Of the total sample (n = 2,917), 69.6 percent (n=2,031) did not recidivate within the 36 month follow-up period. However, a total of 30.4 percent (n=886) returned to a Kansas prison during the follow-up period. Proportionate to the overall sample, males accounted for a significantly higher percentage of recidivism than female offenders. As indicated in Table 6, recidivating male offenders released in fiscal year 2008 comprised 28.1 percent (819 of 2,917) of the entire sample. Female recidivists, on the other hand, accounted for just 2.3 percent (67 of 2,917) of the total sample.

When considering the male and female samples individually, female recidivists accounted for 17.4 percent (67 of 384) of the female-only sample. The remaining 82.6 percent (317 of 384) did not recidivate. By contrast, of the 2,533 males included in the sample, 32.3 percent (819 of 2,533) recidivated within the 36 month follow-up period. This number is almost double that of the female recidivists. The remaining 67.7 percent (1,714 of 2,533) of male offenders did not return during the follow-up period.

Table 6

Frequency and Percentage for the Research Sample

		Total Sample (n=2,917)		Male (n= 2,533)		Female (n=384)	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Gender	Male	2,533	86.8	2,533	100.0		
	Female	384	13.2			384	100.0
Race	Black	877	30.1	756	29.8	121	31.5
	White	1973	67.6	1,726	68.1	247	64.3
	Other	67	2.3	51	2.0	16	4.2
Education	Non-HS	652	22.4	536	21.2	116	30.2
	HS Grad/ GED	1475	50.6	1,252	49.4	223	58.1
	Some Col.	241	8.3	232	9.2	9	2.3
	Col. Grad/ Post Grad.	7	0.2	7	0.3	0	0.0
	Missing	542	18.6	506	20.0	36	9.4
Offense Type	Sex	246	8.4	246	9.7	0	0.00
	Property	617	21.2	508	20.1	109	28.4
	Person	963	33.0	879	34.7	84	21.9
	Drug	1091	37.4	900	35.5	191	49.7
Recidivism	No	2031	69.6	1,714	67.7	317	82.6
	Yes	886	30.4	819	32.3	67	17.4

Table 6 (continued)

Descriptive Statistics for the Research Sample

	N	Minimum	Maximum	Mean	Std. Deviation
Age	(2,917)	22	95	40.22	10.367
Male	2,533	22	95	40.06	10.553
Female	384	24	65	41.26	8.986

Reliability of the LSI-R and Gender Differences in the LSI-R Subscales

As mentioned in Chapter III, much of the research available on the LSI-R has found Cronbach's alpha coefficients to fall near 0.70, indicating low internal consistency (Andrews & Bonta, 2001). Because there is no concise score for internal consistency estimates, it is generally accepted that a Cronbach's alpha value of 0.70 or greater is a reliable measure (De Vellis, 2002; Kim, 2010; Simourd, 2006). A reliability analysis was run on the LSI-R's total score. The Cronbach's alpha value of the LSI-R was 0.721 for the research sample. According to previous research, this value is not only acceptable, but is comparable to coefficients found in other studies.

As mentioned previously, the LSI-R consists of 54 items among ten subscales. Using a series of independent samples t-tests, the researcher compared the LSI-R total scores and subscale scores for males and females as displayed in Table 7. The average LSI-R score for the total research sample was 26.01. The averages for males and females were very similar; 25.98 and 26.20 respectively. The independent samples t-test [t(530.612)= 0.541, p=0.589] rendered no statistically significant gender difference for total LSI-R score.

As displayed in Table 7, statistically significant gender differences in mean LSI-R subscale scores were found for the following seven subscales: criminal history, financial, accommodations, leisure/recreation, companion, emotional/personal and attitudes/orientations. Among these seven LSI-R subscales, four LSI-R subscales had higher scores for male offenders. First, t-tests [t(2915)= -6.247, p=0.000] found that male offenders (M=6.32, SD=1.740) have more criminal history than female offenders (M=5.73, SD= 1.705). Second, t-tests [t(525.648)= -2.074, p=0.039] found that male offenders (M=1.36, SD=0.671) have greater scores within the leisure/recreation subscale than female offenders (M=1.44, SD=0.720). Third, t-tests [t(2915)= -

1.983, p=0.047] found that male offenders (M=2.63, SD=0.671) have greater scores within the companion subscale than female offenders (M=2.76, SD=1.213). Finally, t-tests [t(523.412)= -2.286, p=0.023] showed that male offenders (M=1.99, SD=1.341) have higher scores in the attitudes/orientations subscale than female offenders (M=2.16, SD=1.427).

Of the seven LSI-R subscales with statistical significance, three LSI-R subscales had higher scores for female offenders. First, t-test [t(2915)= 3.154, p=0.002] found that female offenders (M=0.97, SD=0.738) have more financial related problems than male offenders (M=0.84, SD=0.713). Second, t-tests [t(2915)=2.061, p=0.039] showed female offenders (M=0.63, SD=0.903) have greater scores within the accommodations subscale than male offenders (M=0.74, SD=0.970). Finally, t-tests [t(2915)= 11.219, p=0.000] revealed higher scores for female offenders (M=1.11, SD= 1.420) in the emotional/personal subscale than male offenders (M=1.98, SD=1.379).

Only three subscales (education/employment, family/marital and alcohol/drug) rendered no statistically significant findings when comparing mean LSI-R scores among male and female offenders. For the education and employment subscale, there was no statistically significant difference between males (M=5.95, SD=2.248) and females (M=5.85, SD=2.534); t(541.781)=0.842, p=0.400. Independent t-tests conducted for the family and marital subscale also rendered insignificant findings; males (M=1.55, SD= 1.013) and females (M=1.62, SD= 1.139); t(540.861)=-1.208, p=0.227. The scores for males and females within the alcohol and drug domain also rendered insignificant findings. The results are as follows: males (M=3.31, SD=2.368) and females (M=3.25, SD= 2.334); t(2915)=0.456, p=0.648.

Table 7

Descriptive Statistics for the LSI-R Subscales

	N	Minimum	Maximum	Mean	Std. Deviation	T-value	Sig.
Total LSI Score	2,917	4	48	26.01	7.877	0.541	0.589
Male	2,533	4	48	25.98	7.961		
Female	384	7	44	26.20	7.308		
Criminal History[a]	2,917	0	10	6.24	1.747	-6.247***	0.000
Male	2,533	0	10	6.32	1.740		
Female	384	0	10	5.73	1.705		
Education/Employment	2,917	0	10	5.86	2.498	0.842	0.400
Male	2,533	0	10	5.85	2.534		
Female	384	0	10	5.95	2.248		
Financial[b]	2,917	0	2	0.86	0.717	3.154**	0.002
Male	2,533	0	2	0.84	0.713		
Female	384	0	2	0.97	0.738		
Family/Marital	2,917	0	4	1.61	1.123	-1.208	0.227
Male	2,533	0	4	1.62	1.139		
Female	384	0	4	1.55	1.013		
Accommodations[b]	2,917	0	3	0.65	0.913	2.061*	0.039
Male	2,533	0	3	0.63	0.903		
Female	384	0	3	0.74	0.970		

Table 7 (continued)

Descriptive Statistics for the LSI-R Subscales

	N	Minimum	Maximum	Mean	Std. Deviation	T-value	Sig.
Leisure/Recreation[a]	2,917	0	2	1.43	0.714	-2.074*	0.039
Male	2,533	0	2	1.44	0.720		
Female	384	0	2	1.36	0.671		
Companion[a]	2,917	0	4	2.74	1.216	-1.983*	0.047
Male	2,533	0	4	2.76	1.213		
Female	384	0	4	2.63	1.230		
Alcohol/Drug	2,917	0	9	3.26	2.338	0.456	0.648
Male	2,533	0	9	3.25	2.334		
Female	384	0	9	3.31	2.368		
Emotional/Personality[b]	2,917	0	5	1.22	1.444	11.219***	0.000
Male	2,533	0	5	1.11	1.420		
Female	384	0	5	1.98	1.379		
Attitudes/Orientations[a]	2,917	0	4	2.13	1.417	-2.286*	0.023
Male	2,533	0	4	2.16	1.427		
Female	384	0	4	1.99	1.341		

*p < .05, **p < .01, ***p < .001

[a] The subscale on which male offenders have statistically significant higher score than female offenders

[b] The subscale on which female offenders have statistically significant higher score than male offenders

Predictive Utility of LSI-R: The Moderating Effects of Gender and Offense Type

Before testing Research Question 1 (moderating effects of gender), as well as Research Question 2 (moderating effects of offense type), recidivism, serving as the dependent variable, was assessed as to its relationship with one's total LSI-R score, gender, and offense type. Table 8 presents the findings for a logistic regression analysis predicting recidivism by gender and offense type. The model χ^2 value for this analysis was 106.991. The results from this model show statistical significance (p= 0.000). In other words, the variables tested (LSI-R score, offense type and gender) have a statistically significant impact on one's likelihood of recidivating. As seen in Table 8, each individual variable was statistically significant after controlling for the other variables in the model.

Only one variable, offense type, rendered a negative relationship with recidivism, while LSI-R total score and gender rendered a positive relationship with recidivism. For every one unit increase in one's total LSI-R score, the odds of the offender recidivating increases by 0.96 times (1/1.037= 0.96), after controlling gender and offense type. This model shows males are more likely to recidivate than females by an odds ratio of 0.47 times (1/2.138=0.47), after controlling for LSI-R total score and offense type.

Table 8

Logistic Regression Analyses in Predicting Recidivism by LSI-R Total Score, Gender, and Offense Type

Predictors	B	S.E.	Wald	Sig.	Exp(B)
Total LSI-R Score	0.037	0.005	48.244	0.000	1.037
Offense Type	-0.183	0.036	26.382	0.000	0.832
Gender	0.760	0.143	28.304	0.000	2.138
Constant	-2.212	0.202	119.442	0.000	0.109
Males only					
Total LSI-R Score	0.035	0.005	40.968	0.000	1.036
Offense Type	-0.190	0.037	25.744	0.000	0.827
Constant	-1.404	0.155	85.584	0.000	0.246
Females Only					
Total LSI-R Score	0.056	0.019	8.582	0.003	1.058
Offense Type	-0.099	0.125	0.631	0.427	0.906
Constant	-2.901	0.600	23.385	0.000	0.055

Research Question 1: Predictive Utility of LSI-R: The Moderating Effects of Gender

In order to test Research Question 1: the moderating effect of gender in the predictive validity of LSI-R, two separate logistic regression models for each gender were tested in which recidivism was the dependent variable and LSI-R total score was the independent variable, after controlling for the effect of offense type. Table 8 shows data for logistic regression analyses broken down by gender. The analyses showed a statistically significant relationship between recidivism and LSI-R total score after controlling for offense type, both for males (χ^2 =60.756; p= 0.000) and for females (χ^2 = 9.69; p=0.008). The relationship between recidivism and offense type for males was statistically significant (p=0.000). However, the relationship between recidivism and offense type for females was not (p=0.427).

The results of logistic regression models for males and females support the moderating effects of gender in the predictive validity of LSI-R scores. The odds of a male offender recidivating increases 0.97 times (1/1.036= 0.97) for every one unit increase in the total LSI-R score, after controlling for the effect of offense type. The odds ratio for female offenders was slightly lower. For every unit increase in total LSI-R score, the odds of a female recidivating increases by 0.95 times (1/1.058= 0.95), after controlling for the effect of offense type.

In order to further investigate the predictive utility of LSI-R subscales, logistic regression models, in which recidivism was the dependent variable and LSI-R subscales were independent variables, were tested. A logistic regression analysis for the entire sample was conducted as shown in Table 9. The test indicates that of the ten LSI-R subscales, three subscales, the criminal history, leisure/recreation and the alcohol/drug subscales, were found to have a statistically significant relationship with recidivism for the entire sample.

For the ten LSI-R subscales, regression coefficients are presented in Table 9 for the entire sample, as well as for males and females. A statistically significant relationship was found for the criminal history (p=0.000) and companion (p=0.015) subscales for female offenders. Logistic regression analysis yielded different relationships among the male sample. The criminal history (p=0.000), education/employment (p=0.013), and the alcohol/drug (p=0.003) subscales proved to be statistically significant predictors of recidivism. It is necessary to note only one subscale, criminal history, was found to be statistically significant for both the male and female sample.

LSI-R subscales- Female offender sample. The model χ^2 value for this logistic regression analysis was 35.271. The results from this model show statistical significance (p= 0.000). Three LSI-R subscales (education/employment, financial, companion) were negatively correlated to recidivism among female offenders. Both the education/employment and financial subscales suggest the odds of recidivating as a female offender decreases by 1.07 times (1/.935= 1.07) and 3.1 times (1/.323= 3.1), respectively. Furthermore, the companion subscale also was negatively correlated to female recidivism. The odds of a female recidivating decreases by 66.7 times (1/.015= 66.7) for each unit increase in the companion subscale.

The remaining subscales were positively correlated with female recidivism. Results indicate that the odds of a female recidivating increased by 0.7 times (1/1.428= 0.7) for every one unit increase in the criminal history subscale. Second, the odds of a female recidivating increased by 0.84 times (1/1.188= 0.84) for each one unit increase in the family/marital subscale. Third, the odds of a female offender recidivating increased by 0.83 times (1/1.198= 0.83) for each one unit increase in the accommodation subscale. Similar findings were found for the leisure/recreation and alcohol/drug subscales. Both subscales suggest the odds of recidivating increased by 0.66 times (1/1.516= 0.66) and 0.93 times (1/1.076= 0.93), respectively. Additionally, the odds of recidivating for female offenders increased by 0.86 times (1/1.186= 0.86) for every one unit increase within the emotional/personal subscale. Finally, the odds of a female recidivating increased by 0.85 times (1/1.176= 0.85) for every one unit increase in the attitudes/orientation subscale.

LSI-R subscales- Male offender sample. The model χ^2 value for this logistic regression analysis was 118.317. The results from this model show statistical significance (p= 0.000). Logistic regression analysis produced very different results for male offenders. Again, three of the LSI-R subscales (accommodation, alcohol/drug, attitudes/orientation) were negatively correlated to recidivism among males. However, these three subscales were different from the three subscales negatively correlated to recidivism for female offenders. The accommodation, alcohol/drug and attitudes/orientation subscales suggest recidivating as a male decreased by 1.01 times (1/.988= 1.101), 1.07 times (1/.937= 1.07) and 1.01 times (1/.989= 1.01), respectively.

The remaining seven subscales were positively correlated to male recidivism. First, the odds of a male offender recidivating increased by 0.80 times (1/1.252= 0.80) for every one unit increase in the criminal history subscale. Second, the odds of recidivating increased by 0.95 (1/1.053= 0.95) for males with every one unit increase in the education/employment subscale. Third, the odds of recidivating for male offenders increased by a rate of 0.94 (1/1.063= 0.94) for every one unit increase in the financial subscale. Fourth, the odds of recidivating for male offenders increased by 0.95 (1/1.051= 0.95) for every unit increase in the family/marital subscale. Similar results were found for the leisure/recreation and companion subscales. For every one unit increase, the odds of a male offender recidivating increased by 0.90 times (1/1.113= 0.90) and 0.94 times (1/1.061= 0.94), respectively. Finally, the odds of recidivating for a male offender increased by 0.95 times (1/1.050= 0.95) for every one unit increase in the emotional/personal subscale.

Table 9

Summary of Logistic Regression Analyses in Predicting Recidivism by Gender, LSI-R Subscales

	Overall Sample (n=2,917)					Male Sample (n=2,533)					Female Sample (n=384)				
Predictors	B	S.E.	Wald	Sig.	Exp(B)	B	S.E.	Wald	Sig.	Exp(B)	B	S.E.	Wald	Sig.	Exp(B)
Criminal History[a bc]	0.250	0.026	90.138	0.000	1.284	0.225	0.028	66.573	0.000	1.252	0.356	0.099	13.007	0.000	1.428
Edu/Employment[b]	0.037	0.20	3.473	0.062	1.038	0.051	0.021	6.130	0.013	1.053	-0.067	0.074	0.802	0.371	0.935
Financial	0.027	0.063	0.178	0.673	1.027	0.061	0.067	0.824	0.364	1.063	-0.211	0.213	0.978	0.323	0.810
Family/Marital	0.066	0.040	2.670	0.102	1.068	0.049	0.042	1.383	0.240	1.051	0.172	0.147	1.377	0.241	1.188
Accommodation	-0.001	0.050	0.001	0.981	0.999	-0.012	0.054	0.051	0.821	0.988	0.181	0.159	1.282	0.257	1.198
Leisure/Recreation[a]	0.136	0.069	3.860	0.049	1.146	0.107	0.072	2.193	0.139	1.113	0.416	0.273	2.326	0.127	1.516
Companions[c]	0.029	0.039	0.542	0.462	1.029	0.060	0.041	2.086	0.149	1.061	-0.344	0.141	5.967	0.015	0.709
Alcohol/Drug[ab]	-0.053	0.021	6.602	0.010	0.948	-0.065	0.022	8.830	0.003	0.937	0.073	0.072	1.022	0.312	1.076
Emo/Personal	0.026	0.030	0.763	0.382	1.026	0.049	0.032	2.392	0.122	1.050	0.155	0.108	2.068	0.150	1.168
Att/Orientation	0.016	0.036	0.195	0.659	1.016	-0.011	0.038	0.087	0.768	0.989	0.162	0.124	1.713	0.191	1.176
Constant	-2.947	0.211	195.04	0.000	0.052	-2.762	0.223	153.8	0.000	0.063	-4.159	0.748	30.93	0.000	0.016

[a] Statistically significant subscale predictor of recidivism for entire sample
[b] Statistically significant subscale predictor of recidivism for male sample
[c] Statistically significant subscale predictor of recidivism for female sample

Research Question 2: Predictive Utility of LSI-R: The Moderating Effects of Offense Type

Before testing Research Question 2, the moderating effect of offense types on the predictive utility of LSI-R, two separate chi-square analyses were conducted for each gender to determine the relationship between offense types and recidivism. For the male sample, recidivism and four offense types (person, sex, property, drug) were entered into the analysis. As shown in Table 10, the results from this analysis were significant χ^2 (3, N= 2,533) = 35.772, p= 0.000. In other words, recidivism was significantly correlated to offense type for male offenders. A similar chi-square analysis was conducted for the female sample. However, sex offenders were excluded due to a small number of female sex offenders (n=4). For the female sample, recidivism and three offense type categories (person, property, drug) were entered into the analysis. As shown in Table 10, the results for this analysis were not found to be statistically significant χ^2 (2, N= 384) = 3.264, p= 0.196. For female offenders, recidivism was not correlated to the three offense type categories.

Table 10

Chi-Square Analysis of Gender, Recidivism and Offense Type

	Male Sample (n=2,533)			Female Sample (n=384)		
	Recidivism			Recidivism		
Off. Type	Yes	No	χ^2	Yes	No	χ^2
Person	335 (40.9%)	544 (31.7%)	35.772*	19 (28.4%)	65 (20.5%)	3.264
Sex	93 (11.4%)	153 (8.9%)		--	--	
Drug	230 (28.1%)	670 (39.1%)		27 (40.3%)	164 (51.7%)	
Property	161 (19.7%)	347 (20.2%)		21 (31.3%)	88 (27.8%)	

Note. Numbers in parentheses indicate column percentages. *p < .05

Logistic regression analyses were conducted for each offense type subset as Research Question 2 speaks to the moderating effects of offense type on the predictive utility of the LSI-R. The sample was divided into four smaller samples based on offense type. The effects of total

LSI-R score on recidivism, after controlling for gender, were analyzed using logistic regression for each offense type subset. The results are presented in Table 11.

The four female sex offenders were excluded to prevent any potential skew of the data. As a result, the gender variable was not included for the analysis of the sex offender subset as there are only male sex offenders. Based on the logistic regression model, presented in Table 10, there is a positive statistically significant relationship (p= 0.000) between recidivism and total LSI-R score among male sex offenders. The model χ^2 value for this analysis was 20.020. The odds of a male sex offender recidivating increased by 0.93 times (1/1.077= 0.93) for each one unit increase in the total LSI-R score.

Those offenders convicted of a person offense rendered similar findings (χ^2 = 24.436; p=0.000). A total of 963 person offenders were included in the sample; 879 males and 84 females. Logistic regression analyses were conducted within this offense type subset controlling for gender, total LSI-R score, and recidivism. Based on the model, there is a positive statistically significant relationship between recidivism and gender (p= 0.004) and total LSI-R score (p= 0.000) after controlling for gender among the person offense type subset. The odds of a person offender recidivating increased by 0.97 times (1/1.035= 0.97) for each one unit increase in the total LSI-R score. Additionally, male person offenders are 0.46 times (1/2.173= 0.46) more likely to recidivate than female person offenders.

Of the 617 property offenders included in the sample, 508 were male and 109 were female. Logistic regression analysis for this subset was conducted controlling for gender, total LSI-R score, and recidivism. As presented in Table 10, positive statistically significant relationships were found for all variables included (χ^2 value =11.140; p=0.004; gender: p= 0.021; total LSI-R score: p=0.046). According to the model, the odds of a property offender recidivating increased 0.98 times (1/1.025= 0.98) for every one unit increase in the total LSI-R score after controlling for gender. Additionally, male property offenders are 0.55 times (1/1.832= 0.55) more likely than female property offenders to recidivate.

Finally, drug offenders (n=1091) comprised the largest portion of offenders in the sample. Males accounted for 900 drug offenders and females accounted for the remaining 191. Logistic regression analysis was conducted controlling the variables gender, total LSI-R score, and recidivism (χ^2 =28.517; p=0.000). As with the previous three subsets, positive statistically significant relationships were found for all variables (gender: p= 0.001; total LSI-R score: p= 0.000). The odds of a drug offender recidivating increased by 0.96 times (1/1.039= 0.96) for every unit increase in the total LSI-R score after controlling the variable of gender. Additionally, male drug offenders are 0.47 times (1/2.123= 0.47) more likely than female drug offenders to recidivate.

Table 11

Summary of Logistic Regression Analysis for Each Offense Type

Predictors	B	S.E.	Wald	Sig.	Exp(B)
Sex Offenders (n=246)					
Total LSI-R Score	0.074	0.017	17.999	0.000	1.077
Constant	-2.136	0.416	26.397	0.000	0.118
Person Offenders (n=963)					
Total LSI-R Score	0.034	0.009	15.655	0.000	1.035
Gender	0.776	0.272	8.159	0.004	2.173
Constant	-2.144	0.353	36.965	0.000	0.117
Property Offenders (n=617)					
Total LSI-R Score	0.025	0.012	3.979	0.046	1.025
Gender	0.605	0.263	5.292	0.021	1.832
Constant	-2.082	0.411	25.702	0.000	0.125
Drug Offenders (n=1,091)					
Total LSI-R Score	0.038	0.010	15.697	0.000	1.039
Gender	0.753	0.222	11.450	0.001	2.123
Constant	-2.833	0.338	70.242	0.000	0.059

In order to further investigate the predictive utility of the LSI-R subscales for each offense type, after controlling for gender, logistic regression models in which recidivism is the dependent variable and LSI-R subscales are the independent variables were tested. Tables 12 and 13 present the results of logistic regression analyses on each offense type and LSI-R subscale for the male and female samples. A total of seven analyses were conducted, categorizing the data by gender and offense type (i.e. male drug offenders, female drug offenders). The results from these analyses follow.

Person offenders. As seen in Table 12, logistic regression analyses were conducted for female person offenders. The model χ^2 value for this analysis was 19.368. The results from this model show statistical significance (p= 0.036). Only one relationship was found to be statistically significant for female person offenders: the companion subscale was statistically significant at p=0.010. While statistically significant, the relationship was negatively correlated. In other words, for every one unit increase in the companion subscale, the odds of a female person offender recidivating decreased by 3.17 times (1/.315=3.17). A total of eight of the remaining nine subscales were negatively correlated to recidivism. The odds of a female person offender recidivating decreased by 1.17 times (1/.855=1.17) and 1.95 times (1/.513=1.95) for every one unit increase in the criminal history and education/employment subscales, respectively.

For every one unit increase in the financial, family/marital and accommodations subscales, the odds of a female person offender recidivating decreased by 2.99 times (1/.335=2.99), 1.41 times (1/.707==1.41) and 1.11 (1/.901=1.11), respectively. The odds of a female person offender recidivating decreased by 1.34 times (1/.744=1.34), 1.56 times (1/.640=1.56), and 1.13 times (1/.882=1.13), for each unit increase in the leisure/recreation, alcohol/drug and emotional/personal subscales, respectively. The only subscale positively correlated to recidivism was the attitudes/orientations subscale. The odds of recidivating for a female person offender increased by 0.614 times (1/1.627=.614) for every one unit increase in the attitudes/orientations subscale.

The model χ^2 value for the analyses involving male person offenders was 35.431. The results from this model also show statistical significance (p= 0.000). However, the criminal history subscale was the only subscale statistically related to recidivism (p=0.009). For every one unit increase in the criminal history subscale, the odds of a male person offender recidivating increased by 0.83 times (1/1.212=0.83). Of the remaining subscales, two rendered negative correlations to recidivism (emotional/personal and attitudes/orientations). The odds of a male person offender recidivating decreased by 1.06 times (1/.943=1.06) and 1.03 times (1/.972=1.03) for every one unit increase in the emotional/personal and attitudes/orientations subscales, respectively.

The remaining subscales were positively correlated to recidivism. The odds of a male person offender recidivating increases by 0.94 times (1/1.066=0.94) for every one unit increase in the educational/employment subscale. For every one unit increase in the financial, family/marital and accommodations subscales, the odds of a male person offender recidivating increased by 0.811 times (1/1.232=.811), 0.88 times (1/1.137=.88) and 0.88 times (1/1.140=.88), respectively. Finally, the odds of a male person offender recidivating increased by 0.94 times, (1/1.065=.94), 0.93 times (1/1.074=0.93) and 0.99 times (1/1.005=0.99) for every one unit increase in the leisure/recreation, companions and alcohol/drug subscales, respectively.

Property offenders. The logistic regression analyses for female property offenders rendered a model χ^2 value of 16.504. The results from this model show no statistical significance ($p= 0.086$). None of the ten LSI-R subscales rendered statistically significant relationships to recidivism for female property offenders. Of the ten subscales, two were negatively correlated to recidivism. For every one unit increase in the companion and attitudes/orientations subscales, the odds of a female property offender recidivating decreased by 1.522 times (1/.657=1.522), and 1.26 times (1/.796=1.26), respectively.

The remaining eight subscales were positively correlated to recidivism. The odds of a female property offender recidivating increased by 0.533 times (1/1.871=.533), 0.83 times (1/1.210=0.83), and 0.48 times (1/2.071=0.48) for every one unit increase in the criminal history, education/employment and financial subscales, respectively. Similarly, the odds of a female property offender recidivating increased by 0.84 times (1/1.193=.84) and 0.80 times (1/1.255=.80) for each one unit increase in the financial and accommodations subscales, respectively. The leisure/recreation subscale had the smallest odds ratio for this logistic regression model. For every one unit increase in the leisure/recreation subscale, the odds of a female property offender recidivating increased by 0.43 times (1/2.318=.43). Finally, the odds of recidivating for a female property offender increased by 0.57 times (1/1.748=.57), and 0.67 times (1/1.497=.67) for each unit increase in the alcohol/drugs and emotional/personal subscales, respectively.

The logistic regression analyses for male property offenders rendered a model χ^2 value of 22.944. The results from this model show statistical significance (p= 0.011). Again, as with the male person offenders, the criminal history subscale was the only statistically significant predictor of recidivism for male property offenders (p=0.019). For every one unit increase in the criminal history subscale, the odds of recidivating for a male property offender increased by 0.78 times (1/1.286=.78). Of the remaining nine subscales, five were negatively correlated to recidivism. For every one unit increase in the financial, accommodations, alcohol/drug and attitudes and orientations subscales, the odds of a male property offender recidivating decreased by 1.035 times (1/.966=1.035), 1.02 times (1/.977=1.02), 1.14 times (1/.874=1.14), 1.02 times (1/.983=1.02) and 1.02 times (1/.976=1.02), respectively.

The education/employment, leisure/recreation, companions and emotional/personal subscales were positively correlated to recidivism. The odds of recidivating for a male property offender increased by 0.94 times (1/1.067=.94) for every one unit increase in the educational/employment subscale. Similarly, the odds of recidivating for a male property offender increased by 0.69 times (1/1.446=.69), 0.89 times (1/1.122=.89), and 0.88 times (1/1.136=.88), for every one unit increase in the leisure/recreation, companions and emotional/personal subscales, respectively.

Drug offenders. The logistic regression analysis for female drug offenders rendered a model χ^2 value of 22.291. The results from this model show statistical significance (p= 0.014). Only one LSI-R subscale, the financial subscale, was found to have a statistically significant relationship with recidivism (p=0.005) for female drug offenders. However, the relationship was negative. For every one unit increase in the financial subscale, the odds of a female drug offender recidivating decreased by 3.32 times (1/.301=3.32). Though not statistically significant, four other subscales (education/employment, companions, alcohol/drug, emotional/personal) rendered negative correlations. The odds of a female drug offender recidivating decreased by 1.28 times (1/.779=1.28) and 1.3 times (1/.762=1.3) for every one unit increase in the education/employment and companions subscales, respectively. Additionally, for every one unit increase in the alcohol/drug and emotional/personal subscales, the odds of a female drug offender recidivating decreased by 1.36 times (1/.736=1.36) and 1.28 times (1/.781=1.28), respectively.

The remaining five subscales were positively correlated to recidivism among female drug offenders. Both the criminal history and family/marital subscales suggest the odds of recidivating as a female drug offender increased by 0.92 times (1/1.088=.92) and 0.88 times (1/1.132=.88) for each unit increase, respectively. Furthermore, the odds of a female drug offender recidivating increased by 0.99 times (1/1.013=.99) for each unit increase in the accommodations subscale. The leisure/recreation and attitudes/orientations subscales were also positively correlated with recidivism for the female drug offender sample. The odds of recidivating increased by 0.81 times (1/1.233=.81), and 0.78 times (1/1.290=.78), respectively.

The logistic regression analyses for male drug offenders rendered a model χ^2 value of 76.190. The results from this model show statistical significance (p= 0.000). The findings for male drug offenders were very different. Again, only one subscale, criminal history, had a statistically significant relationship with recidivism. Criminal history was found to be statistically significant at $p=0.000$. Furthermore, this relationship was positive, indicating that the odds of a recidivating for a male drug offender increased by 0.68 times (1/1.461=.68) for every one unit increase in the criminal history subscale.

A total of three of the LSI-R subscales (financial, accommodations, alcohol/drug) were negatively correlated to recidivism for male drug offenders. For the financial, accommodations and alcohol/drug subscales, the odds of recidivating increased by 1.02 times (1/.981=1.02), 1.11 times (1/.903=1.11) and 1.11 times (1/.897=1.11), respectively, with each one unit decrease. The remaining subscales rendered positive correlations. Results indicate the odds of a male drug offender recidivating increased by 0.95 times (1/1.055=.95) for every one unit increase in the education/employment subscale. Similarly, the odds of recidivating for a male drug offender increased by 0.94 times (1/1.069=.94) and 0.84 times (1/1.192=.84) for every one unit increase in the family/marital and leisure/recreation subscales, respectively. Furthermore, the odds of a male drug offender recidivating increased by 0.94 times (1/1.065=.94) and 0.93 times (1/1.079=.93) for each one unit increase in the companions and emotional/personal subscales, respectively. Finally, for every one unit increase in the attitudes/orientations subscale, the odds of recidivating for a male drug offender increased by 0.99 times (1/1.010=.99).

Sex offenders. As stated previously, the four female sex offenders were excluded from the sample. However, logistic regression analyses were conducted as to the predictive utility of the LSI-R in predicting recidivism for the male sex offender sample. The logistic regression analyses for these offenders rendered a model χ^2 value of 27.900. The results from this model show statistical significance ($p= 0.002$). The family/marital subscale was the only subscale significantly related to recidivism (p=0.048). However, the relationship was negative. For every one unit increase in the family/marital subscale, the odds of a male sex offender recidivating decreased by 1.51 times (1/1.662=1.51).

Only two subscales, criminal history and attitudes/orientations, were positively correlated to recidivism. The odds of a male sex offender recidivating increased by 1.0 times (1/1=1.0) and 0.84 times (1/1.194=0.84), respectively. The remaining seven subscales were negatively correlated with recidivism. For every one unit increase in the education/employment, financial and accommodations subscales, the odds of a male sex offender recidivating decreased by 1.11 times (1/.897=1.11), 1.10 times (1/.905=1.10) and 1.1 times (1/.924=1.1), respectively. Similarly, the odds of a male sex offender recidivating decreased by 1.11 times (1/.899=1.11), 1.13 times (1/.886=1.13), and 1.03 times (1/.969=1.03) for every one unit increase in the leisure/recreation, companions and alcohol/drug subscales, respectively. Finally, the odds of a male sex offender recidivating decreased by 1.14 times (1/.878=1.14) for every one unit increase in the emotional/personal subscale.

In conclusion, as seen in Tables 12 and 13, the findings of the logistic regression analyses of LSI-R subscale scores on recidivism for each offense type reveal that an offender’s offense type moderates the relationship between LSI-R subscales and recidivism.

Table 12

Summary of Logistic Regression Analyses in Predicting Recidivism by Gender, Offense Type, LSI-R Subscales- Female Offenders

	Person Offenders (n=84)					Property Offenders (n=109)					Drug Offenders (n=191)				
Predictors	B	S.E.	Wald	Sig.	Exp(B)	B	S.E.	Wald	Sig.	Exp(B)	B	S.E.	Wald	Sig.	Exp(B)
Criminal History	-0.157	0.333	0.223	0.637	1.627	0.627	0.372	2.840	0.092	1.871	0.085	0.233	0.132	0.716	1.088
Edu/Employment	-0.668	0.354	3.566	0.059	0.513	0.191	0.350	0.296	0.586	1.210	-0.250	0.258	0.945	0.331	0.779
Financial[b]	-1.093	0.610	3.214	0.073	0.335	0.728	0.334	2.810	0.094	2.071	-1.201	0.423	8.060	0.005	0.301
Family/Marital	-0.347	0.424	0.670	0.413	0.707	0.176	0.423	1.173	0.677	1.193	0.124	0.310	0.161	0.689	1.132
Accommodation	-0.104	0.482	0.047	0.829	0.901	0.227	0.419	0.294	0.588	1.255	0.013	0.326	0.002	0.969	1.013
Leisure/Recreation	-0.296	0.692	0.182	0.669	0.744	0.841	0.648	1.684	0.194	2.318	0.209	0.466	0.202	0.653	1.233
Companions[a]	-1.156	0.448	6.668	0.010	0.315	-0.420	0.382	1.208	0.272	0.657	-0.272	0.302	0.809	0.368	0.762
Alcohol/Drug	-0.446	0.319	1.953	0.162	0.640	0.559	0.378	2.184	0.139	1.748	-0.306	0.269	1.291	0.265	0.736
Emo/Personal	-0.126	0.338	0.138	0.710	0.882	0.404	0.345	1.365	0.243	1.497	-0.247	0.267	0.854	0.356	0.781
Att/Orientation	0.487	0.275	3.140	0.076	1.627	-0.228	0.274	0.691	0.406	0.796	0.255	0.201	1.614	0.204	1.290
Constant	-2.675	1.467	3.325	0.068	0.069	-4.547	0.223	8.797	0.003	0.011	-4.909	1.255	15.303	0.000	0.007

[a] Statistically significant subscale predictor of recidivism for female offenders who committed crime against persons
[b] Statistically significant subscale predictor of recidivism for female offenders who committed drug crimes

Table 13

Summary of Logistic Regression Analyses in Predicting Recidivism by Gender, Offense Type, LSI-R Subscales- Male Offenders

	Sex Offenders (n=246)					Person Offenders (n=879)					Property Offenders (n=508)					Drug Offenders (n=900)				
Predictors	B	S.E.	Wald	Sig.	Exp(B)	B	S.E.	Wald	Sig.	Exp(B)	B	S.E.	Wald	Sig.	Exp(B)	B	S.E.	Wald	Sig.	Exp(B)
Criminal History[b]	0.000	0.140	0.000	0.998	1.000	0.192	0.074	6.788	0.009	1.212	0.252	0.108	5.460	0.019	1.286	0.379	0.088	18.71	0.000	1.461
Edu/Employment	-0.109	0.143	0.582	0.446	0.897	0.064	0.075	0.732	0.392	1.066	0.065	0.115	0.314	0.575	1.067	0.054	0.091	0.347	0.556	1.055
Financial	-0.099	0.241	0.169	0.681	0.905	0.208	0.131	2.533	0.111	1.232	-0.034	0.174	0.039	0.844	0.966	-0.019	0.143	0.018	0.892	0.981
Family/Marital[a]	-0.413	0.209	3.912	0.048	0.662	0.129	0.094	1.882	0.170	1.137	-0.024	0.133	0.032	0.858	0.977	0.067	0.108	0.378	0.539	1.069
Accommodation	-0.079	0.255	0.095	0.758	0.924	0.131	0.114	1.316	0.251	1.140	-0.135	0.145	0.857	0.355	0.874	-0.102	0.130	0.621	0.430	0.903
Leisure/Recreation	-0.107	0.260	0.168	0.682	0.899	0.063	0.140	0.204	0.651	1.065	0.368	0.210	3.086	0.079	1.446	0.176	0.171	1.059	0.303	1.192
Companions	-0.121	0.178	0.459	0.498	0.886	0.071	0.091	0.618	0.432	1.074	0.115	0.145	0.633	0.426	1.122	0.063	0.112	0.310	0.578	1.065
Alcohol/Drug	-0.031	0.155	0.040	0.842	0.969	0.005	0.078	0.004	0.948	1.005	-0.017	0.110	0.025	0.875	0.983	-0.108	0.095	1.307	0.253	0.897
Emo/Personal	-0.130	0.171	0.577	0.448	0.878	-0.059	0.077	0.587	0.443	0.943	0.127	0.107	1.423	0.233	1.136	0.076	0.096	0.627	0.428	1.079
Att/Orientation	0.177	0.121	2.156	0.142	1.194	-0.028	0.060	0.222	0.637	0.972	-0.024	0.092	0.069	0.792	0.976	0.010	0.073	0.018	0.893	1.010
Constant	-2.384	0.523	20.812	0.000	0.092	-2.073	0.350	35.020	0.00	0.126	-2.991	0.609	24.148	0.00	0.050	-4.293	0.476	81.48	0.000	0.014

[a] Statistically significant subscale predictor of recidivism for male offenders who committed sex crimes
[b] Statistically significant subscale predictor of recidivism for male offenders who committed crime against persons
[c] Statistically significant subscale predictor of recidivism for male offenders who committed property crimes
[d] Statistically significant subscale predictor of recidivism for male offenders who committed drug crimes

Summary

The current chapter presented the descriptive statistics of the sample as well as the statistical tests of the moderating effects of gender and offense types in the predictive utility of the LSI-R. Of the final research sample (n = 2,917), male offenders accounted for 86.8 percent (n=2,533) of the sample, while female offenders comprised the remaining 13.2 percent (n=384). As shown in Table 6, the sample was overwhelmingly white (67.6%). Of the 2,917 offenders, 1,973 were classified as white. A total of 30.1 percent (n=877) were black and 2.3 percent (n=67) were listed as "other". Those offenders with a high school diploma or GED equivalent accounted for just over half (50.6%; n=1,475) of the entire sample. A total of 22.4 percent (n=652) had not graduated from high school. Overall, male offenders had higher educational backgrounds than female offenders.

Female offenders accounted for an overwhelming number of drug offenses. Almost half, or 49.7 percent (191 of 384), of the female sample was classified as drug offenders. A greater percentage of female offenders were classified as property offenders. Accounting for 28.4 percent (109 of 384), female offenders committed property offenses at a higher rate than their male counterparts. Male offenders committed more person offenses than the female offenders included in the sample. Of the total sample (n = 2,917), 69.6 percent (n=2,031) did not recidivate within the 36 month follow-up period. However, a total of 30.4 percent (n=886) returned to a Kansas prison during the follow-up period.

Independent samples t-tests found statistically significant gender differences in mean LSI-R subscale scores for the following seven subscales: criminal history, financial, accommodations, leisure/recreation, companion, emotional/personal and attitudes/orientations. Female offenders were found to have higher scores in the financial, accommodations and emotional/personal subscales. Conversely, male offenders had higher scores in the criminal history, leisure/recreation, companions and attitudes/orientations subscales.

Before assessing the moderating effects of gender and offense type in the predictive validity of LSI-R score, the relationship between LSI-R total score and recidivism was tested after controlling the variables of gender and offense type. As seen in Table 8, logistic regression analysis supports the predictive utility of LSI-R even after controlling for offense type and gender.

More specific analyses were conducted to answer Research Questions 1 and 2.

Research Question 1: Predictive Utility of LSI-R: The Moderating Effects of Gender

To answer Research Question 1, a series of logistic regression models were conducted to determine the differences in the predictive utilities of the LSI-R between male and female offenders. The analyses showed a statistically significant relationship between recidivism and LSI-R total score after controlling for offense type, both for males (χ^2 =60.756; p= 0.000) and for females (χ^2 = 9.69; p=0.008). The odds of a male offender recidivating increased 0.97 times (1/1.036= 0.97) for every one unit increase in the total LSI-R score, after controlling for the effect of offense type. For every unit increase in total LSI-R score, the odds of a female recidivating increased by 0.95 times (1/1.058= 0.95), after controlling for the effect of offense type. From these results, it is concluded that the LSI-R total scores are a valid predictor of recidivism for both male offenders and female offenders, even when controlling for the effects of offense type.

Logistic regression analysis of recidivism on individual LSI-R subscales reveals that different subscales predict recidivism for male offenders and female offenders, though criminal history was a significant predictor of recidivism for both male and female offenders. The companion ($p=0.015$) subscale was only significant for female offenders, but education/employment ($p=0.013$) and the alcohol/drug ($p=0.003$) subscales proved to be statistically significant predictors of recidivism for only male offenders. In summary, the analyses of the current study support the predictive validity of the LSI-R, as well as the moderating effects of gender in the predictive validity of the LSI-R.

Research Question 2: Predictive Utility of LSI-R: The Moderating Effects of Offense Type

Chi-square analyses were conducted to test the association between recidivism and offense type for each gender. Recidivism was significantly correlated with offense type for the male offender sample, while recidivism was not correlated to offense type for the female offender sample.

Before testing the moderating effect of offense type, a series of logistic regression analyses were conducted to test the relationship of recidivism with total LSI-R score for each offense type. The results indicate that regardless of offense type, the LSI-R is a valid predictor of recidivism after controlling for gender.

In order to test the moderating effect of offense type, logistic regression analyses of recidivism on LSI-R subscales for each offense type reveals that different subscales predict recidivism for different offense types for male offenders and female offenders. That is, different subscales predict recidivism of different types of offense for each gender. Only one subscale was found to be a significant predictor of recidivism for female person offenders (companion subscale; p=0.010) and female drug offenders (financial subscale; p=0.005). No subscale rendered statistical significance in predicting recidivism for female property offenders. Logistic regression analysis showed a statistically significant relationship for the criminal history subscale for male person offenders (p=0.009), male property offenders (p=0.019) and male drug offenders (p=0.000). No other subscales rendered statistical significance for these offender types. Lastly, only one subscale rendered statistical significance for the sex offender sample, the family/marital subscale (p=0.048).

Overall, the findings of this study support the predictive validity of LSI-R regardless of gender and offense types. However, the predictive validities of subscales of the LSI-R are different for each gender and each offense type. Thus, both research questions concerning the moderating effects of gender and offense type in the predictive utility of LSI-R are supported. The following chapter will further discuss the significant research findings, limitations of the research, policy implications and suggestions for future studies.

CHAPTER V

DISCUSSION AND CONCLUSION

Risk assessment tools are a reliable and inexpensive way to reduce recidivism as they allow correctional professionals to identify the probability that an offender may reoffend (Andrews & Bonta, 1995; Clear et al., 2012). Because they can be administered at any point during an offender's sentence, risk assessments are convenient measurements to predict future recidivism (Andrews & Bonta, 1995). Over the last few decades, risk assessments have gained popularity within the criminal justice system. Risk assessment tools can measure static and/or dynamic factors related to recidivism, as well as criminogenic needs (Andrews & Bonta, 1995; John Howard Society of Alberta, 2000).

Developed in the 1970s, the LSI-R is one of the most widely used risk assessment measures (MHS, 2013). The LSI-R has been validated on 19,000 inmates and 4,000 probationers and parolees across the United States (MHS, 2013). It is a quantitative tool that correctional professionals utilize to assess both the risks and needs of an offender. Its 54-item survey contains static and dynamic factors allowing correctional professionals to place offenders in appropriate interventions and treatment programs (Andrews & Bonta, 1995).

The LSI-R was created within the context of male-centered theories and its intended use was with the male offender population (Andrews & Bonta, 1995). However, it has been suggested, in previous research, that the LSI-R is a gender-neutral tool (Reisig et al., 2006), and an acceptable risk assessment measure for both male and female offenders (Kim, 2010; Manchak et al., 2009; Vose et al., 2009). The LSI-R is said to predict recidivism equally for male and female offenders (Lowenkamp et al., 2001;

Lowenkamp et al., 2009; Manchak et al., 2009; Simourd, 2006; Vose et al., 2009). Feminist criminologists still remain skeptical of the gender neutrality of the tool (Reisig et al., 2006). Because the LSI-R was developed in a social learning theory context which was created to explain male criminality, feminist criminologists caution that a risk assessment tool used for males and females could lead to the over or under-generalization of female offenders' risk (Chesney-Lind, 1989; Holtfreter et al., 2004; Lowenkamp et al., 2001; Mazerolle, 1998). Previous studies on the moderating effects of gender in the predictive utility of LSI-R had provided mixed results.

Unlike several studies on the relationship of the LSI-R's predictive validity with gender of the offenders, very little research has been conducted on the relationship of the utility of the LSI-R with an offender's offense type. Previous research has only examined violent and non-violent crime categories in regard to the tool's predictive utility (Hollin & Palmer, 2003; Kim, 2010; Loza & Simourd, 1994). Hollin and Palmer (2003) and Loza and Simourd (1994) support the LSI-R's predictive validity for both male violent and non-violent offender samples. Both studies only utilized samples of male offenders. Using the data of both male and female offenders, Kim's (2010) study found support for the predictive utility of the LSI-R with non-violent male and female offenders, as well as violent male offenders. However, Kim (2010) reported no relationship between the LSI-R and recidivism for violent female offenders. Given that only one existing study (Kim, 2010) tested the moderating effect of offense type, it is impossible to confirm the relationship of the LSI-R's predictive validity with offense type.

To address the above issues, this study tested the validity of the LSI-R in predicting recidivism while considering two moderating variables: gender and offense type. This dissertation classifies offense type into four categories: sex offense, person offense, property offense and drug offense.

Overview of Research Findings

The findings of this study support the predictive utility of the LSI-R. That is, unlike the feminist researchers' views against the LSI-R as a gender-neutral tool (Chesney- Lind, 1989; Holtfreter et al., 2004; Lowenkamp et al., 2001; Mazerolle, 1998), the results of the logistic regression models for each gender, predicting recidivism after controlling the variable of offense type, found a statistically significant relationship between the total LSI-R score with recidivism among both male and female offenders. Compared to male and female offenders who recidivated, those who did not recidivate had lower LSI-R total scores. The results of this study are consistent with previous studies including Lowenkamp et al. (2001), Lowenkamp et al. (2009), Manchak et al. (2009), Simourd (2006) and Vose et al. (2009).

Hanson's (2000) argument that no one risk factor is sufficient to explain recidivism on its own is supported by the findings of this dissertation. Of the LSI-R's ten subscales, three subscales were statistically significant predictors of recidivism for the entire sample: criminal history, leisure/recreation and alcohol/drug. As scores increased in the criminal history and leisure/recreation subscales, the odds of recidivating increased as well. An absence of organized activities, as well as one's criminal background (prior convictions) is statistically related to an increase in recidivism. The relationship between recidivism and the alcohol/drug subscale was negative. As scores increased in the alcohol/drug subscale, the odds of an offender recidivating decreased. Previous research has shown the criminal history subscale to be the strongest predictor of recidivism regardless of gender (Hollin & Palmer, 2003; Kim, 2010; Loza & Simourd, 1994; WSIPP, 2003). The findings in this dissertation support this claim. The criminal history subscale was found to be a valid predictor of recidivism for male and female samples.

The first research question, the moderating effect of gender in the predictive validity of LSI-R, was tested using logistic regression analyses of the LSI-R subscales on recidivism for each gender. The similarities and differences of the subscales achieving statistical significance for each gender model were examined. The moderating effect of gender was supported; indicating that subscale predictors for recidivism among female offenders differ from male offenders. When the entire sample was divided according to gender, and separate models for each gender were tested using logistic regression, the leisure/recreation subscale (which was a statistically significant predictor for the entire sample) failed to achieve statistical significance for both male and female offenders. The alcohol/drug subscale was a statistically significant predictor of recidivism for male offenders, but not for female offenders. Finally, the criminal history subscale was a statistically significant predictor of recidivism for the entire sample, both the male sample and the female sample.

Previous research has found the leisure/recreation subscale, attitudes/orientations and emotional/personal subscales to be significant predictors of male recidivism (Hollin & Palmer, 2003; Palmer & Hollin, 2007; Kim, 2010). This study found the education/employment subscale to be a significant predictor for the male sample. The companions subscale achieved statistical significance for recidivism among female offenders. The alcohol/drug subscale was negatively correlated with recidivism for male offenders. Males with higher scores in the alcohol/drug subscale were less likely to recidivate than males with lower alcohol/drug subscale scores. Similar findings were found in Hollin and Palmer's (2003) research. However, Heilbrun et al. (2008) and Palmer and Hollin (2007) found the companion subscale to be a significant predictor of recidivism for female offenders. The companion subscale was also a significant predictor of recidivism for the female sample in this study. The negative correlation with recidivism suggests that having more criminal friends decreases a female's likelihood of reoffending. The companion subscale was the only subscale with predictive power for female person offenders. Previous studies on the predictive validity of the LSI-R with female offender samples report several other subscales as well. Palmer and Hollin (2007) also reported statistically significant relationships within the family/marital, accommodations, alcohol/drug and emotional/personal subscales for female offenders. Kim (2010) found the criminal history and leisure/recreation subscales to be predictive of female recidivism. However, these previous studies analyzed the aggregated data of female offenders without consideration of offense type.

One of the major contributions of this study is the testing of the predictive validity of the LSI-R across four different offense types for each gender. Before testing the second research question (the moderating effect of offense type), the predictive validities of the LSI-R across four different groups, according to offense type, were tested after controlling for gender. The results support the predictive validities of the LSI-R for all of the offense types, indicating sex offenders, person offenders, property offenders, and drug offenders who recidivated reported higher LSI-R scores than others who did not recidivate, regardless of their gender.

These findings are consistent with the results of Hollin and Palmer's (2003) and Loza and Simourd's (1994) research. Both studies reported support for the predictive utility of the LSI-R across non-violent and violent offense types. Kim (2010) found support for the predictive utility of the LSI-R for violent males, non-violent males and non-violent females. She did not, however, find support for the predictive utility of the LSI-R and violent female offenders. In addition, though Girard and Wormith (2004) only divided their sample into male sex offenders and male domestic violent offenders, they reported no difference in the tool's predictive utility across offense type.

Given the findings of the predictive validities of the LSI-R across four different types of offenses, this study tested the second research question of the moderating effect of offense type on the predictive validity of LSI-R using logistic regression analyses of the LSI-R subscales on recidivism for each offense type. The moderating effect of offense type was supported, indicating that subscale predictors were not only gender-specific, but also offense type-specific. When the entire female sample was divided according to offense type (person offense, property offense, and drug offense) and separate models for each offense type were tested using logistic regression, the criminal history subscale (a statistically significant predictor for the entire female sample) failed to achieve statistical significance for all three offense types. The companions subscale was the only significant predictor of recidivism for female offenders who committed crimes against persons.

In previous research, Holtfreter et al. (2004) argued female crimes are negatively affected by economic marginality. Additionally, Reisig et al. (2006) and Daly (1992) found economic motivation to be a significant predictor of recidivism among female offenders. Findings from this dissertation also indicated that, overall, female offenders had more financial problems than male offenders. The findings reveal that the financial subscale, which was not a statistically significant predictor for the entire female sample, was a significant predictor for female drug offenders. This relationship was negative; indicating decreases in recidivism are correlated with increases in scores within the financial subscale. Finally, none of the LSI-R's ten subscales was able to predict recidivism for female property offenders.

When the entire male sample was divided according to the four offense type categories (sex offense, person offense, property offense, and drug offense), and separate models for each offense type were tested using logistic regression, the criminal history subscale, which was a statistically significant predictor for the entire male sample, was the only statistically significant predictor of recidivism for drug offenders, property offenders and person offenders, but not for sex offenders. For all three samples, the relationship between criminal history and recidivism was positive. A positive relationship indicates an increase in the criminal history subscale score would result in a greater likelihood of recidivism.

Previous research has found the criminal history, companion, attitudes/orientations and educational/employment subscales to be statistically significant predictors of recidivism for male sex offenders (Malcolm & Simourd, 1998). However, the family/marital subscale was the only subscale found to be a significant predictor of recidivism for the sex offender sample included in this study. The relationship between these variables was negative, indicating higher scores in the family/marital subscale are related to a decreased risk in recidivating.

In summary, the findings support the overall validity of the LSI-R in predicting recidivism, regardless of gender and offense type of offenders. However, this study also supports the moderating effects of gender and offense type in the predictive validity of the LSI-R. The subscales achieving statistical significance for recidivism for each gender and each different type of offense in this study were different from what other previous studies have found (Hollin & Palmer, 2003; Palmer & Hollin, 2007; Simourd, 2006). It is important to note that of the ten subscales; only a few subscales possessed predictive power for male and female offender samples across different offense types. For example, none of the subscales of the LSI-R proved to have predictive utility for female property offenders.

Implications and Recommendations

A statistically significant relationship between one's total LSI-R score and recidivism was found for this dissertation. Criminals who recidivated have higher total LSI-R scores. Overall, the LSI-R proved to be a valid tool in predicting recidivism for male and female offenders. This finding supports the contention that the LSI-R is a gender-neutral tool despite it being developed within a social learning theory context (Andrews & Bonta, 1995; Reisig et al., 2006). Given these results, its continued use is recommended.

Though male offenders were found to have greater criminal history than female offenders, the criminal history, leisure/recreation, and alcohol/drug subscales were shown to be statistically significant for recidivism of the entire sample. These findings have numerous implications. First, previous research has suggested the criminal history subscale as being the strongest predictor of recidivism (Hollin & Palmer, 2003; Kim, 2010; Loza & Simourd, 1994; WSIPP, 2003). While this dissertation supports this contention, this finding further proves that past behavior is indicative of future behavior. As the extent of one's criminal history increases, so does the likelihood of recidivism. Second, given the statistically significant correlation with the leisure/recreation subscale, these findings indicate that an absence of organized activities increases the probability of recidivism. Thus, the offenders engage in additional criminal behavior.

According to The Community Anti-Drug Coalition of America (CADCA), in 2010, 65 percent of inmates met the criteria for substance abuse or addiction as stated in the DSM IV (CADCA, 2010). Furthermore, in 2006, the National Center on Addiction and Substance Abuse (CASA) reported that 78 percent of violent and 83 percent of property crimes involved the use of drugs or alcohol on the part of the offender (CADCA, 2010). Given the statistically negative relationship of the alcohol/drug subscale score with recidivism for the entire sample in this dissertation, it is recommended that an emphasis be placed on the treatment and rehabilitation of offenders with drug and alcohol related issues. Successfully treating this significant portion of inmates could lead to a decrease in recidivism.

This study found the moderating effect of gender in the predictive validity of LSI-R (Research Question 1). Once the sample was divided by gender, the logistic regression analyses of subscales on recidivism were conducted for each gender. Different subscales predicted recidivism for male and female offenders, although the criminal history subscale remained statistically significant for both male and female samples. While the leisure/recreation subscale was a significant predictor of recidivism for the entire sample, once divided by gender, the leisure/recreation subscale proved to have no predictive power for male or female offenders. These results imply the importance of considering the moderating effect of gender when using the LSI-R as a risk assessment tool. Depending on the gender of the offenders, not only total LSI-R score, but also different subscale scores should be carefully examined for the exact evaluation of their risk and need of treatment.

The alcohol/drug subscale, which was a statistically significant predictor of recidivism with the aggregated data, was found to have a negative statistically significant relationship with male offenders, but not females. Male offenders with alcohol and/or drug-related problems may be better assessed with risk assessment tools designed to specifically address alcohol and drug use, abuse, and addiction. Despite the alcohol/drug subscale having no predictive power for female offenders, 49.7 percent of the female offenders included in the research sample had been convicted of a drug offense. Such a high number of female drug offenders carry serious implications as this is clearly a critical issue for the female population in Kansas. Future research should further examine this relationship.

The education/employment subscale also proved to be a statistically significant predictor of recidivism only for male offenders, indicating the impact of a lower educational level and/or lack of employment on reoffending. According to Clear et al. (2012), 49 percent of all inmates in the United States have their high school diploma or GED equivalent. However, 14 percent have not finished the 8^{th} grade and only 25.5 attended some high school. The statistics for the male offenders in this study are comparable. A total of 21.2 percent of male offenders did not graduate high school and only 49.4 percent had their high school diploma or GED equivalent.

These statistics indicate the importance of educational programming and vocational training within prisons. According to the United States Department of Education (2013), inmates who participated in educational programming while incarcerated were 43 percent less likely to recidivate within a three year period. Furthermore, inmates were 13 percent more likely to find employment upon release if they participated in educational or vocational programming while incarcerated (U.S. Department of Education, 2013). Encouraging, or even requiring, inmate participation in educational programming and vocational training could have a significant impact on recidivism rates for male offenders. Correctional institutions should focus resources on such programming as a means to reduce costs and prevent future offending (Karpowitz & Kenner, 1995; U.S. Department of Education, 2013).

The companions subscale was the only other subscale (in addition to criminal history) with predictive power for female offenders. The relationship between the companion subscale and recidivism was negatively correlated; indicating greater problems with criminal companions is significantly related to a decrease in recidivism risk. Given this negative correlation, more research is required. Female inmates tend to value their relationships in prison more so than male inmates. Despite their companions being offenders, the relationship may be prosocial in nature, thus explaining this negative finding. Other studies, Heilbrun et al. (2008) and Palmer and Hollin (2007), show support for the utility of the companion subscale in predicting female recidivism.

Overall, out of ten subscales, five subscales including financial, family/marital, accommodation, emotional/personal, and attitudes/orientation did not achieve statistical significance for either aggregated data or separate gender data in this study. Given the results of only one study with one state's crime data, it is impossible to make a concrete conclusion about the usefulness of each subscale in predicting recidivism. Future studies with more representative data are required to test the predictive validities of the LSI-R subscales. Most importantly, this study found only two subscales, criminal history and companions, reached the statistical significance to predict recidivism among female offenders. With the findings of the predictive validity of LSI-R total score for female offenders in this study and other studies, the use of the LSI-R as a risk assessment is still recommended. However, other risk factors of recidivism for female offenders which are not measured by LSI-R should be researched.

A series of logistic regression analyses for each offense type were conducted to explain the moderating effects of offense type on the predictive utility of the LSI-R (Research Question 2). The male and female samples were further divided by offense type, for a total of seven subsamples (sex offenders, male person offenders, male property offenders, male drug offenders, female person offenders, female property offenders and female drug offenders). Similar to the findings for the entire sample, the criminal history subscale proved to be a significant predictor of recidivism for male property, person, and drug offenders. This finding indicates the impact prior offenses have on the likelihood of recidivating. Despite the offense committed, male offenders were more likely to recidivate if they had a history of criminal behavior.

Criminal history was not a statistically significant predictor of recidivism for male sex offenders. In turn, the family/marital subscale was statistically related to recidivism for the sex offender population. According to Hanson and Morton-Bourgon (2005), 12-24 percent of sex offenders will reoffend at some point. Given that almost half of sex offenders commit crimes against their family members (California Department of Justice, 2001); it is recommended that more emphasis be placed on the relationship between family and sex offenders. While the LSI-R has shown utility in predicting recidivism for sex offenders, the continued use of sex offender –specific assessments, such as the RRASOR (Rapid Risk Assessment for Sex Offender Recidivism) or the Static-99, is recommended (WSIPP, 2008).

Given the predictive validities of the LSI-R total score across different types of offenders found in this study, the LSI-R is considered as a valid risk assessment regardless of offense type. However, of its ten subscales, eight subscales (except criminal history and family/marital) failed to reach statistical significance for any offense type.

Results from this dissertation show that females have greater financial problems than males. Additionally, the financial subscale proved to be a statistically significant predictor of recidivism for female drug offenders. Based on this information, it may benefit these offenders to participate in programming that teaches them how to manage a budget, balance a checkbook, and become familiar with financial issues, in addition to drug treatment. According to Peters and Wexler (2005), offenders have a number of different financial responsibilities such as child support, restitution, fees, and family obligations. Furthermore, the cost of drug related crimes can be devastating (Peters & Wexler, 2005).

No subscale of the LSI-R was able to predict recidivism for female property offenders. This finding suggests the LSI-R has predictive utility for only certain offense types. Female offenders in this study committed a greater percentage of property crimes than males. According to Steffensmeier (1978), female property crime has been on the rise since the 1960s. As of 2007, women were more likely than men to be convicted of a drug or property crime (Sentencing Project, 2007). These statistics indicate a serious gap in the tool's predictive ability. Future research on the utility of the LSI-R must isolate female property offenders to better understand this phenomenon. Currently, there is no risk assessment measure designed specifically for property offenders.

Given the variation in LSI-R subscales found to be statistically significant for male and female offenders, the findings presented can benefit correctional professionals, particularly in Kansas, in their classification and treatment decisions for female offenders (Flores et al., 2006). Because such decisions are primarily based on LSI-R total scores, knowing which subscales pose the greatest risk for female recidivism should make the classification process more accurate. Furthermore, knowing which subscales are statistically correlated to recidivism among females based on offense type, corrections officials can use this information to place female offenders into appropriate needs based programs and interventions.

Prior to this study, there was a gap in the available research in regard to offense type and the LSI-R's predictive utility. The findings aim to bridge that gap. This dissertation research has presented findings that support the further examination of offense type as it is related to the predictive utility of the LSI-R. Kim (2010), Hollin and Palmer (2003) and Loza and Simourd (1994) found statistically significant differences in subscale scores for violent and non-violent offenders. Girard and Wormith (2004) divided their sample into male sex offenders and male domestic violent offenders. While this does not directly correlate with the current study, the authors found no statistical difference in the predictive utility of the LSI-R across the two offense types. Additionally, Poels (2007) reported finding no evidence that the risk factors found for violent males were the same as the risk factors for violent females. These five studies failed to divide their samples by more than two offense types. By categorizing the current research into four offense types, this dissertation has contributed valuable information in regard to specific offense types for both genders.

The findings also support the claim that male and female offenders have gender-specific experiences (Holtfreter et al., 2004; Poels., 2007; Reisig et al., 2006), thus rendering their risk to recidivate to be gender-specific. According to Browne et al. (1990), over half their sample of maximum female inmates reported having experienced sexual abuse as a child. Two-thirds reported being victims of intimate partner violence (IPV), and just under two-thirds reported having been victimized multiple times. The LSI-R fails to account for previous childhood and adult victimizations. It is recommended the LSI-R include such information as it is empirically indicative of female criminality. Additionally, while the LSI-R may be superior to those assessment tools that fail to assess for outside influences and inside facility failures (Reisig et al., 2006), it omits gender specific questions, questions related to socioeconomic status, and questions regarding the offenses committed. The varying predictive utilities of the LSI-R's subscales suggest these omissions hinder the validity of the LSI-R. It is recommended that the LSI-R be amended to include questions related to one's socioeconomic status and the severity of the offense(s) committed. Furthermore, the LSI-R should include gender specific questioning as males and females exhibit different risk factors.

Previous research contends male offenders possess higher total LSI-R scores than female offenders (Holsinger et al., 2003; Holtfreter et al., 2004; Lowenkamp et al., 2003).

This dissertation did not find evidence to support this contention as the average total LSI-R score for females was slightly higher than that of males (25.98 vs. 26.20). While the difference is not statistically significant, higher scores for female offenders may indicate that the LSI-R does not properly account for risk factors related to female criminality (Reisig et al., 2006).

It is recommended that a risk assessment tool be developed based in feminist theories to specifically address female criminality. Though Reisig et al. (2006) and Daly's (1992; 1994) research on the gendered pathways of women shows partial support for the predictive utility of the LSI-R with female offenders, research concerning female risk factors is limited (Poels, 2007). Because females experience negative influences (unwanted pregnancy, sexual abuse, and violent victimization) differently than male offenders, gender-specific tools should be developed to assess recidivism risk (Andrews & Bonta, 2006; Holtfreter & Cupp, 2006). Studies assessing male recidivism risk, even while controlling for offense type, may not be generalizable to female offenders due to these varying risk factors (Andrews & Bonta, 2003).

Limitations and Suggestions for Future Studies

This dissertation has a number of limitations. Here, suggestions to address each limitation of this study are made. First, the representativeness of the sample of this study is questionable. The initial sample provided by the Kansas Department of Corrections contained 4,956 offenders. However, due to incomplete information for a significant number of offenders, the final sample size was 2,917. This is an attrition rate of 41 percent. Of this sample, only 384 were female. Although this number is relatively small, it is larger than previous studies on the predictive utility of the LSI-R and female offenders (Manchak et al., 2009; Schlager & Pacheco, 2011; Vose et al., 2009). Given the relatively small female sample size, there were only four female sex offenders who were excluded from the analysis. The lack of female sex offenders included in this research is an additional limitation. Additionally, the sample included only those offenders who returned to a Kansas prison. It did not include offenders who had spent the night in jail, those offenders who committed crimes and were never apprehended, or those individuals who had been convicted of an additional crime in another state. Future research can improve upon this limitation by incorporating a larger female offender sample size, as well as a larger sample overall.

Second, in conjunction with the first limitation, the generalizability of the research is limited. In addition to the small sample size, this dissertation was written using a sample of one state's inmate population. The Kansas inmate population is presumably very different from other states throughout the country. Furthermore, as noted by Kim (2010), though there are over 900 correctional faculties using the LSI-R in the United States, each state operates under different classification and management procedures. This limitation could be improved upon by analyzing data from various corrections departments across the United States. Data from more than one corrections department would increase the generalizability of the findings.

Third, Lowenkamp et al. (2004) suggested the training of the interviewer and the manner in which the tool is administered can have an effect on one's LSI-R score. All of the interviewers within the Kansas Department of Corrections are required to complete the same training, as well as periodic recertification courses. However, each interview is not monitored by a master trainer or another correctional professional. Even with the regulations set forth by the KDOC, effects caused by the interviewer are unavoidable. It is the recommended that more emphasis be placed on the avoidance of interviewer effects. Corrections departments could provide specific training in regard to objectivity and better supervision and monitoring.

Fourth, in combination with the third limitation, there is a lack of consistency as to when the LSI-R is administered in relation to an offender's expected release date. While there are efforts by the KDOC to assess each offender within the months prior to their release, it is not always the case. Furthermore, some offenders have been assessed multiple times, while others have only been assessed once. To remedy this situation, the researcher chose the LSI-R score recorded closest to the offender's release date. Though sufficient for the purposes of this dissertation, the lack of consistency in assessment time may omit a necessary score update for some offenders. Improving upon this limitation would involve more rigorous control of each offender's assessment time. Future research could limit the acceptable time period to six, or even three months prior to release. While this may further limit the sample size, it would provide a greater level of consistency in regard to when an offender was assessed.

Fifth, the administration of the LSI-R is inconsistent. While it often times may be a male-male or female-female interview, there is no mandate that the interview be matched based on gender. Given the offender's criminal history and/or personal nature, the gender of the interviewer may significantly impact his/her honesty throughout the assessment. Future research should include a qualitative analysis of LSI-R interviews. A potential sample could include interviews conducted using male to female, female to female and male to male matches. Interrater reliability techniques could be utilized to determine the impact, if any, gender plays in the interview process.

Sixth, the offense type categorization was based only on what the KDOC classified the offender as. These classifications are based on one's most serious current offense. With that said, a sex offender may have committed additional crimes in the past, or additional crimes that were deemed less serious than his sexual offense. This simplistic classification method may affect the relationship between recidivism and offense type. A more in-depth analysis of an offender's past criminal history, as well as other, less serious crimes, would provide a more accurate relationship between these variables. Because such an analysis may prove fruitless given the lack of information on previous offenses, this dissertation chose to utilize each offender's most serious offense as its grouping method. However, if such information is available, additional research could remedy this limitation.

Seventh, the minority population included in this study was limited. Almost seventy percent (67.6%) of the sample was white. While this racial make-up mimics the state population of Kansas, as it is primarily white, the findings fail to be generalizable to minority offender populations. Future studies may find it necessary to over sample minority offenders to obtain a representative sample.

Finally, extraneous variables could have played a role in the findings rendered from this dissertation. The length of one's prison sentence, prior prison experiences, programming, interventions and treatment can all affect the validity of the LSI-R as they can impact one's risk over time. These factors could not be controlled for in this study.

Future research could attempt to control for extraneous variables by gathering additional data from corrections departments.

Conclusion

Feminist researchers including Chesney-Lind (1989), Daly and Chesney-Lind (1988) and Reisig et al. (2006) question the predictive validity of the LSI-R for female offenders. Previous studies on the topic of gender effects on the predictive utility of the LSI-R provided mixed results. This dissertation examined the predictive utility of LSI-R total scores as well as the moderating effects of gender and offense type. Overall, the LSI-R was found to be a valid risk assessment in predicting recidivism for both male and female offenders. However, the predictive utilities of the subscales of LSI-R varied for each gender. Only a few subscales reached the statistical significance of predictive validity for each gender. These results have clear implications for the amendment of the LSI-R as well as for the development of a gender-specific risk assessment tool. Likewise, knowing the subscales have varied success across different offense types should allow researchers and practitioners to consider other potential risk factors specific to each offender type when assessing the risks and needs.

In spite of the numerous limitations of this study, this dissertation provides new evidence for the predictive utility of the LSI-R as related to one’s offense type. The findings presented contribute to the current body of research by supporting the utility of the LSI-R and by producing outcomes that should be used as a foundation for the continued research on gender, offense type and other criminogenic needs associated with recidivism and the LSI-R.

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