What’s Good for the Goose? Examining the Impact of Gender-Neutral and Gender-Specific Factors in the Assessment and Treatment of Female and Male Justice-Involved Youth

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Abstract

In response to female youths’ increased visibility in the legal system, more attention has been paid to understanding girls’ pathways to justice system involvement, risk for re-offending, and rehabilitative needs. Widely-used risk assessment and case management tools based on the Risk Need Responsivity (RNR) framework are largely gender neutral. Gender-responsive scholars have long advocated for the importance of additional gender-specific factors in guiding the assessment and treatment of female justice-involved youth. The dissertation is comprised of two papers which examine the contribution of proposed gender-specific factors alongside well established RNR factors in the prediction of recidivism, and how service provision aimed at intervening with these factors impacts recidivism for both male and female justice-involved youth. Paper 1 explores the relationship between trauma, criminogenic needs and recidivism. I first sought to define the distinct constructs often referred to under the umbrella term ‘trauma’: PTSD symptomology, maltreatment, and childhood adversity. The relationships between these factors, well-established criminogenic needs, and recidivism were examined and compared in a matched sample of 50 female and 50 male justice-involved youth. Females were significantly
more likely than males to have experienced multiple forms of maltreatment. Several 
maltreatment and childhood adversity factors were significantly and positively related to 
criminogenic needs. PTSD symptomology and childhood adversity were not significant 
predictors of recidivism; however, maltreatment was the strongest predictor of recidivism for 
both males and females in a model that included well established risk factors. Gender was not 
found to be moderating the relationship between maltreatment and recidivism. Implications of 
the findings for theory and practice are discussed. Paper 2 examines the contribution of both 
criminogenic needs and several additional proposed ‘female’ gender-specific factors to risk 
assessment and rehabilitative treatment. Female youth were more likely than male youth to have 
proposed ‘female’ gender-specific needs but these needs alone did not predict recidivism. 
Successfully matching services to youths’ criminogenic needs predicted reduced recidivism for 
both male and female youth. For youth who had ‘female’ gender-specific needs, successful 
matching of services to these needs also predicted reduced recidivism for both genders. 
Theoretical and practice implications of these results are discussed.
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General Introduction

The prevention of youth crime, as well as what constitutes an appropriate and beneficial response to youth offending, have long been important political debates influencing both government policy and law. The particular attention paid to these issues arises from the precarious position in which social and legal systems find themselves in relation to justice system-involved youth, who are typically regarded as a unique subset of 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.

Historically, our understanding of youth offending has been driven by the examination of male youth, with a focus on their traits and behaviors related to offending. However, over the past decade, attention has shifted to include concerns with female youths’ justice system involvement. This shift is in no small part due to highly publicized perceived increases in the number and proportion of female youth involved in North American justice systems. Currently, female youth make up approximately one quarter of youth involved in the justice system (Hotton Mahony, 2011; Sickmud, Sladky, & Kang, 2012). A closer examination of statistics over the past three decades reveals that North America has not experienced a spike in crimes committed by female youth. Instead, within certain categories of offending (i.e. simple assault, drug charges), there has been a narrowing of the gender gap (Goodkind, Wallace, Shook, Bachman & O’Malley, 2009) driven by significant decreases in male offending rather than increases in female offending. For instance, trends in overall US arrest rates reveal that while there has been a 47% decrease for male youth, there has been just a 2% increase for female youth (OJJDP Statistical Briefing Book, 2014). These data suggest that while current social and legal interventions may be effectively contributing to decreases in male offending, the same cannot be
said for female youth, highlighting a critical need to ensure a fulsome understanding of the risks for legal involvement, needs, and rehabilitative intervention targets for justice-involved female youth.

The Risk-Need-Responsivity (RNR) model (Andrews, Bonta, & Hoge, 1990; Andrews, Bonta & Wormith, 2011) is an empirically-based, widely used framework for the risk assessment, case management, and treatment of adults and youth involved in the justice system. Currently, the RNR framework is considered to be the dominant model of correctional assessment and rehabilitation, and is used across North America and globally in the management of criminal conduct (Cullen & Gilbert, 2012). Fundamental to the model is a set of factors that have been found to be causally related to offending, termed “criminogenic needs” (Andrews & Bonta, 2006). These factors, known as the Central Eight: antisocial history, antisocial cognitions, antisocial peers, personality deficits (e.g., impulsivity), family/marital dysfunction, substance abuse, educational/vocational obstacles, and misuse of leisure time, form the basis for the risk/case management tools used in community and correctional contexts, as well as for many empirically-derived rehabilitative interventions.

The RNR model asserts that effective rehabilitative service must attend to the risk principle – that intensity of service is to match individuals’ level of risk to reoffend; the need principle – that criminogenic needs are the appropriate targets of programming; and the responsivity principle – that service providers deliver evidence-based programming (general responsivity) and that these services be delivered in a manner that takes into account individuals’ personal characteristics and/or circumstances that affect the effectiveness of treatment (specific responsivity). The RNR model generally takes a gender-neutral approach to the management of criminal conduct, emphasizing that the Central Eight risk/need factors are critical to the offending of males and females alike. This approach has received criticism, often rooted in
feminist criminology or sociology frameworks, for failing to attend to the distinct psychological, emotional, and health needs of young women involved in the justice system (Bloom, Owen, Rosenbaum, & Deschenes, 2003; Chesney-Lind, Morash, & Stevens, 2008; Covington, 2007; Odgers, Moretti, & Reppucci, 2005). Furthermore, it has been argued that gender-neutral risk assessment tools developed for male populations classify females as ‘risky’ based on their greater social, economic, and psychological vulnerability, thus often exacerbating their already marginalized status through harsher sanctions and incarceration (Hannah-Moffat, 2009; Hannah-Moffat & Shaw, 2000). Instead, these scholars advocate for a “gender-responsive” approach to assessment and rehabilitation.

There is substantial evidence supporting the utility of RNR-based assessment tools (LSI-R; Andrews & Bonta, 1995; YLS/CMI; Hoge & Andrews, 2002) to predict reoffending regardless of offense type, minority status or gender (Andrews, Guzzo, Raynor, Rowe, Rettinger, Brews & Wormith, 2012; Olver, Stockdale, & Wormith, 2009; 2014; Schwalbe, 2008; Viljoen, Elkovitch, Scalora, Ullman, 2009). Furthermore, using information from RNR-based assessments on individuals’ criminogenic needs to guide case management and treatment has been found to contribute to reductions in recidivism (e.g., Vieira, Skilling, & Peterson-Badali, 2009). However, even within this research literature, there exists some evidence of salient gender differences within the criminogenic risk/need domains. A meta-analysis by Olver et al. (2014) suggested that males and females have distinct criminogenic need profiles, highlighting that males had more serious criminal histories and higher needs in the areas of peers, leisure, and substance abuse, while females were found to have more critical needs in the areas of personal/emotional concerns, financial problems (education/employment), and family/marital difficulties. Examining gender differences in the relationship between criminogenic need and recidivism, Andrews et al. (2012) found that substance abuse was particularly relevant to the
recidivism of female offenders. Furthermore, with regards to case management and treatment, while Vieira et al. (2009) found that successful matching to youths’ criminogenic needs was effective in reducing recidivism for male youth, a separate follow up study found that this was not the case for female youth (Vitopoulos, Peterson-Badali, Skilling, 2012).

The gender-responsive literature highlights these gender differences amongst the Central Eight, emphasizing that certain criminogenic needs are more or less relevant for female youth. For example, while substance use has been underlined as a particularly salient criminogenic need of justice-involved females (Andrews et al., 2012; Covington, 2008; Wright, Van Voorhis, Salisbury & Bauman, 2012), needs in the areas of anti-social attitudes have been suggested to be far less related to female recidivism (Van Voorhis et al., 2010). In addition to gender-salience amongst the RNR factors, many gender-responsive scholars advocate for other factors, not identified as criminogenic needs within the RNR model, that are proposed to be uniquely relevant to females – termed gender-specific factors – or relevant to both female and male but more so for females – termed gender-salient factors. Gender responsive scholars posit that in addition to substance use, mental health difficulties, histories of trauma and maltreatment, and relational dysfunction are particularly important when understanding female youths’ entry to, progress through, and potential exit from, the criminal justice system (Cauffman et al., 2007; Chitsabesan & Bailey, 2006; Douglas & Plugge, 2008; Wright et al., 2010). While the RNR scholars acknowledge the relevance of many of these additional factors to the lives of young people, they are highlighted as responsivity factors rather than criminogenic needs (i.e., these factors should be taken into account when directing treatment at youths’ criminogenic needs but are not directly related to offending). Because these factors are not viewed as being directly related to offending behavior within the RNR framework, they are therefore not key targets for

With several notable exceptions (Brown & Motiuk, 2008; Salisbury & Van Voorhis, 2009), scholarship within the body of ‘gender-responsive’ literature has been dominated by qualitative studies and a lack of quantitative evidence to support assertions regarding the relationship between additional gender-specific or salient factors and offending. Further, the majority of studies exploring hypothesized gender-specificity have failed to include male comparison samples, limiting our understanding of whether or not these potential additional factors are truly ‘gender-specific’ or if they may, indeed, be pertinent for males as well. In addition, the empirical studies that have found relationships between proposed gender-specific factors and offending, have often failed to examine whether these relationships hold up in the presence of well-established RNR risk/need factors, which may serve as more proximal predictors of re-offending. Within the few studies of adult women (Reisig, Holtfretter & Morash, 2006; Van Voorhis et al., 2010) and of both adult women and men (Brown & Motiuk, 2008) that have examined hypothesized gender-specific factors alongside established gender-neutral risk factors, there is evidence of gender-specificity, as well as the existence of sub-types of female offenders for whom gender-specificity is more or less relevant (Reisig et al., 2006). In a study of justice-involved youth, Jones, Brown, Wanamaker, and Greiner (2014), found evidence for sub-types of both male and female youth for whom proposed ‘female gender-specific’ factors were relevant to justice-system involvement, while the gender-neutral factors were most relevant for others. This literature suggests the need to further explore the potential of gender-specificity to enhance the current gender-neutral framework and to improve our understanding of the needs of both male and female justice-involved youth in order to guide effective rehabilitative programming and intervention.
Particularly salient in the gender-responsive literature is the assertion that ‘trauma’ plays a significant role in the lives of many justice-involved female youth and that female youths’ criminal activity is more likely to be related to subsequent mental health, behavioral, and relational issues associated with ‘trauma’. Large scale studies have found that female justice-involved youth are more likely than male justice-involved youth and non-justice-involved female youth to have experienced early maltreatment (Abram et al., 2004; Coleman & Stewart, 2010), various forms of childhood adversity (Ritchie and Conway, 2012), and meet criteria for Post-Traumatic Stress Disorder (PTSD) (Cauffman et al., 1998; Foy, Ritchie, & Conway, 2012; Moore, Gaskin & Indig, 2013; Vermeiren, 2003). Furthermore, alongside the criminological and forensic psychology literature is a large body of maltreatment literature that has long evidenced a relationship between early experiences of maltreatment and abuse, and later involvement in criminal activity for both male and female youth (Evans & Burton, 2013; Mersky, Topitzes & Reynolds, 2012; Smith et al. 2005; Stewart, Livingston & Denison, 2008; Thornberry, Henry, Ireland & Smith, 2010).

Despite this extensive knowledge base, research on the relationship between trauma and youth offending has suffered from two distinct problems that may have contributed to its limited application in youth justice services. The first issue is theoretical in nature. Throughout the literature, the term ‘trauma’ has been used to reference multiple constructs. It has been used in reference to the clinical construct referring to the symptoms of PTSD and in reference to exposure-based constructs such as having experienced maltreatment in childhood (i.e. having been the victim of abuse), as well as in reference to a broader series of adverse experiences and chronic stressors in childhood (i.e. parental divorce, economic difficulties, parental mental illness). Furthermore, the terms trauma, post-traumatic stress, maltreatment, abuse, and adversity have historically been used interchangeably throughout the literature, and the distinctions
between these terms and their unique impacts have only recently begun to be recognized. As such, the heterogeneity for what constitutes ‘trauma’ has resulted in a lack of specificity around how these distinct constructs should each be understood in relation to offending. For instance, Smith, Leve and Chamberlain (2006) found that while trauma (described as a set of symptoms related to PTSD) did not predict offending in adolescent girls, having experienced maltreatment in childhood was predictive of later offending, suggesting that more attention be paid to the distinctions between these related constructs that are often confounded in the literature under the umbrella term of ‘trauma’.

Second, while there is a large maltreatment literature that emphasizes causal connections between childhood maltreatment and adolescent offending, the vast majority of these studies do not take into account the robust predictors of (re)offending, discussed above, that have been established through decades of correctional psychology research. While there is some very recent evidence to suggest that maltreated youth may in fact be a unique subset of justice-involved youth for whom traditional risk assessment tools are less effective (Onifade, Barnes, Campbell, Andersen, Peterson, and Davidson, 2014; Li, Chu, Goh, Ng, Zeng, 2015), an examination of the distinct constructs often represented under the umbrella term of ‘trauma’ that takes into account the already well-established RNR framework is required in order to achieve an integrated understanding of the relationship between trauma and offending, and how best to intervene with youth who find themselves in these overlapping groups.

**Study Objectives**

The purpose of my dissertation is to contribute to an integrated understanding of how proposed gender-specific factors relate to recidivism in both male and female youth while also taking into account the groundwork already laid by the RNR framework. The dissertation is
comprised of two papers which examine the contribution of proposed gender-specific factors alongside well established RNR factors in the prediction of recidivism. In addition, this dissertation explores how service provision aimed at intervening with both RNR and proposed gender-specific factors during youths’ community sentences impacts recidivism for both male and female justice-involved youth.

In the first paper, I seek to define three constructs that are often referred to under the umbrella term of ‘trauma’ – post-traumatic stress symptoms, exposure to childhood maltreatment, and exposure to childhood adversity – and then to compare the frequency and nature of these constructs in a sample of female and male justice involved youth. I then examine whether these distinct constructs function as additional gender-specific and/or gender-salient criminogenic needs or if they are better understood as coinciding vulnerabilities, not directly related to recidivism, within the youth justice population. The second paper has two main goals. First, as the results of previous studies suggest that successful treatment and service matching to criminogenic needs reduces recidivism more effectively for males than for females (Vieira et al., 2009; Vitopoulos et al., 2012), I aim to compare the efficacy of RNR-based assessment and case management for justice-involved female and male youth who received services in the context of their probation sentences. Second, I aim to understand the relevance of several proposed gender-specific factors to both assessment and treatment, while taking into account the risk/need factors already articulated in the RNR framework. This will be accomplished using a matched sample of male and female justice-involved youth. Findings from both papers are discussed in terms of correctional psychology theory, risk-assessment, case management and rehabilitative programming. This dissertation concludes with a discussion of the studies’ implications for youths’ care within the justice-system and the need for further development of assessment-based rehabilitative programming.
Paper 1: Defining the Role of Trauma in the Assessment and Treatment of Male and Female Justice-Involved Youth

Abstract

Elevated rates of traumatic experience in the juvenile justice population are well established. Nevertheless, the impact of trauma in relation to rehabilitation and recidivism remains hotly debated, especially in regards to the needs of female youth. This study sought to first define the distinct constructs often referred to under the umbrella term ‘trauma’: PTSD symptomology, maltreatment, and childhood adversity (a broad array of adverse experiences inclusive of maltreatment). The relationships between these factors, well-established criminogenic needs, and recidivism were examined and compared in a sample of 50 female and 50 male young offenders. Rates of PTSD symptomology, maltreatment, and childhood adversity were significantly higher in this sample compared to prevalence estimates in the general population. Females were significantly more likely than males to have experienced multiple forms of maltreatment. Several maltreatment and childhood adversity factors were significantly and positively related to criminogenic needs. PTSD symptomology and childhood adversity were not significant predictors of recidivism when entered alongside criminogenic needs; however, maltreatment was the strongest predictor of recidivism for both male and female youth in a model that included well established risk factors. Gender was not found to be moderating the relationship between maltreatment and recidivism. Implications of the findings for theory and practice are discussed.
Introduction

Psychological trauma and Post-Traumatic Stress Disorder (PTSD) are prevalent among youth involved in the justice system (Abram, Teplin, Charles, Longworth, McClelland & Dulcan, 2004; Ford, Hartman, Hawke & Chapman, 2008). Studies indicate that the overwhelming majority of young offenders (90-95%) report having experienced at least one traumatic event over their lifetime (Abram et al., 2004; Ford, Chapman, Connor, & Cruise, 2012; Wilson, Berent, Donenberg, Emerson, Rodriguez, & Sandesara, 2013) compared to a 25% estimate of exposure to psychological trauma documented in an epidemiological study of a representative sample of youth in the community (Costello, Erkanli, Fairbank, & Angold, 2002). Rates of PTSD, ranging from 11-67%, (Abram et al., 2004; Dixon, Howie, & Starling, 2005; Moore, Gaskin & Indig, 2013), as well as rates of exposure to childhood maltreatment (i.e., abuse and neglect) ranging from 40-77%, (Coleman & Stewart, 2010; Ford et al., 2008; Moore et al., 2013), are much higher in juvenile justice samples than in the general population where rates of PTSD are estimated to be 3-6% (Kilpatrick, Ruggiero, Acierno, Saunders, Resnick, & Best, 2003) and the highest rate of childhood maltreatment retrospectively reported by adults is 32% (Afifi, MacMillan, Boyle, Taillieu, Cheung & Sareen, 2014). In addition, these rates are two to three times higher for females involved in the youth justice system (Coleman & Stewart, 2010; Foy, Ritchie, & Conway, 2012; Moore et al., 2013) than for males. Many theorists have also proposed that early trauma may be a unique pathway to, and risk factor for, female criminal behavior (Belknap, 2015; Bloom, Owen, Rosenbaum, & Deschenes, 2003; Chitsabesan & Bailey, 2006; Covington, 2007; Gavazzi, Yarcheck, & Chesney-Lind, 2006; McCabe, Lansing, Garland, & Hough, 2002; Odgers, Moretti, & Reppucci, 2005; Van Voorhis, Wright, Salisbury & Bauman, 2010). Although trauma is clearly relevant to the lives of many young people involved in the justice system, especially female youth, it remains to be determined if trauma is directly and/or
differentially predictive of (re)-offending behavior for female and/or male youth, or if it is better described as a co-existing vulnerability in this population (e.g. representing a co-occurring clinical need not directly related to criminal offending).

Two main ambiguities complicate the determination of the relationship between trauma and criminal behavior for both male and female justice-involved youth. First, across the psychological and criminological literatures, multiple constructs have been described under the umbrella term ‘trauma’, including psychological symptoms of PTSD, exposure to maltreatment and abuse in childhood, as well as exposure to multiple forms of adversity in childhood including, and in addition to, maltreatment (e.g., parental divorce, economic difficulties, and parental mental illness) (see Figure 1). Furthermore, these terms are often used interchangeably or without specificity in the literature. Given the heterogeneity of the constructs captured under the term ‘trauma’, it is difficult to draw uniform conclusions from the literature as to which, and in what ways, these various definitions of ‘trauma’ are related to the offending behavior and rehabilitation of justice-involved youth. Thus, the first challenge to the previous literature in this area is a conceptual one, in that further definitional clarity and specificity are necessary antecedents to the determination of the relationship between ‘trauma’ and youths’ offending behavior, as well as to subsequent treatment design and implementation based upon these relationships.
Second, while it is well-established that justice-involved youth have significantly higher rates of exposure to maltreatment and adversity in childhood, as well as higher rates of PTSD than that of the general population, this heightened prevalence, particularly amongst female justice-involved youth, may or may not have a direct link to offending behavior. Indeed, heightened prevalence in a population alone is insufficient to suggest a causal relationship between these factors and (re)-offending. That being said, much of the research that has found a relationship between early trauma and later criminal behavior has been conducted in isolation,
that is, separately from an examination of well-established criminogenic risk and need factors (i.e. factors empirically determined to be strongly and directly related to re-offending) such as those outlined in the Risk-Need-Responsivity framework (Andrews, Bonta, & Hoge, 1990). Indeed, in this broadly-used correctional rehabilitation model for youth and adult offenders, symptoms resulting from, or exposure to, traumatic experiences are not considered empirically-validated risk factors for offending. Thus, there remain significant questions regarding previous literature on the impact of ‘trauma’ and youths’ criminal behavior, and whether the various constructs defined under the term ‘trauma’ are phenomena that co-exist as general non-criminogenic needs or responsivity factors in a high needs/risk population or whether they are distinctly and directly related to offending behavior, over and above already well-established criminogenic factors.

Given the conceptual confusion with regards to defining trauma and identifying the unique impacts of multiple constructs referred to by this term in previous literature, the relationship between ‘trauma’ and youths’ offending behavior, as well as how to best intervene with justice-involved youth with histories of ‘trauma’, remain up for debate and exploration.

The Risk-Need-Responsivity Framework

The RNR framework has been used across Canada, the United States, Britain, Europe, Australia, and New Zealand as the basis for correctional programming, and is the foundation of one of the most widely used risk/case management tools in youth justice settings (Andrews, Bonta, & Wormith, 2011) – the Youth Level of Service/Case Management Inventory (YLS/CMI; Hoge & Andrews, 2002) – as well as for many empirically-derived rehabilitative interventions in these countries. Central to this framework is the assertion that effective rehabilitative service must attend to the principles of risk, need, and responsivity (Andrews & Bonta, 2006). The Risk
Principle states that substantive interventions should be reserved for higher risk offenders and that the intensity of such service must increase with individuals’ level of risk to reoffend. In this framework, risk is defined in terms of (and limited to) variables that have been demonstrated across meta-analytic studies to be strong and direct predictors of offending (e.g., pro-criminal attitudes, association with delinquent peers, personality features such as impulsivity and high levels of anger); these risk factors are also termed criminogenic needs (Andrews & Bonta, 2010). The Need Principle asserts that if the goal of service is to reduce subsequent offending, it is these criminogenic needs that are the appropriate targets of programming. The Responsivity Principle states that in order to effectively address criminogenic needs, services must be evidence-based practices for this population (general responsivity) and delivered in a manner that takes into account individuals’ personal characteristics and/or circumstances that impact the effectiveness of treatment (specific responsivity) (Andrews & Bonta, 2006).

From the standpoint of the RNR framework, while exposure to traumatic events and resultant symptoms of trauma may be relevant to the well-being of youth involved in the justice system, they have not been empirically established as predictors of re-offending (i.e., they are not criminogenic needs) and therefore would not be direct targets for interventions concerned with reducing future criminal behavior. Within the RNR framework, some trauma-related factors are captured under the construct of specific responsivity. For example, the newest version of YLS/CMI 2.0 (Hoge & Andrews, 2010) contains a section (Part III) that is distinct from the eight domains of risk/need – and therefore is not used in the calculation of risk to reoffend – that includes a myriad of potential personal characteristics and/or circumstances of youth that are considered relevant in case management. These include, but are not limited to, past experiences of neglect and abuse, financial/accommodation problems, mental health difficulties, and adverse living conditions. While these factors are clearly articulated as potentially important for case
management, how to integrate and utilize these additional factors in practice has not been clearly articulated in the literature or in practice guidelines. This lack of clarity leads to confusion over how to acknowledge and incorporate these factors into case management and treatment.

The RNR model is a gender neutral framework: the same criminogenic needs have been empirically established as relevant for males and females (Andrews & Bonta, 2006, 2010); as noted above, gender, exposure to abuse, and experiencing certain adversities in childhood are conceptualized as responsivity factors. In contrast to this correctional psychology approach, there is a body of scholarship, often coming from a feminist perspective, (Belknap, 2015; Bloom et al., 2003; Chesney-Lind & Pasko, 2013; Covington, 2007; Dixon et al., 2005; Odgers et al., 2005; VanVoorhis et al., 2010) that highlights several potential gender-specific risk/need factors – those deemed unique to females– and gender-salient factors – those identified as important factors for all but that are even more meaningful for females – that could have a substantial impact on outcomes for justice-involved female youth. Theory and research from this perspective identify factors such as mental health needs, relationship dysfunction, and abuse histories as particularly relevant to the lives of justice-involved female youth (Bloom et al., 2003; Chitsabesan & Bailey, 2006; Gavazzi et al., 2006; McCabe et al., 2002; Odgers et al., 2005).

Articulated in RNR language, these scholars posit that such factors may represent additional gender-specific/salient criminogenic needs that are currently going unaddressed in rehabilitative treatment, resulting in assessment and intervention frameworks that are less effective for females than for males.

Studies examining the efficacy of the RNR framework in risk assessment and in guiding intervention with justice-involved female youth indicate that while the framework taps into important criminogenic factors for both genders, there may be differential impacts of these factors on male and female recidivism. Several large scale and meta-analytic studies have
demonstrated the usefulness of this tool for both genders, with the YLS/CMI and its adult counterpart, the Level of Service Inventory (Andrews & Bonta, 1995), predicting general recidivism regardless of offense type, gender or minority status (Andrews, Guzzo, Raynor, Rowe, Rettinger, Brews & Wormith, 2012; Olver, Stockdale, & Wormith, 2009; 2014; Schwalbe, 2007; Viljoen, Elkovitch, Scalora, Ullman, 2009). That being said, findings from these large-scale studies also suggest that there are differences in the salience of individual RNR domains for males and females. For instance, a recent meta-analysis (Olver et al., 2014) suggests that individual criminogenic domains are more or less prevalent in the profiles of males and females. For example, while males had more serious criminal histories and higher needs in the areas of peers, leisure, and substance abuse, females were found to have more critical needs in the areas of personal/emotional concerns, financial problems (education/employment), and family/marital difficulties. Likewise, Andrews et al. (2012) study found that substance abuse, as suggested by many feminist scholars, had a particularly strong relevance to the recidivism of female offenders. In addition, results from several smaller studies indicate that while the YLS/CMI is useful in predicting recidivism for male youth, it may be less effective in doing so for female youth (Bechtel, Lowenkamp, & Latessa, 2007; Schmidt, Hoge, & Gomes, 2005; Onifade, Davidson, Campbell, Turke, Malinowski, & Turner, 2008; Marshall, Egan, English & Jones, 2006; Schmidt, Campbell, & Houlding, 2011). Taken together, the results from these studies suggest that while the current RNR framework highlights critically important risk and need factors related to re-offending for both genders, there remains a need to further explore the possibility and implications of the varied relevance of criminogenic needs to male and female youth who are involved in the justice system.

Beyond the question of the accuracy of risk assessment, it is important to consider how the RNR framework, and the instruments based on it, work in practice – from risk assessment
through to treatment designation – to reduce subsequent offending. In one of the first studies to examine the relationship at the level of individual criminogenic needs assessment, Vieira et al. (2009) reported a positive relationship between treatment matching (i.e., the extent to which youths’ assessed criminogenic needs were addressed through intervention services) and reduced reoffending in a sample of justice-involved male youth, clearly demonstrating the effectiveness of treating criminogenic needs on offending outcomes. However, a subsequent study examining the effect of treatment matching on recidivism in male and female justice-involved youth (Vitopoulos, Peterson-Badali, & Skilling, 2012) found that while females and males were similar in the quality and quantity of their identified criminogenic needs, and while they had these needs met through probation services at a similar rate, the matching of services to criminogenic needs was significantly more effective in reducing recidivism for males than for females. These results suggest a gap between risk prediction accuracy and treatment efficacy for female youth in particular. In juxtaposing the robust and consistent findings surrounding the use of the RNR framework with male youth with the more variable results pertaining to female youth, it is clear that further research is necessary to understand whether a fundamentally gender-specific approach to assessment and treatment is required. The pertinence of trauma to the assessment and treatment of female justice-involved youth has long been posited by gender-responsive scholars as a critically needed addition to the justice-based services. In this paper I sought to better understand the theoretical underpinnings and empirical relationships of the ‘trauma’ construct as it relates to the criminogenic need profiles of male and female justice-involved youth.
Defining ‘Trauma’

When examining the wider literature, the mental health symptoms associated with post-traumatic stress, as well as exposure to early experiences of maltreatment and more broadly, to childhood adversity, are posited to represent gender-specific/salient criminogenic needs. However, although emerging (Van Voorhis et al., 2010; Conrad, Toulou-Shams, Rizzo, Placella, Brown, 2014), there is limited empirical evidence to indicate that these factors contribute to risk prediction for girls and women over and above established criminogenic needs (Andrews et al., 2012). That being said, there is a substantial literature, outside the RNR context, examining not only the prevalence of, but the relationships between, offending behavior and the various constructs defined under the term ‘trauma’ – post-traumatic stress symptoms, childhood abuse and neglect, and other forms of childhood adversity – that calls attention to the need for research that examines these phenomena while also taking into account the significant strides already made in youth justice practice (i.e., the widespread use of the RNR framework in risk assessment and case management). To begin an examination of the constructs encompassed under the ‘trauma’ label, I must first define the distinct concepts referred to under this term. As previously noted, ‘trauma’ has been used to represent both the symptoms associated with PTSD as well as exposure to potentially traumatizing events (such as maltreatment or adverse events in childhood), irrespective of whether that exposure actually results in trauma symptoms or diagnosis of PTSD. These distinct constructs are further elucidated below.

Post-traumatic stress symptomology

Post-traumatic stress symptomology refers to the features that make up the diagnostic definition of PTSD found in the DSM-IV/V (American Psychiatric Association 2000; 2013) and that are triggered by the experiencing or witnessing of one or more traumatic events. These
symptoms include flashbacks, nightmares, and severe anxiety, as well as uncontrollable thoughts about the event(s). Estimated PTSD rates among justice-involved youth range from 12-55% (Abram et al., 2004; Ariga, Uehara, Takeuchi, Ishige, Nakano & Mikuni, 2005; Cauffman, Feldman, Watherman & Steiner, 1998; Dixon et al., 2005; Moore et al. 2013; Odgers et al. 2005; Vermeiren, 2003) and are generally much higher than that of the general population (3.5% according to the National Institute of Mental Health; Kessler, Chiu, Demler & Walter, 2005).

There have been mixed findings with regards to gender differences in rates of PTSD in the juvenile justice population. While several studies have found that female justice-involved youth have significantly higher rates of PTSD than their male counterparts, the rates of PTSD in males are still significantly higher than that found in the general population (Cauffman et al., 1998; Vermeiren, 2003; Moore et al., 2013; Foy et al., 2012). The above studies estimate rates of PTSD for female youth between 40-55% and for male youth between 17-32%, while one large US study (Abram et al. 2004) found no significant difference between the rates of PTSD in male and female youth. In examining the relationship between these elevated rates of PTSD and offending behavior, Becker and Kerig (2011) found that the severity of justice-involved youths’ PTSD symptoms was associated with degree of delinquency and this effect remained present even after controlling for the total number of traumatic events reported.

Childhood trauma experts have noted that the DSM definition of PTSD, initially developed to describe the psychological experiences and guide the mental health treatment of combatants returning from war, does not adequately describe the developmental impacts of exposure to sustained, repeated, or multiple ‘traumatic’ experiences reported by many survivors of childhood abuse, domestic violence, and those who have been witness to or victims of genocide (Cloitre, Stolbach, Herman, Kolk, Pynoos, Wang & Petkova, 2009; Milan, Zona, Acker & Turcios-Cotto, 2012). In recent years, guided by clinical experiences, the phenomenon of
Complex PTSD (c-PTSD) has been described as involving not only the symptoms of PTSD but also other symptoms reflecting disturbances predominantly in affective and interpersonal self-regulatory capacities such as difficulties with anxious arousal, anger management, dissociative symptoms, and aggressive or socially avoidant behaviors (Herman, 1992). Studies examining symptoms of exposure to trauma in justice-involved youth (Smith, Leve, & Chamberlain, 2006) have posited that the traditional definition of PTSD is overly narrow and does not capture these additional symptoms of youth exposed to sustained maltreatment and adversity in childhood that may be more directly related to subsequent offending (Ford & Blaustein, 2013; Milan et al., 2012) than the symptoms of traditional PTSD. Indeed, one study of female justice-involved youth found that while meeting partial or full criteria for PTSD did not predict re-offending, exposure to potentially traumatizing events (i.e., whether or not, how many times, and over what time period) did (Smith et al., 2006).

**Childhood maltreatment**

As noted earlier, childhood maltreatment has often been included under the rubric of ‘trauma’. This term includes “all forms of physical and emotional ill-treatment, sexual abuse, neglect, and exploitation that occurs to children under 18 years of age and results in actual or potential harm to the child’s health, development or dignity” (WHO, 2014) and that would be grounds for investigation and monitoring by child welfare services across North America. Several studies (Coleman & Stewart, 2010; Abram et al. 2004; Smith et al., 2006; Smith, Ireland & Thornberry, 2005; Moore et al. 2013) have reported higher rates of maltreatment (50-93%) within the youth justice population when compared to the general population, even when taking into account estimates as high as 32% in one recent study based on the retrospective reports from adults in the general population (Afifi et al., 2014). Within these studies, female justice-involved
youth are more likely to have experienced sexual abuse than their male counterparts and compared to female youth in the general population (Coleman & Stewart, 2010; Abram et al. 2004), although they experienced other forms of maltreatment at similar rates to male justice-involved youth.

The maltreatment literature also contributes many findings that suggest robust relationships between maltreatment in childhood and adolescence, and subsequent offending. Studies have found higher rates of delinquency in adolescence and in adulthood among participants who had experienced maltreatment in childhood (Mersky, Topitzes & Reynolds, 2012; Smith et al. 2005), with one recent study reporting that frequency of maltreatment in childhood accounted for 12% to 35% of the variance in later offending (Evans & Burton, 2013). Examining type of maltreatment experienced and relationships to later offending, a meta-analysis by Mallie, Viljoen, Mordell, Spice & Roesch (2011) found that while a small significant relationship emerged between sexual abuse in childhood and later sexual re-offending, both sexual and physical abuse did not predict general re-offending, although the authors highlight significant heterogeneity amongst studies included in the analyses. Other studies examining the trajectory of youth who experienced maltreatment in childhood and adolescence have found that youth with histories of maltreatment beginning in childhood and extending into adolescence had higher levels of general offending, involvement in violent crime, and significantly higher levels of problem alcohol and drug use than youth whose maltreatment occurred prior to, but not during, adolescence (Thornberry, Henry, Ireland & Smith, 2010; Stewart, Livingston & Denison, 2008).

A critical limitation of these studies is their lack of inclusion of established risk factors for offending alongside maltreatment variables in their predictive models. Given the notable overlap between several potential after effects of maltreatment (i.e. difficulties with emotional
regulation, familial discord and dysfunction, difficulties with learning and education) and known criminogenic needs (i.e. needs in the domains of personality, family, and education/employment), it is important to test the causal relationship between maltreatment and offending while taking into account these already established risk factors. These criminogenic needs represent shared vulnerabilities in both the youth justice and maltreated youth populations that could potentially be more proximal contributors to risk for re-offending than maltreatment exposure alone. As noted by McCormick, Peterson-Badali, and Skilling (2015), the paucity of studies examining clinical variables alongside known criminogenic needs limits our ability to understand the relative contribution of these factors and whether or not clinical considerations, such as a history of maltreatment, contribute unique variance to the prediction of offending and re-offending. The few that have explored this question support the notion that maltreatment may indeed be related to offending for at least some youth. For instance, in a meta-analytic study of the predictors of female offending in youth that included studies of both RNR risk factors and factors proposed in the gender-responsive literature, Hubbard and Pratt (2002) found that factors central to the RNR framework, such as antisocial peers and antisocial personality, were the strongest predictors of offending; however, factors identified as important in the gender-responsive literature, such as school relationships (i.e. school friendships and attachment to school) and histories of physical and/or sexual assault, had modest effect sizes as well (.25 and .21, respectively).

Outside of the above study, there is a paucity of data examining the issue of whether maltreatment is a criminogenic need in justice-involved youth. This question has been explored more directly in several studies of adult forensic populations, with mixed results. For instance, in a large scale study by Brown and Motiuk (2005) several gender-neutral and gender-specific factors were found to be predictive of female offending, including the witnessing of domestic
violence in childhood and being the victim of spousal violence. In another large-scale, multi-site study, it was found that adding putative gender-specific variables, including a history of various forms of relationship dysfunction and victimization in adulthood, to standard RNR-based risk assessment using the Level of Service Inventory-Revised (LSI-R; Andrews & Bonta, 1995), improved prediction of the gender-neutral tool (Van Voorhis, Salisbury, Wright, & Bauman, 2010). In contrast, Rettinger and Andrews (2010) reported that the Level of Service/Case Management Inventory (Andrews, Bonta & Wormith, 2004) predicted recidivism strongly for both general and violent reoffending in a sample of 400 women. Gender specific factors – including histories of victimization, self-harm, and stress – did not, on the whole, add incremental validity over the eight risk/need domains comprising the standard RNR model despite a measure of personal misfortune, inclusive of a history of abuse amongst other factors, being significantly correlated with general recidivism before the addition of the RNR domains.

There is also some evidence that female pathways to offending behavior are not uniform, such that the criminogenic needs of many females involved in the justice system are captured by the gender-neutral framework, while a subset of females do not have their needs adequately articulated by gender-neutral factors alone. For example, Reisig, Holtfreter, and Morash (2006) found that the LSI-R was a robust predictor of recidivism in women classified as following a ‘typically male’ pathway into offending but that it did not predict recidivism in women whose pathway into the justice system was defined as ‘gendered’: that is, characterized by involvement with the justice system via histories of abuse and drug dependence (Daly, 1994). More recently, evidence of a unique gendered pathway for young female offenders has emerged, with a recent study finding that approximately 48% of female justice-involved youth followed a unique gendered pathway, marked for many by childhood abuse, while the remaining female youth followed a more traditional gender-neutral pathway (Jones, Brown, Wanamaker, & Greiner,
Taken together, these studies demonstrate a need to further understand the intricacies of the relationship between early maltreatment and re-offending. Given the dramatically elevated rates of maltreatment in the youth justice population, and initial evidence to suggest that the histories, pathways, and needs of justice-involved females are better classified as distinct subgroups rather than as a uniform group, maltreatment may well be an important need for at least a portion of both male and female youth.

*Childhood adversity*

Childhood adversity is a third construct frequently represented under the term ‘trauma’ and often used in reference to the accumulation of varied and frequent exposure to adversity or chronic stressors in early life. While adversity typically includes experiences of maltreatment already outlined, the definition of adversity is often broadened to include other familial (i.e., parental mental health problems, parental criminality, divorce, separation from caregiver) and socioeconomic factors (i.e., economic stress or poverty), as well as experiences of social discrimination (i.e., experiences of racism or homophobia) and other adverse personal experiences (i.e., witnessing or being the victim of violence/sexual assault by a same age peer, the sudden or violent death of a loved one, childhood illness) that have been found to be retrospectively related to negative life outcomes such as difficulties with academic functioning, juvenile delinquency, as well as later mental illness and substance abuse (Dong, Anda, Felitti, Williamson, Dube, Brown & Giles, 2005; Felitti, Anda, Nordenberg, Williamson, Spitz, Edwards, Koss, Marks, 1998; Green, McLaughlin, Berglund, Gruber, Sampson, Zaslavsky & Kessler, 2010).
The rates of childhood adversity in the youth justice population are once again found to be higher than that of the general population. For instance, while Copeland, Keeler, Angold & Costello (2007) found that two-thirds of youth in a general population sample had experienced at least one type of childhood adversity, studies amongst juvenile justice populations report much higher rates for both male and female youth (Ariga et al. 2008; Becker & Kerig, 2011), with estimates above 90% for exposure to at least one adverse circumstance and mean estimates of four to six exposures per youth (Wilson, Berent, Donenberg, Emerson, Rodriguez & Sandesara, 2013; Abram et al., 2004). Looking at females separately, in a recent meta-analysis Foy, Ritchie and Conway (2012) reported consistently high rates of exposure to several types of adversity across 33 studies examining trauma exposure in female justice-involved youth, noting that exposure to multiple types of adversity was most common among this population. The authors also noted that justice-involved female youth were most likely to have experienced family-based violence (i.e., maltreatment) as well as various incidents of community violence, indicating the breadth of adverse experiences contributing to the studies that were examined.

Studies of the impact of childhood adversity on justice-involved youth have generally made a link between exposure to adversity and subsequent PTSD, as well as other mental health difficulties that co-occur with, but are not necessarily directly related to, offending (Dixon et al., 2005; Wilson et al., 2013) in order to encourage the inclusion of trauma-informed treatment in justice system settings. Research on the cumulative effect of childhood adverse experiences suggests that youth with a high degree of exposure to adversity are at greater risk for mental health difficulties (Copeland et al., 2007; Green et al., 2010; Schilling, Aseltine & Gore, 2008), including PTSD (Ariga et al., 2006; Becker & Kerig, 2011), as well as other negative health and behavioral outcomes in general (Dong et al., 2005; Felitti et al., 1998; Liu, Croft, Chapman, Perry, Greenlund, Zhao & Edwards, 2013; Schilling et al., 2008; Smith et al., 2006). However, a
direct relationship between childhood adversity and offending has yet to be fully explored, particularly when measures of adversity are entered alongside known criminogenic needs.

The Present Study

The present study aims to delineate the three distinct concepts outlined above – post-traumatic stress symptoms, childhood maltreatment, and cumulative childhood adversity – often interchangeably referred to and termed ‘trauma’ in the literature. I aimed to elucidate the relationships between each of these three distinct concepts and reoffending, as well as gender differences in these relationships, in a youth justice sample. The first step involved examining the distinct symptom and exposure-based constructs often referred to in the literature as ‘trauma’ – post-traumatic stress symptoms, childhood maltreatment, and cumulative childhood adversity – and comparing their rates among female and male justice-involved youth. Based on previous literature, I hypothesized that both female and male justice-involved youth would have significantly higher rates of maltreatment and adversity exposure, as well as higher rates of post-traumatic stress symptoms, than those found in the general population, and that female youth would have significantly higher rates than their male counterparts.

Next, I examined the relationship between the risk factors for offending established in the RNR literature and these factors to determine if male and female youth with elevated scores on trauma measures have different or more complex criminogenic needs than their ‘low’ trauma counterparts. Regardless of gender, given the aforementioned overlap between potential vulnerabilities in both youth who have experienced trauma and the youth justice population, I expected that youth with more exposure to maltreatment and adversity, and who had elevated post-traumatic stress symptomology, would have more and higher intensity criminogenic needs. Finally, I examined whether there is a relationship between these trauma constructs and
reoffending and if so, whether this relationship remains significant over and above the contribution of the already well-established risk/need factors outlined in RNR theory.

This investigation will increase understanding of whether constructs identified in the literature as ‘trauma’ merit further exploration as unique gender-specific/salient or gender-neutral criminogenic need factors in youth justice practice. It is my hope that this work will draw together findings from previous literature reporting elevated rates of childhood maltreatment, adversity, and PTSD in the youth justice population, with current youth justice and corrections practices, in order to improve programming and rehabilitative treatment for justice-involved male and female youth.

Method

Participants

This mixed custodial and community sample\(^1\) consisted of 50 males and 50 females ranging in age from 13 to 19 years (\(M = 15.98, SD = 1.48\)) who were referred for court-ordered assessment to assist with sentencing between November 2004 and June 2010 to the youth justice clinic of a mental health agency in Toronto, Canada. Female participants represent consecutive admissions for assessments. Male participants were matched to female participants by date of assessment, age, and Youth Level of Service/Case Management Inventory (YLS/CMI) risk category. Only clients for whom consent was obtained to use clinical information for research

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1 At time of assessment and entry into the study, some youth had been sentenced to a custodial sentence, which was followed by a probation term. In Canada custody stays are generally brief for youth and all youth had a probation term as part of their sentence; services received during this term were the focus of the study.
purposes were included in the study; 82% of clients consented. Institutional Review Board approval for this study was obtained.

As Table 1 shows, participants were ethnically diverse; roughly one third of the sample was Black, another third White, and a smaller subset was of Asian descent. The crimes precipitating their referrals for assessment included nonviolent (i.e., failure to comply with probation or court order, theft, drug related, break and enter), sexual (i.e., aggravated sexual assault, sexual assault, invitation to touching), and violent but not sexual (i.e., robbery, assault, threatening, and murder) offenses. For over 65% of youth, the most serious charge fell into the violent nonsexual category (see Table 1). The majority of youth in the sample (81%) were diagnosed with at least one psychiatric disorder at assessment, with the number of diagnoses per youth ranging from zero to seven ($M = 1.92$, $SD = 1.59$; see Table 1). There were no significant gender differences in ethnicity, category of index offense, rate of recidivism, as well as type of, and time to, recidivism in youth who did re-offend.

Table 1. Demographic, Criminal History, Mental Health, and Recidivism Characteristics by Gender

<table>
<thead>
<tr>
<th>Variables</th>
<th>M (SD)</th>
<th>t</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Males</td>
<td>Females</td>
<td>Total</td>
</tr>
<tr>
<td>Age (years)</td>
<td>15.98 (1.49)</td>
<td>15.98 (1.49)</td>
<td>15.98 (1.49)</td>
</tr>
<tr>
<td>Mean number of DSM diagnoses</td>
<td>1.80 (1.28)</td>
<td>2.04 (1.85)</td>
<td>1.92 (1.59)</td>
</tr>
<tr>
<td>Days to recidivism (N=49)</td>
<td>383.00 (177.36)</td>
<td>455.05 (209.34)</td>
<td>413.90 (193.01)</td>
</tr>
<tr>
<td>Variables</td>
<td>Percentage (Adj. Standardized Residual)</td>
<td>%</td>
<td>$\chi^2$</td>
</tr>
<tr>
<td></td>
<td>Males</td>
<td>Female</td>
<td>Total</td>
</tr>
<tr>
<td>Recidivism-yes</td>
<td>56 (-.7)</td>
<td>42 (.7)</td>
<td>49</td>
</tr>
</tbody>
</table>
**Procedure**

At the time of assessment, clinicians (psychologist, psychiatrist, or social workers) with five to 15 years’ experience assessing young offenders completed the YLS/CMI (see Measures and Coding, below) and produced an assessment report focused on mental health, criminogenic needs, and risk using information from multiple sources, including file material (e.g., criminal records, previous probation and mental health reports), interviews with the youth and collateral sources (parents, probation officers, mental health workers, etc.), and standardized tests and checklists. For the purposes of this study, participants’ clinical charts and assessment reports were reviewed to gather information on demographics, offense history, charges leading to

**Percent ethnicity**

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>13</td>
<td>17</td>
<td>.5</td>
</tr>
<tr>
<td>Black</td>
<td>22</td>
<td>18</td>
<td>.4</td>
</tr>
<tr>
<td>East/West/South Asian</td>
<td>6</td>
<td>5</td>
<td>.2</td>
</tr>
<tr>
<td>Other</td>
<td>9</td>
<td>10</td>
<td>.2</td>
</tr>
</tbody>
</table>

**Percent Index offense**

<table>
<thead>
<tr>
<th>Offense Type</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonviolent</td>
<td>11</td>
<td>15</td>
<td>.5</td>
</tr>
<tr>
<td>Violent (nonsexual)</td>
<td>33</td>
<td>32</td>
<td>.1</td>
</tr>
<tr>
<td>Sexual</td>
<td>6</td>
<td>3</td>
<td>.6</td>
</tr>
</tbody>
</table>

**Type of Recidivism (N=49)**

<table>
<thead>
<tr>
<th>Offense Type</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Violent</td>
<td>2</td>
<td>3</td>
<td>.6</td>
</tr>
<tr>
<td>Non-Violent</td>
<td>24</td>
<td>12</td>
<td>.9</td>
</tr>
<tr>
<td>Administrative</td>
<td>2</td>
<td>6</td>
<td>1.4</td>
</tr>
</tbody>
</table>

*Note. Male and female youth were matched for age; DSM = Diagnostic and Statistical Manual of Mental Disorders; * = p < .05
referral for assessment, recidivism risk and criminogenic needs, post-traumatic stress symptoms, as well as information regarding the youths’ past experiences of childhood maltreatment and adversity.

Measures and Coding

Risk to reoffend and criminogenic needs

The YLS/CMI (Hoge & Andrews, 2002) is a standardized instrument used to assess youths’ criminogenic needs and risk to reoffend. The first section consists of a 42-item checklist that produces a detailed survey of youth risk factors in eight domains; each item is coded as present or absent. The first domain covers the youth’s criminal history and current charges which, while a significant predictor of recidivism, is not a treatment target given the static nature of this domain. The remaining seven domains are amenable to change and therefore labelled dynamic risk factors, or criminogenic needs including: Family Circumstances and Parenting (i.e. child-parent relationship difficulties, parental monitoring and control), Current School/Employment Functioning (i.e. low achievement, truancy, behavior difficulties with peers and teachers), Peer Affiliations (i.e. anti-social peers, few pro-social peers), Alcohol and Drug Use (i.e. substance use and interference with functioning), Leisure and Recreational Activities (i.e. limited involvement in organized activities, few personal interests), Personality and Behavior (i.e. impulsivity, poor frustration tolerance, inadequate guilt feelings, verbal and physical aggression), and Antisocial Attitudes (i.e. attitudes favorable to crime, actively rejecting help). Items within each of the eight domains are summed and the domain score is assigned a categorical descriptor (low, moderate, high). A total score is calculated by summing all items and an overall rating of risk for recidivism is given (low, moderate, high, or very high). The measure also contains a checklist of additional personal characteristics or experiences, distinct from the
eight domains of risk/need and not used in risk assessment, that highlights case management issues relevant to treatment responsivity.

The YLS/CMI is reported to possess moderate to strong internal consistency for all subscales except for substance use, the estimate for which falls slightly below .60 (Schmidt, Hoge & Gomes, 2005). In the current study, domain reliabilities ranged from .55 to .81, with coefficient alphas falling into the acceptable range (> .60) in all but one domain (Leisure). 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). Predictive validity is reported as moderate to strong, with significant correlations between YLS/CMI total scores and number of subsequent offenses and time elapsed before a new offense in both male and female youth (Olver et al., 2009; 2014). In the current sample, interrater reliability for the YLS/CMI total score was high, with correlations among clinicians ranging from .80 to .98 (average \( r = .93 \)).

**Post-Traumatic Stress**

The Youth Self Report (YSR; Achenbach & Rescorla, 2001) is one of a family of screening tools for behavioral and emotional problems, as well as adaptive functioning, in children and adolescents between the ages of 11 and 18. Using the past six months as a timeframe, respondents are asked to rate themselves in relation to each of 112 items describing emotional and behavioral problems by choosing ‘never’, ‘sometimes’, or ‘often’ true. The Post-Traumatic Stress (PTS) Problems subscale is comprised of 14-items reflecting experiences that may be indicative of post-traumatic stress symptoms (i.e., “I have trouble concentrating or paying attention”, “I can’t get my mind off of certain thoughts”, “I have nightmares”). When compared to the results of diagnostic interviews with children who had experienced sexual
abuse, Ruggerio and McLeer (2000) found that children who had been diagnosed with PTSD had significantly higher scores on the post-traumatic stress problems scale than those with no PTSD diagnosis and that the scale discriminated significantly between abused children who did and those who did not meet criteria for PTSD. Strong concurrent validity was also found when examining the relationship of these scales to self-report scales of PTSD and dissociation (Sims, Friedrich, Davies, Trentham, Lengua, & Pithers, 2005). In the current study, the internal consistency of the subscale was good (α=.85).

**Maltreatment Exposure**

Participants’ clinical files contained information on maltreatment exposure prior to age 16 derived from multiple sources including reports (e.g., criminal records, previous probation and mental health reports) and interviews with youths and collateral sources (parents, probation officers, mental health workers, etc.). Five types of exposure were coded based on the Core Clinical Characteristics measure, originally a clinician-administered interview developed by the National Child Traumatic Stress Network (Hodges, Godbout, Briere, Lanktree, Gilbert & Kletzka, 2013), including **sexual abuse**: any kind of unwanted sexual contact (e.g., touching, penetration) with an adult or person in an authority position, or involving the child in prostitution; **physical abuse**: abusive physical punishment or physical assault by at least one caregiver; **neglect**: a significant lack of psychological or physical care of the child; **psychological abuse**: emotional or psychological maltreatment of the child, committed by at least one caregiver; and **witnessed partner violence**: witnessing at least one episode of intimate partner violence between the child’s caregivers. Each maltreatment type was coded as not experienced (0) or experienced (1). For a form of maltreatment to be counted as experienced, it had to be supported by reports of at least one assessment informant at the time of assessment (typically
youths themselves). While the majority of maltreatment reports were corroborated by more than one informant/source (90%) – and by child welfare services for many participants (54%) – this was not imperative for the maltreatment type to be counted. A ‘total maltreatment’ variable was calculated by summing across the five exposure types and thus each youth received a score ranging from zero to five for this variable.

**Childhood Adversity**

In addition to the five maltreatment type variables discussed above, 11 childhood adversity variables were coded from assessment reports as absent or present. Nine of these were derived from a scale developed by Green et al. (2010) to examine the relationship between childhood adversities and adult psychiatric disorders in a large national US population survey. These included three types of interpersonal loss (parental death, parental divorce, and other separation from parents or caregivers – e.g., foster care placement²), four types of parental maladjustment (mental illness, substance abuse, criminality, and violence) and two other forms of adversity (participant’s life-threatening childhood physical illness and extreme childhood family economic adversity). Interpersonal loss variables were coded only in relation to biological parents or primary caregivers and not to stepparents or intermittent caregivers. Thus, respondents who were born to a single mother and never experienced disruption of this parenting arrangement were coded as not experiencing interpersonal loss. In addition to the Green et al. (2010) variables, a ‘childhood bullying’ variable was coded on the basis of a study that linked early victimization by bullying to delinquent behavior in adolescence (Wong & Scholau, 2013).

² Because interpersonal loss variables were coded as absent or present, information regarding multiple disruptions (e.g., multiple divorces or foster care placements) was not captured.
The final adversity variable was coded as present if participants experienced other adverse and potentially traumatizing events that were not captured in the previous categories (e.g., experiences of sexual or serious physical assault by a same-age peer, witnessing a sudden or violent death or reporting significant emotional distress due to the death of someone other than a parent). These 16 items were added to form a ‘total childhood adversity’ variable. Interrater reliability for coding of the maltreatment and childhood adversity variables was strong (Landis & Koch, 1977), with a Cohen’s Kappa of .82 ($p < .001$) based on 20% of the sample.

Recidivism

Recidivism was defined as a conviction for one or more new offenses anytime during the period after the sentencing date associated with the charge(s) that prompted the youth’s referral for assessment. A two-year fixed follow-up period from time of assessment was used. Data were obtained from a national police criminal record database.

Results

Question 1: Do boys and girls differ in their post-traumatic stress symptoms, types of maltreatment histories, and cumulative childhood adversity?

The distribution of YLS scores approached normal (range: 0-38) and the mean YLS total score did not differ between the male ($M = 20.6, SD = 9.17$) and female groups ($M = 21.94, SD = 8.82$), $t(98) = -.74, p = .05; d = .15$, as expected given the matching of groups on this variable.

Overall scores on the YSR Post-Traumatic Stress Problems Scale ($M = 10.6, SD = 5.8$, range 0-27) were near normally distributed. As hypothesized, significant differences were found between male and female youth across both symptoms-based and exposure-based measures of traumatic experience. On the YSR PTS Problems Scale, female youth ($M = 12.00, SD = 6.20$)
had higher mean scores than male youth \((M = 9.00, SD = 4.90)\), \(t(91) = -2.55, p = .01, d = .26\). However, there was no significant difference in the proportion of male (30%) and female (34%) youth who fell within the ‘high post-traumatic stress’ category, defined as scores falling within the Borderline-Clinical range or higher, \(\chi^2(1) = .15, p = .70, \Phi = .04\). While PTS symptoms were positively correlated with the total types maltreatment for female youth \((r = .31, p = .03)\), they were not for male youth \((r = -.09, p = .56)\). Adversity and PTS symptoms were not correlated for males or females.

When examining exposure-based measures of traumatic experience, types of maltreatment exposure ranged from 0 to 5 \((M = 1.2, SD = 1.3)\). As one might expect, this variable was not normally distributed, with more youth falling into the no maltreatment or single type of maltreatment groups and fewer youth falling into the higher exposure categories; 72% of females and 50% of males had previously experienced at least one type of childhood maltreatment and 45% of girls and 26% of boys had previously experienced two or more types of maltreatment. Overall, female youth had experienced more types of maltreatment \((M = 1.50, SD = 1.30)\) than male youth \((M = .96, SD = 1.20)\), \(t(98) = 2.01, p = .05; d = .20\).

Chi square analyses were conducted to examine gender differences experiences of individual maltreatment types. While there were no significant gender differences in histories of physical abuse, neglect, and witnessing of domestic violence, female youth were more likely to have experienced childhood sexual abuse and emotional/psychological abuse than were male youth (see Table 2 for results by maltreatment type).
On the total childhood adversity measure, 95% of the sample had experienced at least one of the 16 adversities. Scores on this measure were near normally distributed ($M = 4.68$, $SD = 2.6$, range 0-11). Female youth ($M = 5.30$, $SD = 2.50$) had exposure to more kinds of adversity than males ($M = 4.10$, $SD = 2.50$), $t(98) = -2.49$, $p = .01$, $d = .24$. When childhood adversity types were examined individually, gender differences were found between rates of childhood separation from parents (including care placements through child welfare services), parental mental illness, and in the ‘other’ category (i.e., being the victim of serious assault or having witnessed a traumatic death), with female youth being more likely to have experienced these forms of childhood adversity than males (see Table 3 for results by adversity type).

---

Table 2. *Percentage of Males and Females with Maltreatment Histories*

<table>
<thead>
<tr>
<th>Maltreatment Type</th>
<th>Male ($n = 50$)</th>
<th>Female ($n = 50$)</th>
<th>$\chi^2$</th>
<th>$\Phi$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexual Abuse</td>
<td>4(-2.8)</td>
<td>15(2.8)</td>
<td>7.86**</td>
<td>.28</td>
</tr>
<tr>
<td>Physical Abuse</td>
<td>16(-.6)</td>
<td>19(.6)</td>
<td>0.40</td>
<td>.06</td>
</tr>
<tr>
<td>Emotional/Psychological Abuse</td>
<td>5(-2.3)</td>
<td>14(2.3)</td>
<td>5.26*</td>
<td>.23</td>
</tr>
<tr>
<td>Neglect</td>
<td>7(.3)</td>
<td>6(-.3)</td>
<td>0.09</td>
<td>-.03</td>
</tr>
<tr>
<td>Witnessing Domestic Violence</td>
<td>16(-.6)</td>
<td>19 (.6)</td>
<td>0.39</td>
<td>.06</td>
</tr>
</tbody>
</table>

Note. *p < .05, ** p < .01, Adjusted standardized residuals appear in parentheses beside group frequencies
Question 2: How are post-traumatic stress symptoms, maltreatment histories, and childhood adversity related to youths’ criminogenic needs?

In order to explore the relationship between symptom-based traumatic experience and youths’ identified criminogenic needs, bivariate correlations were run between youths’ scores on the YSR PTS problems scale and their scores on the YLS/CMI criminogenic need domains, as well as their total risk score. None of these correlations were significant (see Table 4). However, there were significant relationships between risk scores and exposure-based measures of trauma. For both females and males, number of maltreatment types experienced was correlated with total...
YLS/CMI score, as well as elevated need scores in the domains of family and personality.

Similarly, number of childhood adversities was correlated with elevated YLS/CMI total scores, as well as with higher need scores in the domains of family, substance abuse and personality. Correlations were also explored separately by gender and the results did not greatly differ from the results presented in Table 4 for the whole sample.

### Table 4.

*Correlation Matrix of Age, Maltreatment Total, Childhood Adversity Total, PTS Symptoms Total, and YLS Total and Domain Scores*

<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
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<tr>
<td>3. Childhood Adversity Total</td>
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<td>.80**</td>
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<td>4. Post-Traumatic Stress Problems Scale</td>
<td>.13</td>
<td>.21*</td>
<td>.20</td>
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<tr>
<td>5. Total YLS/CMI score</td>
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<td>.17</td>
<td>.17</td>
<td>.13</td>
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<td>6. Criminal History</td>
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<td>-.06</td>
<td>.09</td>
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<td>7. Family Problems</td>
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<td>-.30**</td>
<td>.33**</td>
<td>.10</td>
<td>.70**</td>
<td>.28*</td>
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</tr>
<tr>
<td>8. Education/Employment</td>
<td>-.22*</td>
<td>.11</td>
<td>.06</td>
<td>-.01</td>
<td>.69**</td>
<td>.22*</td>
<td>.34**</td>
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<tr>
<td>9. Peer Relations</td>
<td>-.16</td>
<td>.02</td>
<td>.08</td>
<td>.04</td>
<td>.72**</td>
<td>.41**</td>
<td>.40**</td>
<td>.41**</td>
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</tr>
</tbody>
</table>

*Correlations are significant at the .05 level (two-tailed).** Correlations are significant at the .01 level (two-tailed).*
In order to explore differences between groups across multiple variables, MANOVA analyses were used. Youth who had experienced maltreatment did not differ from youth who had not in terms of overall YLS/CMI risk score. In addition, using Pillai’s trace, there was no overall difference found across individual domain scores between youth who had and who had not experienced maltreatment $V = .12, F(1, 99) = 1.78; p = .10)$. The one difference found was that, regardless of gender, youth who had experienced any form of maltreatment had significantly higher criminogenic need scores ($M = 4.03, SD = 1.6$) in the family domain ($t(98) = 2.72, p = .01, d = .27$) than youth who had not ($M = 3.15, SD = 1.5$).

In terms of specific maltreatment types, using Pillai’s trace, youth who had experienced physical abuse were found to have significantly higher needs across criminogenic need domains than youth who had not, $V = .153, F(1,99) = 2.03; p = .05$; follow up $t$-tests revealed significant effects in the domains of education ($t(98) = 2.01, p = .047, d = .20$), family ($t(98) = 2.08, p = .040, d = .42$) and personality ($t(98) = 2.99, p = .003, d = .29$). Comparing the overall criminogenic need domain scores of youth who had experienced sexual abuse and youth who had not, Pillai’s trace approached significance, $V = .14, F(2, 99) = 1.85; p = .08$; follow up $t$-tests revealed higher needs in the domains of substance abuse ($t(98) = 3.12, p = .002, d = .30$), family

**p<.01, *p<.05**
Youth who had experienced neglect, emotional abuse, or who had witnessed domestic violence did not differ across their criminogenic need domain scores from youth who had not experienced these forms of maltreatment.

In order to more closely examine the nature of the relationship between the childhood adversity scale and YLS/CMI scores, the childhood adversity scale was cut at the mean score of 5 into a ‘low adversity’ and ‘high adversity’ group. Given the literature on justice-involved youth and their higher exposure to childhood adversities in general, this cut-score captured whether having more exposure than the average justice-involved youth in the current sample had a differential impact on the type and quantity of criminogenic needs. Previous literature has also indicated that youth with more than four adversities in childhood are at highest risk for subsequent negative outcomes (Dong et al., 2005; Felitti et al., 1998). Using Pillai’s trace, youth in the ‘high adversity’ group had significantly higher needs across criminogenic domains, $V = .17$, $F(1,98) = 2.23; p = .03$ than their ‘low adversity’ counterparts; follow up t-tests revealed differences in the domain of substance abuse, where the ‘high adversity’ group’s substance abuse domain scores ($M = 2.60, SD = 1.9$) were significantly higher than the ‘low adversity’ group’s scores ($M = 1.72, SD = 1.6$), $t(98) = 2.32, p = .02, d = .23$.

To follow up on this finding, the non-maltreatment based childhood adversity variables were examined individually in relation to YLS/CMI total and criminogenic need domain scores. There were no overall differences in the risk/need domain scores of youth who had and had not experienced parental death, separation from caregiver, parental mental illness, parental divorce, parental criminal involvement, economic difficulty, significant childhood illness, and/or bullying. Among the remaining variables, Pillai’s trace revealed that youth who had experienced parental violence had higher scores across risk/need domains, $V = .16$, $F (1,99) = 2.14; p = .04,$
than youth who had not; in particular, parental violence was associated with elevated needs in the family domain \((t(98) = 2.93, p < .01, d = .29)\). Youth who had experienced events included within the ‘other’ adversity category (i.e., being the victim of serious assault or having witnessed a traumatic death), also had elevated scores across risk/need domains, \(V = .17, F (1,99) = 2.22; p = .03\), with significant differences found in the domain of substance abuse, \((t(98) = 2.46, p = .02, d = .51)\). Finally, of all the non-maltreatment based childhood adversity variables, parental substance abuse was most strongly related to scores across most of the criminogenic need domains, using Pillai’s trace, \(V = .24, F (1,99) = 3.56, p < .01\), as well as to youths’ YLS/CMI total score, \(t(98) = 3.78, p < .001, d = .36\).

**Question 3: Do post-traumatic stress symptoms, maltreatment histories, and childhood adversity contribute to recidivism alongside known criminogenic needs?**

A logistic regression model examining whether the YLS/CMI total score (along with age and gender) predicted recidivism two years post-assessment was not significant, \(\chi^2(3) = 4.62, p = .20\). YLS/CMI total score was not a significant within this model, \(B = .04\), Wald’s \(\chi^2(1) = 2.33, p = .13\). The model explained 6\% (Nagelkerke \(R^2\)) of the variance in recidivism and correctly classified 57.6\% of cases. These results did not differ significantly when male and female youth were analyzed separately. The predictive ability of the YLS in our sample was further explored using Receiver Operating Characteristic (ROC) curve plotting. For the full sample, this resulted in a small effect size with an area under the curve value of 0.59 (95\% CI = 0.48-0.70; \(p = 0.05\)). When male and female youths’ YLS scores were plotted separately, for the male youth, this resulted in an area under the curve value of 0.62 (95\% CI = 0.46-.78; \(p = .05\) and for female youth resulted in an area under the curve value of 0.58 (95\% CI = 0.42-.74; \(p = .05\)).
Post-traumatic stress symptoms, childhood maltreatment, and cumulative childhood adversity were each examined in two separate models of recidivism prediction – one that included the YLS/CMI total score and a second that included the set of individual criminogenic need domain scores that make up the YLS/CMI, for a total of six models. As the YLS/CMI total score is the aggregate of multiple risk domains, it was hypothesized that this variable would hold more predictive power in the models in which it was tested. As such, I also examined how the predictive power of each of the three ‘trauma’ constructs compared to individual criminogenic need domain scores as I was interested in whether these factors might better predict recidivism than any one YLS/CMI domain (i.e. might maltreatment better predict recidivism than the personality domain for female youth?). Gender was entered in the first step of each model. Age was not correlated with recidivism in our sample and was excluded from the models.

Of the three models tested that included the YLS/CMI total score as a predictor (model a: post-traumatic stress symptoms; model b: total maltreatment; model c: total childhood adversity), only model b (gender, YLS/CMI total score, and total maltreatment type) was significant $\chi^2(3) = 7.66, p = .05$. In this model, only gender ($B = .75$, Wald’s $\chi^2 = 3.01, p = .08$) and total maltreatment ($B = .31$, Wald’s $\chi^2 = 3.02, p = .08$) approached significance. The YLS/CMI total score was not significant in the model ($B = .03$, Wald’s $\chi^2 = 1.82, p = .18$). Models a and c were not significant overall and contained no significant individual predictors. Models were also run for males and females separately but these did not differ from the results of the models containing the full sample. A moderated logistic regression examining the interaction between gender and maltreatment total was also examined. Only a main effect of maltreatment approached significance in the model and no significant interaction was found, indicating that gender is not moderating the relationship between maltreatment and recidivism.
Of the three models that included the eight individual YLS/CMI domains as opposed to YLS/CMI total score (model d: post-traumatic stress symptoms, model e: total maltreatment, and model f: total childhood adversity), model d (post-traumatic stress symptoms) was not significant and contained no individual significant predictors. Model f (total childhood adversity) was also non-significant, although amongst the individual predictors in this model, criminal history was found to be a significant predictor ($B = .30$, Wald’s $\chi^2 = 4.12$, $p = .04$). These models were also tested on females and males separately, as well as using a moderated logistic regression, but these additional models did not differ substantially from the results of models containing the full sample. Model e, that included total maltreatment type, was significant, $\chi^2 (10) = 17.90$, $p = .05$; and the criminal history, $B = .30$, Wald’s $\chi^2 = 4.12$, $p = .04$ and total maltreatment types score, $B = .47$, Wald’s $\chi^2 = 5.42$, $p = .02$ emerged as significant individual predictors of recidivism (see Table 5). The addition of maltreatment total to the model in step 3, improved the predictive ability of the overall model. The final model explained 22% (Nagelkerke $R^2$) of the variance in recidivism and correctly classified 71.7% of cases. Interpreting the odds ratios, wherein an $\exp(B) = 1$ means no effect, $\exp(B) > 1$ means that predictor increases the odds of the outcome, and $\exp(B) < 1$ decreases the odds of the outcome, Table 5 shows that for each additional type of maltreatment experienced, youth were approximately 60% more likely to re-offend, while with each point increase on the criminal history domain score, youth were 35% more likely to re-offend. A moderated logistic regression examining the interaction between gender and maltreatment total was also examined. Similar to model e, only criminal history and a main effect of maltreatment emerged as significant in the model and no significant interaction was found, indicating that gender is not moderating the relationship between maltreatment and recidivism.
Discussion

Trauma has consistently been posited as a gender-salient criminogenic need by scholars who advocate for a gender-specific approach to risk assessment and treatment for female young offenders. While a few scholars have examined the potential contribution of trauma in the context of the Risk-Need-Responsivity framework with adult populations, this has not been fully examined with justice-involved youth. Furthermore, the term ‘trauma’ has been used throughout the psychological and criminological literatures to represent various constructs, making investigations into the presence and impact of ‘trauma’ difficult to interpret, especially in regards to relationships to criminal behavior. In the current study I first sought to define three distinct constructs that are often used interchangeably and referred to under the umbrella term of ‘trauma’ – post-traumatic stress symptoms, childhood maltreatment, and childhood adversity – and then to compare the incidence and nature of these experiences in a sample of female and male justice involved youth. Second, to understand if the previously reported elevated rates of

<table>
<thead>
<tr>
<th>Model E</th>
<th>B</th>
<th>SEβ</th>
<th>Wald’s χ²</th>
<th>Df</th>
<th>p</th>
<th>exp(B)</th>
<th>CI (95%)</th>
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<th>Upper</th>
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trauma-related exposure and symptomology functioned as criminogenic needs or if they could be better described as coinciding vulnerabilities in a relatively higher risk population, I explored their relationship to the RNR model’s gender-neutral criminogenic needs and (alongside these known criminogenic needs) examined whether they predicted reoffending.

**Post-traumatic stress, Maltreatment, and Childhood Adversity Frequency and Gender Differences**

Consistent with previous literature (Ariga et al. 2003; Becker & Kerig, 2011; Coleman & Stewart, 2010; Moore et al., 2013; Odgers et al. 2005; Smith et al., 2006; Wilson et al., 2013) both male and female justice involved youth had higher rates of elevated post-traumatic stress symptomology and exposure to maltreatment, and they experienced more childhood adversities than the general population. Female youth were significantly more likely than male youth to have been exposed to at least one form of maltreatment and two or more forms of maltreatment and – not surprisingly given the maltreatment findings – female youths’ mean childhood adversity score was also significantly higher than that of their male counterparts. Notably, while the girls’ scores on the PTS symptoms scale were significantly higher than the boys’, the proportions of boys and girls who fell into the high and low PTS groups were similar.

This contrast is explained by the norms of the YSR, which has distinct clinical cut-offs for males and females. As such, females must score 2-3 raw score points higher than males in order to have their symptoms classified as ‘Borderline’ or ‘Clinical’. Thus, the rates of elevated post-traumatic stress symptomology were alike among both male and female youth in our sample. While a majority of studies (Cauffman, 1998; Moore 2013; Odgers et al. 2005; Vermeiren, 2003) have found that female justice involved youth have significantly higher rates of PTSD than their male counterparts, one large US study (Abram et al., 2004) found no significant difference between the rates of PTSD in male and female youth. Furthermore, given
that I only had access to the results of a self-report screening questionnaire, as opposed to clinical interviews with every youth, and that I used ‘borderline-clinical’ scores as the cut off, it is likely that the 34% of girls and 30% of boys falling into the ‘high’ post-traumatic stress group is a higher percentage than youth from our sample who would have been diagnosed with PTSD by a clinician. It may also be that the females in our study would have been more likely to have been diagnosed with PTSD by a clinician based on their more frequent endorsement of symptoms. That being said, these youth certainly represent a group who endorse many more symptoms of post-traumatic stress than would be expected in the general population.

An interesting finding was the lack of relationship between post-traumatic stress symptoms and total maltreatment types in male youth, and the lack of relationship between post-traumatic stress symptoms and total childhood adversities for both male and female youth. Several reasons for this inexact relationship between exposure and symptomology have been posited, such as discussions of genetic vulnerability to PTSD (Gilbertson, Shenton, Ciszewski, Kasai, Lasko, Orr & Pittman, 2002) or the complexity of genetic and environmental factors related to the development of mental illness in general. The pathway from exposure to adverse and potentially traumatic experiences to the development of subsequent PTSD is influenced by a myriad of additional biological and environmental factors such that I would not expect an exact relationship between exposure and diagnosis.

That being said, childhood trauma experts have also noted that the current DSM definition of PTSD, initially developed with limited or single instances of traumatic exposure in mind, fails to include relevant symptoms and problems (e.g., difficulties with anxious arousal, anger management, dissociative symptoms, and aggressive or socially avoidant behaviors; Herman, 1992) experienced by youth who have been exposed to maltreatment and adversity over the course of development (Cloitre et al., 2009; Milan et al., 2012) such as in the case of many
justice-involved youth. Thus, even when taking into account the inexact relationship between exposure and symptomology, it may also be that youth exposed to frequent and prolonged maltreatment and adversity fail to be flagged for trauma-related mental health issues because the current definition of PTSD is overly narrow and may not capture the impacts of these traumatic and adverse early experiences on youth. Given the high exposure to childhood adversity and trauma in our sample, symptoms of complex PTSD, rather than PTSD alone, may better describe the psychological experiences of justice-involved-youth who have histories of maltreatment and early lives filled with multiple adversities. Indeed, many of the behaviors associated with self-regulation vulnerabilities (e.g., dysphoria, anger) characterize a substantial subset of justice-involved youth and have are directly connected to criminogenic needs outlined by RNR theory. It is not surprising, then, that many of the maltreatment and adversity variables examined in the current study were related to high risk/need scores across several of the criminogenic need domains.

**Criminogenic Needs Related to ‘Trauma’ Variables**

Given that maltreated children are most often exposed in the family milieu (particularly in relation to neglect, physical abuse, psychological abuse, and exposure to domestic violence), it is not surprising that the maltreatment scale was significantly related to the family criminogenic need domain. Similarly, many items making up the childhood adversity scale were indeed ‘parent centered’ and involved experiences of adversity directly related to parental absence, illness, or behavior such that the relationships between this scale, its individual items, and the family need domain of the YLS/CMI logically follow. Despite the overlap and relatedness of the family need domain, childhood adversity scale, and the maltreatment scale variables, they remain distinct concepts both theoretically and statistically. For instance, while the family domain of the YLS/CMI is concerned primarily with parental supervision (i.e., difficulty controlling a youth’s
behavior, lack of monitoring) and general relationship quality (i.e., a ‘negative’ relationship with mother or father), the maltreatment scale is concerned with experiences of physical, psychological, and sexual abuse, as well as neglect and exposure to domestic violence. Thus, while connections between the presence of ‘high need’ on the family domain and an elevated score on the maltreatment scale are possible (and indeed likely in families where maltreatment has occurred) this relationship is not inherent in the definition of the constructs assessed and scores on the family domain may also be elevated in circumstances where no maltreatment has occurred.

Among the individual childhood adversity variables examined, youth whose parents abused substances also had significantly higher total risk scores, as well as significantly higher criminogenic need scores across each of the YLS/CMI domains, with the exception of education/employment. While parental substance abuse was also highly correlated with total maltreatment scores, it was not predictive of recidivism. A possible explanation for the multiple findings related to parental substance abuse has been suggested by studies reporting a link between parental substance abuse and child maltreatment (Famularo, Kinscherff & Fenton, 1992; Melchert, 2000). For instance, Walsh, MacMillan and Jamieson (2003) found that youth with childhood histories of parental substance abuse were at a more than twofold increased risk for exposure to both childhood physical and sexual abuse. Furthermore, studies have found that children are at higher risk of health and behavior problems when either their mother or father has a substance problem – with this risk being substantially greater when both parents have such problems – even after controlling for the full set of socio-demographic variables (Osborne & Berger, 2009). It may also be that parental substance abuse is more likely to generate or be related to other adverse childhood experiences that multiply the exposure of youth. Certainly, substance abuse would impact the caregiving environment and may make parents less able to
monitor and attend to their children, while also having the effect of potentially increasing violence in the home and decreasing use of appropriate parenting strategies. In addition, compared to non-substance abusing parents, parents who misuse alcohol or illegal drugs experience a greater likelihood of psychiatric disorders such as depression, anxiety, and anti-social personality disorder (Fals-Stewart, Kelley, Cooke, & Golden, 2003). Similarly, depending on the type and illegality of the substance abuse (i.e., drug vs. alcohol abuse), substance abuse may be associated with economic struggles, as well as exposure to high poverty neighborhoods (Schroeder, Fals-Stewart & Kelley, 2006). Thus, parental substance abuse may be a marker for youth who are more likely to experience a multiplicity of adverse experiences resulting in more urgent needs across multiple criminogenic domains.

The Contribution of Maltreatment to Recidivism

The YLS/CMI total score was not a significant predictor of recidivism in our sample, though it had been in previous studies examining a similar sample of youth receiving court-ordered mental health assessments (Vieira et al., 2009; Vitopoulos et al. 2012). Follow-up ROC analyses revealed an area under the curve was stronger for male youth than it was for female youth. Comparing these findings to other studies of the YLS/CMI, while the current overall AUC of .59 reflects a small effect size, a study of a similar sample size found moderate to large effect sizes, with AUCs ranging from .66-.77 over a seven year follow-up period (Olver, Stockdale, & Wong, 2012). Other studies have found more moderate effect sizes, such as Schwalbe’s 2007 meta-analysis which found an AUC of .64 amongst 11 studies of the YLS/CMI’s predictive validity. The smaller effect size found for the YLS/CMI in the current study may be due to basic sampling error, as evidenced by the broad confidence intervals found in the ROC analyses that ranged from .42 to .78.
Another reason for the reduced predictive ability of the YLS in the present sample may be that, due to the fact that they were selected by the courts for more extensive assessment, participants may have gone on to receive more intervention and treatment than is typical for non-assessed youth. For instance, in keeping with the RNR theorists’ emphasis on the dynamic nature of risk assessment, if youth with higher YLS/CMI scores do in fact, as the RNR model would recommend, go on to receive more intensive services, resulting in desistance or decline in the seriousness of re-offenses (e.g., non-violent rather than violent re-offending) this would in turn influence the resultant rates of recidivism and the strength of the YLS/CMI to predict the probability of recidivism for any given youth. It is also a possibility that the high prevalence of maltreatment in the current sample is a marker for a specific sub-group of justice-involved youth, for whom the links between criminogenic needs and subsequent offending are not as readily captured by the domains of the YLS/CMI. Recent studies by Onifade et al. (2014) and Li et al. (2015) found that while YLS/CMI scores were strong predictors of re-offending in non-maltreated youth, they did not accurately predict recidivism for maltreated justice-involved youth. It may be that youth with histories of maltreatment present with high YLS/CMI risk scores reflecting multiple areas of need, but may not follow the typical recidivist pathways of the broader youth justice population.

Although a model containing the YLS/CMI total risk score, maltreatment, and gender (model b) was significant overall, accounting for approximately 9% of the variance, only gender and maltreatment approached significance as individual predictors. Given the breadth of risk factors that make up the total YLS/CMI total score (including criminal history), it is not surprising that the effect of maltreatment was somewhat weak in the model. To compare the predictive power of maltreatment in comparison to individual criminogenic domains, a model examining the addition of maltreatment to the eight individual RNR domains was examined.
Model e was the most robust model and included the number of childhood maltreatment types experienced by participants and predicted reoffending in a model that included gender and the eight criminogenic need domain scores. This model accounted for approximately 22% of the variance in recidivism. The total maltreatment score was the strongest individual predictor in the model; of the other predictors, only the criminal history domain was significant. Thus, when compared to other individual risk domains, maltreatment emerged as a stronger predictor of recidivism than any one of the individual YLS/CMI domains.

These results highlight that not only are the potential emotional, social and mental health impacts of a maltreatment history an important target for mental health treatment, but also for correctional rehabilitative intervention alongside the other YLS/CMI domains. These results also suggest that prevention and early intervention for children who have been maltreated or families who are vulnerable to experiences of maltreatment are critical. Maltreatment researchers have consistently reported a relationship between childhood maltreatment and justice system involvement in both adolescence and into adulthood, along with many other adverse outcomes such as illicit drug use and risky sexual behavior (Evans et al., 2013; Mersky, 2012; Smith et al., 2005). Researchers have also highlighted the differential impact on offending behavior of childhood-limited maltreatment versus maltreatment that continues into adolescence, illustrating that more prolonged and ongoing maltreatment has a stronger relationship to offending behavior (Stewart et al., 2008; Thornberry et al., 2010). However, this work has been done without taking into account the empirically supported recidivism risk factors outlined by RNR theory. Given the broad usage of RNR theory and the YLS/CMI tool in risk assessment – and more importantly, in case management that guides rehabilitative practices and programming for youth – it is critical to understand the potential relationship of maltreatment to re-offending behavior within the context of these well-established targets of rehabilitative treatment.
While, to our knowledge, no studies have investigated the predictive impact of maltreatment relative to the criminogenic needs outlined in the RNR model in a youth justice sample, this question has been explored, generating mixed results, with adult forensic populations. While Rettinger and Andrews (2010) found that hypothesized gender specific factors – such as histories of victimization, self-harm, and stress – did not, on the whole, add incremental validity over the eight risk/need domains comprising the standard RNR model, other studies have found evidence for maltreatment as a potential gender-specific criminogenic need factor (Brown & Motiuk, 2005; Reisig et al., 2006; Van Voorhis et al., 2010). The current findings suggest that history of maltreatment in youth may be a gender-neutral criminogenic factor, salient in a mixed gender model predicting recidivism. Given our limited sample size, further research will be needed to clarify the possible interaction between gender and maltreatment. It may also be that past research, motivated by the high prevalence of maltreatment histories in justice-involved women when compared to men, failed to examine the impact of maltreatment on males, who may be following what could be defined by Daly (1994) as a ‘typically female’ pathway into offending. It is certainly possible that a portion of male offenders follows this ‘typically female’ pathway, marked by maltreatment in childhood, and that this history may be more salient for young offenders, as opposed to adult offenders, due to their developmental and legal reliance on others for stability, monitoring, regulation and support.

It is also notable that the maltreatment scale, but not the Post-Traumatic Stress Problems scale or the childhood adversity scale, predicted recidivism in the models I tested. Given the already explored tenuous connections between maltreatment exposure and resultant PTSD symptoms, as well as earlier discussion of the possibility that maltreatment may be more specifically linked to the experience of complex PTSD symptoms rather than current DSM definitions of PTSD, it seems possible that the experience of maltreatment leads to the self-
regulation and interpersonal difficulties that make maltreated youth more likely to offend and reoffend. Further pointing to this mechanism were results indicating that exposure to maltreatment, and not the symptoms measure of PTSD, was significantly related to elevated needs in the Personality/Behavior domain, which is made up of behaviors characterized by deficits in self-regulation such as poor frustration tolerance, tantrums, as well as verbal and physical aggression. While I was unable to examine this hypothesized relationship between interpersonal difficulties, deficits in self-regulation, and re-offending in the current study, an important next step is to investigate and model these relationships more directly, as maltreatment history may be the antecedent of these characteristics that are more proximally related to offending behavior. Of particular interest is an examination of both the impact of the externalizing markers of self-regulation deficits already captured in the YLS/CMI, alongside other markers such as interpersonal difficulties, as well as more internalizing markers such as pervasive mistrust and alterations in identity, that may be both the results of maltreatment and subsequent contributors to offending behavior.

This study is not the first to find connections between maltreatment exposure and reoffending while also finding that PTSD symptoms did not have the same predictive effect. Smith et al. (2005) found that it was the experiential measures of trauma (i.e., maltreatment and adversity) and not the PTSD symptom-related measures, that were the strongest predictors of adolescent re-offending in their sample of adolescent female justice-involved youth. The study’s authors emphasize that their results highlight that justice-involved female youth who have been exposed to maltreatment but whose clinical symptoms do not currently fit into existing PTSD diagnostic criteria might also benefit from trauma treatment services focused on coping, emotional regulation, and interpersonal effectiveness related to their experiences of maltreatment. Our results support that this may be true for justice-involved youth regardless of
gender. For instance, while not all maltreated youth may experience the flashbacks associated with PTSD, working models of a hostile and threatening world and resultant difficulties in regulation of arousal, anger as well as interpersonal mistrust, may strongly influence the experiences and behaviors of these youth. Thus, the development and inclusion of trauma-focused interventions in the youth justice system, aimed at identifying and treating the impact of maltreatment on youth, is a worthwhile endeavour.

Given the strong relationships found between maltreatment and criminogenic need scores, there is also merit in examining experiences of maltreatment using the RNR framework’s responsivity lens (Andrews et al., 2006). Indeed, the most recent iteration of the YLS/CMI includes previous maltreatment in its responsivity checklist. While I have already discussed the need for direct interventions targeting the impacts of trauma for youth with PTSD and maltreatment histories, these results suggest that within the RNR framework, these interventions may also be a means to more effectively target well-established criminogenic needs that are directly related to or exacerbated by experiences of past maltreatment. For instance, in our study, exposure to maltreatment and childhood adversity were related to higher criminogenic need scores in several domains. I posit that several of the criminogenic domains such as family, personality/behavior, attitude, and substance abuse are characterized by the same deficits in self-regulation associated with the symptoms of complex PTSD linked to maltreatment in childhood. Although more research into the relationship between symptoms of complex PTSD and offending behavior is needed, as studies to date have either focused on current diagnostic definitions of PTSD or exposure to maltreatment, trauma treatment may be an effective primary intervention with youth who have histories of maltreatment as well as high needs across the criminogenic domains. Indeed, the development of enhanced self-regulation can reduce the tendency to reflexively, rigidly, impulsively, and overemotionally or unemotionally espouse
criminogenic attitudes, choose criminogenic circumstances, and engage in illegal or dangerous behaviors (Ford et al., 2013). Furthermore, it has been posited that current criminogenic need-focused treatments may miss the mark by addressing an outcome rather than a core disturbance. For instance, substance use among trauma-impacted youth is frequently a tool for managing dysregulated emotions and physiology (Kaminer et al., 2010) but substance use treatment on its own does not target the potential underlying need for self-medication that may be the direct result of symptoms of post-traumatic stress and previous experiences of adversity and maltreatment. Thus, trauma treatment may address many of the underlying psychological, physiological, or social difficulties that fuel high need levels across criminogenic domains. As such, the symptoms of complex PTSD that I have hypothesized to be the result of experiences of maltreatment in childhood can be understood as important responsivity factors that – if recognized, integrated into current modes of treatment, and targeted by intervention – could ameliorate youths’ outcomes across a range of criminogenic need domains, resulting in a reduction of recidivism.

The well-documented elevated rates of maltreatment, cumulative adversity, and PTSD in the youth justice population, as well as the relationships found between maltreatment, criminogenic needs, and offending behavior in this study, point to the need to integrate evidence-based, trauma-informed interventions into the practices of the youth justice system. In order to be effective, this inclusion should take place at multiple levels, involving probation practices, mandated treatment groups, as well as custodial programs. Education on the impact of maltreatment and trauma symptomology for primary service providers such as probation officers and corrections staff, the implementation of screening tools upon entry to the justice system to assist in the identification of trauma-related needs (Maschi & Schwalbe, 2012), as well as enhanced cross-system collaboration (Bender, 2010) between child welfare and juvenile justice
such that concurrent case planning and sharing of caseloads across service sectors would be facilitated, are important first steps in creating a more trauma-informed juvenile justice system.

**Limitations and Future Research Directions**

The results of the present study are constrained by a relatively small sample size that did not allow for exploration of distinct models for male and female youth containing multiple predictors. Also, despite having utilized a multimethod, multi-agent approach to assessment, the measures of childhood trauma were obtained during a baseline assessment when youth were an average of 16 years old, resulting in a reliance on historical and retrospective reports of abuse experiences. That being said, the multimethod, multi-agent approach to assessment through which I derived maltreatment, symptom, adversity, and YLS/CMI scores allowed for a more holistic and perhaps, more accurate, view of the youth composing the sample than in studies where only self-reports or records of documented child welfare cases are used as primary sources. The study was also limited in its measurement of post-traumatic stress symptoms to the results of a screening measure with strong concurrent validity but with reports of poor sensitivity within psychiatric populations (Ruggerio & Mcleer, 2000; Sims et al., 2005). As such, future studies should examine the relationship between post-traumatic stress symptoms and offending through clinician diagnostic interviews. Furthermore, as previously mentioned, given the link between maltreatment in childhood and subsequent complex PTSD found in the literature, and the findings of the current study that link maltreatment and reoffending, additional work is needed to examine, more proximally and directly, the relationship between symptoms of complex PTSD and offending behavior in justice-involved youth.
Paper 2: The Efficacy of Criminogenic and Gender-Responsive Factors in Guiding the Assessment and Treatment of Male and Female Justice-Involved Youth

Abstract
In response to female youths’ increased visibility in the legal system, more attention has been paid to understanding girls’ pathways to justice system involvement, risk for re-offending, and rehabilitative needs. Widely-used risk assessment and case management tools based on the Risk Need Responsivity (RNR) framework are largely gender neutral. Gender-responsive scholars have long advocated for the importance of additional gender-specific factors in guiding the assessment and treatment of female justice-involved youth. The contribution of both criminogenic needs and several proposed ‘female’ gender-specific factors for risk prediction and rehabilitative treatment was compared in a matched sample of 50 female and 50 male youth. Female youth were more likely than male youth to have several ‘female’ gender-specific needs identified but these needs did not predict recidivism. Female youth were more likely than male youth to have their needs met in several criminogenic and gender-specific domains. Successfully matching services to youths’ identified criminogenic needs predicted reduced recidivism for both male and female youth. For youth who had ‘female’ gender-specific needs, successful matching of services to these needs also predicted reduced recidivism for both males and females. Theoretical and practice implications of the results are discussed.

Introduction
Across North America, females make up approximately one quarter of the youth involved in the justice system (Hotton Mahony, 2011; Sickmud, Sladky, & Kang, 2012). Over the past decade, media, politicians, and forensic scholars alike have brought attention to a perceived increase in female youths’ involvement with the legal system. Many of these discussions propose that female youth are becoming more delinquent and violent (i.e., more similar to justice-
involved male youth than in the past). Statistics from both the US and Canada reveal that while youth offending is decreasing overall, the gap between male and female offending has been narrowing over time (Hockenberry & Puzzanchera, 2015; National Crime Prevention Centre, 2012). However, when examined over the course of three decades, while there are distinct patterns of arrest rates across individual crime categories, much of the overall change can be described as due to a decrease in male offending as opposed to an increase in female offending (OJJDP Statistical Briefing Book, 2014). In addition, it has been proposed that the increases in rates of female delinquency are better explained by changes in society’s responses to female behavior (i.e. increased criminalization of previously considered minor incidents that girls are more likely to commit, an increase in policing of violence in custodial and institutional settings such as group homes and schools, as well as a general decrease of tolerance for adolescent girls in broader society), rather than by changes in girls’ behaviors (Steffensmeier, Schwartz, Zhong & Ackerman, 2005).

In response to female youths’ increased visibility in the legal system, a burgeoning body of literature aimed at understanding women’s and girls’ pathways to justice system involvement, risk for re-offending, and rehabilitative needs has developed in recent years in a field once heavily criticized for a lack of attention to the specific needs of female offenders (Blanchette & Brown, 2006; Matthews & Hubbard, 2008). In systems that struggle with finite resources, an essential question is how best to allocate them in the development and ongoing provision of interventions aimed to reduce re-offending. To this end, the growing body of literature concerning female youths’ risk and rehabilitation contributes to an intense debate about how best to understand and serve female youth involved in the justice system. A primary area of enquiry within this debate has concerned the evidence for and utility of gender-specific assessment and programming in the youth justice system.
The Risk-Need-Responsivity Framework

Current corrections practice across much of North America, Europe, and Australia is based largely on the Risk-Need-Responsivity (RNR) model (Andrews, Bonta & Wormith, 2011), an evidence-based framework for the assessment and treatment of offenders. Core to this framework is the assertion that effective rehabilitative service must attend to the principles of risk, need, and responsivity. The risk principle states that the intensity of substantive intervention must increase with individuals’ level of risk to reoffend. In this framework, risk is defined in terms of factors (called criminogenic needs) that have been demonstrated across meta-analytic studies to be strong and direct predictors of offending (e.g., antisocial cognitions, antisocial peers, personality features such as impulsivity, family/marital dysfunction, substance abuse, educational/vocational obstacles, and misguided use of leisure time (Andrews & Bonta, 2010). The need principle asserts that if the goal of service is to reduce reoffending, it is these criminogenic needs that are the appropriate targets of programming. The responsivity principle states that to effectively address criminogenic needs, services must be evidence-based practices for this population (general responsivity) and delivered in a manner that takes into account individuals’ personal characteristics and/or circumstances that impact the effectiveness of treatment (specific responsivity) (Andrews & Bonta, 2006).

The RNR framework is largely gender-neutral, meaning that the criminogenic factors emphasized in the model are considered to be equally relevant to both males and females. This model is the foundation for a widely used family of risk assessment/case management tools— the Level of Service Inventory (LSI) (Andrews & Bonta, 1995) developed for adults, and the Youth Level of Service/Case Management Inventory (YLS/CMI; Hoge & Andrews, 2002), developed for youth aged 12-18 years.
Several large-scale and meta-analytic studies have examined the efficacy of these tools in the prediction of general recidivism. Combining findings from both the adult and youth literature, these studies have found that the YLS/CMI and LSI predict general recidivism regardless of offense type, gender, or minority status (Andrews, Guzzo, Raynor, Rowe, Rettinger, Brews & Wormith, 2012; Olver, Stockdale, & Wormith, 2009; Schwalbe, 2008; Viljoen, Elkovitch, Scalora, Ullman, 2009). However, these studies also identified some salient gender differences. For instance, Andrews et al. (2012) found that substance abuse had a particularly strong relevance to the recidivism of female offenders. A meta-analysis by Olver et al. (2014) suggests that individual criminogenic domains are more or less prevalent in the profiles of males and females, highlighting that while males had more serious criminal histories and higher needs in the areas of peers, leisure, and substance abuse, females were found to have more critical needs in the areas of personal/emotional concerns, financial problems (education/employment), and family/marital difficulties. While there exists very strong evidence for the efficacy of the RNR model’s tools in predicting risk to re-offend in both adult and youth populations, there remain essential questions into how differences in the clinical and criminogenic need profiles of male and female justice-involved youth impact their ability to engage in rehabilitative programming and if these differences, whether small or large, merit distinct targets for intervention for male and female youth.

**Gender-Responsive Literature and Female Offending**

In contrast to the gender-neutral stance of the RNR framework, criminologist and sociologist researchers rooted in a feminist perspective – and often termed ‘gender-responsive’ scholars (Hubbard & Matthews, 2008) – have long advocated for a gender-specific approach to the assessment and rehabilitation of justice-involved women and girls (Belknap, 2015; Chesney-Lind & Pasko, 2013; Chesney-Lind, Morash, & Stevens, 2008; Covington, 2007; Bloom, Owen,
Rosenbaum, & Deschenes, 2003; Odgers, Moretti, & Reppucci, 2005; Van Voorhis, Wright, Salisbury, & Bauman, 2010). First, these scholars suggest that the nature of female youths’ offending and risk is different than that of males in that female offending tends to be “less chronic” and “less often serious” (p.163) than male youth (Chesney-Lind et al., 2008). Second, these scholars suggest that female youth have unique pathways into the justice system, marked by greater social, economic, and psychological vulnerability than experienced, on average, by males (Belknap, 2007; Daly, 1994; Hannah-Moffat, 2004). Based on these two assertions – that female justice-involved youth are both less dangerous and more vulnerable than male youth – it is argued that many girls may be identified upon assessment as high risk because of their many needs, despite actually being low risk to re-offend and low risk to society more broadly (Bloom et al., 2003), putting them at risk for harsher sanctions that could exacerbate many of the problems that led to their offending behavior in the first place (e.g., depression, trauma, disruptions in relationships; Holtfreter & Morash, 2003).

Given these proposed unique trajectories and profiles, it is argued that female youth require qualitatively different services and rehabilitative programming than male youth to effectively address their delinquent behavior (Bloom, Owens, & Covington, 2003; Garcia & Lane, 2013; Lederman, Dakof, Larrea, Hua, 2004; Wright, Van Voorhis, Salisbury, & Bauman, 2012). In particular, assessment and treatment that recognizes females’ potentially unique needs – such as histories of victimization or abuse, substance use, mental health problems, and traumatic relationships – are suggested as foci for gender-responsive approaches (Wright et al., 2012). In this literature, these unique needs are termed gender-specific factors (those that are unique to females) and gender-salient factors (those identified as important for males but even more meaningful for females) that could have a substantial impact on outcomes for justice-involved female youth.
Many of these suggested gender-specific factors have been examined within research outside the corrections literature, particularly in the case of maltreatment and psychopathology, which have suggested their significance to the lives of justice-involved youth, and to female youth in particular. Factors most often discussed include histories of childhood maltreatment, internalizing mental health difficulties such as depression and anxiety, delinquent romantic partnerships, offending in familial contexts, and difficulties with self-esteem. As explained in detail below, many of these factors have been established in epidemiological and psychological literature as being of heightened prevalence in the youth justice population, and particularly for female justice-involved youth. Although the heightened prevalence itself no doubt suggests that these factors are relevant to the lives of these youth, it alone does not evidence a causal relationship between these factors and youths’ (re)-offending behavior, and cannot in and of itself implicate these factors as risk factors for offending. While some studies have found these factors to be significant predictors of (re)-offending, the majority of these studies have done so without taking into account the already well-established criminogenic needs that are currently the main focus of risk and treatment in correctional practice.

**Child Maltreatment**

Child maltreatment is defined by the World Health Organization as “all forms of physical and emotional ill-treatment, sexual abuse, neglect, and exploitation that occurs to children under 18 years of age and results in actual or potential harm to the child’s health, development or dignity” (WHO, 2014) and that would be grounds for investigation and monitoring by child welfare services across North America. Justice-involved youth have higher rates of childhood maltreatment than do youth in the general population, with rates ranging from 50-93% (Abram et al. 2004; Coleman & Stewart, 2010; Moore et al. 2013; Smith et al., 2006; Smith, Ireland & Thornberry, 2005). Amongst these studies, female justice-involved youth generally have higher
rates of maltreatment than male youth, particularly due to their greater likelihood of having
experienced sexual abuse than their male counterparts (Abram et al. 2004; Coleman & Stewart,
2010). Studies have generally found higher rates of adolescent and adult offending (general and
violent) amongst people who had experienced maltreatment in childhood (Mersky, Topitzes &
Reynolds, 2012; Smith et al. 2005; Stewart, Livingston & Denison, 2008; Thornberry, Henry,
Ireland & Smith, 2010). In the adult criminology literature, early maltreatment has been
emphasized as a distinct pathway into justice-system involvement for women and particularly
predictive of recidivism for at least a portion of justice-involved females (Brown & Motiuk,
2008; Daly, 1994; Reisig et al., 2006; Van Voorhis et al., 2010).

Mental Health Problems

A higher prevalence of mental health difficulties in justice-involved youth than in the
general population has also been established in the literature, with rates of any disorder reported
to range from 50 - 100% (Dixon, Howie, Starling, 2005; Teplin, Abram, McClelland, Dulcan, &
Mericle, 2002; Vermeiren, 2003). Female justice-involved youth are reported to have both
higher rates of mental illness than their non-justice involved female counterparts, as well as their
male counterparts with system involvement (Vincent, Grisso, Terry, & Banks, 2008; Wasserman,
McReynolds, Ko, Katz, & Carpenter, 2005). Specifically, female justice-involved youth have
been reported to have higher rates of major depression, certain anxiety disorders, and other
substance abuse disorders than do male youth (Teplin et al., 2002), as well as higher rates of self-
harm, suicidality and post-traumatic stress disorder (Abram et al., 2004; Cauffman, 2008;
Chitsabesan et al., 2006; Dixon et al., 2004; Kerig & Becker, 2012). Furthermore, within the
psychopathology literature, mental health problems have been described as an important risk
factor for delinquent behavior and for offending amongst youth (e.g., Trulson, Marquart,
Mullings, & Caeti, T, 2005; Vermeiren et al., 2002, 2006). For female youth in particular, studies
have proposed that symptoms of post-traumatic stress and depression are related to the offending behavior (Obeidallah & Earls, 1999; Smith, Leve & Chamberlain, 2006).

Despite these findings, the impact of mental health on youths’ offending behavior is still unclear, particularly due to the fact that studies that propose mental health as a risk factor for re-offending generally do not take into account other well-established criminogenic risk factors that may be co-occurring and more proximally related to offending behavior.

**Antisocial Romantic Partners**

While the impact of antisocial peer relationships on youth offending has long been established and is clearly addressed in the current RNR framework, more recently, attention has been paid to the influence of anti-social romantic partners on the offending behavior and justice system involvement of female youth. Haynie, Giordano, Manning, and Longmore (2005) found that when examining both peer and romantic relationships’ influence on youth delinquency, romantic partner delinquency exerted a unique effect on adolescent involvement in both minor and more serious delinquency, over and above friends’ delinquency. Furthermore, the effect of delinquent romantic partnerships on youth delinquency has been found to be significantly stronger for girls than for boys across studies (Giordano, Cernkovich, & Holland, 2003; Haynie et al., 2005; Monahan, Dmitrieva, & Cauffman, 2014). Suggesting a mechanism for this influence, Cauffman, Farruggia, and Goldweber (2008) found that adolescent girls’ offending was significantly related to their partners’ encouragement of antisocial behavior. Finally, Oudekerk Burgers and Reppuci (2014) reported that for adolescent females transitioning to young adulthood, those who reported continued involvement with antisocial romantic partners were significantly more likely to continue their involvement in violent crime into adulthood, while those without antisocial partners did not.
Family Context of Offending

Feminist criminologists have long asserted that the offences that lead young women into justice system involvement are often very different from the offences male youth commit (Bloom, 2000; Covington & Bloom, 2003). These scholars report that female youth are more likely to be charged with offences involving danger to themselves, such as drug abuse and prostitution, or that have occurred in the context of dysfunctional family or living situations. For instance, Chesney-Lind (2001) reviewed 2,000 cases in which female youth were charged with “person to person” offences, reporting that approximately 50% of these were family-centered assaults. Walsh and Krienert (2009) posit that girls are more likely to resort to low-level violence at a younger age in response to an abusive parent for purposes of revenge or self-preservation. Similarly, Buzawa and Hotaling (2006) found that in domestic violence cases involving disputes between parents and their children, not only were children’s assaultive behaviors reported to be most likely in response to adult aggression, but daughters had significantly higher odds of arrest than did sons in cases of child against parent assaults. Theorists propose that these findings evidence an increased willingness on the part of all authorities to both police and punish youth violence, particularly if those exhibiting the behavior are females (Goodkind et al., 2009; Stevens, Morash, & Chesney-Lind, 2011). In addition, studies examining the profiles of youth who offend against their parents have found that these youth may represent a distinct type of offender: having more psychopathology and social-cognitive difficulties (Contreras & Cano, 2014), lower self-esteem and more behavioral problems at school (Ibabe & Jaureguizar, 2010), as well as having more relational difficulties with parents, more delinquent peers, higher rates of mood difficulties and suicide ideation than justice-involved youth who have offended outside the familial context. (Kennedy, Edmonds, Dann, & Burnett, 2010).
Poor Self-esteem

Gender-responsive scholars have proposed low self-esteem as a factor particularly salient to justice-involved females (Bloom et al., 2003; Van Voorhis et al., 2010), with reports that justice-involved female youth have significantly lower self-esteem when compared to male justice-involved youth and non-justice-involved female youth (Belknap & Holsinger, 2006; Van Damme, Colins, & Vanderplasschen, 2014). Donnellan, Trzesniewski, Robins, Moffitt, & Caspi (2005) showed that for both male and female youth, in both cross-sectional and longitudinal studies, there was a robust relationship between low self-esteem and externalizing problems such as aggression and delinquency even after controlling for variables such as IQ, socioeconomic status, and family and peer relationships. It has also been posited that high self-esteem is a protective factor against delinquency for girls, although not a significant protective factor for boys (Hartman, Turner, Daigle, Exum & Cullen, 2008), and that increasing self-esteem may be a more critical treatment goal for girls than for boys given girls’ social location in a patriarchal society (Chesney-Lind & Pasko, 2013).

Despite self-esteem development being a mainstay of many of the developed gender-responsive programs (Zahn, Day, Mihalic, & Tichavsky, 2009), there is also strong evidence to suggest that the link between self-esteem and female offending may be more complex and some scholars have criticized that there has been undue attention given to the link between low self-esteem and offending behavior (Andrew & Bonta, 2007). In fact, studies have shown a positive relationship between self-esteem and offending in female youth, due to the relatedness of high self-esteem and narcissistic traits (Baumeister, Boden, & Smart, 1996; Piko, Fitzpatrick & Wright, 2005; Solomon, Campero, Llamas & Sweetser, 2012). Making sense of these very different findings, it has been also proposed that both low and high self-esteem are related to youth offending (Boden, Fergusson, & Horwood, 2007; Van der Shoot & Wong, 2012;
Lo, Cheng, Wong, Rochelle, & Kwok (2011) propose that this pattern could be explained by the idea that justice-involved youth could have relatively low self-esteem when they are in the emerging stage of delinquency, and they gradually build up their self-esteem through association with and reinforcement from delinquent peers. Based on these findings, the utility of measuring and intervening with the self-esteem needs of female justice-involved youth remains up for debate.

A major criticism of the RNR model by gender-responsive scholars has been that its tools for assessment of risk and case management largely fail to incorporate and adequately address a host of proposed gender-specific/salient factors, leaving many of the psychological, emotional, and health needs of young women overlooked in rehabilitative treatment (Covington, 2007). Gender-responsive scholarship has in turn been criticized for the frequent absence of male comparison groups and a paucity of quantitative and empirical studies, with RNR scholarship contesting that many of the gender-specific factors proposed are either not empirically related to offending or do not show evidence of increased validity over and above the core criminogenic needs (Andrew et al., 2012; Rettinger & Andrews, 2010; van der Knaap, Alberda, Oosterveld, and Born, 2011).

Examining the Gender-Responsive and RNR Frameworks

Despite the fact that the RNR and gender-responsive literatures have often been described as distinct and even opposing positions on addressing criminal behavior, more recently it has been recognized that these two approaches may be more complementary than competitive (Blanchette & Brown, 2006; Hubbard & Matthews, 2008). Both literatures have a staunch rehabilitative focus and aim to intervene with difficult circumstances in female youths’ lives. For instance, despite criticism from gender-responsive scholars, the RNR framework is not silent on the potential for gender differences, particularly with regard to treatment considerations, when
working with justice-involved youth. In the RNR framework, gender itself – as well as many of the gender-specific factors proposed by gender-responsive scholars – are captured under the construct of specific responsivity and described as critical factors to consider when designing and delivering rehabilitative programming (Andrews & Bonta, 2010). Unfortunately, in contrast to the large literature addressing the Risk and Need principles, there has been comparatively little research examining responsivity, particularly specific responsivity (Hubbard, 2007). Due to the scarcity of theoretical or empirical attention to potential responsivity factors, their classification as important ‘responsivity’ considerations offers little clarification into their role in rehabilitative programming (McCormick, Peterson-Badali & Skilling, 2015). In practice, this lack of articulation in both research and correctional guidelines results in these factors being left completely unaddressed or addressed in an unsystematic manner, and their potential critical use in treatment being poorly understood or overlooked altogether.

From the other direction, there is now research examining prediction of recidivism using proposed gender-specific/salient factors alongside well-established criminogenic needs. For instance, adding putative gender-specific variables to standard RNR-based risk assessment using the Level of Service Inventory-Revised (LSI-R; Andrews & Bonta, 1995) improved prediction of recidivism in a multi-site study of adult women (Van Voorhis, Salisbury, Wright, & Bauman, 2010). While the gender-neutral measure successfully predicted recidivism in seven of eight samples of women (including community-sentenced and incarcerated women), in six of the eight samples the addition of ‘gender-specific’ variables (including measures of family support and anger/hostility – restructured by the authors to reflect ‘gender-specific experience’ – as well as current mental health functioning, and various forms of relationship dysfunction/victimization) significantly improved the predictive power of the ‘standard’ gender-neutral model.
In contrast, Rettinger and Andrews (2010) reported that the Level of Service/Case Management Inventory (Andrews, Bonta & Wormith, 2004) strongly predicted general and violent recidivism in a sample of 400 women. While gender specific factors – such as economic situation and a measure of personal misfortune (inclusive of previous maltreatment, marital dissatisfaction, and emotional distress amongst other factors) – were significantly correlated with general recidivism before the addition of ‘standard’ RNR criminogenic needs, they did not add predictive power over and above the basic RNR model. Similarly, a large-scale study by van der Knapp et al. (2011) found support for gender-neutral offender risk and needs assessment; however the authors reported that problems with accommodation, education and work, and relationships with friends were more strongly predictive of general recidivism for men than women, and difficulties with emotional well-being had a stronger correlation with recidivism for women than men, indicating the potential for these factors to be considered gender salient, rather than neutral. Despite these findings, the authors concluded that based on the strength of the relationship between RNR factors and recidivism and the relatively weaker gender-salient relationships, there was minimal evidence to suggest the need for the development of gender-specific programming.

Brown and Motiuk (2008), examined the predictive ability of several RNR criminogenic needs, as well as many of the factors proposed to be specifically relevant to female offending, in a sample of both male and female offenders. Across multiple sets of factors, the authors found evidence for gender-neutrality, gender-salience and gender-specificity in risk assessment. Evidence for female gender-specificity was found for having witnessed domestic violence in childhood and being the victim of spousal violence, as well as for factors already included in or closely related to the RNR framework such as multiple markers of substance abuse, difficulties with early education and employment, and poor problem solving skills. This study suggests that
current gender-neutral models of assessment could benefit from gender-responsive modifications that take into account the features of particular factors most relevant to women and men. For instance, in regards to the RNR domain of employment, learning difficulties and lack of early education were found to be female-specific risk factors, unemployment was a gender-neutral risk factor, and there were no male-specific risk factors found, suggesting overlapping but distinct sets of priorities for male and female assessment and rehabilitation.

Research has also suggested that the justice-involved population is better described by sub-groups of offenders, defining distinct pathways to justice system involvement that result in potentially divergent sets of risk and needs. While a large portion of offenders following ‘typical’ pathways to justice-system involvement, have their experiences and needs best reflected by the individual-level factors described in the RNR framework, there are others for whom RNR-based risk assessment does not predict recidivism as effectively. Explorations of these potential sub-groups have often centered on ‘gendered’ profiles. For instance, Reisig, Holtfreter, and Morash (2006) found evidence for both gender-specificity and neutrality in a study of adult female offenders. While the LSI-R was a robust predictor of recidivism in women classified as following a gender-neutral pathway into offending (i.e., offending for primarily economic motivations, with low levels of early marginalization, victimization, and mental illness), it did not predict recidivism in women whose pathways into the justice system were defined as ‘gendered’, that is, involvement with the justice system via longstanding histories of maltreatment, mental health difficulties and drug dependence (Daly, 1994).

Although few studies have focused exclusively on the question of gender-specificity with youth, Jones et al. (2014) also found evidence for both gender-neutrality and specificity amongst female justice involved youth. In this study, approximately 48% of female youth followed a gendered pathway into justice-system involvement while the remaining female youth followed a
more traditional gender-neutral pathway, mirroring results found with adult women (Reisig et al., 2006). Recent literature also suggests that potential sub-groupings of justice-involved youth do not organize exclusively along gender lines. Two studies, one of American youth (Onifade, Barnes, Campbell, Andersen, Peterson, and Davidson, 2014) and another of Singaporean youth (Li, Chu, Goh, Ng, Zeng, 2015), found that the YLS/CMI failed to predict recidivism for maltreated youth regardless of gender (although the Li et al. (2015) study reports these youth were more likely to be female), despite having strong predictive validity for non-maltreated youth. Taken together, these studies suggest that, despite the well-established utility of the RNR framework, there may exist sub-groups within the youth justice population for whom additional needs are particularly relevant in understanding their offending behavior.

The RNR framework’s role is not limited to risk prediction alone. Given its prominent use in youth justice programming, it is also critical to examine its effectiveness as the basis for case management as well as intervention and program design. To our knowledge, the first study to examine the impact of youth receiving intervention services via probation aimed at treating their assessed criminogenic needs (i.e. services matched to youths’ criminogenic needs) found that youth who had a greater proportion of their criminogenic needs addressed via services were significantly less likely to re-offend than those for whom a low proportion of needs were met (Vieira et al., 2009). Following up on this finding, Vitopoulos, Peterson-Badali & Skilling (2012) examined whether the relationship between addressing criminogenic needs and recidivism differed for male and female youth. The results showed the YLS/CMI predicted recidivism with similar strength for male and female youth. Further, the number and nature of criminogenic needs was comparable for males and females, and the proportion of needs addressed during probation was also comparable. However, while the proportion of needs addressed was associated with reduced reoffending for boys, it did not predict reoffending for girls. These
findings point to a gap in our understanding of how and why a particular intervention or method of treatment delivery differentially impacts outcomes for female and male youth, even in contexts where the utility of the RNR risk assessment tools has been established.

Gender-responsive scholars have strongly advocated for the development of unique programming aimed at treating the both the gender-neutral and gender-specific/salient needs of women and girls in the justice system. In particular, there has been a call for current cognitive-behavioral programming to be adapted to include relational therapies that build on females’ relational strengths to combat self-deprecating beliefs, amongst other cognitive restructuring (Matthews & Hubbard, 2008). The availability of treatment for previous trauma and victimization has been highlighted as essential for many women and girls, along with the suggestion that all justice services be delivered within a trauma-informed model to avoid further re-victimization within the justice system (Bloom & Covington, 2009; Wright et al., 2012). These authors also highlight the critical need for programming to intervene with the often co-occurring and interconnected trauma, mental health, and substance use needs which they argue are particularly relevant to the many females entering the justice system via Daly’s (1994) gendered pathway. Finally, there is a call for programming that aims to build females’ positive and healthy relationships, as well as parenting and family reunification programming for female youth and mothers in particular (Matthews & Hubbard, 2008; Wright et al., 2012).

Despite the intuitive strength of these recommendations, there is little information on whether and how gender-responsive programming is being introduced in justice systems, and where this programming is being introduced – how efficacious it is in intervening with women and girls (Kerig & Schindler, 2013). In a seminal examination of the evidence base for the efficacy of gender-responsive programming with justice-involved female youth, Zahn et al. (2009) compared the efficacy of nine of these gender-responsive programs against that of six
gender-neutral programs in reducing the recidivism of female youth. They found that comprehensive gender-specific and gender-neutral programs, both targeting multiple risk factors at once, generally worked equally well in reducing recidivism for female youth. The authors noted that while the gender-responsive programs were no more effective than the gender-neutral programs in reducing recidivism, they were associated with increased improvements in academic and interpersonal functioning, suggesting a benefit for female youths’ overall well-being. Most recently, Day, Zahn and Tichavsky (2014) conducted a matched control study of gender-responsive and gender-neutral programming outcomes for a sample of approximately 300 female and male youth in secure detention in Connecticut. For boys, they found that gender-responsive programming was equally effective in reducing recidivism as traditional programming regardless of the males’ personal characteristics. In contrast, gender-responsive programming was associated with a lower risk of recidivism for girls with gender-salient risk factors. Importantly though, gender-responsive programming was also associated with a higher risk of recidivism among girls who did not display these gender salient risk factors. These findings highlight the continued importance of thorough assessments and differentiated programming. Gender-responsive programming and treatment is still very much in its infancy and while there is promising evidence for both gender-neutral and gender-responsive programming, further rigorous investigations are needed to determine how best to implement, target, and deliver these interventions.

Multiple levels of examination are required to understand the impact of gender-specific factors on female justice-involved youth. First is the question of whether risk assessment tools based on the current iteration of the RNR framework predict reoffending as effectively for girls as for boys and whether or not a modified set of risk factors – particularly for girls whose life circumstances and pathways into the criminal justice system are defined as ‘gendered’ – may add
predictive power. Secondly, while both the RNR and gender responsive literatures acknowledge the importance of gender-responsive factors, they conceptualize this importance in different ways. While the gender-responsive literature sees these factors as core needs and targets of intervention, the RNR literature positions them as important responsivity considerations – factors that are not targets in themselves, but that moderate the effectiveness of treatment of the ‘standard’ gender-neutral criminogenic needs. Thus, how to understand the impact of these factors on youth, as well as how these factors are currently being dealt with and how they should be incorporated into rehabilitative intervention, has yet to be fully understood.

**The Present Study**

The literature reviewed suggests that there is mixed evidence for gender-specific and gender-neutral conceptualizations of risk for offending; therefore, in the present study I sought to further investigate and compare the contribution of both criminogenic needs (as defined by the RNR framework) and potential gender-specific needs (as suggested by the gender-responsive literature) to the prediction of recidivism. As previously mentioned, the majority of studies exploring hypothesized gender-specificity have failed to include male comparison samples, limiting our understanding of whether or not these potential additional factors are truly ‘gender-specific’ or if they may, indeed, be pertinent for males as well. Thus, I wanted to examine the impact of these needs in a sample of both male and female youth. As noted previously, although the high prevalence of potential gender-specific needs indicate that they are no doubt relevant to the lives of justice-involved female youth, this does not in and of itself mean that they are risk factors for offending. In addition, the relationship between potential gender-specific factors to offending has infrequently been examined alongside already well-established criminogenic needs articulated in the RNR framework in a youth population. Next, in order to elucidate how youths’ needs are being addressed in real-world practice and the impact of doing so on recidivism, I
examined and compared how both youths’ criminogenic and gender-specific needs are currently being addressed by services accessed through probation, as well as the impact of successfully addressing youths’ needs on re-offending within a two year follow-up period.

Based on the above review of the gender-responsive literature, I selected five proposed gender-specific factors – childhood maltreatment, internalizing mental health difficulties, delinquent romantic partnerships, familial context for offending, and low self-esteem – to examine alongside the seven RNR criminogenic needs. These proposed gender-specific factors have been previously examined in distinct literature bases but very few have been examined alongside the criminogenic needs identified in the RNR literature. For instance, while an extensive maltreatment literature highlights the link between childhood maltreatment and later justice system involvement, most of this work has failed to examine whether or not the effect of maltreatment remains once the RNR factors are accounted for in models. As mentioned above, there have been some investigations into the impact of gender-responsive factors as both additions to and in place of the Central Eight, but this work has typically focused on adult forensic populations.

Method

Participants

This mixed custodial and community sample\(^3\) consisted of 50 males and 50 females ranging in age from 13 to 19 years \((M = 15.98, SD = 1.48)\) who were referred for court-ordered assessment to assist with sentencing between November 2004 and June 2010 to the youth justice

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\(^3\) At time of assessment and entry into the study, some youth had been sentenced to a custodial sentence followed by a probation term, although in Canada custody stays are generally brief. All youth had a probation term as part of their sentence, and thus services received during this term were the focus of the study.
clinic of a mental health agency in Toronto, Canada. Female participants represent consecutive admissions for assessments. Male participants were matched to female participants by date of assessment, age, and Youth Level of Service/Case Management Inventory (YLS/CMI) risk category. Due to the relatively smaller number of female youth referred for assessment, in keeping with the rates of female youths’ justice system involvement, approximately 50% of the current female sample was previously included in a pilot study examining the criminogenic needs and treatment of male and female youth (Vitopoulos et al., 2012). However, in the current study, additional aspects of these youths’ clinical and probation data have been coded and measured. Only clients for whom consent was obtained to use clinical information for research purposes were included in the study; 82% of clients consented. Institutional Review Board approval for this study was obtained.

Participants were ethnically diverse; roughly one third of the sample was Black, another third White, and a smaller subset was of Asian descent. The crimes precipitating their referrals for assessment included nonviolent (i.e., failure to comply with probation or court order, theft, drug related, break and enter), sexual (i.e., aggravated sexual assault, sexual assault, invitation to touching), and violent but not sexual (i.e., robbery, assault, threatening, and murder) offenses. For over 65% of youth, the most serious charge fell into the violent nonsexual category. The majority of youth in the sample (81%) were diagnosed with at least one psychiatric disorder at assessment, with the number of diagnoses per youth ranging from zero to seven ($M = 1.92$, $SD = 1.59$). There were no significant gender differences in ethnicity, category of index offense, rate of recidivism, as well as type of and time to recidivism in youth who did re-offend.

**Procedure**

At the time of assessment, clinicians (psychologist, psychiatrist, or social workers) with 5 to 15 years’ experience assessing young offenders completed the YLS/CMI (see Measures and
Coding, below) and produced an assessment report focused on mental health, criminogenic needs, and risk using information from multiple sources, including file material (e.g., criminal records, previous probation and mental health reports), interviews with the youth and collateral sources (parents, probation officers, mental health workers, etc.), and standardized tests and checklists. For the purposes of this study, participants’ clinical charts and assessment reports were reviewed to gather information on demographics, offense history, charges leading to referral for assessment, recidivism risk and criminogenic needs, and potential gender-specific needs (i.e., maltreatment, internalizing mental health diagnosis, delinquent partner, family context for offending, and self-esteem needs).

**Measures and Coding**

*Risk to reoffend and criminogenic needs*

The YLS/CMI (Hoge & Andrews, 2002) is a standardized instrument used to assess youths’ criminogenic needs and risk to reoffend. The first section consists of a 42-item checklist that produces a detailed survey of youth risk factors in eight domains; each item is coded as present or absent. The first domain covers the youth’s criminal history and current charges which, while a significant predictor of recidivism, is not a treatment target given the static nature of this domain. The remaining seven domains are amenable to change and therefore labelled dynamic risk factors, or criminogenic needs: Family Circumstances and Parenting (i.e. child-parent relationship difficulties, parental monitoring and control), Current School/Employment Functioning (i.e. low achievement, truancy, behavior difficulties with peers and teachers), Peer Affiliations (i.e. anti-social peers, few pro-social peers), Alcohol and Drug Use (i.e. substance use and interference with functioning), Leisure and Recreational Activities (i.e. limited involvement in organized activities, few personal interests), Personality and Behavior (i.e. impulsivity, poor frustration tolerance, inadequate guilt feelings, verbal and physical aggression),
and Antisocial Attitudes (i.e. anti-social attitudes, actively rejecting help). Items within each of the eight domains are summed and the domain score is assigned a categorical descriptor (low, moderate, high). A total score is calculated by summing all items and an overall rating of risk for recidivism is given (low, moderate, high, or very high). The measure also contains a checklist of additional personal characteristics or experiences, distinct from the eight domains of risk/need and not used in risk assessment, that highlights case management issues relevant to treatment responsivity.

The YLS/CMI is reported to possess moderate to strong internal consistency for all subscales except for substance use, the estimate for which falls slightly below .60 (Schmidt, Hoge & Gomes, 2005). In the current study, domain reliabilities ranged from .55 to .81, with coefficient alphas falling into the acceptable range (> .60) in all but one domain (Leisure). Strong concurrent validity has been established via correlations between YLS/CMI/ CMI total scores and broad and narrow band scores on the Child Behavior Checklist (Schmidt et al., 2005). Predictive validity is reported as moderate to strong, with significant correlations between YLS/CMI total scores and number of subsequent offenses and time elapsed before a new offense in both male and female youth (Olver et al., 2009; 2014). In the current sample, interrater reliability for the YLS/CMI total score was high, with correlations among clinicians ranging from .80 to .98 (average $r = .93$).

**Matching of clinician-identified criminogenic needs**

Youths’ level of match between assessed criminogenic needs and services received while on probation was examined using clinician recommendations from the assessment report as the measure of identified needs (rather than youth’s YLS/CMI scores in the need domains). This strategy reflects the focus of the study on real-world case management, as probation officers refer to the assessment reports’ recommendations to inform their case management plans as
opposed to youths’ raw YLS/CMI scores. Service-to-clinician recommendation matching was
coded in each of the seven YLS/CMI criminogenic need domains by comparing clinician
recommendations with evidence in youth’s probation records of appropriate program assignment
and subsequent engagement. For example, a match in the personality domain could be achieved
by a clinician’s recommendation for a youth to undergo treatment for anger and subsequent
probation records showing that the youth was assigned to an anger management program that
was then successfully completed. Other examples of successful service-to-clinician
recommendation matches include the completion of a substance abuse counseling program
following a recommendation in the substance use domain, enrollment in and subsequent
attendance in a school program following a recommendation in the education domain, and
evidence of engagement in prosocial leisure activities facilitated by probation (e.g., weekly
attendance at a YMCA or local community center) following a recommendation in the Leisure
domain. Interrater reliability for coding of service matching was very strong (Landis & Koch,
1977), with a weighted Cohen’s Kappa\(^4\) of .86 (\(p < .001\)) based on 20% of the sample.

For each YLS/CMI domain for which a youth received a recommendation, service to
need match was coded as either: 0 (no match) -- no evidence of case management or intervention
directed at this need; 1 (limited match) -- evidence that some case management and/or
intervention was attempted; 2 (moderate match) -- evidence that active and consistent case
management and/or partial intervention was delivered (i.e. need consistently check-in on and
monitored by probation, approximate 50% attendance in evidence-based programming); 3 (full

\(^4\) Weighted kappas for interrater reliability were calculated using the GraphPad QuickCalcs Web
match) -- evidence of active and consistent case management and significant evidence-based intervention delivery (i.e. active and consistent case management and strong (75% or more attendance) engagement with intervention programming). The percentage match score was then calculated by dividing the cumulative total of matched domain scores by the maximum possible match score (total number of need areas initially identified by the assessing clinician multiplied by a full match score of three). An example of this calculation is illustrated for a hypothetical youth in Table 6.

Table 6.
Criminogenic Need Matching Example for Hypothetical Youth

<table>
<thead>
<tr>
<th>Domains</th>
<th>Recommendation from assessment</th>
<th>Match score based on information from probation notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family Circumstances and Parenting</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Current School/Employment Functioning</td>
<td>Yes</td>
<td>2 (moderate)</td>
</tr>
<tr>
<td>Peer Affiliations</td>
<td>Yes</td>
<td>1 (limited)</td>
</tr>
<tr>
<td>Alcohol and Drug use</td>
<td>Yes</td>
<td>3 (full)</td>
</tr>
<tr>
<td>Leisure and Recreational Activities</td>
<td>Yes</td>
<td>1 (limited)</td>
</tr>
<tr>
<td>Personality and Behavior</td>
<td>Yes</td>
<td>3 (full)</td>
</tr>
<tr>
<td>Antisocial Attitudes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
<td>10 (out of a possible 15)</td>
</tr>
</tbody>
</table>

Percentage Match Score = 10/15 x 100 = 66.7%

**Potential gender-specific needs**

The five potential gender-specific needs (delinquent romantic partner, family context for index offense, clinician-identified difficulties with self-esteem, and internalizing mental health diagnoses (i.e. anxiety and mood disorders) were coded as present (1) or absent (0) based on a review of youths’ assessment reports. The interrater reliability for coding these needs was very strong (Landis & Koch, 1977), with a Cohen’s Kappa of .81 (p <.001) based on 20% of the sample.

**Matching of potential gender-specific needs**
For youth who had at least one proposed gender-specific need identified in their clinical assessment reports, youths’ level of match between identified gender-specific needs and services received through probation was also captured. This was done to determine if and how these needs are currently being addressed during youths’ contact with service providers and probation officers during their time spent on probation. As these needs are not part of the formal structure of probation case management, as is the case with the YLS/CMI domains, our determination of need to service match was limited to the following coding system: 0 (no match) = no mention of this need in probation notes and no case management and/or intervention directed at this need; 1 (moderate match) = awareness of need evidence in probation notes and/or case management and/or intervention indirectly aimed at these needs (i.e. a youth with identified self-esteem difficulties attends general counselling with no direct mention of self-esteem intervention); 2 (full match) = case management and/or intervention directly aimed at intervening with these needs (i.e. a youth with identified needs around previous maltreatment attends trauma-informed psychotherapy services). The interrater reliability for coding gender-responsive need match was very strong (Landis & Koch, 1977), with a weighted Cohen’s Kappa of .90 ($p < .001$) based on 20% of the sample. As was done with the criminogenic needs to service match, a gender-specific percentage match score was calculated for these needs by dividing the total of matched gender-specific need scores by the maximum possible match score (total number of need areas initially identified by the assessing clinician multiplied by a full match score of two). An example of this calculation is illustrated for a hypothetical youth in Table 7.

Table 7.

<table>
<thead>
<tr>
<th>Gender-Specific Need Matching Example for Hypothetical Youth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needs</td>
</tr>
<tr>
<td>Delinquent Romantic Partner</td>
</tr>
</tbody>
</table>
Recidivism

Recidivism was defined as a conviction for one or more new offenses anytime during the period after the sentencing date associated with the charge(s) that prompted the youth’s referral for assessment. A two-year fixed follow-up period from time of assessment was used. Data were obtained from a national police criminal record database.

Results

Question 1: Do male and female youth differ in YLS/CMI domain needs and in proposed gender-specific needs?

Female and male participants were matched for overall YLS/CMI category score. Pillai’s trace revealed that there were no significant overall differences found between male and female youths’ scores across individual YLS/CMI criminogenic need domains, $V = .09, F(7,91) = 122.18, p = .27$. There were also no significant differences found in the number of clinician recommendations across domains for male ($M = 5.44, SD = 1.26$) and female ($M = 5.34, SD = 1.56$) youth, $t(99) = .352, p = .73; d = .07$. See Table 8 for frequency of criminogenic need recommendations and matching for male and female youth.

Table 8. Recommendations and Match Level by Gender

<table>
<thead>
<tr>
<th>Domains</th>
<th>Recommendation Made</th>
<th>Match Level</th>
<th>Males (n)</th>
<th>Females (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family Context for Offending</td>
<td>Yes</td>
<td>0 (no match)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Difficulties with Self-Esteem</td>
<td>Yes</td>
<td>1 (moderate)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maltreatment History</td>
<td>Yes</td>
<td>1 (moderate)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internalizing Mental Health</td>
<td>Yes</td>
<td>2 (full)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
<td>4 (out of a possible 8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage Match Score= 4/8 x 100 = 50.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Category</td>
<td>Females</td>
<td>Males</td>
<td>Total</td>
<td>Females</td>
</tr>
<tr>
<td>-----------------</td>
<td>---------</td>
<td>-------</td>
<td>-------</td>
<td>---------</td>
</tr>
<tr>
<td>Education/Employment</td>
<td>49</td>
<td>45</td>
<td>0</td>
<td>31% (15)</td>
</tr>
<tr>
<td>Family</td>
<td>44</td>
<td>46</td>
<td>0</td>
<td>41% (18)</td>
</tr>
<tr>
<td>Substance Use</td>
<td>28</td>
<td>32</td>
<td>0</td>
<td>75% (21)</td>
</tr>
<tr>
<td>Personality</td>
<td>40</td>
<td>47</td>
<td>0</td>
<td>65% (26)</td>
</tr>
<tr>
<td>Attitude</td>
<td>32</td>
<td>24</td>
<td>0</td>
<td>75 (24)</td>
</tr>
<tr>
<td>Leisure</td>
<td>36</td>
<td>35</td>
<td>0</td>
<td>56% (20)</td>
</tr>
<tr>
<td>Peer</td>
<td>44</td>
<td>38</td>
<td>0</td>
<td>66% (29)</td>
</tr>
</tbody>
</table>

Note: Match Level: 0 = No Match; 1 = Weak Match; 2 = Medium Match; 3 = Strong Match

Females were significantly more likely to have experienced three out of five of the proposed gender-specific factors examined. Female youth (42%) were far more likely than male youth (6%) to have a delinquent romantic partner, $\chi^2 (1, N = 100) = 17.76, p < .01; \Phi = .42$. 
Females (72%) were also significantly more likely than males (48%) to have experienced maltreatment in childhood, $\chi^2 (1, N = 100) = 6.00, p < .05; \Phi = .25$, although it should be noted that for both males and females these rates were much higher than those of the general population. Female youth (50%) were also more frequently diagnosed with an internalizing mental health disorder (i.e., anxiety or mood disorders) than were their male counterparts (12%), $\chi^2 (1, N = 100) = 16.88, p < .01; \Phi = .41$. There were no differences between male (14%) and female (20%) youth in the frequency of clinician-identified difficulties with self-esteem, $\chi^2 (1, N = 100) = .64, p = .60; \Phi = .08$ or between females (24%) and males (12%) with regards to their index offending having occurred within the context of their family environment $\chi^2 (1, N = 100) = 2.44, p = .19; \Phi = .16$. See Table 9 for frequency of gender-specific needs and matches for male and female youth.

Table 9. Gender Specific Needs and Match Level by Gender

<table>
<thead>
<tr>
<th>Gender Specific Factors</th>
<th>Identified Needs</th>
<th>Match Level</th>
<th>Males (n)</th>
<th>Females (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Males (n)</td>
<td>Females (n)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delinquent Partner</td>
<td>3</td>
<td>21</td>
<td>0</td>
<td>100% (3)</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td></td>
<td>0% (0)</td>
<td>24% (5)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td></td>
<td>0% (0)</td>
<td>9% (2)</td>
</tr>
<tr>
<td>Family Context for Offending</td>
<td>6</td>
<td>12</td>
<td>0</td>
<td>17% (1)</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td></td>
<td>66% (4)</td>
<td>58% (7)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td></td>
<td>17% (1)</td>
<td>17% (2)</td>
</tr>
<tr>
<td>Low Self-Esteem</td>
<td>7</td>
<td>10</td>
<td>0</td>
<td>29% (2)</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td></td>
<td>57% (4)</td>
<td>70% (7)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td></td>
<td>14% (1)</td>
<td>0% (0)</td>
</tr>
<tr>
<td>Maltreatment</td>
<td>24</td>
<td>36</td>
<td>0</td>
<td>75% (18)</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td></td>
<td>21% (5)</td>
<td>67% (24)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td></td>
<td>4% (1)</td>
<td>14% (5)</td>
</tr>
<tr>
<td>Internalizing Mental Health Diagnosis</td>
<td>6</td>
<td>25</td>
<td>0</td>
<td>33% (2)</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td></td>
<td>33% (2)</td>
<td>40% (10)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td></td>
<td>33% (2)</td>
<td>52% (13)</td>
</tr>
</tbody>
</table>
Note: Match Level: 0= No Match; 1=Partial Match; 2= Strong Match

**Question 2: Do male and female youth have their YLS/CMI needs and their gender-specific needs matched by probation services at a similar rate?**

The percentage match score was next examined to determine whether males and females differed in the rate at which their recommendations were met by clinical services coordinated through probation. No gender difference was found in the overall criminogenic need percentage match score; on average, youth had roughly a third of their identified needs addressed ($M = 32.34\%, SD = 24.26$). Similar proportions of males and females were represented across the percentage of match classifications of low (match score of 0%-24.9%; 48% for males and 40.0% for females), low-medium (25%-49.9% match; 36.0% for males and 30.0% for females), medium-high (50%-74.9% match; 10.0% for males and 26.0% for females), and high (75%-100% match; 6.0% for males and 4.0% for females), $\chi^2(3) = 3.52, p = .32, \Phi = .18$. Across the individual criminogenic needs domains, gender differences (see Table 10) emerged in the domain of Personality, where females ($M = 1.38, SD = 1.05$) were more likely than males ($M = .57, SD = .87$) to have had their needs in this domain met, $t(85) = -3.85, p < .001; d = .83$; while 70% of female youth with a need in this domain had it at least partially met, only 35% of males received any services directed at this domain. Another weaker gender difference was found in the attitude domain where females ($M = .87, SD = .97$) were more likely than males ($M = .38, SD = .75$) to have had their needs in this domain met, $t(53) = -2.13, p < .05; d = .59$; while 52% of the female youth with a need in this domain had it at least partially met, only 25% of males with this need received any services directed at this domain.

Table 10.

*Percentage of Recommendation–Service Matches Made Across Criminogenic Need Categories by Gender*
With regards to potential gender-specific factors, of the 77 youth (46 females, 31 males) who had at least one of the five factors identified in their assessment reports, the average gender-specific percentage match score was approximately 35% \((M = 36.70\%, SD = 32.56)\). Unlike the criminogenic need percentage match score where no gender differences were found, there were gender differences found in the overall gender-specific percentage match scores (see Table 9), with females having significantly higher percentage match scores \((M = 43.71\%, SD = 34.48)\) than males \((M = 26.08\%, SD = 29.55), t(76) = -2.41, p < .05; d = .55.\) Across the individual gender-specific needs examined (see Table 11), female youth \((M = .94, SD = .58)\) were more likely than male youth \((M = .29, SD = .55)\) to receive services directed at their maltreatment histories, \(t(58) = -4.35, p < .001; d = 1.14.\) In terms of relationships with romantic delinquent partners, female youth \((M = .43, SD = .68)\) were significantly more likely than male youth \((M = 0, SD = 0)\) to have services directed at this factor, \(t(22) = -2.90, p < .01, d = 1.30.\) There were only three males for which this factor was relevant and none of these male youth received case management or intervention directed at this need.

### Table 9.

<table>
<thead>
<tr>
<th>Domains</th>
<th>M (SD)</th>
<th>F (SD)</th>
<th>t</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education/Employment</td>
<td>1.35(1.05)</td>
<td>1.35(.99)</td>
<td>-.004</td>
<td>93</td>
</tr>
<tr>
<td>Family</td>
<td>1.16(1.07)</td>
<td>1.15(1.07)</td>
<td>.05</td>
<td>87</td>
</tr>
<tr>
<td>Substance Use</td>
<td>.57(.87)</td>
<td>.97(1.15)</td>
<td>1.38</td>
<td>58</td>
</tr>
<tr>
<td>Personality</td>
<td>.57(.87)</td>
<td>1.38(1.05)</td>
<td>-3.85***</td>
<td>85</td>
</tr>
<tr>
<td>Attitude</td>
<td>.38(.75)</td>
<td>.87(.97)</td>
<td>-2.13*</td>
<td>53</td>
</tr>
<tr>
<td>Leisure</td>
<td>.83(1.06)</td>
<td>.86(1.05)</td>
<td>-1.1</td>
<td>70</td>
</tr>
<tr>
<td>Peer</td>
<td>.63(.99)</td>
<td>.39(.82)</td>
<td>1.19</td>
<td>80</td>
</tr>
</tbody>
</table>

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

### Table 11.

<p>| Percentage of Factor–Service Matches Made Across Gender-Specific Factors |
|---------------------|--------|------|----|</p>
<table>
<thead>
<tr>
<th>Domains</th>
<th>M (SD)</th>
<th>t</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education/Employment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Substance Use</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personality</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitude</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leisure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peer</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
I also examined the inter-relationships between service provision to address identified needs from the YLS/CMI and the identified gender-specific factors. As Table 12 shows, many were positively and significantly correlated with one another, indicating that youths’ needs being met in one area made it more likely that they would have their other needs met. While most significant correlations were moderate to strong, a few relationships were very strong, such as the correlation between matching in the personality domain and matching for internalizing mental health needs, $r(25) = .72, p < .001$, as well as matching in the peer domain and matching for having a delinquent partner, $r(19) = .88, p < .001$.

Table 12.
Correlation Matrix of YLS/CMI Domain Matching and Gender-Specific Factor Matching

<table>
<thead>
<tr>
<th>Variables</th>
<th>Males</th>
<th>Females</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delinquent Partner</td>
<td>0(0)</td>
<td>.43(.68)</td>
<td>.38(.65)</td>
</tr>
<tr>
<td>Family Context for Offending</td>
<td>1.00(.63)</td>
<td>.92(.67)</td>
<td>.94(.64)</td>
</tr>
<tr>
<td>Low Self-Esteem</td>
<td>.86(.69)</td>
<td>.70(.48)</td>
<td>.76(.56)</td>
</tr>
<tr>
<td>Maltreatment</td>
<td>.29(.55)</td>
<td>.94(.58)</td>
<td>.68(.65)</td>
</tr>
<tr>
<td>Internalizing Mental Health Diagnosis</td>
<td>1.00(.89)</td>
<td>1.44(.65)</td>
<td>1.35(.71)</td>
</tr>
</tbody>
</table>

Note. *p < .05, ** p < .01, *** p <.001
Question 3: Do potential gender-specific variables contribute to recidivism alongside known criminogenic needs?

A logistic regression model with recidivism two years post-assessment as the outcome and age, gender, and YLS/CMI total score as predictors was not significant overall, $\chi^2(3) = 4.62$, $p = .20$. YLS/CMI total score not a significant within this model, $B = .04$, Wald's $\chi^2(1) = 2.33$, $p < .13$. These results did not differ significantly when male and female youth were analyzed separately. The predictive ability of the YLS was further explored using ROC analysis. For the full sample, this resulted in a small effect size with an area under the curve value of 0.59 (95% CI = 0.48-0.70; $p = 0.05$).

In order to examine whether the addition of the proposed gender-specific/salient variables improved risk prediction, each of the five proposed gender-salient factors was examined in two separate hierarchical logistic regression models with re-offense (yes/no) as the outcome. In both models, gender was entered in the first step, criminogenic risk at step two, and the particular gender-specific variable at step three. $^5$ In the first model, criminogenic risk was defined as the YLS/CMI total score. However, as this score represents an aggregate across multiple risk

```
9. Family Context  .65**  .19  .12  .58*  .32  -.20  .56*  --  -  -  -  -
10. Low Self-Esteem Match  .53*  .54*  .25  .69**  .57  .49  .37  --  .82  -  -  -
11. Maltreatment Match  .42**  .21  .18  .30*  .38*  .12  .15  .16  .70**  .41  -  -
12. Internalizing Mental Health Match  .28  .48*  .27  .72***  .50  .08  .26  -.32  .69*  --  .40*
```

*p<.05 , **p<.01, ***p<.001, -- =could not be computed due to limited sample size

$^5$ Age was not correlated with recidivism and was therefore not included as a predictor.
domains, it might unduly overpower the individual (gender-specific) variables. Thus, in the second model I entered the eight individual criminogenic need scores rather than the total YLS/CMI score at step two. Overall, none of the above models, inclusive of potential gender-specific factors, significantly predicted recidivism (see Table 13). The only individual variable to predict re-offense (significantly or at the trend level) was criminal history.

Table 13.  
*Overall Logistic Regression Models: Proposed Gender-Specific Factors in addition to YLS/CMI total score and Individual Criminogenic Need Domains*  
*Gender entered first as covariate, YLS/CMI total score or criminogenic variables entered in Step 1, gender-specific factors entered in Step 2 for each of the models*

<table>
<thead>
<tr>
<th>Models</th>
<th>$\chi^2$</th>
<th>df</th>
<th>p</th>
<th>Nagelkerke $R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model A</strong> (total score; delinquent partner)</td>
<td>5.25</td>
<td>3</td>
<td>.15</td>
<td>.07</td>
</tr>
<tr>
<td><strong>Model B</strong> (8 domains; delinquent partner)</td>
<td>12.32</td>
<td>10</td>
<td>.26</td>
<td>.16</td>
</tr>
<tr>
<td><strong>Model C</strong> (total score; family context for offending)</td>
<td>4.69</td>
<td>3</td>
<td>.20</td>
<td>.06</td>
</tr>
<tr>
<td><strong>Model D</strong> (8 domains; family context for offending)</td>
<td>12.32</td>
<td>10</td>
<td>.26</td>
<td>.16</td>
</tr>
<tr>
<td><strong>Model E</strong> (total score; low self-esteem)</td>
<td>4.83</td>
<td>3</td>
<td>.18</td>
<td>.06</td>
</tr>
<tr>
<td><strong>Model F</strong> (8 domains; low self-esteem)</td>
<td>12.04</td>
<td>10</td>
<td>.28</td>
<td>.15</td>
</tr>
<tr>
<td><strong>Model G</strong> (total score; maltreatment)</td>
<td>6.29</td>
<td>3</td>
<td>.09</td>
<td>.08</td>
</tr>
<tr>
<td><strong>Model H</strong> (8 domains; maltreatment)</td>
<td>14.54</td>
<td>10</td>
<td>.15</td>
<td>.18</td>
</tr>
<tr>
<td><strong>Model I</strong> (total score; internalizing disorder)</td>
<td>4.53</td>
<td>3</td>
<td>.21</td>
<td>.06</td>
</tr>
<tr>
<td><strong>Model J</strong> (8 domains; internalizing disorder)</td>
<td>12.39</td>
<td>10</td>
<td>.26</td>
<td>.16</td>
</tr>
</tbody>
</table>
Finally, an additional model predicting recidivism, where gender and the proposed gender-specific factors were entered on their own, was not significant overall ($\chi^2 = 5.42, p = .49$) and no independent predictors emerged amongst the potential gender-specific variables.

**Question 4: Does matching YLS/CMI-based clinician recommendations to services predict recidivism equally well in female and male youth?**

A hierarchical logistic regression was conducted to examine whether successfully addressing youths’ YLS/CMI needs via services accessed through probation differentially predicted recidivism for males and females. To control for risk, the criminal history domain of the YLS/CMI was included as a predictor in the first step of the regression model. As in previous studies (Peterson-Badali et al., 2015; Vitopoulos et al., 2012), criminal history was used to control for static risk in lieu of the total YLS/CMI score because the percentage match score for each participant (included at the second step in the analysis) is in part derived from the youth’s YLS-identified criminogenic needs; thus, there is overlap between the dynamic domains of risk–need included in the YLS total score and the clinician recommendations used to generate the percent match score for each participant. In addition, criminal history was also the most robust predictor of recidivism in our initial analyses and was highly correlated with YLS/CMI risk scores, $r(71) = .58, p < .001$, making criminal history a strong proxy for risk without concern for overlap between the variables used in the analyses.

Based on previous findings (Vitopoulos et al., 2012), I tested a moderation model in which criminal history (in Step 1), and Gender, Percentage Match, and the Gender × Percentage Match interaction (in Step 2), were used to predict recidivism. As Table 14 shows, the model was significant at both steps. While criminal history was significant at Step 1, it was no longer significant once treatment matching was entered at Step 2. A higher match between clinician recommendations and treatment services (Percentage Match) significantly predicted a reduction
in recidivism for both male and female youth. There was no interaction between gender and percentage match, indicating that gender did not moderate the relationship between treatment matching and recidivism. The predictive ability of the Percentage Match was further explored using ROC curve plotting. For the full sample, this resulted in a strong effect size with an area under the curve value of 0.73 (95% CI = 0.63-0.83; p < 0.01).

Table 14.  
*Gender, Percent Match and Gender by Percent Match Interaction as Predictors of Recidivism, Controlling for Static Risk*

<table>
<thead>
<tr>
<th>Model Variables</th>
<th>β</th>
<th>SEβ</th>
<th>Wald’s χ²</th>
<th>df</th>
<th>p</th>
<th>exp(B)</th>
<th>CI (95%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lower</td>
<td>Upper</td>
</tr>
<tr>
<td>Model (Step) 1:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Criminal History</td>
<td>.29</td>
<td>.12</td>
<td>5.60</td>
<td>1</td>
<td>.02</td>
<td>1.33</td>
<td>1.05</td>
</tr>
<tr>
<td>Constant</td>
<td>-.56</td>
<td>.31</td>
<td>3.19</td>
<td>1</td>
<td>.07</td>
<td>.57</td>
<td></td>
</tr>
<tr>
<td>Overall Model at Step 1</td>
<td>5.91</td>
<td>1</td>
<td></td>
<td></td>
<td>.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model (Step) 2:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Criminal History</td>
<td>.23</td>
<td>.13</td>
<td>3.02</td>
<td>1</td>
<td>.08</td>
<td>1.25</td>
<td>.97</td>
</tr>
<tr>
<td>Gender</td>
<td>-.07</td>
<td>.81</td>
<td>.01</td>
<td>1</td>
<td>.93</td>
<td>.93</td>
<td>.19</td>
</tr>
<tr>
<td>Percent Match Score</td>
<td>-1.12</td>
<td>.37</td>
<td>8.80</td>
<td>1</td>
<td>.003</td>
<td>.33</td>
<td>.16</td>
</tr>
<tr>
<td>Percentage Match by Gender</td>
<td>-.27</td>
<td>.37</td>
<td>.51</td>
<td>1</td>
<td>.47</td>
<td>.77</td>
<td>.369</td>
</tr>
<tr>
<td>Constant</td>
<td>.62</td>
<td>.72</td>
<td>.75</td>
<td>1</td>
<td>.39</td>
<td>1.86</td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td>12.15</td>
<td>3</td>
<td>3</td>
<td></td>
<td>.007</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Model at Step 2</td>
<td>18.06</td>
<td>4</td>
<td>.001</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Question 5: Does matching services to gender-specific factors predict recidivism in female and male youth?

Using the subsample of youth who had at least one of the proposed gender-specific needs identified at assessment (62% of males; 92% of females), a logistic regression parallel to the one described above was run to examine whether treatment of gender-specific needs predicted recidivism and if so, whether this effect was different for males and females. As Table 15
shows, the overall model was significant at both steps, as was the effect of criminal history. As was the case in the above analysis, a significant effect was found for Gender-Specific Percentage Match: the proportion of youths’ gender-specific needs addressed in treatment significantly (and negatively) predicted recidivism. No moderating effect of gender was found in the relationship between gender-specific treatment matching and recidivism. The predictive ability of the Gender-Specific Percentage Match was further explored using ROC curve plotting. For the full sample, this resulted in a moderate effect size with an area under the curve value of 0.64 (95% CI = 0.51-0.76; p = 0.04).

Table 15.

<table>
<thead>
<tr>
<th>Model Variables</th>
<th>β</th>
<th>SEβ</th>
<th>Wald’s χ²</th>
<th>df</th>
<th>p</th>
<th>exp(B)</th>
<th>CI (95%)</th>
<th>Lower</th>
<th>Upper</th>
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<tr>
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<td>.13</td>
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<td>1</td>
<td>.02</td>
<td>1.37</td>
<td>1.05</td>
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<td>Constant</td>
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<td>.04</td>
<td>.48</td>
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<td>1</td>
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<td></td>
<td></td>
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<tr>
<td>Model (Step 2):</td>
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<tr>
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<td>.14</td>
<td>3.71</td>
<td>1</td>
<td>.05</td>
<td>1.31</td>
<td>1.00</td>
<td>1.74</td>
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<tr>
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<td>.79</td>
<td>2.20</td>
<td>1</td>
<td>.14</td>
<td>3.21</td>
<td>.69</td>
<td>14.97</td>
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<td>5.30</td>
<td>1</td>
<td>.02</td>
<td>.33</td>
<td>.13</td>
<td>.85</td>
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</table>

Discussion

The goals of this study were to compare the presence of both criminogenic needs and several proposed gender-specific needs in a sample of male and female justice-involved youth in
order to better understand how these needs were addressed during youths’ probation sentences, and the impact of this service provision on recidivism. This study contributes to the existing literature on the needs of justice-involved youth through its examination of proposed gender-specific risk factors alongside criminogenic needs, by its use of a male comparison sample, and by its focus on the effects of need to service matching in a real world context.

**Identifying youths' criminogenic (RNR) and gender-specific needs**

In keeping with previous research (Vitopoulos et al., 2012), male and female youth did not differ in the number or type of criminogenic needs identified by clinicians. These results differ from Olver et al. (2014)’s findings that males and females evidenced differences in their criminogenic need profiles. The Olver et al. meta-analysis included studies of both adult and youth samples, perhaps accounting for this difference in findings. It may be that the criminogenic profiles of males and females become more distinct or “gendered” as they age. For example, the marked difference in criminal history found between men and women in the Olver et al., 2014, may be far less salient amongst younger cohorts who have had less time to offend.

Across the seven criminogenic need domains, 25-50% of participants had at least one domain flagged as an area of need, with education, family, personality and peers most frequently identified. Both female and male youth had, on average, five domains of need identified by clinicians. These results suggest that in the context of the RNR framework, female youth are no more or less likely to have needs in a particular domain than their male counterparts, suggesting need profiles based on this framework are more similar than they are different.

When examining gender-specific factors, there was evidence of much higher prevalence for female youth than male youth in the case of three of the five factors explored. Consistent with other studies of maltreatment in the youth justice population (Abram et al. 2004; Coleman & Stewart, 2010;) there was a high rate of childhood maltreatment history in both males (48%) and
females (72%), with female youth being significantly more likely to have experienced maltreatment. Female youth (50%) were also much more likely than male youth (12%) to have been diagnosed with an internalizing mental health problem, consistent with previous literature (Abram et al., 2004; Cauffman, 2008; Chitsabesan et al., 2006; Dixon et al., 2004; Kerig & Becker, 2012; Teplin et al., 2002) that found much higher rates of depression, anxiety, PTSD, self-harm, and suicidality amongst female justice-involved youth. The third significant difference was found in the area of delinquent romantic partnership, where female youth (42%) were far more likely to report that their romantic partners were justice-system involved than were male youth (6%), suggesting as previously identified by several studies (Giordano, Cernkovich, & Holland, 2003; Haynie et al., 2005; Monahan, Dmitrieva, & Cauffman, 2014) that this particular association is more common in the lives of female youth.

There were no significant gender differences in the rates of family context for offending or difficulties with low self-esteem, suggesting that neither of these factors are specific to girls who are justice-involved. For the remaining two factors, family context for offending behavior and low self-esteem, although a larger proportion of the female youth in our sample had these factors identified, there were no significant differences found between the groups. With regards to self-esteem, our findings trend towards literature that has found that justice-involved female youth are more likely to have low self-esteem than are male youth ((Belknap & Holsinger, 2006; Van Damme, Colins, & Vanderplasschen, 2014), although not significantly so. Certainly, we also had many female and male youth with high needs in the domain of Personality, within which inflated self-esteem is a contributing item on the YLS/CMI. Although not a requirement for a marked need in this area, our results indicate that inflated self-esteem, especially as it relates to narcissism, is also a salient challenge for some justice-involved youth. Given previous findings (Hartman, Turner, Daigle, Exum & Cullen, 2008) suggesting that both low and high
self-esteem may be related to offending behavior, future studies may be able to examine in more detail both the assessment of low self-esteem and inflated self-esteem in this population and the delivery of services and interventions seeking to assist youth on either ends of the spectrum.

**Service matching to youths’ criminogenic and gender-specific needs**

On average, approximately 30% of participants’ criminogenic needs were addressed during probation; thus, many needs were not met through service provision. Youths’ probation case notes suggest that this low service rate was due to an interplay of multiple factors. First, youth themselves were often disengaged from programming; while probation officers and service providers may have enrolled youth in programs targeting their needs, youth failed to engage with this programming in any meaningful way. Secondly, there appears to be a dearth of evidenced-based programming for some need domains, at least in the jurisdiction in which data were collected. For instance, very few programs targeted the peer domain, often leaving probation officers to check in on this as a probation condition, rather than as a target for ongoing intervention. The attitude domain also appeared particularly difficult to address, as there were very few programs explicitly directed at this need, again leaving probation officers to discuss attitude matters with youth in non-specific or idiosyncratic ways. It also appeared that certain identified needs were overlooked or could not be addressed by probation officers because other needs (criminogenic or not) took precedence. Haqanee, Peterson-Badali and Skilling (2015) discuss multiple challenges to RNR-based probation practice as reported by front line staff, including probation officers needing to prioritize particular domains (not necessarily those identified as highest need) due to limited resources and time. These results suggest a need to further develop evidence-based, engaging programming, as well as a need for continued (and increased) support for probation officers, through both training and resources, to help them prioritize, and systematically address, their clients’ criminogenic needs.
While male and female youth were no more or less likely to receive services aimed at addressing their needs across five of the seven criminogenic need domains, female youth were significantly more likely than male youth to receive at least some intervention directed at their needs in the personality (70% vs. 35%) and attitude (52% vs 25%) domains. Case notes indicated that these differences are accounted for by the fact that female youth were more likely than male youth to be referred to – and to attend – individual counselling or psychotherapy directed at these and other needs.

When examining the receipt of services and intervention directed at the hypothesized gender-specific needs, for which 92% of female youth and 62% of male youth had at least one, female youth were more likely to have these needs met than were male youth. For instance, whereas there were no gender differences found in overall criminogenic need to service matching, female youths’ average overall gender-specific match score was approximately 44% while male youths’ was approximately 26%. In particular, female youth were far more likely than male youth to have services directed at their previous experiences of maltreatment. Once again, this difference seemed to be explained by the fact that female youth were more likely to receive and at least partially engage in counselling and/or therapy. While female youth were more likely than male youth to have experienced maltreatment in childhood, male youth still reported rates of maltreatment well beyond that of the general population, indicating that this proposed gender-specific need is at very least a more frequent clinical need for male youth than is typically described. Taking together this gap, as well as the gap in treatment directed at the personality and attitude domains, it appears that male youth are not receiving as much attention as female youth paid to their social and/or emotional difficulties, even when these needs are clearly articulated within the RNR framework as criminogenic.
Addressing criminogenic needs was correlated with receiving service for gender-specific needs. While most correlations between RNR need and gender-specific need matching were at most moderate, and weaker than the correlations between service matching amongst the criminogenic need domains, two very strong correlations emerged between matching in the personality domain (i.e. anger, aggression, poor frustration tolerance, inattention) and for internalizing mental health (i.e. mood and anxiety disorders), as well as between matching in the peer domain and for the area of delinquent romantic partner. Examining in greater detail the interventions targeted at these factors, the strength of these relationships is not surprising given that interventions targeted to these specific criminogenic needs would also satisfy matching for the gender-specific factors. For instance, therapy or medication can serve as intervention for both personality needs and internalizing mental health needs, while monitoring by probation and family, as well as an evidenced distancing from negative peer influences, are essential interventions in the case of both the peer domain and having a delinquent romantic partner. Thus, I found that with accurate and thorough assessment, treating a criminogenic need may also serve to treat auxiliary needs either directly or indirectly.

**Risk Assessment and the Addition of Gender-Specific Needs**

Interestingly (and in contrast to previous studies; Vieira et al., 2009; Vitopoulos et al. 2012) risk scores did not predict recidivism in the current sample. The overall AUC of .59 represents a small effect size and contrasts with previous studies that have found moderate to large effect sizes, with AUCs ranging from .64-.77 (Olver et al., 2012; Schwalbe, 2007). The smaller effect size found for the YLS/CMI in the current study may be due to basic sampling error, as evidenced by the broad confidence intervals found in the ROC analyses that ranged from .42 to .78.
Another reason for the reduced predictive ability of the YLS in the present sample may be that, due to the fact that they were selected by the courts for more extensive assessment, participants may have gone on to receive more intervention and treatment than is typical for non-assessed youth. For instance, in keeping with the RNR theorists’ emphasis on the dynamic nature of risk assessment, if youth with higher YLS/CMI scores do in fact, as the RNR model would recommend, go on to receive more intensive services, resulting in desistance or decline in the seriousness of re-offenses (e.g., non-violent rather than violent re-offending) this would in turn influence the resultant rates of recidivism and the strength of the YLS/CMI to predict the probability of recidivism for any given youth. It is also possible that the high prevalence of maltreatment in the current sample is a marker for a fundamentally different sub-group of justice-involved youth, for whom the links between criminogenic needs and subsequent offending are not as easily captured by the domains of the YLS/CMI. For instance, they may present with high risk scores, reflecting multiple areas of need, but may not follow the typical recidivist pathways. Onifade et al. (2014) and Li et al. (2015) found that while YLS/CMI scores were strong predictors of re-offending in non-maltreated youth, they did not accurately predict recidivism for maltreated justice-involved youth.

Despite the high prevalence of many of the proposed gender-specific needs in the current sample, none of these needs significantly predicted re-offending for the overall sample or in separate male and female models. In fact, in models where individual criminogenic domains were included alongside gender-specific needs, only criminal history emerged as a predictor (either significantly or at the trend level). The above discussion regarding type of recidivism and elevated rates of maltreatment may be applicable in explaining the lack of prediction of gender-specific factors as well. However, the argument for a unique sub-group of justice-involved youth, distinguished from their peers by histories of maltreatment and internalizing mental health issues,
lends itself to the expectation that these factors would be more relevant to their offending behavior than the typical justice-involved youth; the lack of relationship indicates that this was not the case in the current study.

It may also be that our results are limited by how the proposed gender-specific variables were measured. While the need domains have been validated and consistently measured in a similar fashion, the proposed gender-responsive variables are characterized by differences in definition and measurement. For instance, in the current study maltreatment was measured as present or absent in youths’ histories, this was done in order to ensure that it could contribute to an overall gender-specific need to service/treatment match calculation later on. However, the cumulative measure of maltreatment used in Paper 1 may better reflect the relationship between maltreatment and offending behavior, as was the case for female justice-involved youth in a study by Smith et al. (2006). Of course, it may also be, as RNR scholars have asserted, that these additional gender-specific factors, while certainly relevant to the lives of female youth (and our results indicate to male youth, as well), are not directly linked to re-offending (Andrews et al., 2012; Olver et al., 2014; Rettinger & Andrews, 2010) and are better understood as additional, non-criminogenic, needs. Despite the fact I did not find evidence of predictive power for the YLS/CMI or the five proposed gender-specific factors, I did find evidence for a positive impact of successfully matching youths’ needs to services through probation.

**Need to Service Matching and Recidivism**

The current study’s results evidenced a strong main effect whereby a higher match between clinician recommendations based on criminogenic needs and treatment services significantly predicted a reduction in recidivism for both male and female youth, akin to findings from the Vieira et al. (2009) study. Unlike the Vitopoulos et al. (2012) study, which found that gender was a moderator in this relationship, the relationship between successful treatment
matching and reduced recidivism held regardless of gender. Thus, while criminogenic needs were not predictive of risk, matching services and treatment to these identified needs was associated with reduced offending. This finding lends some support to the explanation that risk prediction may have indeed been impacted by youths’ receipt of services, such that youth receiving services successfully matched to their needs should be expected to defy their risk prediction trajectory because they are in fact receiving intervention to change their risk level. These results suggest that the criminogenic needs are relevant to both males and females, and that attending to these needs via rehabilitative services can influence recidivism outcomes (Andrews & Bonta, 2006).

Interestingly, I also found evidence that matching services and treatment to the proposed gender-specific factors was related to reduced recidivism, as has been suggested by many gender-responsive scholars (Bloom & Covington, 2009; Chesney-Lind et al., 2008; Garcia & Lane, 2013; Lederman et al., 2004; Odgers et al., 2005; Lederman et al., 2004). These results suggest concordance with Zahn et al.’s (2009) study that compared gender-neutral and gender-specific programs to find that programs that targeted several risk factors at once, regardless of gender-specificity, were most effective in reducing recidivism. In fact, in the current study, the main effect found for successful matching of gender-specific factors was very similar to that found for matching services to criminogenic needs because many of the same interventions were treating both criminogenic and proposed gender-specific needs at once.

Of note is the fact that I did not find a gendered effect for the utility of targeting intervention at the proposed gender-specific factors, meaning that while the factors may be more relevant to female youth as a whole by virtue of their higher prevalence, these factors appear to be just as relevant for the male youth who share them. This finding suggests that more research is needed to better understand the unique profiles of subsets of justice-involved youth, which may
be more complex than falling neatly on ‘gendered’ lines and may demand a more nuanced approach to assessment, service delivery, and treatment. As discussed earlier, there appears to be a gap in male youth receiving treatment for their needs in the personality and attitude domains, as well as for past maltreatment. Given that these interventions have an impact on subsequent recidivism, it is critical that services are also attending to the needs of young males involved in the justice system.

As discussed previously, the services and/or treatment for many of the gender-specific factors overlaps a great deal with the best practice treatment for criminogenic needs, especially in the case of the personality domain and internalizing mental health, as well as in the case of the peer domain and having a delinquent romantic partner. Thus, given that best practice for both criminogenic needs and proposed gender-specific needs significantly overlaps, it is not surprising that the effect of these needs being successfully targeted by services is similar. For instance, a youth who has a history of maltreatment and resultant symptoms of PTSD, also having identified needs in the areas of personality, substance use, and attitudes, would foreseeably be very well served by service delivery that both recognizes this complex profile and offers integrative treatment for these multiple needs. It is a limitation of our study that I was unable to directly parse out what portion of intervention time was spent addressing which needs when services were delivered by external clinicians, such as in the case of psychotherapy. Thus, I cannot say with certainty which specific targets for intervention (i.e. criminogenic vs. gender-specific factors) or which interventions within a particular service contributed to changes in recidivism outcomes. It was not possible to measure individual program or staff quality in the many agencies from which youth received their clinical services. This study was not a direct intervention study (see Day et al., 2014), and instead aimed to offer a detailed survey of youths’ needs, how these needs were recognized by service delivery on the whole, and the effect of this
service delivery on recidivism. Future research could utilize a prospective model examining
time to service matching to youths’ needs and comparing outcomes for youth for whom intervention was
targeted at their criminogenic and/or gender-specific needs, allowing for more detailed
intervention information to be collected and examined.

The results of the present study are constrained by a small sample size. However, for each
participant in the study, I was able to access information garnered through a comprehensive,
consistent, multisource, multimethod assessment process, unlikely to be available through
regular youth justice services, which allowed for enhanced internal validity. While RNR and
gender-specific factors were identified prospectively, I was also able to retrospectively access
and examine each youth’s probation records, thus yielding high-quality data on youths’
individual needs, as well as their service and treatment experiences related to their justice system
involvement.

Delivering impactful, high quality rehabilitative services and interventions to justice-
involved youth is an important social goal. Identifying the most efficacious aims of these
interventions and developing programs that change the legal and life trajectories of often very
high need youth, serve as our best course of action for a reduction in youth crime. Both the RNR
and gender-responsive literatures offer important recommendations as to how to intervene with
justice-involved youth. The current study contributes to the existing literature by offering a
comparative examination of the needs identified by both of these literatures for both male and
female justice-involved and exploring how these needs are being met through services. This
study’s unique focus on the impact of matching services to youths’ needs contributes to a further
understanding of how services matched to factors highlighted by the both the RNR and gender-
responsive literatures play a critical role in outcomes for both male and female justice-involved
youth.
General Conclusion

Due to longstanding gender gaps in offending rates, whereby male youth have been far more likely to offend than female youth, risk factors for offending and rehabilitative needs of female justice-involved youth is a relatively new area of inquiry. Of late, there is evidence to suggest that this gender gap is closing owing to a substantial decrease in male offending that has not been mirrored in rates of female offending (Goodkind et al., 2009; Hockenberry & Puzzanchera, 2015; National Crime Prevention Centre, 2012). This change highlights the importance of better understanding the antecedents to female criminal involvement and how best to intervene with female youth.

Current corrections practice across much of North America, Europe, and Australia is based on the largely gender-neutral RNR model (Andrews, Bonta & Wormith, 2011) for the assessment and treatment of offenders. However, this framework has been criticized for overlooking potential gender-specific factors, uniquely relevant to female offending, that gender-responsive scholars (Covington, 2007; Bloom et al., 2003; Dixon et al., 2005; Odgers et al., 2005; VanVoorhis et al., 2010) assert should play a meaningful role in assessment and treatment. The two studies that constitute this dissertation sought to contribute to both the RNR and gender-responsive literatures by examining factors critical to each of them, with the ultimate goal of better informing service provision. In the context of the well-established RNR framework, this work sought to examine the impact of proposed gender-specific factors utilizing an empirical approach and male comparison sample.

The first paper focused on defining and exploring the impact of three constructs (PTSD symptomology, maltreatment, and general childhood adversity), often associated under the umbrella term of ‘trauma’, proposed by gender-responsive scholars to be significant contributors to female criminal behavior. Rates of all three constructs were much higher in our sample than in
the general population, and female youth were more likely to have experienced maltreatment than were male youth. While PTSD symptomology and general childhood adversity did not contribute to the prediction of re-offending, exposure to multiple maltreatment types was the strongest predictor of re-offending for both males and females in a model including the trauma variables as well as the Central Eight criminogenic needs.

These findings are consistent with literature that has begun to suggest that justice system-involved youth who have experienced maltreatment may represent a unique subset of offenders, for whom gender-neutral risk assessment tools and treatment approaches may be less useful (Onifade et al., 2014; Li et al., 2015). Furthermore, the study results lends support to the idea that there may be different classes of justice-involved youth, not strictly defined by gender lines, for whom a distinct sets of needs may be more or less relevant (Jones et al., 2014; Reisig et al., 2006). These findings also underscore the importance of clearly defining ‘trauma’ constructs in research in order to understand the differential impacts of exposure to putative traumatic events and psychological effects or symptoms on offending behavior (Smith et al., 2005). Finally, the results of this study indicate a need to better understand the mechanism by which maltreatment influences re-offending. Current formal definitions of PTSD symptomology, derived from the experience of single-incident trauma, generally do not adequately describe the experiences of people who have been exposed to sustained, repetitive trauma over the course of development (such as is often the case in childhood maltreatment) (Cloitre et al., 2009; Milan et al., 2012). As such, understanding the link between maltreatment, resultant symptoms of complex PTSD (Herman, 1992), and subsequent offending behavior is an important area for future investigation.

The second paper sought to examine the contribution of several proposed gender-specific factors to risk prediction, alongside factors currently included in the RNR framework. It also explored how addressing criminogenic and gender-responsive needs via services and case
management during probation was related to subsequent recidivism for male and female youth. While female youth were more likely than male youth to have experienced maltreatment, have a delinquent romantic partner, and to have been diagnosed with an internalizing disorder, these factors were not related to recidivism, similar to the results of some previous research (Rettinger and Andrews, 2010; van der Knaap et al., 2011). Despite this lack of relationship, matching to both youths’ identified criminogenic needs and gender-responsive needs each predicted reduced recidivism for both males and females. Indeed, the main effect found for successful matching of gender-specific factors was very similar to that found for matching services to criminogenic needs because many of the same interventions were treating both criminogenic and proposed gender-specific needs at once (i.e. individual psychotherapy is a high quality intervention for treating both youths’ needs in the domain of personality and symptoms of internalizing mental health disorders). These results suggest that while these proposed gender-specific factors may not be operating as robust predictors of risk, they, in addition to criminogenic needs, may show promise as targets of intervention (Matthews & Hubbard, 2008; Wright et al., 2012; Bloom & Covington, 2009). A surprising finding of this study was that male youth were significantly less likely than female youth to have been matched to services targeting their criminogenic needs in the domains of personality and attitudes, as well as to their past experiences of maltreatment. This result was because males were less likely to receive and/or attend individual or group psychotherapy, suggesting that male youth may be especially underserved in areas that necessitate more intensive, personalized interventions.

Both papers highlight the need to re-examine current practices and develop further rehabilitative programming for female and male justice-involved youth alike. For instance, the first study indicates that while female youth are more likely to have experienced multiple forms of maltreatment in childhood, maltreatment experienced by male youth also has a relationship to
re-offending. Indeed, the sheer elevated prevalence of trauma-related experiences and symptomology in our study and across the literature indicates that calls for a trauma-informed justice-system have strong merit (Maschi & Schwalbe, 2012; Ford et al., 2013; Bender, 2010). The second study also highlights that while there was a higher proportion of female youth for whom the potential gender-specific factors were relevant, successfully matching treatment to these needs was related to reduced recidivism for male as well as female youth. These findings emphasize the need for further investigation into potential subtypes of justice-involved youth, and future research should aim to go beyond gender-defined profiles. Recent scholarship (Jones et al., 2014; Reisig et al., 2006; Onifade et al, 2014; Li et al., 2015) has proposed that to best understand the risk factors for offending and rehabilitative treatment needs of justice-involved youth, a more nuanced understanding of their distinct profiles is warranted.

These studies’ findings must be considered in light of a number of limitations. First, both studies were limited by a small sample that did not allow for the examination of separate statistical models, containing multiple predictors, for male and female youth. In addition, effects that were found are generally small. With regards to the retrospective nature of the data, despite having utilized a multimethod, multi-agent approach to assessment, measures of childhood trauma took place during a baseline assessment when youth were an average of 16 years old, resulting in a reliance on historical and retrospective reports of maltreatment and adverse experiences. A limitation of the service to need matching process, utilized in the second paper, is that I was unable to directly parse out what portion of intervention time was spent addressing which needs when services were delivered by external clinicians, such as in the case of psychotherapy. Thus, I cannot say with certainty which specific targets for intervention (e.g. criminogenic or gender-specific factors) or which interventions within a particular service contributed to changes in recidivism outcomes. Likewise, it was not possible to measure
individual program or staff quality in the many agencies from which youth received their clinical services. Future research could utilize a prospective model examining service matching to youths’ needs and comparing outcomes for youth for whom intervention was targeted at their criminogenic and/or gender-specific needs, allowing for more detailed intervention information to be collected and examined. Further to this point, follow-up studies examining the broader socio-emotional outcomes of justice-involved youth in relation to services and intervention received, as well as to personal resilience, could shed more light on youths’ pathways out of the justice-system.

Despite limitations, this dissertation contributes to a more defined understanding of the interplay between current correctional practice based on the RNR framework and factors long-proposed by the gender-responsive literature to be relevant to female youth, yet overlooked in the RNR model. Histories of maltreatment are relevant to the lives of both male and female justice-involved youth and when rehabilitative services are successfully matched to youths’ needs, they are less likely to re-offend. There is a critical need for high-quality, individualized, services and programming for justice-involved youth. Findings from the current work can be utilized to inform legal and correctional policy and practice, as well as in the development of innovative community and institutional rehabilitative programming for both male and female youth. Continued empirical examination into the efficacy of justice-based services and clinical programs is an essential next step in reducing youth crime.
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