Literature Review of the Validity of the LS/CMI for Prediction of Violence

1. Campbell, French & Gendreau, *The Prediction of Violence in Adult Offenders: A Meta-Analytic Comparison of Instruments and Methods of Assessment,* 36 Crim. Justice and Behavior, no. 6 (June 2009) at 567-590:

The primary objective of this current meta-analysis was to determine which instruments function most effectively as valid predictors of future violence within prison settings and the community. Instruments designed specifically to assess sexual recidivism were not included. The authors found that instruments comprised primarily of dynamic risk items generated the strongest effect size for violent recidivism. The LSI-R predicted violent recidivism with moderate success and was equivalent in its predictive validity with the PCL-R.

2. Andrews, D.A., Bonta, J., & Wormith, J.S. , *The recent past and near future of risk and/or need assessment,* 52 Crime & Delinquency 7-27 (2006); see Andrews, et al., *User’s Manual for the LS/CMI,* chapter 6, Multi-Health Systems [citations are to chapter 6]:

In the original validation of the LS/CMI, the Section 1 indices of predictive validity with probationers and provincial prisoners “correlated reliably with …violent recidivism….” (Id. at p. 117.) However, in that study, it was found that “…the LS/CMI correlates more highly with general recidivism than violent recidivism.” (Id. at p. 134.) Two retrospective validation studies later reported very high correlations for general and violent recidivism (r = .44) with the LS/CMI Section 1 Total Score. (Id. at p. 134.) For violent recidivism, Antisocial Pattern was the best predictor.

For female offenders, the range of recidivism rates as a function of risk level was even more dramatic than the variation of rates reported by Andrews (1995), with the violent recidivism rate being between 0% in the Very Low risk category to between 50-65% in the Very High risk category. A review of the research on the validity of the LS/CMI reveals predictive validity is strong and consistent, although higher for general recidivism and reincarceration than for violent recidivism. Recidivism rates by risk level “revealed a consistent and steady increase in relation to the *a priori* established five risk groups for all measures of recidivism, including both general and violent recidivism.” (Id. at p. 144). In other words, the predictive validity coefficients were found to be strong and consistent, and stable across jurisdictions. The "risk needs section is particularly useful for future violence."

3. Manchak, et al., *Does Gender Moderate the Predictive Utility of the Level of Service Inventory (LSI-R) for Serious Violent Offenders,* 36 Crim. Justice & Behavior 425 (2009):

This study focused on serious violent offenders. The study produced three key findings. First, the LSI-R performs quite well in predicting women’s general recidivism. In fact, when sample-derived (not manual-based) LSI-R risk groupings are applied, offenders are quite well differentiated in their rates of recidivism. Second, the predictive utility of the LSI-R does not depend on gender: the tool works as well for women as it does for men. Third, the scales of the LSI-R that maximally predict recidivism for men may differ from those that maximally predict recidivism for women.

“[T]here is some evidence that at least some of these risk factors on the LSI-R (i.e., criminal history, substance use) are predictive of crime and violence among both men and women. (Poels (2007). [Poels, V., *Risk assessment of recidivism of violent and sexual female offenders*. 14 Psychiatry, Psychology and Law (2007), 227-250.] However, as Poels also noted, it is far from clear (a) which risk factors predict crime and violence comparably across men and women and (b) how such risk factors might operate for men and women. Therefore, it remains possible—or even likely—that some risk factors are more or less important across gender. (Holtfreter, K., & Cupp, R. (2007).[*Gender and risk assessment: The empirical status of the LSI-R for women,* 23 Journal of Contemporary Criminal Justice, 363-382.].” (Id. at p. 436.)

4. Guay, J., *Predicting Recidivism with Street Gang Members,* (2012), Public Safety Canada, found online at <<http://www.publicsafety.gc.ca/cnt/rsrcs/pblctns/2012-02-prsgm/index-eng.aspx>>:

The results of this study indicate that gang members present more diverse criminal histories and greater prevalence of convictions for violent offenses. The LS/CMI data analysis showed that gang members present more significant criminogenic risks and needs, and in a greater number of areas than did the control group subjects. These higher needs translated

into higher rates of re-arrest and substantially more convictions for violent crimes. The LS/CMI was also useful in predicting recidivism for gang members.

In order to determine the effectiveness of the LS/CMI in predicting recidivism for gang members, they authors conducted a series of ROC curve analyses. “The ROC curve is a statistical technique that estimates the efficiency at predicting the occurrence of an event. It has several advantages over other techniques, such as the biserial correlation. It is not influenced by lower base rates (recidivism is, overall, relatively rare and certain statistics lose efficiency when the event predicted is rare), which is generally the case when trying to predict recidivism (Barbaree, Langton, & Peacock, 2006; Harris, Rice, Quinsey Lalumière, Boe, & Lang, 2003). Furthermore, it is considered the method of choice for estimating the accuracy of a prediction or a diagnosis in forensic psychology or in psychiatry (Mossman, 1994; Rice & Harris, 2005; Swets, Dawes, & Monahan, 2000). The ROC curve analysis generates an area under the curve (AUC) coefficient, which quantifies the quality of the prediction. A coefficient AUC of 0.5 shows an equivalent prediction at random, while an AUC of 1.0 amounts to a perfect prediction- in other words, all recidivists were identified correctly, in the same way as the non-recidivists.” (Id. at p. 18.)

“…[T]he present study concluded that the LS/CMI is useful in predicting recidivism for gang members, as measured by new arrests or new convictions. The LS/CMI was able to predict new arrests and convictions for new offences and predict new convictions for violent offences. The survival curve analysis indicated that gang members are arrested more quickly than are non-gang members for both general and for violent offences and that they are convicted more rapidly for violent offences. Multivariate analyses with the Cox proportional hazard model suggests that, at equal risk, gang offenders are not only arrested more frequently for general crimes but also for

violent crimes. The same applies to new convictions for violent crimes; with equal age

and risk factors, gang members are more likely to face new convictions than are nonmembers.” (Id. at p. 24.)

5. Hanson & Morton-Bourgon, *The Accuracy of Recidivism Risk Assessments for Sexual Offenders: A Meta-Analysis,* 40 Crim. Justice & Behavior 952(2007):

Criminal lifestyle characteristics (e.g., history of rule violation, substance abuse) are also those most strongly related to violent and general (any) recidivism among sexual offenders (Hanson & Morton-Bourgon, 2004), general offenders (Gendreau, Little, & Goggin, 1995) and mentally-disordered offenders (Bonta, Law, & Hanson, 1998).

6. Andrews, D. A., James Bonta, and J. Stephen Wormith, The Level of Service (LS) assessment of adults and older adolescents, *Handbook of violence risk assessment,*199-225 (2010):

Section 2.2 on the LS/CMI was added to enhance the prediction of violence. (Id. at p. 205.)

7. Andrews, D.A., et al., *The Recent Past and Near Future of Risk and/or Need Assessment,* 52 Crime & Delinquency (No. 1) 7-27 (Jan. 2006):

The LSI-R has been found to be more strongly associated with general recidivism (.36) than violent recidivism (.25). Corresponding values for the LS/CMI are .41 and .29, respectively. “However, the predictive validity of the LS/R in regard to violence may be enhanced in the LS/CMI where the General Risk/Need assessment (Section 1) across the central eight domains has been strengthened by the introduction of an Antisocial Personality Pattern subcomponent. It is a behavior-based assessment of early and diverse problems. Moreover, sexual assault, violence, and diversity of antisocial behavior are now surveyed systematically. In the first prospective validation of the LS/CMI, the correlation with violent recidivism of the enhanced assessment of personality pattern and history of aggression was *r*= .42 in the follow-up of incarcerated individuals (Girard & Wormith, 2004). Barnoski and Aos (2003) also reported enhanced validity of the LSI-R with increased attention to a serious and violent criminal history.” (Id. at p. 15.)

8. Yang, M., et al., 136(5) Psychological Bulletin 740-767 (Sept. 2010):

This meta-analysis reviewed nine commonly used risk assessment tools and their subscales to compare their predictive efficacies for violence. The effect sizes were extracted from 28 original reports published between 1999 and 2008, which assessed the predictive accuracy of more than one tool. All nine tools and their subscales predicted violence at about the same moderate level of predictive efficacy with the exception of Psychopathy Checklist—Revised (PCL-R) Factor 1, which predicted violence only at chance level among men. The authors found that when the intention is only to predict future violence, the nine tools are essentially interchangeable. The selection of which tool to use in practice should depend on what other functions the tool can perform rather than on its efficacy in predicting violence. The authors also noted, “The moderate level of predictive accuracy of these tools suggests that they should not be used solely for some criminal justice decision making that requires a very high level of accuracy such as preventive detention [i.e., for civil commitment decisions].”

9. Skeem, J. & Monahan, J., 20 Current Directions in Psychological Science 38-42 (2011):

There is little evidence that one validated instrument predicts violence significantly better than another (Yang, 2010). The major violence risk tools were found to be essentially ‘‘interchangeable,’’ with estimates of accuracy falling within a narrow band (Area Under the Curve [AUC] was .65 to .71). The authors note, "The strongest risk factors for violence seem to be shared not only among risk assessment instruments but also across key groups. In particular, an increasing body of research suggests that only a small proportion of violence committed by people with major mental illness—perhaps as little as 10%—is directly caused by symptoms (see Skeem, Manchak, & Peterson, in press). Most people with mental illness have the same leading risk factors for violence as their healthy counterparts do.” (Id. at p. 40.)

10. Bonta, J., et al., *The Prediction of Risk for Mentally Disordered Offenders: A Quantitative Synthesis* (2013), found online at < http://www.publicsafety.gc.ca/cnt/rsrcs/pblctns/prdctn-rsk-mntlly-dsrdrd/index-eng.aspx>:

Eight risk/need domains that are central to the prediction of criminal behavior were examined to determine whether they were predictive of general and violent recidivism, without the inclusion of mental health variables. The eight domains were Criminal History, Procriminal Companions, Procriminal Attitudes and Cognitions, Antisocial Personality Pattern, Education/Employment, Family/Marital, Substance Abuse, and Leisure/Recreation. All domains predicted violent recidivism. The strongest predictors were Antisocial Personality Pattern (d = .57, 95%, CI = .48, .67), Procriminal Attitudes and Cognitions (d = .51, 95% CI = .37, .65), and Criminal History (d = .50, 95% CI = .41, .59). Personality disorders (unspecified) and antisocial personality/psychopathy were both moderate predictors of violent recidivism (*d* = .41, 95% CI = .26, .57 and *d* = .66, 95% CI = .52, .80 respectively). However, having any mental disorder was found not predictive of violent recidivism (*d* = -.16, 95% CI = -.40, .09).

The major purpose of this meta-analysis was to test the validity of eight central risk/need domains as applied to MDOs (mentally disordered offenders). “The predictive validity estimates of the Central Eight risk/need factors are in direct contrast to those of the clinical variables, which were substantially lower. In the meta-analytic review by Bonta et al. (1998), psychosis showed no relationship with general recidivism and a very small inverse relationship with violent recidivism. In the present expanded review, psychosis was unrelated to either type of recidivism….Although there are certainly cases when a crime is committed during a psychotic state, the presence of psychosis cannot be viewed as a useful predictor of recidivism. The reasons for this may be because psychosis is transitory (as in the finding of NGRI [not guilty by reason of insanity], which was also not predictive of recidivism) and amenable to treatment. These results leave us to conclude that major mental illnesses are unreliable predictors of general and violent recidivism.”

The only mental health factor found to be predictive of future violent offending was antisocial personality/psychopathy (e.g., antisocial personality features such as impulsivity, failure on parole, criminal history). “From a forensic risk assessment perspective, assessments of antisocial personality or psychopathy are the only relevant clinical risk factors. The other clinical variables (e.g., psychosis, schizophrenia, mood disorders) are important for identifying the individual symptomology and personal suffering that occurs and what needs to be addressed before targeting criminogenic needs in the treatment of MDOs.”

11. Rettinger, L.J. & Andrews, D.A., *General risk and need, gender, specificity, and the recidivism of female offenders,* 37 Criminal Justice and Behavior 29-46 (2010):

This study found that eight gender-neutral risk factors—assessed via the Level of Service/Case Management Inventory (LS/CMI)—performed very well in the prediction of the general and violent recidivism of more than 400 adult female offenders. None of the gender-specific factors, including parenting responsibility and stress, victimization history, and self-harm, had incremental validity over the gender-neutral risk and need variables. However, financial problems and a measure of personal misfortune did predict reoffending among low-risk/low-need women. The findings suggest that risk factors derived from a gender-neutral social cognitive theory of crime are relevant for adult females and that perhaps gender-specific concerns may be best viewed as specific responsivity factors.

Resources and Studies on the LS/CMI

·         Andrews, D.A., Bonta, J.L., & Wormith, J.S.  (2004).  User’s manual for the Level of Service/Case Management Inventory (LS/CMI):  An offender management system.  Toronto, Canada:  Multi-Health Systems.

·         Andrews, D.A., Bonta, J., & Wormith, J.S.  (2006).  The recent past and near future of risk and/or need assessment.  Crime & Delinquency, 52, 7-27.

·         Andrews, D.A., Bonta, J., & Wormith, J.S.  (2010).  The Level of Service (LS) assessment of adults and older adolescents.  In R.K. Otto & K.S. Douglas (Eds.), Handbook of violence risk assessment (pp. 199-225).  New York, NY:  Routledge.

·         Andrews, D.A., Bonta, J., Wormith, J.S., Guzzo, L., Brews, A., Rettinger, J., & Rowe, R.  (2011).  Sources of variability in estimates of predictive validity:  A specification with Level of Service general risk need.  Criminal Justice and Behavior, 38, 413-432.

·         Andrews, D.A., Guzzo, L., Raynor, P., Rowe, R.C., Rettinger, L.J., Brews, A., & Wormith, J.S.  (2012).  Are the major risk/need factors predictive of both female and male reoffending? A test with the eight domains of the Level of Service/Case Management Inventory.  International Journal of Offender Therapy and Comparative Criminology, 56, 113-133.

·         Bonta, J., Blais, J., & Wilson, H.A.  (2013).  The prediction of risk for mentally disordered offenders:  A quantitative synthesis.  Ottawa, Canada:  Public Safety Canada.

·         Campbell, M.A., French, S., & Gendreau, P.  (2009).  The prediction of violence in adult offenders:  A meta-analytic comparison of instruments and methods of assessment.  Criminal Justice and Behavior, 36, 567-590.

·         Gendreau, P., Goggin, C.E., & Law, M.A.  (1997).  Predicting prison misconducts.  Criminal Justice and Behavior, 24, 414-431.

·         Gendreau, P., Goggin, C., & Smith, P.  (2002).  Is the PCL-R really the “unparalleled” measure of offender risk?  A lesson in knowledge cumulation.  Criminal Justice and Behavior, 29, 397-426.

·         Gendreau, P., Little, T., & Goggin, C.  (1996).  A meta-analysis of the predictors of adult offender recidivism:  What works!  Criminology, 34, 575-607.

·         Girard, L., & Wormith, J.S.  (2004).  The predictive validity of the Level of Service Inventory-Ontario Revision on general and violent recidivism among various offender groups.  Criminal Justice and Behavior, 31, 150-181.

·         Gutierrez, L., Wilson, H.A., Rugge, T., & Bonta, J.  (2013).  The prediction of recidivism with Aboriginal offenders:  A theoretically informed meta-analysis.  Canadian Journal of Criminology and Criminal Justice, 55, 55-99.

·         Hanson, R.K., & Wallace-Capretta, S.  (2004).  Predictors of criminal recidivism among male batterers.  Psychology, Crime & Law, 10, 413-427.

·         Ragusa-Salerno, L.M., Ostermann, M., & Thomas, S.S.  (2013).  Does the LSI-R have utility for sex offenders?  Criminal Justice and Behavior, 40, 952-969.

·         Rettinger, L.J., & Andrews, D.A.  (2010).  General risk and need, gender, specificity, and the recidivism of female offenders.  Criminal Justice and Behavior, 37, 29-46.

·         Smith, P., Cullen, F.T., & Latessa, E.J.  (2009).  Can 14,737 women be wrong?  A meta-analysis of the LSI-R and recidivism for female offenders.  Criminology & Public Policy, 8, 183-208.

·         Vose, B., Cullen, F.T., & Smith, P.  (2008).  The empirical status of the Level of Service Inventory.  Federal Probation, 72, 22-29.

·         Wormith, J.S., Hogg, S., & Guzzo, L.  (2012).  The predictive validity of a general risk/needs assessment inventory on sexual offender recidivism and an exploration of the professional override.  Criminal Justice and Behavior, 39, 1511-1538.

·         Wormith, J.S., Olver, M.E., Stevenson, H.E., & Girard, L.  (2007).  The long-term prediction of offender recidivism using diagnostic, personality, and risk/need approaches to offender assessment.  Psychological Services, 4, 287-305.

·         Yang, M., Wong, S.C.P., & Coid, J.  (2010).  The efficacy of violence prediction:  A meta-analytic comparison of nine risk assessment tools.  Psychological Bulletin, 136, 740-767.