The Efficacy of the Risk-Need-Responsivity Framework in Guiding Treatment for Female Young Offenders

by

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Abstract

Research supports rehabilitative programming addressing youths’ risk to reoffend, criminogenic needs and responsivity factors with the goal of reducing reoffending. However, the Risk-Need-Responsivity (RNR) framework takes a ‘gender neutral’ approach that critics assert overlooks the unique needs of females. It remains largely unknown whether matching treatment to RNR needs is as effective for female youth as it has been shown to be for male youth. Comparative analyses of 39 male and 37 female justice system-involved youth indicate that across RNR categories, females and males were similar in quality and quantity of needs, and had them met through probation services at a similar rate. However, while the RNR assessment tool predicted risk for recidivism equally well, the matching of services to RNR needs appears to be far more potent in reducing recidivism for boys than girls, suggesting a moderating effect of sex on the relationship between RNR matched treatment and re-offending.
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1 Introduction

The prevention of youth crime is an important societal goal that exerts great influence over both policy and law in this area. Justice system-involved youth are typically regarded as a unique subset of criminal offenders due to the balance of protection -- owing to the youths’ status as minors -- and sanction -- owing to the youths’ status as offenders -- that must be struck when deciding how to effectively respond to youth crime. The notion that young offenders should be handled with care in the justice system -- separately and distinctively from adults -- originates from the understanding that adolescence is a period of great physical, cognitive, and social change, a time wherein a young person’s mental acuity is expanding while psychological and biological vulnerability, as well as personal risk, are greatly heightened (Vandergoot, 2006).

Youth involved with the justice system are often considered more “at-risk” than their non-court involved counterparts, experiencing a myriad of social, physiological and mental health issues that accompany, and typically pre-date, their delinquent behaviours (Schwalbe, Hatcher, & Maschi, 2009).

The vast majority of justice system-involved youth are male, with female youth accounting for approximately one-fourth of all juveniles charged by police and offending at a rate that is roughly three times less than male youth (Statistics Canada, 2006). At least in part because of their lower rate of offending, female youth have historically been overlooked in juvenile justice research. However, more recently girls are drawing increased attention from researchers, policy makers, and corrections staff alike because girls appear to be growing in relative proportion to boys throughout the justice system. In addition, their rate of involvement in violent crime appears to be on the rise, and there has been an increase in publicized assaults, drug violations, and public order offenses involving young female offenders (Lazarri, Amundson & Jackson, 2005; Leschied, Van Brunschat, Cunningham & Saunders, 2001; Sprott & Doob, 2003). Of particular importance, research results with respect to justice-involved females indicate that this sub-group of juvenile offenders tends to have an even higher proportion of needs than their male counterparts, resulting in a greater need for support from multiple organizations for social assistance, as well as physical and mental health care throughout their lives (Corneau & Lanctot, 2006).
The Risk, Need, Responsivity (RNR) Model (Andrews, Bonta & Hoge, 1990) has been used across Canada, the United States, Britain, Europe, Australia, and New Zealand to manage criminal conduct and has been the base for many empirically derived rehabilitative treatments in these countries (Ward, Mesler, & Yates, 2007). Programming that adheres to this RNR framework has shown significant success in reducing future criminal behaviour (e.g., Vieira, Skilling, & Peterson-Badali, 2009), however it remains unclear whether the model’s ‘gender neutral’ approach, an approach that regards the factors influencing criminal behaviour to be similar in males and females, is as effective an approach in reducing future offending behaviour in girls as boys. More specifically, questions remain as to whether the RNR approach to case management and treatment is the best way to provide services to justice-involved female youth. The current research seeks to compare the efficacy of the RNR-based case management approach by: 1) comparing the areas of risk and need identified though clinician assessments for male versus female youth, 2) comparing the proportion of identified needs that are successfully met through therapeutic services for male versus female youth and 3) comparing how subsequent recidivism is predicted by the matching of services through probation to previously identified needs for male versus female youth.

1.1 Social and Theoretical Context for the Research

From the early 20th century until the 1970’s, rehabilitation was widely accepted as a legitimate goal of the correctional system (Hollin, 2000). However, the 1970’s saw backlash against rehabilitation, highlighted by an influential review (Martinson, 1974) that deemed offender treatment to be largely ineffective due to doubts over the methodological sanctity of treatment studies up to that point and a lack of evidence that any single treatment could reduce re-offending. Nevertheless, a group of proponents from the ‘what works’ camp continued to conduct methodologically sound research that revealed positive outcomes as a result of appropriate offender rehabilitation (Andrews & Bonta, 1998; Cullen & Gendreau, 1989) and Martinson (1979) himself later reported that evidence existed to support the notion that rehabilitation could reduce recidivism in offending populations. Current youth justice legislation recognizes that under a guiding rehabilitative framework, risk assessment and intervention become complementary processes that identify youths’ risk and criminogenic need through assessment, and then subsequently address these issues through intervention (Catchpole & Gretton, 2003). Currently, the Risk, Need, Responsivity (RNR) Model (Andrews et al., 1990) is
among the most widely used theoretical frameworks for assessing and intervening with youth in the justice system. This framework was developed with a focus on three guiding principles of actuarial assessment, described below.

The Risk Principle states that the amount of intervention that an offender receives must be matched to his or her level of risk to reoffend (Dowden & Andrews, 1999), such that higher levels of service should be reserved for higher risk offenders, with lower risk offenders having better outcomes with minimal intervention. The Need Principle states that targets of service should be matched to the criminogenic needs of offenders. Criminogenic needs are specific behavioural characteristics and patterns of functioning that have been empirically identified as related to risk to re-offend, and when met, reduce an offenders risk to reoffend (Dowden & Andrews, 1999). The Responsivity Principle states that styles and modes of service delivery should be matched to the learning styles, abilities, and motivation of the individual in order for service to have optimal effects. This principle highlights that while treatment should be matched to criminogenic needs, the mode of service delivery must also be matched to offenders’ personal characteristics or circumstances that would make treatment more effective for them (i.e., mental health conditions, motivation, and social skills). The Responsivity Principle also asserts the general power of behavioural, social learning, and cognitive-behavioural strategies (Andrews, Bonta, & Wormith, 2006).

1.2 Assessing Risk, Need, and Responsivity in Youth

Based on the Risk, Need, and Responsivity principles, the RNR model has informed the development of the most broadly used risk-management tool in youth justice settings across North America: the Youth Level of Service/Case Management Inventory (YLS/CMI; Hoge & Andrews, 2002). The YLS/CMI scales have been well validated and empirically supported across a number of studies for their usefulness in accurately predicting recidivism in youth justice populations. For example, in a one year follow-up examining criminal charges and convictions, Catchpole and Gretton (2003) found that the YLS/CMI was able to meaningfully differentiate risk for violent recidivism among 74 previously violent young offenders, with none of the youth identified as low or moderate risk reoffending, while 30% of the youths identified as high or very high risk did re-offend. Research exploring the relationship between each of the eight YLS/CMI subscale scores and recidivism within six months of a youth disposition revealed
that recidivists’ scores were significantly higher than non-recidivists’ scores for each of the eight YLS/CMI subscales (Jung & Rawana, 1999). Further, a more recent study (Onifade, Davidson, Campbell, Turke, Malinowski, & Turner, 2008) found that there were significant differences in offense rates among 328 10-16 year-old youth classified by the YLS/CMI as low, moderate, and high risk such that youths’ YLS/CMI scores were significantly related to re-offense as well as time to re-offense. Similarly, in a sample of 122 youth engaged in comprehensive mental health assessments for the court, Vieira et al. (2009) found that higher risk scores on the YLS/CMI at time of assessment were associated with earlier and more frequent recidivism at follow-up.

A recent meta-analysis (Olver, Stockdale, & Wormith, 2009), in which separate analyses were conducted with different groups of young offenders with respect to different types of criminal behaviour (i.e., general, nonviolent, violent, and sexual offending), further supported the validity of the YLS/CMI for use with male, female, aboriginal and non-aboriginal youth. In this study, the YLS/CMI was found to significantly predict general recidivism across all groups regardless of offense type, sex, or aboriginal status. In another recent meta-analysis of 20 studies involving predictive risk assessment instruments, five of which utilized the YLS/CMI, Schwalbe (2008) found that predictive validity estimates of the risk instruments were, by and large, equivalent for male and female juvenile offenders. In summary, the results from meta-analytic studies suggest that the design of the YLS/CMI, through the use of a cumulative risk score, lead to risk classifications with similar levels of predictive validity for both male and female young offenders.

1.3 Criticisms and Research Gaps with respect to the RNR Framework

While these general findings are promising, and suggest a gender-neutral approach to risk assessment is valid, criticisms – both conceptual and methodological – have been leveled at the use of actuarial assessment tools with populations outside of the original construction samples of largely non-aboriginal males. Further, beyond the predictive properties of the YLS/CMI tool, from a systems perspective, there is the question of how the judicial, probation, and mental health systems work together using the RNR framework, and how information garnered at each level is communicated, integrated, and applied to benefit the youth. Significant questions remain
regarding how well the RNR theory works in practice, from risk assessment - to treatment designation - to youth re-offending outcomes several years later.

The pilot study on which the current study builds (Vieira et al., 2009) evaluated the impact on recidivism of matching youth with services based on their individually-identified risk, need, and responsivity factors. The results from that study indicated that regardless of youths’ criminal history and assessed risk for re-offense, the greater the percentage of youths’ individual criminogenic needs met through treatment services, the lower the risk for reoffending at follow-up and the greater the reduction in number of new convictions among recidivists. Exploratory analyses in this study found these promising results were relevant for boys and girls alike, however the number of girls in the sample was very small (N= 19), leaving concern about whether the RNR framework applies equally to girls as boys.

There is some evidence to suggest girls differ from boys in the ways they engage with, and are processed through, the juvenile justice system. For instance, a study by Campbell and Schmidt (2000) examining the influence of mental health assessments on final court recommendations found that while the overall concordance between clinicians’ mental health recommendations and court dispositions was 67.5%, there was a significant difference between female and male youth, with only 36% of mental health-oriented recommendations being followed through with females, compared to 60% among male offenders. Further, a study of 107 juvenile offenders (Schmidt, Hoge & Gomes, 2005) found that the YLS/CMI demonstrated sound psychometric properties within a juvenile offender population -- with strong positive correlations between YLS/CMI scores and re-offending -- but that these results were only significant for males.

Similarly, in a study (Bechtel, Lowenkamp and Latessa; 2008) of the predictive validity of the YLS/CMI involving 3,884 males and 598 females in both community and institutional settings, results indicated the YLS/CMI predicted recidivism across settings for all races of male youth in the sample and for women of color in institutional settings, but was not predictive of recidivism for white females in either setting or for any of the female groups in a community setting. Thus, there is some empirical evidence that the YLS/CMI may not be working as effectively for girls as for boys.
1.4 The Gender Responsive Approach

In addition to the small body of research that has examined the differential effectiveness of risk assessment models for males and females, there exists a body of scholarly literature and research based on a feminist orientation, referred to as ‘gender responsive’ literature, which has long advocated for a gender-specific approach to risk assessment and treatment. Critics of actuarial risk assessment approaches have argued that risk assessment tools developed for non-aboriginal male populations classify females and aboriginals as at-risk based on their greater social, economic, and psychological vulnerability, thus often exacerbating their already marginalized status (Hannah-Moffat & Shaw, 2001). It is suggested by these scholars that although girls may be identified upon assessment as high “need”, it does not follow that they are high risk; the lower rate of offending amongst girls and the types of offenses they commit suggest that they are largely not a danger to society (Bloom, 2000; Covington & Bloom, 2003). Proponents of this approach emphasize that a gender-specific treatment orientation is necessary because justice-involved female youth have distinct needs and commonly engage in behaviours (e.g., running away, drug abuse, prostitution) that present more danger to themselves than to others. For instance, in their sample of 305 youth assessed in a large Midwestern American detention facility, Gavazzi, Yarcheck, and Chesney-Lind (2006) found that whereas the males were likely to be detained for property and person-related offenses, females were significantly more likely to be charged with family related offenses such as being incorrigible/unruly or domestic violence. Furthermore, proponents of this gender responsive approach assert that the application of the risk principle and the inappropriate categorization of females as high risk makes them more likely to receive stricter sanctions that could worsen some of the very problems that got them into trouble in the first place (e.g., depression, sexual abuse, disruptions in relationships) (Holtfreter & Morash, 2003). In addition, the risk factors that have been empirically validated for the male young offender population may or may not be the most appropriate for use with females and other specific groups that have largely been excluded from large-scale empirical research (Covington, 2007). The gender-responsive scholars argue that girls need qualitatively different types of programs and services than boys do in order to adequately address their delinquent behaviour and their unique trajectories through the justice system (Hubbard, 2008).

This literature points to potential gender-specific factors -- factors that are deemed critical for females but not for males -- and gender-sensitive factors -- factors that are important for males
but that are even more meaningful for females -- that could have a great impact on outcomes for justice-involved female youth. Some practitioners and researchers argue that, if effectively incorporated as targets for treatment, these factors would optimize rehabilitation strategies in order to improve outcomes and reduce recidivism for females in this population. As increased attention has been paid to aggressive behaviours and criminal offenses perpetrated by female youth, these potential gender-specific/sensitive factors have been identified based largely on the psychological, emotional, and health needs of young women that many feel are overlooked in current treatment designation processes (Covington, 2007). Theory and research in this area point to mental health, histories of abuse, and family dysfunction as particularly important when dealing with justice system-involved female youth. Nevertheless, while these factors are no doubt critical and relevant to the lives and experiences of females, they have generally not been established as criminogenic needs, that is, needs that are related to whether or not an individual will re-offend.

Despite a lack of empirical evidence identifying these factors as predictors of offending, many scholars suggest that there is strong empirical evidence to suggest that these gender-responsive needs are more prevalent among girls than boys involved in the juvenile justice system and among delinquent versus non-delinquent girls (Hubbard & Matthews, 2008). For instance, justice-involved female youth have been reported to have significantly higher rates of mental health problems in comparison to their male counterparts. Using a stratified random sample of 513 males and 112 female adjudicated young offenders, McCabe, Lansing, Garland and Hough (2002) found that female young offenders had significantly higher rates of self-rated and parent-rated psychopathology, and were significantly more likely to have maltreatment histories and more familial risk factors than their male counterparts. Gavazzi et al. (2006) also found that the females in their sample of youth scored significantly higher on measures related to past traumatic events, family/parenting issues, and health related risks. Cauffman, Lexcen, Goldweber, Shulman and Grisso (2007) found that, in a sample of 157 girls and 276 boys detained in juvenile detention facilities across the United States, gender differences in mental health symptoms were greater in detained youth than in community youth, with detained girls exhibiting greater levels of symptomology than would be predicted on the basis of gender or setting alone. These mental health disparities have been reiterated in a review by Chitsabesan and Bailey (2006) that found female young offenders to have significantly higher rates of mental health problems than their
male counterparts, particularly in the areas of depression, deliberate self-harm, and posttraumatic stress disorder. Similarly, in a qualitative study consisting of focus groups with incarcerated female youth and professionals in four female young offender institutions, Douglas and Plugge (2008) reported that substance abuse, mental health, self-harm, and sexual health were brought up as priority areas of intervention for this population.

In addition to the findings reviewed above, family dynamics as the relational context in which girls offend has been suggested to be a particularly influential factor in girls’ entry to the justice system, as well as in their ability to engage with treatment (Odgers, Moretti, & Repucci, 2005). As part of a focus group study by Bloom, Owen, Rosenbaum and Deschenes (2003) it was found that family problems, including relationships with parents and communication problems, running away, and abuse issues were the factors most often discussed by girls and young women involved in the juvenile justice system across ten California counties. Similarly, a meta-analysis by Hubbard and Pratt (2002) that examined the predictors of female delinquency, found that while many of the previously discussed RNR factors were found to be strong predictors of offending, school and family relationships and histories of physical and/or sexual assault had moderate to strong effect sizes as well. A particularly interesting finding from this meta-analysis was that IQ was found to be a moderate predictor of female delinquency but not of male delinquency, suggesting that factors empirically found to be irrelevant to offending behaviour in males may be important for females. It is also suggested, more theoretically, that adolescent female offenders, due to gender-specific socialization that emphasizes inter-relational support, as well as frequent histories of abuse and neglect, would benefit from interventions aimed at the development and use of effective social networks and relationships as well as increased self-esteem and self-efficacy as protective factors against re-offending (Wright et al., 2008).

While based on an in-depth understanding of the needs and challenges faced by justice-involved females, it is the lack of large-scale empirical studies that indicate these factors are related to re-offending that limits the implementation of this gender-responsive literature into policy and applied practice settings. A recent study by Van Voorhis, Salisbury, Wright, and Bauman (2010) is one of the first to quantitatively examine the relationship of many of these putative gender-responsive factors, in combination with the standard gender-neutral assessment, to reoffending in several samples of adult females. The authors found that the gender-neutral assessment model, measured using the Level of Service Inventory-Revised (Hoge & Andrews, 2002), successfully...
predicted recidivism in seven of the eight samples of justice-involved adult females analyzed in their study. However, in six of eight samples, the addition of gender-responsive scales contributed significant additional variance to the prediction of recidivism over gender-neutral assessment measures. Models of gender-responsive factors that made significant contributions to recidivism prediction in the various samples included (a) parental stress, family support, self-efficacy, educational assets, housing safety, anger/hostility, and current mental health factors in probation samples; (b) child abuse, anger/hostility, relationship dysfunction, family support, and current mental health factors among prisoners; and (c) adult victimization, anger/hostility, educational assets, and family support among released inmates. Thus, across models, variables such as family support, anger/hostility, and various forms of relationship dysfunction/victimization added statistical power when combined with already existing gender neutral measures. Moreover, the incremental validity of these additional variables was statistically significant, such that the predictive ability of the original models was significantly improved with the addition of each of these variables for the majority of the samples in which they were tested. VanVoorhis et al. (2010) also argued that the contribution to recidivism of specific risk factors, relative to each other, found in their study implies a modified set of treatment priorities for female offenders. For instance, the authors assert that there was little in their findings to suggest that attitudes should be the main treatment target for women offenders to the exclusion of other needs not currently included in the RNR framework, as criminal thinking was reported to characterize a very low proportion of participants. Overall, the study represents one of the first large-scale empirical attempts to combine gender-responsive factors with pre-existing gender-neutral factors in order to increase the predictive validity of risk assessment instruments and the authors have offered compelling results suggesting the possibility of a unique arrangement of gender-responsive and gender-neutral factors that may be specifically relevant to female offending behaviours.

Covington (1998) summarized what many proponents of the gender-responsive approach feel is the unique plight of females in the justice system:

In short, the females in the correctional system are mostly young, poor, and undereducated women of color who have complex histories of trauma and substance abuse. Most are nonviolent and are not threats to the community. Survival (of abuse and poverty)
and substance abuse are their most common pathways to crime. Their greatest needs are multifaceted treatment for drug abuse and trauma recovery as well as education and training in job and parenting skills (Covington, 1998, p. 5).

Most gender-responsive literature emphasizes needs that are critical for the general well-being of female young offenders and recent attempts at larger scale empirical studies examining gender-responsive factors in adult female offenders are promising. However, the gender-responsive research base is populated by mostly small sample, qualitative studies that generally do not include male comparison groups, and lack a rigorous quantitative methodology that emphasizes how these factors influence girls’ risk to re-offend on a group level, making influence over policy and a revised system-wide approach to the assessment and treatment of female justice-involved youth very difficult.

1.5 The Present Study

To date, research examining gender-specific/sensitive factors has focused on incarcerated adult women and has not typically empirically examined the effect of gender-specific/sensitive programming on outcomes such as recidivism. There exists very little empirical literature exploring outcomes for adolescent females involved with the justice system, and the possible interplay between the unique developmental gender-specific/sensitive factors affecting them and their trajectory through the judicial system. While there is empirical support for the position that the YLS/CMI is able to predict risk to reoffend among female adolescent offenders, it is still unclear whether the current RNR framework’s ‘gender neutral’ approach of matching treatment to individually-assessed risk, criminogenic needs, and responsivity factors is as effective in reducing offending behaviour in girls as it is has been found to be for boys.

The current study examined the efficacy of the RNR-based case management approach for female versus male youth by comparing: (1) the areas of high risk and need (i.e., current status of education/employment or peer relations) identified for males versus females via clinical assessment with the YLS/CMI in order to evaluate whether the criminogenic needs identified by this measure are equally relevant for boys and girls; (2) the proportion of criminogenic needs that probation officers are able to address (in terms of arranging services for youth) for male versus female youth. This question is important because even if RNR needs areas are identified for boys
and girls at the same rate, there may be sex differences in the success with which probation officers are able to arrange for appropriate services (i.e., to successfully match services with identified needs); and (3) whether subsequent recidivism is predicted equally well for males versus females by the extent to which youths’ individually-identified risk level, criminogenic needs, and responsivity factors are addressed through received services. The ‘gender-neutral’ approach currently taken by the RNR framework and the YLS/CMI assessment tool leads to the prediction that the higher the proportion of service-to-needs match, the better the outcome regardless of youths’ gender (i.e., that treatment matching predicts recidivism equally well for girls and boys). However, the gender responsive/specific framework suggests that there are a number of gender specific/sensitive needs not assessed under the current RNR framework and therefore service matching will predict outcomes better for boys than for girls.

The results of this study will aid in our understanding of the influence of the Risk-Need-Responsivity Framework-based assessment and case management system on female young offender outcomes, and whether the current framework is successfully meeting the needs of female young offenders. This knowledge will in turn help in the development of stronger and, if needed, more specific programs of intervention that will guide legal and mental health practitioners, as well as policymakers, to improve outcomes for female young offenders.

2 Methods

2.1 Participants

The sample consisted of 76 youth (39 males, 37 females) ranging in age from 12 to 19 years ($M=15.97, SD=1.57$) who were referred for a court-ordered assessment to a mental health agency in a large urban center in Ontario, Canada. The assessments were ordered by a youth court judge for assistance in making a disposition between October 2001 and January 2008. All assessments were conducted by members of a multidisciplinary team of clinicians (i.e., psychiatrists, psychologists, and social workers) within a child and adolescent mental health program. Prior to the start of the clinical assessment, youth and their parents were informed about the study and consent was obtained for the assessment information to be used for research purposes.

The ethnicities represented by the youth in our sample were Caucasian (32%), African Canadian (32%), South or East Asian (8%), Latino (3%), Native (3%), and Other (12%); 11% of the youth
did not have ethnicity noted in their files. Data regarding youths’ criminal activity revealed that the offenses precipitating their referrals for assessment were nonviolent (i.e., failure to comply with probation or court order, theft, drug-related offenses, break and enter) in 26% of cases, violent but not sexual (i.e., robbery (13%), assault (41%), threatening (5%), and murder (3%) in 62% of cases, or sexual (i.e., aggravated sexual assault, sexual assault, invitation to touching; 12% of cases) in nature. The majority of these youth (62%) were also diagnosed with at least one psychiatric disorder when assessed for the court, with the number of diagnoses per youth ranging from zero to four ($M = 1.26, SD = 1.30$). The most common diagnoses were Attention Deficit Hyperactivity Disorder and Conduct Disorder, with 29% and 27% respectively, of the sample formally diagnosed in this way. Additional diagnoses in order of frequency included a Mood Disorder (i.e., Depression or Bipolar Disorder; 25%), a Substance Use Disorder (17%), Anxiety Disorders (11%), and other disorders (i.e., Asperger’s syndrome, Pica, and disordered personality traits noted; 10%). Smaller proportions of the participants had comorbid Oppositional Defiant Disorder (5.4%), Learning Disabilities (3%), Mental Retardation (1.4%), and Schizophrenia (1.4%). There were no significant differences in the criminal history, as defined by scores on the Criminal History domain of the YLS/CMI, and mental health profiles of the male and female youth in the sample.

### 2.2 Measures

The Youth Level of Service/Case Management Inventory (YLS/CMI; Hoge & Andrews, 2002) is a standardized instrument used to assess a youth’s criminogenic needs and to provide an estimate of a youth’s risk to reoffend. The YLS/CMI also addresses case management issues relevant to treatment responsivity. The measure is designed for use with youth aged 12 to 18 years. The first section of the YLS/CMI is a 42-item checklist that produces a detailed survey of youth risk and needs factors in eight categories: history of criminal conduct, family circumstances and parenting, current school (or employment) functioning, peer affiliations, alcohol and drug use, leisure and recreational activities, personality and behaviour, and antisocial attitudes and orientation. Information used to complete the YLS/CMI is gathered from a variety of sources, both directly from the youth and through collateral sources of information (e.g., parents, teachers, reports from other agencies such as probation, schools, or other mental health agencies). Each item on the YLS/CMI is coded as either present or absent. Items within each of the eight domains are summed, and the domain score is assigned a categorical descriptor (i.e.,
low, medium, high). In addition, an overall score is calculated by summing all items on the checklist and an overall rating of risk for recidivism is given (i.e., low, medium, high, or very high risk).

In this study, when youth participated in their original court-ordered assessments, information was gathered by the assessing clinician via semi-structured clinical interview with multiple informants (usually youth, parents, teachers, as well as previous probation and mental health providers), standardized questionnaires, and the use of psychological tests (e.g., fourth edition of the Wechsler Intelligence Scale for Children; Wechsler, 2003). Collateral sources of information such as probation notes, mental health service reports, and school records were used by the assessing clinician to supplement the interview data and to score the YLS/CMI (Hoge & Andrews, 2002).

Evaluation of the psychometric properties of the YLS/CMI has revealed moderate to strong internal consistency for all subscale scores except for substance use, the estimate for which falls slightly below .60 (Schmidt, Hoge, & Gomes, 2005). Strong concurrent validity has been established via correlations between YLS/CMI total scores and broad and narrow band scores on the Child Behavior Checklist (Schmidt et al., 2005). The predictive validity of the YLS/CMI scores has also been reported as moderate to strong, with significant correlations between total scores on the measure and number of subsequent offenses and time elapsed prior to a new offense in both male and female young offenders (Costigan, 1999; Jung & Rawana, 1999; Catchpole & Gretton, 2003; Schmidt et al., 2005; Skilling, Meeks, & Seto, 2008; Schwalbe, 2008; Vieira et al., 2008; Olver et al., 2009).

2.3 Procedure

The data used in the study were collected and compiled from a variety of sources. The clinical charts (housed at the mental health facility) of all 76 youth were reviewed to gather information on demographics, offense history, and charges leading to referral for assessment. In addition, the assessing clinicians’ recommendations in participants’ court reports and each youth’s scores on the YLS/CMI completed during the assessment were recorded.

Participants’ probation files were also reviewed to ascertain details of the youth’s sentence and information regarding what programs or components of the sentence were completed by the
youth. The information in these records was used to determine whether the services actually received matched the treatment recommendations made by the assessing clinicians, according to a matching system previously used by Vieira et al., 2009. The matching only included services received prior to participants’ first new offense. Service-to-clinician recommendation matching was assessed in each of the areas of criminogenic need identified in the YLS/CMI: Education/Employment, Family Problems, Substance Use, Peer Relations, Personality (e.g., short attention span, anger, and inadequate guilt), Leisure Time, and Criminal Attitudes. For example, a match in the area of Personality could be defined by a clinician’s recommendation for a youth to undergo treatment for anger and aggression, and subsequent probation records showing that the youth was assigned to anger management and that it was completed successfully. An example of a match under the Education/Employment category would be a clinician recommending that a youth register and attend an academic program and subsequent probation records showing that the youth was set up with, and successfully completed, a credit recovery program. The percentage match score was calculated by dividing the total number of matched needs (i.e., the total number of needs areas targeted by the clinician’s recommendations and met by probation) by the total number of needs initially identified by the assessing clinician. For example, for a youth whose court-ordered report identified five criminogenic need recommendations, if three of those needs were addressed by probation services, the youth’s percentage global clinic matched needs would be three fifths or 60%. When calculated in this manner, the percentage clinician-probation match ranged from 0 to 100%. An interrater reliability analysis using the Kappa statistic was performed to determine consistency among raters coding matches between clinician recommendations and services received by the youth while on probation. Interrater reliability in the current study was found to be very strong (Landis & Koch, 1977), with a Cohen’s Kappa = .86 (p <0.001)

Information regarding whether any new charges or convictions occurred within the period following the youth’s assessment was obtained from the Royal Canadian Mounted Police Criminal Record and Information Services. In accordance with the requirements of the Ministry of Community Safety and Correctional Services (and federal legislation), Ministry approval and a judge’s order were obtained to gain access to participants’ criminal records and probation files. Recidivism was used as the primary outcome variable of this study and was defined as whether
or not a youth was convicted of one or more offenses within a three year follow-up period after the conviction which precipitated their entry into the sample.

3 Results

3.1 Question 1: Do Risk-Need-Responsivity (RNR) based YLS/CMI clinician-identified needs differ for male and female young offenders?

The distribution of male and female youth in the sample with clinician-made recommendations in each of the criminogenic need domains, as well as the total number of identified needs for males and females, was compared to determine whether or not male and female young offenders differed in the RNR-based needs recommendations made by clinicians in court-ordered mental health assessments.

Overall, there were no significant differences in the total number of YLS/CMI-based recommendations made for male versus female youth, with an average of approximately 3 recommendations made per youth (M=2.77, SD=1.30). Across individual categories, the only significant difference found between male and female youth in clinician recommendations was in the area of Personality (e.g., short attention span, anger, inadequate guilt), $\chi^2(1)=6.373$, $p<.05$, $\Phi=.290$, with a higher percentage of females (65%) than males (37%) in the sample having received a clinician’s recommendation based on this identified need in their mental health assessments (see Table 1). In order to explore this finding further, the youths’ YLS/CMI domain scores for the Personality domain were examined to evaluate whether this higher frequency of clinical recommendations made was because females in the sample had higher need scores than males in this domain. Results indicated that despite the higher percentage of recommendations offered for female youth, female and males in our sample did not actually differ in the severity of their need scores in this category of the YLS/CMI, $\chi^2(1)=.254$, $p=.778$, $\Phi=.06$. While few differences were found in terms of YLS-based clinician recommendations, the adolescents’ overall YLS/CMI risk scores were found to differ for males (M= 14.00 (Moderate Range), SD= 9.11) and females (M= 16.34 (Moderate Range), SD= 9.2), $t(1,71)=-2.268$, $p=0.02$, $d=0.256$, with both having scores, on average, within the Moderate Range and with females’ average risk score being slightly higher than their male counterparts.
Table 1.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Male</th>
<th>Female</th>
<th>χ²</th>
<th>Φ</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Education/Employment Recommendation Made</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>3 (82%)</td>
<td>26 (70%)</td>
<td>1.458</td>
<td>-.139</td>
</tr>
<tr>
<td>No</td>
<td>7 (18%)</td>
<td>11 (30%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Family Recommendation Made</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>16 (41%)</td>
<td>17 (46%)</td>
<td>.187</td>
<td>.050</td>
</tr>
<tr>
<td>No</td>
<td>23 (59%)</td>
<td>20 (54%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Substance Use Recommendation Made</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>13 (33%)</td>
<td>12 (32%)</td>
<td>.007</td>
<td>-.010</td>
</tr>
<tr>
<td>No</td>
<td>26 (67%)</td>
<td>25 (68%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Personality Recommendation Made</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>14 (36%)</td>
<td>24 (65%)</td>
<td>6.373*</td>
<td>.290</td>
</tr>
<tr>
<td>No</td>
<td>25 (64%)</td>
<td>13 (35%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Attitude Recommendation Made</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>1 (3%)</td>
<td>5 (14%)</td>
<td>3.130</td>
<td>.203</td>
</tr>
<tr>
<td>No</td>
<td>38 (97%)</td>
<td>32 (86%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Leisure Recommendation Made</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>12 (31%)</td>
<td>13 (35%)</td>
<td>.164</td>
<td>.046</td>
</tr>
<tr>
<td>No</td>
<td>27 (69%)</td>
<td>24 (65%)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Peer Recommendation Made

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Match</td>
<td>14 (36%)</td>
<td>25 (64%)</td>
</tr>
<tr>
<td>Score</td>
<td>12 (32%)</td>
<td>25 (68%)</td>
</tr>
<tr>
<td></td>
<td>.101</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-.037</td>
<td></td>
</tr>
</tbody>
</table>

Note. * p < .05.

3.2 Question 2: Do male and female young offenders have their clinician-identified YLS/CMI needs matched by probation services at a similar rate?

The percentage match score, calculated by dividing the total number of matched needs (i.e., the total number of needs areas targeted by clinicians’ recommendations and met by probation) by the total number of needs identified by the assessing clinician, was next examined to determine whether male and female participants differed in the rate at which their clinician-generated recommendations were met by probation service. No sex difference was found in the overall percentage match score; on average, roughly half of the recommendations made by clinicians were successfully matched through services directed by probation (M=47%, SD=.366). As shown in Table 2, similar proportions of males and females in our sample were represented across the overall percentage of match classifications of Low Match (0-25%), Low-Medium Match (25-50%), Medium-High Match (51-75%, and High Match (76-100%).
Table 2.

*Number and Percentage of Cases by Match Category and Gender*

<table>
<thead>
<tr>
<th>Recommendation-Service Match Category</th>
<th>Low (0-25%)</th>
<th>Low-Med (26-50%)</th>
<th>Med-High (51-75%)</th>
<th>High (76-100%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>10 (26%)</td>
<td>16 (41%)</td>
<td>6 (15%)</td>
<td>7 (18%)</td>
</tr>
<tr>
<td>Females</td>
<td>9 (26%)</td>
<td>11 (30%)</td>
<td>6 (16%)</td>
<td>11 (28%)</td>
</tr>
</tbody>
</table>

Sex differences in needs matching were also explored by comparing the differences in average rate of matching across the 7 individual categories of RNR-based needs (see Table 3). There was no individual category of RNR need that was found to have a different rate of matching between males and females in our sample.
Table 3.

*Numbers (and Percentages) of Clinician-Service Matches that were made across YLS/CMI categories for male versus female youth*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Gender</th>
<th>( \chi^2 )</th>
<th>( \Phi )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td></td>
</tr>
<tr>
<td>Education/Employment Match</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>23 (59%)</td>
<td>18 (49%)</td>
<td>.815</td>
</tr>
<tr>
<td>No</td>
<td>16 (41%)</td>
<td>19 (51%)</td>
<td></td>
</tr>
<tr>
<td>Family Match</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>4 (10%)</td>
<td>3 (8%)</td>
<td>.105</td>
</tr>
<tr>
<td>No</td>
<td>35 (90%)</td>
<td>34 (92%)</td>
<td></td>
</tr>
<tr>
<td>Substance Use Match</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>3 (8%)</td>
<td>5 (14%)</td>
<td>.683</td>
</tr>
<tr>
<td>No</td>
<td>36 (92%)</td>
<td>32 (86%)</td>
<td></td>
</tr>
<tr>
<td>Personality Match</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>7 (18%)</td>
<td>14 (38%)</td>
<td>3.756</td>
</tr>
<tr>
<td>No</td>
<td>32 (82%)</td>
<td>23 (62%)</td>
<td></td>
</tr>
<tr>
<td>Attitude Match</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>0 (0%)</td>
<td>1 (3%)</td>
<td>1.068</td>
</tr>
<tr>
<td>No</td>
<td>39 (100%)</td>
<td>36 (97%)</td>
<td></td>
</tr>
<tr>
<td>Leisure Time Match</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>4 (10%)</td>
<td>4 (11%)</td>
<td>.006</td>
</tr>
<tr>
<td>No</td>
<td>35 (90%)</td>
<td>33 (89%)</td>
<td></td>
</tr>
</tbody>
</table>
3.3 Question 3: Does matching clinician recommendations to services facilitated by probation officers predict recidivism equally well in female and male young offenders?

The first step in addressing this question was to assess the predictive validity of the YLS/CMI in the present sample. As expected, the YLS/CMI was found to be a significant predictor of recidivism for the entire sample, and remained predictive when examined separately for males and females. Table 4 shows the results of three logistic regressions. The first model contains the entire sample (n=76), controlling for age and sex, with YLS/CMI total score as the main predictor and Recidivism as the outcome variable. Males (n=39) and females (n=37) were analyzed separately in the second and third regression models. In all three models the YLS/CMI score was a significant predictor of recidivism.

<table>
<thead>
<tr>
<th>Peer Recommendation Match</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4 (10%)</td>
<td>35 (90%)</td>
</tr>
<tr>
<td></td>
<td>0 (0%)</td>
<td>37 (100%)</td>
</tr>
<tr>
<td></td>
<td>4.006</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-.230</td>
<td></td>
</tr>
</tbody>
</table>

Note. * = p < .05.
In order to ascertain whether the relationship between the percentage of needs matched and recidivism differs for males and females, a moderation analysis was conducted using logistic regression. A correlation matrix was first produced examining the relationships between Age, Sex, Criminal History, Percentage Match, and Recidivism in order to select variables that were significantly related (p<0.05) and to ensure that variables were not representing overlapping concepts (r >.80). As Table 5 shows, while participants’ criminal history scores were positively related to recidivism, it was also the case that the greater the percentage of clinician-identified needs that were matched through probation services, the less likely youths were to reoffend; criminal history and percentage needs match were also negatively related. Age was not significantly related to recidivism (r = -0.055, p = .64) and therefore was not included in subsequent regression analyses; none of the variables were so highly correlated as to suggest that they measured a common construct.
Table 5.
Correlations between recidivism and age, sex, percentage needs match, and criminal history (N=76)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Recidivism</th>
<th>Age</th>
<th>Sex</th>
<th>Percentage Needs Match</th>
<th>Criminal History</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recidivism</td>
<td>-</td>
<td>-.055</td>
<td>-.122</td>
<td>-.330**</td>
<td>.303**</td>
</tr>
<tr>
<td>Age</td>
<td>-</td>
<td>-</td>
<td>-.101</td>
<td>.130</td>
<td>.138</td>
</tr>
<tr>
<td>Sex</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-.137</td>
<td>.231*</td>
</tr>
<tr>
<td>Percentage Needs Match</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-.481**</td>
</tr>
<tr>
<td>Criminal History</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Note. *p<.05 **p<.01

A moderation model was then tested in which Criminal History, Sex, and Percentage Match Score, as well as the interaction between Sex and Percentage Match Score, were used to predict Recidivism-defined as whether or not a youth was convicted of one or more offenses within a three year follow-up period after the initial conviction which gave them entry into the sample. In order to control for youths’ initial Criminal History, this variable was entered into the regression model first, followed by Sex, Percentage Match Score, and the Sex by Percentage Match Score interaction term. As suggested by Aiken and West (1991), to avoid multicollinearity effects, Sex was centered before testing the significance of the interaction term in order to produce a revised sample mean of zero. A regression equation including the control, two main effects, the interaction term, and the unstandardized regression co-efficient was generated. This analysis revealed the effect of the Percentage Match score was dependent on Sex such that the percent match between clinician recommendations and treatment services significantly predicted a reduction in Recidivism for males but did not do so for females (see Table 6).
Table 6.

*Moderation Logistic Regression Analysis*

<table>
<thead>
<tr>
<th>Model Variables</th>
<th>B</th>
<th>p</th>
<th>Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant: -.063</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Criminal History</td>
<td>.634</td>
<td>.081</td>
<td>1.886</td>
</tr>
<tr>
<td>Percentage Match Score</td>
<td>-1.734</td>
<td>.054</td>
<td>.177</td>
</tr>
<tr>
<td>Sex</td>
<td>-1.367**</td>
<td>.006</td>
<td>.255</td>
</tr>
<tr>
<td>Interaction Percentage Match Score X Sex</td>
<td>1.997*</td>
<td>.020</td>
<td>7.370</td>
</tr>
<tr>
<td>Constant</td>
<td>-.063</td>
<td>.924</td>
<td>.939</td>
</tr>
</tbody>
</table>

Note. *p<.05 **p<.01

Using the generated regression equation, statistically significant interactions were interpreted by plotting two regression lines, one for males and one for females, on a plot of Recidivism (dependent variable, y-axis) versus Percentage Match score (independent variable, x-axis). These equations were derived from the standardized B values. As Figure 1 shows, there was a significant negative relationship between percentage of needs matched via probation and recidivism for males; however, this relationship diminished significantly for the females in our sample and was not statistically significant.
Figure 1.

*Moderation effect of Sex between Percentage Match Score and Future Recidivism*
4 Discussion

The design and implementation of effective treatment is critically important in a justice system that supports rehabilitation as a primary mandate for youth who engage in criminal behaviour. The development of an effective guiding framework that is used to assess risk to re-offend while also assessing criminogenic needs and responsivity variables as a basis on which to plan effective treatments is an essential goal of a system trying to strike a balance between the needs of a particular youth and public safety. Within the generally high needs group of youth who offend, females are a vulnerable minority that have yet to be studied as rigorously as their male counterparts despite being reported as having more numerous and severe criminogenic and non-criminogenic needs. In this study, the utility of the Risk-Need-Responsivity (RNR) model as both a risk assessment and case management tool was explored for justice-involved female youth. While the findings of this study support the efficacy of RNR-based assessment tools for predicting risk to re-offend, regardless of gender, the current results suggest the framework’s use as a case management tool on which to base rehabilitative programming may be working less effectively for female than male youth. The following paragraphs review the study’s findings in relation to existing literature and the RNR framework, discuss the practical implications of the results, and identify future research directions.

Consistent with the findings of several previous studies (Catchpole & Gretton, 2003; Jung & Rawana, 1999; Olver et al., 2009; Onifade et al., 2008), the predictive validity of the RNR model for assessing risk to re-offend was supported; youths’ YLS/CMI scores were found to be a significant predictor of recidivism for the entire sample and remained predictive when examined for both males and females separately. In addition, there were few differences in the number and content of clinician-identified needs reported in court-ordered mental health assessments for male and female youth. Both males and females had, on average, three clinician identified needs. Across the seven criminogenic need categories explored, the only significant difference found between boys and girls was in the category of Personality (e.g., short attention span, anger, inadequate guilt), where females were more likely than their male counterparts to have received a recommendation for treatment services. It is often asserted in this literature (Colman, Han, Mitchell-Herzfeld, & Shady, 2009) that by the time a female youth enters the justice system there have been several years of family and school related dysfunction such that the scope and severity of presenting needs are high and externalizing behaviours are more consistent and
severe in girls who become involved with the justice system. It is many of these needs that are captured in the Personality category of the YLS/CMI. It is also possible that the higher frequency of clinical identification is due to the Personality category encompassing behaviours that are generally viewed as more of an extreme aberration of adjustment for girls than for boys, as girls are often viewed as unlikely to act in violent or aggressive ways. This argument has previously been advanced to account for the increase in criminal charges received by female youth for ‘violent’ crimes—as many of which are purported to be relatively minor assaults—in Canada, the United States, and the United Kingdom throughout the 1990s (Leschied et al., 2002; Chesney-Lind & Brown, 1999). It follows that social expectations of normative femininity could be at play in clinical recommendations whereby aggression, impulsivity, and inattention are seen as more atypical in female youth, and therefore are appraised as more critical targets for intervention by clinicians. Subsequent analyses examining YLS/CMI Personality domain scores found that while clinicians were making more recommendations for females in the Personality category, female scores in this domain did not differ significantly from those of males, supporting the notion that clinicians may be more concerned about these traits in females than in males.

There were also very few differences found between male and female youth in the rate at which probation services matched interventions to clinician-identified needs. On average, half of the recommendations made by clinicians were successfully matched through clinical services for any given youth, regardless of sex. The one category for which a difference was found was that of Peers, a category which generally refers to the presence of delinquent peers and acquaintances and the absence of ‘positive’ peers and acquaintances. In the present study a greater proportion of males than females had this need matched by probation services. However, these findings must be interpreted in light of the fact that the base rate of this match was low overall. Indeed, this criminogenic needs category may be a particularly difficult one to meet through service because a successful match requires evidence of disengagement from delinquent peers and/or engagement with pro-social peers. Unlike other criminogenic need categories where there exist established programs through which to intervene with youth (e.g., anger management programs in the Personality category) the Peers category appears to have very few available standardized programming to address this criminogenic need. Overall, the rate at which males and females in our sample had their identified needs matched by probation services did not differ. Generally, it
was found that the male and female youth in the sample diverged very little in the quantity and quality of needs identified by clinicians, as well as in the rate at which probation services were able to meet these needs.

While the RNR based risk assessment and case management model seems to be identifying needs and guiding the provision of probation services equally well for boys and girls, the efficacy of reducing recidivism through matching services to clinician identified needs was differentially successful for male and female youth. The percentage match between clinician recommendations and treatment provision was only shown to significantly predict a reduction in recidivism for the males in our sample, with percentage of successfully matched needs having no significant relationship to recidivism for females. While the previous study by Vieira et al. (2009) found that a reduction in recidivism as well as an increase in time to recidivism was positively related to the percentage of clinician-identified needs met by probation for a sample that contained both males and a smaller number of females, the results of our study show that there is reason to believe that the degree of success in reducing recidivism through the matching of these services may be quite limited for females in comparison to males. There are several possible explanations for these findings.

It has been asserted by many proponents of the gender-responsive approach that the categories of needs identified in the RNR model are not representative of, or are insufficient in encompassing, the unique life challenges and trajectories of justice-involved female youth and that limiting the targets of intervention to a select number of criminogenic needs ignores the problems that underlie girls’ delinquent behaviour and the realities of the social context in which they live (Covington & Bloom, 1999; McMahon, 2000). However, the ability of the RNR model to predict recidivism in female youth found in the existing literature (Catchpole & Gretton, 2003; Jung & Rawana, 1999; Olver et al., 2009; Onifade et al., 2008, Vieira et al., 2009), as well as in the present study, supports the notion that it does, in fact, address many of the factors leading to recidivism for female youth. Therefore, rather than dismissing the RNR framework as a basis for treatment designation and case management, an examination of the breadth and the application of the currently used RNR factors is necessary.

One possible explanation for the differential success of the RNR framework in guiding treatment for justice-involved male and female youth is that the model, while inclusive of potent and
empirically supported dynamic risk and need factors, has failed to include several important gender-specific/salient factors that are particularly critical for female treatment outcomes. Proponents of the gender-responsive approach have long highlighted the importance of these gender-specific/salient factors. Factors such as victimization and abuse, trauma, pervasive mental health concerns, family dynamics, and availability of social supports (Vannatta, 1996; Gavazzi et al., 2006; VanVoorhis et al., 2008; Cauffman et al., 2007; Douglas & Plugge, 2008; Bloom et al., 2003; Odgers et al., 2005) have been suggested as important both theoretically and in numerous qualitative studies with youth and adult justice-involved female samples. The primary criticism of these findings has been that, while the factors identified in this literature are important for general mental and social health, they have not been empirically linked to re-offending. However, the exclusion of these gender-specific/salient factors from the current RNR model could be the result of the general lack of young female participants in correctional research, as these gender sensitive factors may not have been identified as criminogenic needs in empirical large-scale RNR research that is dominated by male participants.

As described earlier, the VanVoorhis et al. (2010) study of adult women involved in the justice system gives evidence that the addition of gender-specific/salient factors to the already well-established gender-neutral risk assessment tools could add greater specificity to prediction models and points to additional factors to guide intervention with women. The exclusion of certain gender-specific/salient factors in the RNR model may explain why the model seemed to effectively guide intervention to reduce the rate of recidivism of the males in our sample but appeared to have no effect on the females. Perhaps there is a broader scope of variables, in addition to those already included in the model, or a different constellation of gender-neutral and gender-responsive factors, that need to be addressed when working with justice system-involved females. For example, VanVoorhis et al. found that among women in community and correctional settings, substance abuse, economic, educational, parental and mental health needs appeared to be the needs most associated with future offending. Future research will need to investigate whether additional gender-responsive factors add power to risk assessment measures for female youth and how addressing these additional factors, in combination with the current RNR factors, impacts re-offending in this population. Factors such as family support, anger/hostility, mental health, experiences of victimization, and relationship dysfunction seem to be promising gender-responsive factors in need of further explanation.
Another potential explanation for the differential success of matching treatment to the RNR model is the role of responsivity in interventions on female recidivism. Responsivity is a critical but little understood aspect of the RNR model that may provide an explanation as to why the RNR categories are significant predictors of recidivism for female youth but do not show the same effects in reducing recidivism through treatment matching as they have for males.

Responsivity refers to the styles and modes of service delivery that should be matched to an offender’s learning style, ability, and motivation in order for the intervention material to have optimal effect (Andrews et al., 2006). Historically, responsivity factors have been under-researched (Kennedy, 2000), and this is likely because of the wide array of factors considered under the umbrella of the Responsivity Principle as well as the differences in how the concept is operationally defined by various researchers (Vieira et al., 2009). While treatment should be matched to criminogenic needs, as outlined in the RNR model, the mode by which these services are delivered should be matched to an offender’s personal characteristics or circumstances, or to their important non-criminogenic needs (i.e. quality of relationships, mental health, and social skills). Applications of the Responsivity Principle are consistent with the gender-responsive literature that suggests that girls would benefit from treatments based on relationships and that emphasize the importance of familial support in increasing the likelihood of female youth engaging with programs (Bloom et al., 2003; Hubbard & Pratt, 2002; Odgers et al. 2005; Wright et al., 2008). According to Ward et al., (2007) one of the major criticisms of the RNR model has been the distinction made between criminogenic and non-criminogenic needs, as it is claimed that targeting non-criminogenic needs is a necessary condition for any intervention that requires offenders to be sufficiently attentive and receptive to the therapeutic content of session. Personal distress, low self-esteem, and distrust can all impact the development of the therapeutic alliance and make it difficult for service providers to deliver standard RNR model intervention (Ward et al., 2007). Thus, the authors argue that it is of great importance to direct attention to non-criminogenic needs in order to maintain a sound therapeutic alliance and sustain client engagement with treatment. The findings of our study could indicate that while the RNR model is targeting the right categories for preventing recidivism, more attention needs to be paid to how intervention and services are being delivered. Future research needs to investigate how responsivity factors are attended to in practice settings and used in treatment design and designation. Further elucidation of responsivity factors and their utilization in treatment planning could optimize rehabilitative efforts for male and female youth alike, but may be even more
critical for female youth, who may not be receiving and engaging with essential services due to incongruence in treatment modes as opposed to needs.

4.1 Limitations and Future Directions

The present study explored how the process of matching youth with services according to their individually-identified criminogenic needs is functioning with female justice-involved youth in comparison to their male counterparts. Although every effort was made to assess and capture all of the necessary information, constraints on the design imposed by the system and time limitations of data collection demand that certain caveats be placed on the interpretation of results. First, as with much of the research examining female youth who are involved with the justice system, the sample size in the present study was small. Future research will seek to expand the sample to test the generalizability of the present results. Second, it is important to note that the sample of young offenders was not randomly selected and was drawn from a large mental health facility in Toronto, Ontario, and subsequently tracked across the entire province. The generalizability of the findings is limited, as only youth referred for court-ordered assessments were eligible for inclusion, and recent estimates have indicated that this group represents less than 1% of young offenders (Statistics Canada, 2005). Researchers have previously suggested that these referred and non-referred youth differ in ways (e.g., nature of the offense) that might render findings related to this subgroup less applicable to young offenders in general (Campbell & Schmidt, 2000). While the sample does have limitations, it also provides unique opportunities for examining how the RNR framework is being utilized throughout the various sectors of the justice system. The present study was able to follow the matching of services facilitated through probation with clinically identified criminogenic needs consistently across all of the youth sampled, and tracking these youth over an approximately 3-year period provided a unique opportunity to observe the unfolding of the matching process from court-ordered assessment, through probation and treatment involvement, all the way to potential re-offense. Thus, a great strength of the current study is the extensive and rich information that was acquired and utilized in analyses for each of our participants. Certainly, it remains to be seen whether the impact of individualized service matching on recidivism extends to youth who have not been referred for court-ordered assessments. Future efforts to explore the matching process would therefore benefit from the inclusion of comparison groups of non-referred youth.
Recent reviews of the RNR principles have emphasized the importance of therapeutic integrity as the fourth principle in the model (Andrews & Bonta, 2006). The present research endeavoured to evaluate the system and processes related to matching as a whole, and it was not possible to measure individual program or staff quality in all of the many private and public agencies from which youth received services. Given the results of this study and the hypothesis that either gender-specific need factors or gender-salient responsivity factors are mediating the relationship between successful treatment matching and recidivism in female youth, it will be important for future research to examine the impact of these factors on future criminal behaviours in this population, as well as their utility in treatment. Generally, the impact of intervention targeted at reducing criminogenic needs that is sensitive to non-criminogenic needs has yet to be studied in a systematic way. In our study it was also not possible to examine to what extent current treatments utilize or account for gender-responsive factors in their implementation. More research is needed to examine how gender impacts the diagnostic decisions of mental health clinicians, the treatment allocation decision of probation officers, and the in-program dynamics of treatment programs. Associated issues of service length and fragmentation (i.e., the same need partially addressed by multiple services and agencies) also could not be controlled for because of the inconsistent availability of this information in probation files. Without question, a very important next step in evaluating the matching process and its impact on youths’ recidivism and subsequent functioning is to evaluate and control for these factors.

Appropriate and effective intervention for youth offending behaviour is a critical goal of the justice system. Without successful intervention, criminal behaviour is highly resistant to change and lifetimes of offending result in substantial costs to society. Youth justice officials are faced with balancing the ideals of proportionate accountability, protecting community safety, rehabilitation, and reintegration (Maurutto, Hannah-Moffat, & Bloomenfeld, 2008) amid the realities of limited and, at times, ineffective services. Female youth who engage in criminal behaviour may be particularly in need of attention and sensitive intervention due to the high proportion of general mental health and social needs that accompany them throughout their lives, which may be of great cost to society regardless of offending behaviour. The present research suggests the need for efforts to ensure better and more consistent matching of services with youths’ clinically-identified needs, as doing so appears to lead to reduced recidivism and improvements in functioning for male youth. Nevertheless, the results of this study also indicate
that particular attention must be paid to the impact of possible gender-specific needs and responsivity factors on recidivism and to the possibility of their inclusion in treatment designation, as it seems that while effective for male youth, female youths’ outcomes are currently not optimized by our existing models. Although the RNR principles have provided a fine framework for the rudiments of correctional intervention and rehabilitation, these principles require advancement and continued improvement to their specificity in identifying the needs and trajectories of unique populations that have until recently been largely overlooked in correctional research.
References


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