

COMPARING GENDER IN PROFILES OF JUSTICE-INVOLVED YOUTH

Comparing Gender Differences and Similarities in How Risks and Strengths Cluster to Form  
Profiles of Justice-Involved Youth: A Latent Profile Analysis

by

Megan Wagstaff

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### Abstract

The extent to which gender informed, person-centered risk assessment approaches enhance the efficacy of risk assessment and treatment planning, has not been extensively investigated. A person-centered, gender informed latent profile analysis (LPA) examined dynamic need and strength domain scores, as well as mental health scores and Adverse Childhood Experience (ACE; Felitti et al., 1998) scores derived from the Full Assessment version of the Youth Assessment Screening Instrument (YASI; Orbis Partners, 2000) in a sample of 1,782 ( $n = 1,428$  males;  $n = 354$  females) American justice-involved youth (aged 13-17). Results yielded the same three distinct profiles for both females and males: (1) *low needs, mental health concerns, and adversity/high strengths*, (2) *moderate needs, mental health concerns, and adversity/moderate strengths*, and (3) *high needs, mental health concerns, and adversity/low strengths*. Additional analyses found that for males and females alike, as need profiles increased in severity, so too did Pre-Screen aggregate risk scores. Additionally, age was not related to profile membership in either gender. Further, race was correlated with profile membership, but for males only; Black youth were more likely to be categorized in the *high needs, mental health concerns, and adversity/low strengths* profile. Finally, area under the curve (AUC) analyses from receiver operating characteristic (ROC) curves demonstrated that profile membership influenced the predictive accuracy of the YASI, and the results varied as a function of gender; the YASI predicted recidivism more accurately for females in the *low needs, mental health concerns and adversity/high strengths* profile. In sum, despite small gender differences, females and males are more similar than different in terms of their treatment profiles. A gender informed, variable-centered approach is appropriate for risk assessment and treatment planning with justice-involved youth.

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### **Comparing Gender Differences and Similarities in How Risks and Strengths Cluster to Form Profiles of Justice-Involved Youth: A Latent Profile Analysis**

Traditionally, the study of persons in conflict with the law has mainly focused on males (Blanchette & Brown, 2006). Additionally, most risk assessment tools designed to measure the risk of recidivism and correctional treatment targets have been developed on male-only samples. Consequently, for decades most correctional agencies used the same assessment tools for both genders<sup>1</sup>, with the assumption that the same risk factors apply to the same degree, and in the same way, for females. A robust debate in the field has emerged between gender neutral and gender responsive proponents. Briefly, gender neutral theorists argue that traditional theories derived from male-only samples summarize criminal behaviour for all individuals regardless of gender or pathways to crime (Wattanaporn & Holtfreter, 2014). In contrast, gender responsive theorists argue that because females follow a different pathway to the criminal justice system in comparison to their male counterparts, females need tailored assessment and treatment approaches (Van Voorhis et al., 2010). Increasingly, there is evidence to suggest that a blended approach is not only important, but necessary to encapsulate the true differences (as well as similarities) among justice-involved<sup>2</sup> females (Fagan & Lindsey, 2014; Gobeil et al., 2016; Van Voorhis et al., 2013).

Researchers from both gender responsive and gender neutral perspectives are increasingly using person-centered as opposed to variable-centered approaches to explore heterogeneity amongst justice-involved youth (Brennan et al., 2012; Brown, Wanamaker et al., in press; Lanctôt, 2018; Schwalbe et al., 2008). This approach is being explored to determine

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<sup>1</sup> The term *gender* is used as a binary term despite the knowledge that gender is no longer binary and reflects more than two terms.

<sup>2</sup> The term *justice-involved* includes individuals who have had contact with the justice system (e.g., arrested, charged, convicted, in custody or in the community).

whether it can enhance the traditional variable-centered approaches to risk assessment and treatment planning. Results from the most recent latent profile analysis involving youth, conducted by Brown, Wanamaker et al. (in press) suggested that two significant latent profiles exist in both genders: (1) a *complex ACEs with criminogenic needs* group, and (2) an *overall low needs* group. Contrary to past research (Charak et al., 2009), Brown and colleagues found that while females still outnumbered the males in the complex ACEs profile, the gender differences weren't as pronounced. The authors suggest multiple explanations for these findings, noting that the nature of their sample was both high-risk and therefore not representative of the general youth justice population, as well as likely underpowered. This study did not examine whether strengths impact the classification of LPA profiles. Although the literature has established the notion that measuring strengths is crucial in order to understand the full picture of a justice-involved person's life, and therefore their level of risk to recidivate, very few studies have explored their potential influence on LPA profile membership. No study to date has explored whether strengths impact the classification of LPA/LCA profiles/classes with adolescents.

In sum, the results of this work have been complex and it isn't clear how (and if) LPA-based analyses can inform risk assessment. Thus, more work is needed to replicate these findings using larger samples that also consider the combination of dynamic need<sup>3</sup> and strength factors. Consequently, my proposed research seeks to advance the field by determining if a gender informed, person-centered risk assessment approach that also considers strengths, can enhance risk assessment and treatment planning in a sample of male and female justice-involved youth from Milwaukee. Youth-justice organizations such as Milwaukee County Department of Health and Human Services will be able to examine the resultant profiles to assess if their existing

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<sup>3</sup> The term *dynamic need* also known as criminogenic needs, refers to a subset of risk factors that are potentially changeable, therefore dynamic by nature.

treatment programs are appropriate- both in terms of content and intensity, for their different types of clients.

To begin, a review of the nature of female youthful offending will be presented, followed by an overview of the definitions surrounding gender neutral and gender responsiveness (e.g., gender responsive, gender informed, gender salient, and gender specific). Next, risk assessment as a variable-centered approach will be discussed, and then contrasted by the more recent person-centered approach stemming from the feminist pathways theory. An overview of latent profile analyses (LPAs), and extant LPA/LCA studies will then be presented, followed by an introduction to the Youth Assessment Screening Instrument (YASI, Orbis Partners, 2000). Finally, the gaps in the literature will be summarized, setting the context for the current study's research questions and hypotheses.

### **Nature of Youthful Female Offending**

A well-established finding within the criminological literature is that overall, females commit much less crime compared to their male counterparts (Belknap, 2015; Blanchette & Brown, 2006; Moffitt et al., 2001). This is especially true when it comes to criminal acts with higher levels of severity and violence such as robbery, aggravated assault, and rape (Schwartz & Steffensmeier, 2012). Official Canadian statistics from 2017 demonstrate that boys were twice as likely (30%) as girls (15%) to engage in violent behaviour (National Crime Prevention Centre, 2017). However, research has found that there are little to no gender differences with respect to minor delinquent acts, occurring during adolescence such as underage drinking, vandalism, skipping school, drug experimentation, shoplifting, and cheating (Moffitt, 1993). The National Crime Prevention Center reported that boys were only slightly more likely than girls to have committed acts against property (30% versus 26%; National Crime Prevention Centre, 2017).

In Canada, female youth represented 22% ( $n = 9,592$  females of  $N = 43,600$ ) of youth admissions to correctional services in 2010-2011 (Munch, 2012). A few years later in 2015-2016, their proportion increased to 25% (Malakieh, 2017), however this proportion represented a smaller number of total admissions ( $n = 4,101$  females of  $N = 16,404$ ) of youth to correctional services within the nine jurisdictions that contributed data (Munch, 2012). Thus, the number of total youth admissions to correctional services continues to decline in Canada, however the decline is occurring at a slower rate for female youth compared to males (Augimeri, 2017). Recent American arrest data from 2005-2014 suggests a similar trend in that overall, the crime rate is decreasing for both males and females, irrespective of age. However, the decrease is most evident for male adolescents (Brown et al., 2019b).

According to Moffitt's (1993) prominent developmental life course (DLC) theory, there are two main ways in which both female and male youth begin offending: (1) *life-course-persistent* (LCP) offenders, who start offending at a considerably early age and persist beyond their twenties, and (2) *adolescence-limited* (AL) offenders who conversely do follow the age-crime curve and have a short criminal career, largely limited to their teenage years. The LCPs are usually involved in substance abuse, aggression towards peers and authority figures, and conflicts at home with parents. They tend to continue to commit a wide range of offenses including violent offences (Farrington & Ttofi, 2015). There is a large gender gap in this category however, with females accounting for 10% of LCPs, suggesting that girls are much less likely to possess key risk factors which make them vulnerable to become life-course-persistent offenders (Moffitt & Caspi, 2001). In contrast, the ALs largely commit minor, defiant, non-violent offenses such as vandalism, experimentation with substances, and defiance towards authority figures (Farrington & Ttofi, 2015). These crimes are deemed to be normative during

adolescence, and are posited to terminate as youth enter early adulthood. In this category, the gender gap is virtually non-existent, with an equal proportion of girls to boys (Moffitt & Caspi, 2001). Later analyses suggested a third pathway, with a large proportion of females—late onset with chronic offending (Moffitt et al., 2002). This group is characterized by low-level but consistent antisocial behaviour that continues across the adolescent developmental lifespan and into early adulthood. In addition, these individuals exhibit high levels of internalizing problems such as depression and anxiety disorders, and low levels of positive outcomes in terms of education, occupational status and degree of optimism (Moffitt et al., 2002). In sum, the gender differences in prevalence and trajectories of youthful crime suggests the need for gender informed assessment and programming.

### **Understanding Gender Neutral and Gender Responsive Terminology**

As stated there is a debate within the literature regarding gender neutral and gender responsive theories. However, within the literature, terms have been used inconsistently and interchangeably with regard to gender-responsivity, including gender responsive, gender informed, gender salient, and gender specific. For the purpose of this study only the terms gender neutral, gender responsive, and gender informed will be used, however it is important to make the clear distinctions amongst all terms. An overview of the definitions are as follows:

*Gender neutral:* an approach which is derived from male-only or predominately male-only samples, and operates from the perspective that there are more similarities than differences between males and females. As such, this approach summarizes criminal behaviour for all individuals regardless of gender, race, ethnicity, or pathways to crime (Wattanaporn & Holtfreter, 2014; Scott, 2017). Relatedly, empirically derived risk factors from gender-neutral models are theorized to predict equally well for both males and

females, and thus treatment methods based on these key risk factors are not expected to exhibit any gender differences in their applicability (Bonta & Andrews, 2017; Scott, 2017). In other words, risk factors that are predictive for both males and females and show no significant differences in the magnitude of prediction are classified as gender neutral (Brown & Motiuk, 2008; Scott, 2017). This approach is seen through the Risk-Need-Responsivity (RNR; Andrews et al., 1990) model (see discussion in next section). The major risk factors of this model include the ‘Central Eight’ correlates of crime: history of antisocial behaviour, antisocial attitudes, antisocial associates, antisocial personality, substance abuse, as well as family, school, and employment issues (Andrews & Bonta, 2010a). However, variables pertaining to childhood adversity (e.g., physical abuse, sexual abuse, neglect) and mental health are not seen to be as important for informing appropriate prevention and treatment strategies. Although these variables were excluded completely with the introduction of the RNR model, some of these variables such as self-esteem, personal distress, mental health disorders, and physical health are now deemed to be non-criminogenic *minor* needs.

*Gender responsive*: an approach derived from female-only or predominately female samples, and inherently means tailored to girls/women. The underlying premise of gender-responsivity is based on inherent differences between males and females that must be taken into consideration (Daly & Chesney-Lind, 1988, Scott, 2017). It is an assessment or intervention process that is grounded in gender responsive principles originally outlined by Bloom et al. (2003), but has since been elaborated upon by others (e.g., Brown et al., 2020). Notably, key elements of a gender-responsive approach include recognition that females follow unique pathways to crime—many of which involve

trauma, and accordingly, need assessment methods that reflect this context, as well as treatment approaches that are trauma informed. Gender responsive methods also recognize the need to address intersectionality—women are not just defined by their biological sex but by their socially defined gender, LGBTQ, race, ethnicity, age, disabilities, and all other intersecting identities that define us. As such researchers who identify as gender-responsive, typically study all-female samples/mainly female, and are focused on females. They are not usually focused on males or male comparisons—albeit there are exceptions.

*Gender salient:* Although this term has been used interchangeably with gender responsive, gender salient has also been used to better distinguish gender differences (e.g., Scott & Brown, 2018). Gender salient corresponds to risk factors which are predictive for both males and females, however, there is a stronger magnitude of the effect for one gender over the other (Scott, 2017).

*Gender specific:* Although this term has been used interchangeably with gender responsive, gender specific has also been used to better distinguish gender differences (e.g., Scott & Brown, 2018). Gender specific corresponds to risk factors which are predictive for both males and females, however, they are significantly more important for one gender and not the other (Brown & Motiuk, 2008).

*Gender informed:* Although this term has been used interchangeably with gender responsive, gender informed has also been used to better distinguish gender differences (e.g., Scott & Brown, 2018). Gender informed corresponds to a blended approach which encompasses both gender neutral *and* gender responsive perspectives. Therefore it suggests the importance of both categories of risk factors, including: substance abuse,

trauma and/or victimization, poor mental health, unhealthy relationships (the “gender responsive big four”, Scott, Brown, & Wanamaker, 2017), low self-worth, economic marginalization/poverty, parental stress, unsafe living situations, and female specific health needs (Blanchette & Brown, 2006, Bloom et al., 2003; Gobeil, Blanchette, & Stewart, 2016; Salisbury & Van Voorhis, 2009; Van Voorhis, 2012) in addition to the Central Eight posited by the gender neutral theory (Bonta & Andrews, 2017) .

Additionally, the focus is on both females and males in order to compare gender differences and similarities (Blanchette & Brown, 2006). This approach understands that while certain risk factors may be the same for males and females, the expression (e.g., operational definition) and underlying experience (e.g., antisocial associates, mental health concerns) of these factors could be very different for each gender. Thus, this perspective posits that both the gender neutral and gender responsive perspectives provide valuable contribution (Blanchette & Brown, 2006).

### **The Risk-Need-Responsivity Framework**

Across studies, different methodological approaches (i.e., variable- and person-centered) have been used to examine heterogeneity amongst justice-involved individuals (Lanctôt, 2018; Schwalbe et al., 2008). Variable-centered approaches typically focus on examining relations among variables, stemming from the gender neutral perspective. One of the most well-known gender neutral correctional practice models is the risk-need-responsivity (RNR) framework (Andrews et al., 1990; Bonta & Andrews, 2017). The original RNR model consisted of three core principles: risk, need and responsivity. The risk principle is the ‘who’ part of the equation, dictating which individual should receive which level of resources. It states that the higher the level of risk a person is categorized as, the more treatment/intervention that he/she should

receive. The need principle fills the ‘what’ part of the equation, dictating the criminogenic needs (i.e. dynamic needs) that should be targeted for treatment, which are most likely to decrease the probability of a negative outcome. Finally, the responsivity principle is the final piece of the equation and answers the ‘how’ in dictating the types of treatments that the individual should receive. The responsivity principle is divided into two sub principles: general and specific (Andrews & Bonta, 2010). General responsivity refers to the notion that treatments should use theoretically relevant models for individual change, specifically cognitive-behavioural and cognitive-social learning models (Andrews & Bonta, 2010). Specific responsivity states that the style and mode of a treatment should match the individual’s characteristics, taking into consideration their strengths, personality, learning style, motivation, and bio-social traits (e.g., gender, race; Andrews & Bonta, 2010). All three of the RNR principles are based on the individual characteristics and circumstances of each person in conflict with the law (Andrews & Bonta, 2010; Bonta & Andrews, 2017). Andrews and Bonta (2006) compiled a list of eight key risk factors (known as the ‘Central Eight’ [C8]), which are most strongly related to recidivism. They include antisocial attitudes, antisocial associates, antisocial personality pattern, history of antisocial behaviour, family/marital, school/work, leisure/recreation, and substance abuse. Notably, these factors are said to be equally important for males and females, and across age and race; any differences with respect to these characteristics can be sufficiently addressed through the responsivity principle. Additionally, within this framework it is posited that gender specific factors do not significantly contribute to an individual’s likelihood of engaging in criminal behaviour (i.e., gender specific factors have low predictive accuracy as risk factors; Bonta & Andrews, 2017).

Since the original formulation of the RNR model in 1990, new research on rehabilitation for justice-involved individuals has led to the expansion of the model. One of the newer principles in the model is strengths. Briefly, a risk factor has been defined as a condition or variable that is associated with a higher probability of a negative outcome such as an increased risk for recidivism (Cottle et al., 2001; Lösel & Farrington, 2012). Alternatively, a strength factor refers to a positive or prosocial aspect of an individual's life (Jones et al., 2015), with the potential to decrease the impact of a risk factor(s) (Scott & Brown, 2018). Although there is a considerable debate within the literature of what constitutes a strength factor (Hemphill et al., 2016), for the purpose of this study it will be used as an all-encompassing term synonymous with the term 'protective factor'.

Strengths have been found to add incremental variability to the pathways that lead to criminal behaviour, more so than the variability explained by dynamic needs on their own (Carr & Vandiver, 2001; Wanamaker et al., 2018). Brown and colleagues (2020) argued that in order to demonstrate that strengths are not merely the absence of risk, it is important to focus on the incorporation of strengths in the presence of dynamic need factors. The ability of strength factors to exhibit incremental variability, while competing with dynamic need factors, validates their importance to the prediction of recidivism (Brown et al., 2020). Moreover, some studies have suggested that integrating a strengths-based approach to research, leads to more accurate risk assessments (by preventing the overestimation of risk), as well as more effective rehabilitation strategies (by identifying positive facets in an individual's life, and by creating a stronger practitioner-client relationship; Jones et al., 2015; Ward & Stewart, 2003). Consequently, it is crucial that further strength-based research is conducted in order to better inform how strengths should be used in practice (Brown et al., 2020)

The RNR approach to assessment and treatment of individuals in the justice system has significantly influenced the development of risk-assessment tools (Bonta & Andrews, 2007). Although the RNR model was first developed for use with adults in conflict with the law, due to its effectiveness in matching treatments to criminogenic needs and its emphasis on rehabilitation, there is significant reason to believe it can also be successfully applied to juvenile samples (Redding et al., 2005). Hoge (2002) stresses the importance of risk, need, and responsivity assessments in juvenile justice systems, and studies addressing the effectiveness of RNR principles in reducing recidivism for justice-involved youth (e.g., Andrews et al., 1990). Consequently, many juvenile assessment tools now include both static risk items as well as dynamic need items that can be treated (Vieira et al., 2009). Multiple studies have shown that static risk factors (e.g., current age, number of previous offenses, early onset of behavioural problems etc.) are not only some of the best predictors of criminal recidivism, but are also equally predictive for males and females (Andrews & Bonta, 2010; Farrington, 1995). However, static factors cannot be changed, and therefore aren't applicable to treatment (Blanchette & Brown, 2019). Consequently, we look to dynamic need and strength factors as targets for correctional programming. However, this is one critical aspect of the gender neutral vs. gender responsive debate, in terms of which dynamic factors are more important to each gender (Blanchette & Brown, 2019).

### ***Evidence of the Risk/Need Responsivity Framework***

There is evidence to support the use of the RNR model with justice-involved females. Several large-scale and meta-analytic studies have found the Central Eight factors to be predictive of recidivism for both males and females (Andrews et al., 2011; Bonta et al., 2014; Olver et al., 2014). For example, Olver et al. (2014) found the majority of Central Eight factors

to be similarly predictive for males and females, with substance abuse and personality variables actually slightly more predictive for females. Critics of the RNR model however, have suggested differences in how the gender neutral factors manifest themselves among women and girls. Ultimately, they have shown that gender neutral juvenile risk assessment tools may not be sufficient in predicting and therefore reducing recidivism for female youth, compared to males (Schmidt et al., 2011; Vitopoulos et al., 2012). In other words, although certain gender neutral risk factors may predict for both males and females, the expression and underlying experience of these factors could be very different for each gender.

In terms of treatment, in 1999, Dowden and Andrews conducted a meta-analytic review of 26 treatment outcome studies with female-only or predominately female samples. They reported that recidivism decreased among justice-involved females by approximately 16% when higher risk individuals were targeted, intervention efforts were focused on criminogenic needs, and programs were cognitive behavioural in nature, providing evidence for RNR. A more recent treatment meta-analytic review conducted by Gobeil and colleagues (2016) which examined 37 studies, found that both gender neutral treatment (e.g., traditional programming) and gender responsive treatment (e.g., ACEs-informed programming) were equally effective. However, if implemented at the highest standard, gender responsive programs generated more effective recidivism outcomes, over and above gender neutral methods implemented at the same standard.

### **The Feminist Pathways Perspective**

Feminist scholars argue that a) traditional criminological theories of crime are inadequate for understanding female crime (Chesney-Lind, 1989; Daly, 1989; Daly & Chesney-Lind, 1988, Simpson, 1989), b) different risk factors predict the onset and maintenance of criminal behaviour in females than males (Van Voorhis et al., 2010), and c) assessment tools designed to predict

crime among men, do not perform well for women (Holtfreter et al., 2004; Van Voorhis et al., 2010). In response to this, the *pathways perspective*, stemming from the gender responsive perspective posits that men and women have different life-course trajectories into crime (Belknap, 2015; Bloom et al., 2003; Chesney-Lind & Pasko, 2013), and identifies important life events for understanding crime among women. One of the main focuses of the pathways perspective is victimization. Patterns of both victimization in childhood and adulthood are viewed as key risk factors to the development of delinquent behaviour in girls and women (Daly, 1992; Salisbury & Van Voorhis, 2009). This is due to the fact that victimization leads women to resort to criminal conduct as survival strategies (e.g., running away from home, prostitution, addictions etc.), which increases their risk of entering into the criminal justice system. Additionally, other negative experiences that are thought to contribute to criminal activity for females (i.e., gender responsive risk factors) are mental health issues (i.e., anxiety, depression, feelings of worthlessness), substance abuse, and relationship dysfunction.

While there is a considerable degree of overlap in risk/need factors identified by both feminist pathways and RNR researchers (e.g., substance abuse) for the most part, needs identified by feminist scholars as gender responsive, are not considered to be significant factors by the opposing perspective of gender neutral scholars. These factors haven't been prioritized or given as much thought as the Central Eight by RNR scholars. In general, these factors have been considered as specific responsivity factors (e.g., mental health and ACEs), thus are only thought to influence criminal behaviour indirectly through the Central Eight risk factors (Andrews & Bonta, 2010). In identifying the specific events and contexts of women's lives that promote criminal behaviour, the pathways perspective has made significant contributions to our understanding of women's criminality. This perspective appears to be most promising in terms of

providing a framework for the development of gender responsive principles, policy, and practice (Wattanaporn & Holtfreter, 2014).

### *Evidence of the Feminist Pathways Perspective*

The majority of research surrounding the pathways perspective has been through the use of qualitative methodologies such as interviews with women and girls involved in crime (Daly, 1992; Dehart, 2008; Simpson et al., 2008). These studies have compellingly demonstrated the prevalence of substance abuse, economic marginalization, and victimization within the lives of justice-involved females. Studies have shown these factors to also be important in the lives of males (e.g., child abuse; Widom, 1989; 2017). However, there is some research evidencing higher prevalence and predictive accuracy of recidivism among females, indicating gender-saliency (Benda, 2005). One of the most prominent studies surrounding the pathways perspective was conducted by Daly (1992), whereby court documents were examined for 40 women, and five profiles of women were identified: (1) *street women* entered street life and engaged in drugs, prostitution, or theft in order to flee abuse and victimization; (2) *drug-connected* women got involved with using or trafficking drugs, often through intimate partners or family members; (3) *harmed and harming women* experienced extreme child abuse and neglect, followed by school problems, hostility, and chronic adult criminality; (4) *battered women* experienced victimization from partners, leading to criminal behaviour that would be unlikely outside the relationship; and (5) *'other' women* engaged in financially-motivated crimes for survival or a desire for more money.

Researchers have critiqued the pathways perspective's lack of comprehensiveness, arguing that survival-based factors alone are insufficient in accounting for female criminality (Kruttschnitt, 2016). Additionally, the majority of evidence surrounding the pathways

perspective is largely based on correlational, qualitative, and/or prevalence studies of females. Quantitative research has been conducted, aimed at replicating the results from qualitative studies using quantitative methods, and has somewhat supported the findings. These studies have found evidence for predictors of recidivism such as childhood maltreatment, substance use, mental health concerns, dysfunctional relationships, and economic marginalization among samples of women (Brennan et al., 2012; Holtfreter & Morash, 2003; Jones et al., 2014; Salisbury & Van Voorhis, 2009). However, as mentioned male comparison groups have rarely been used which are needed to draw conclusions on gender differences (Blanchette & Brown, 2006; Scott, 2017). Additionally, the majority of studies that have only examined variables embedded within the feminist pathways paradigm have used adult samples (i.e., women). As a result, studies on justice-involved adolescents, informed by this perspective are largely underdeveloped. Further, rarely have feminist pathways researchers simultaneously considered gender neutral variables alongside gender responsive variables. Therefore, more statistically rigorous research is needed that includes both male and female samples, particularly adolescent samples, and both sets of variables from both perspectives in order to truly verify gender similarities and differences (Kruttschnitt, 2016).

### **Person-Centered Approaches**

An ideal method for testing the feminist pathways perspective, while simultaneously examining gender neutral and gender responsive variables is typology-building research. This type of research uses a person-centered approach to categorize justice-involved females into meaningful profiles based upon shared characteristics (Greiner, 2015). Whereas variable-centered approaches focus on examining relations among variables, person-centered approaches identify sub-groups of people based on their similarities on a set of variables. Thus, by assuming

sub-groups of individuals within a homogenous population of justice-involved individuals, a person-centered approach can help to detect groups where the associations among risk and strength factors are most salient. Namely, this person-centered approach is used to determine if latent subtypes/profiles/classes of justice-involved individuals exist (Brown, Wanamaker et al., in press). This approach seems ideal to examine the feminist paradigm and RNR methods in a holistic manner.

### ***Latent Clustering Methods***

Latent profile analyses (LPAs) and latent class analyses (LCAs) are person-centered techniques that are used to identify profiles (also known as latent classes/profiles) of an underlying, unobservable construct (also known as a latent variable) with data obtained from cross-sectional designs (Williams & Kibowski, 2016). An individual's latent class membership is concluded by measuring the latent variable with multiple indicator variables (Williams & Kibowski, 2016). Notably, the latent profiles/classes are expected to be mutually exclusive, and comprehensive, therefore each individual will belong to one, and only one, latent profile/class (Oberski, 2016).

The main difference between LCA and LPA is in the type of indicator variables used; while LCAs are used with categorical indicator variables, and yields *classes*, LPAs are used for continuous indicator variables, and yields *profiles* (Williams & Kibowski, 2016). Although the terms *clusters*, *profiles*, *classes* and *groups* are used interchangeably, there are slight differences. Therefore, for the remainder of this paper, the terms *classes* and *profiles* will be used to define the grouping of cases for either LCAs or LPAs. It should be noted that LPAs and LCAs are a branch of Gaussian Finite Mixture Modeling. Therefore unlike traditional cluster analyses, which requires the researcher to determine clusters arbitrarily in a bottom-up approach, LPAs (and

LCAs), use top-down approach whereby a model that describes the distribution of the data is first calculated, and based on the model, the researcher assesses probabilities that certain cases are members of certain latent profiles (Williams & Kibowski, 2016).

### ***Youth-Justice Latent Class Analyses/Latent Profile Analyses' Findings to Date***

Typology research is comparatively new, yet person-centered studies using LPAs have become increasingly popular within correctional research, particularly with regards to girls in conflict with the law. Over the past 13 years, eight studies have conducted LPAs and LCAs with adolescent samples to classify youth into meaningful groups based upon shared characteristics. Two of the eight studies used female-only samples. Cusworth Walker et al. (2016) conducted an LPA with a sample of 1,731 female youth which yielded four distinct profiles: (1) a *high family conflict and ACEs* profile, (2) a *complex treatment needs with antisocial peers* profile, (3) a *low adverse experiences with substance abuse needs* profile, and (4) a *mental health needs with strong social assets* profile. Odgers and colleagues (2007) conducted an LCA with 133 female youth which yielded 3 distinct classes: (1) a *low needs* class, (2) a *social skills* class, and (3) a *high needs* class. Due to the fact that historical research was exclusively conducted with male samples, there is a trend for gender responsive studies to conduct solely female-focused research, without a male sample acting as a comparison group (e.g., Cusworth Walker et al., 2016; Odgers et al., 2007).

The other six studies used a sample of both female and male youth. Collectively, these studies have found on average three profiles/classes (see Brown, Wanamaker et al., in press, Campbell et al., 2019, Charak et al., 2019, Ford et al., 2013, Lanctôt, 2018, and Schwalbe et al., 2008). Schwalbe and colleagues' LCA (2008) was the only study to find five distinct classes which were categorized as (1) a *low-need* class, (2) a *serious school problems* class, (3) a

*hostility-inattention* class, (4) a *risk and family-history* class, and (5) a *substance abuse and peer delinquency* class. Five of the six studies generated profiles using an aggregated sample and examined if gender impacted the results in post-hoc analyses. While this method is not necessarily problematic, it is so if the ratio of males to females was considerable—which was the case for most of the studies. Gender differences were found, using this method, however, it is hypothesized that even greater differences with regard to proportions of males and females within each profile were potentially suppressed. Only one of these studies disaggregated gender in order to examine the gender differences and similarities. Brown, Wanamaker et al. (in press) conducted an LPA with a sample of 100 females and 211 males, and discovered the same two latent profiles emerged for both males and females. However, the proportions of each gender within the profiles was significantly different; (1) a *complex ACEs with criminogenic needs* profile (70.0% of females, 58.8% of males), and (2) an *overall low needs* profile (30.0% of females, 41.2% of males). It is important for these typology studies to disaggregate gender since the ratios of samples are usually disproportionate, with more males than females, possibly causing unique female results to be lost within the overall sample.

Additionally, with respect to age and race, a great deal of research has examined differences within this context and has been identified as necessary in studies seeking to determine gender differences (Baca Zinn & Thornton Dill, 1996; Burgess-Proctor, 2006; Daly & Tonry, 1997; Hyde, 2014). Hyde discusses the importance of intersectionality, which is an approach that considers differences in the context of race, class, age, sexual orientation, disability, and/or religion. In other words, gender differences need to be considered in the context of such influences, rather than examining effects in isolation. These additional factors may assist in furthering our understanding of the relationship between gender and crime (Baca

Zinn & Thornton Dill, 1996; Burgess-Proctor, 2006; Daly & Tonry, 1997). Having focused a great deal of attention on differences *between* males and females, it would be negligent to not explore whether important *within* gender differences exist.

Six of the studies mentioned above which conducted LCA/LPAs on youth samples examined the relationship between race and the classification of profiles. Two of these studies found a significant relationship between race and resultant profiles (i.e., Cusworth Walker et al., 2016, and Ford et al., 2013). White youth were found to be more likely to be categorized in the *high family conflict, high trauma* class (Cusworth Walker et al., 2016). Whereas Ford et al. 2013 found that both Black and White youth were found to be at risk for high levels of victimization/adversity and were therefore more likely to be categorized in the *poly-victim* class.

In addition, five of the aforementioned studies examined the relationship between age and the classification of profiles. Only one of these studies found a significant relationship between age and resultant profiles (i.e., Campbell et al., 2019). Older youth were found to be more likely to be categorized in the *high needs* profiles/classes. Additionally only one study examined the relationship between predictive validity and profile membership (i.e., Brown, Wanamaker et al., in press). Brown, Wanamaker and colleagues (in press) found a significant relationship between the predictive accuracy of the YLS/CMI and profile membership for both genders. For females the YLS/CMI performed better for those in the *complex trauma* profile, whereas for males, the YLS/CMI performed better for those in the *low needs* profile.

Finally, at least one study has shown that LPAs can be effective in producing risk classification profiles with better predictive accuracy compared to traditional linear models (i.e., Campbell et al., 2019). This study highlighted that traditional linear methods of risk classification may fall short of alternative methods such as LPAs. This is due to the fact that the

LPA better dispersed recidivism across the profiles compared to how risk is usually measured as a linear summation of risk domains. Using the regular coding of the Youth Level of Service/Case Management Inventory- Screening Version (YLS/CMI 2.0; Hoge & Andrews, 2011), no statistically significant differences were found between the moderate and high-risk youth in terms of recidivism. However, the LPA significantly differentiated these two groups with regard to recidivism (Campbell et al., 2019). Importantly, this finding suggests that LPAs have important implications for aiding practitioners in making informed decisions regarding treatment strategies for their clients. Youth-justice organizations are able to examine the resultant treatment profiles to see how they fit with their existing programs in terms of both content and intensity for their varied clients.

Collectively, research in this area has identified between three and five profiles of both justice-involved males and females (see Table 1 for a full summary of evidence from LCA/LPA studies with justice-involved youth). Usually one of the profiles is a low risk/low need group, another is a high criminogenic needs group, and the remaining class or classes are usually more varied, ranging from a subtype that is high in complex ACEs (Brown et al., in pressb; Cusworth Walker et al., 2016), to those with little to no levels of mental health issues and/or ACEs/victimized pasts (Cusworth Walker et al., 2016; Schwalbe et al., 2008). Although typology research has been rising in the criminal justice field over the past decade, there are still several gaps that require further exploration. For example, while gender neutral and gender responsive researchers have assessed profiles of justice-involved individuals separately, few studies have incorporated *both* gender neutral *and* gender responsive variables simultaneously. Additionally, these studies have typically either focused on female-only samples of youth, or have failed to disaggregate gender in samples of males and female combined samples. Thus,

gender differences and similarities are not truly able to be explored. Additionally, previous studies have found mixed results with regard to the relationship between age, race, predictive validity and recidivism with the resultant classes/profiles. Finally, no study known to date has examined the impact of strengths in the classification of profiles with adolescent samples.

Therefore, more work is needed to attempt to replicate these findings using large samples of both male and female adolescent youth in order to and examine different levels of risks and strengths, while disaggregating gender to create a consensus for informing treatment practice.

**Table 1***Summary of Evidence from Latent Class Analysis/Latent Profile Analysis Studies Using Adolescent Samples*

Study and Type of Analysis	Sample Size	Analysis of Gender	Analysis of Age or Race	Results
Brown, Wanamaker et al. (in press): LPA <sup>a</sup>	$N = 311$ ( $n = 100$ females; $n = 211$ males)	Disaggregated by gender (Two separate LPAs)	Race (Auxiliary variable)	Two latent profiles: (1) <i>complex trama with criminogenic needs</i> (70.0% of females, 58.8% of males), (2) <i>overall low needs</i> group (30.0% of females, 41.2% of males)
Campbell et al. (2019): LPA	$N = 1,263$ ( $n = 322$ females; $n = 941$ males)	Auxiliary variable	Both (Auxiliary variables)	Three latent profiles: (1) <i>minimal intervention needs</i> (36.9% of females, 46.4% of males), (2) <i>social behaviour and social bonding needs</i> 50.8% of females, 35.2% of males), (3) <i>maximum intervention needs</i> (12.3% of females, 18.3% of males)
Charak et al. (2019): LCA <sup>b</sup>	$N = 809$ ( $n = 210$ females; $n = 599$ males)	Covariate variable	Race (Auxiliary variable)	Three latent classes: (1) <i>mixed adversity</i> (34.8% of females, 42.4% of males), (2) <i>violent environment</i> (20.5% of females, 49.1% of males), and (3) <i>polyvictimization</i> (44.8% of females, 8.5% of males)
Cusworth Walker et al. (2016): LCA	$N = 1,731$ females	N/A (females only)	Both (Auxiliary variables)	Four latent classes: (1) <i>high family conflict and ACEs</i> (19.4% of females), (2) <i>complex treatment needs with antisocial peers</i> (31.0% of females), (3) <i>low adverse experiences with substance abuse needs</i> (37.6% of females), and (4) <i>mental health needs with strong social assets</i> (12.0% of females)
Ford et al. (2013): LCA	$N = 1,969$ ( $n = 510$ females; $n = 1449$ males)	Auxiliary variable	Race (Auxiliary variable)	Three latent classes: (1) <i>poly-victim</i> (10.3% of females, 3.3% of males), (2) <i>moderate adversity</i> (47.2% of females, 32.5% of males), (3) <i>low adversity</i> (42.5% of females, 64.1% of males)

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Lanctôt (2018): LPA	$N = 219$ ( $n = 127$ females; $n = 92$ males)	Auxiliary variable	Age (Auxiliary variable)	Three latent profiles: (1) <i>low needs</i> (39.4% of females, 36.9% of males); (2) <i>social skills profile</i> (28.3% of females, 45.7% of males), (3) <i>high needs</i> (32.3% of females, 17.4% of males)
Odgers et al. (2007): LCA	$N = 133$ females	N/A (females only)	Both (Auxiliary variable)	Three latent classes: (1) <i>violent and delinquent</i> (13.0% of females), (2) <i>delinquency only</i> (28.0% of females), (3) <i>low offending</i> (59.0% of females)
Schwalbe et al. (2008): LCA	$N = 583$ females and males	Auxiliary variable	Age (Auxiliary variable)	Five latent classes: (1) <i>low-need</i> (19.4% of females, 15.8% of males), (2) <i>serious school problems</i> (28.0% of females, 33.8% of males), (3) <i>hostility-inattention</i> (20.6% of females; 23.7% of males), (4) <i>high-risk and family-history</i> (13.1% of females; 9.3% of males), (5) <i>substance abuse and peer delinquency</i> (18.9% of females; 17.4% of males)

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*Note.* <sup>a</sup>LPA = Latent Profile Analysis. <sup>b</sup>LCA = Latent Class Analysis. Recall the terms *classes* and *profiles* are essentially the same, but are used separately for LCAs and LPAs. Classes are used to describe groups yielded from LCAs with categorical indicator variables, whereas profiles are used to describe groups yielded from LPAs with continuous indicator variables.

**The Youth Assessment Screening Instrument (YASI; Orbis Partners, 2000)**

The development of the Youth Assessment Screening Instrument (YASI; Orbis Partners, 2000) was premised upon the Washington State Assessment Model, also referred to as the Case Management Assessment Protocol (CMAP; Barnoski, 2003), which was initially developed by the Washington State Institute of Public Policy (WSIPP) in conjunction with the Washington State Association of Juvenile Court Administrators (WAJCA). The CMAP is an assessment tool developed for use with justice-involved youth in New York State and was originally selected to serve as the model for the YASI based on its comprehensive analysis of risk, needs, and strengths in a multiple response format (Orbis Partners, 2007a).

In 2000, the YASI was first implemented in the state of New York to better assess youth who were serving community-based sentences (i.e., probation) in order to promote and enhance public safety. It is also a comprehensive risk-need-strength assessment tool designed to guide classification decisions and facilitate treatment and case management in justice-involved youth via an examination of a range of static and dynamic risk and protective factors. Recall that dynamic factors are also known as criminogenic needs, that when targeted for change have demonstrated reductions in recidivism. While the YASI has kept some of the key elements of the original CMAP (e.g., Pre-Screen version, and inclusion of protective factors), its content and scoring has been modified to fit multiple jurisdictions. The YASI is guided by the three risk-need-responsivity principles of effective case management (Andrews et al., 1990). Accordingly, this tool offers specific treatment options, as dependent upon each individual's needs, and also guides case management planning with the aim to reduce level of risk.

The full YASI series is comprised of 99 items distributed within 10 domains: Legal History, Family History, School, Community and Peers, Alcohol and Drugs, Mental Health,

Aggression and Violence, Attitudes, Skills, and Employment and Free Time. Thirty-three of these items are used to create a Pre-Screen version of the YASI, with items pulled from nine of the 10 domains (no items from the Employment and Free Time domain). The Pre-Screen format is primarily used for triage purposes to determine level of risk (i.e., low, medium, high) and to direct moderate and high risk youth to complete the more thorough YASI Full Assessment version. The premise is that higher risk youth are more likely to benefit from more intensive treatment interventions as opposed to lower risk youth with whom more intensive treatments can result in negative outcomes (e.g., youth being worse-off than before) (Andrews & Bonta, 2010; Orbis Partners, 2007b). Refer to the Methods section for a more detailed description of the YASI.

With regard to implementation, the use of the YASI is extensive across several state jurisdictions in the United States (i.e., California, Illinois, North Dakota, New York, Vermont, Virginia, and Wisconsin). Additionally, it is also being employed with justice-involved youth in Canada and Scotland (Jones, 2011; Orbis Partners, 2007a). The implementation of the YASI in the Canadian correctional system has been limited to Alberta and Ontario (Jones, 2011; Orbis Partners, 2010).

Research has examined the YASI's psychometric properties. In 2007, Orbis Partners conducted the first validation study of the YASI Pre-Screen with a sample of 2,369 justice-involved youth (aged 8-19) from New York State. Results, which were disaggregated by gender, indicated an Area Under the Curve (AUC) value of .59 for girls and .61 for boys, for any negative outcome over a 2-year follow-up period (Orbis Partners, 2007a). Using the same sample, Jones (2011) reported similar AUCS for the YASI Pre-Screen (AUC = .60 girls; AUC = .64 boys). According to Rice and Harris (2005) AUC values translate into the following Cohen's

d estimates: AUCs ranging from .55 to .63 correspond to a Cohen's  $d$  of .20 (small effect), AUCs ranging from .64 to .70 correspond to a  $d$  of .50 (medium effect), and an AUC .71 and higher correspond to a  $d$  of .80 (large effect).

As with the above studies, the majority of published work regarding the predictive validity of the YASI has been based on the Pre-Screen compared to the Full Assessment version. An exception to this is the study conducted by Scott et al. (2019). Scott and colleagues examined the predictive validity of both the Pre-Screen and the Full Assessment version with a sample of 254 male and female justice-involved youth from Ontario, Canada. The Full Assessment total scores predicted recidivism, with AUC values ranging from .62 to .70. Overall, empirical support has suggested the YASI to be a viable risk assessment measure for both justice-involved male and female youth.

### ***The YASI as a Gender Informed, Person-Centered Approach***

A gender responsive risk assessment approach requires tools that include risk and strength factors which are relevant to justice-involved females (Van Voorhis et al., 2010). Although the YASI is not considered to be a true gender responsive tool, in that a separate tool was not developed specifically for females, it is considered a gender informed assessment tool. This is due to the fact that the YASI framework is a culmination of static risk, dynamic need and strength factors from both a gender neutral approach and a gender responsive approach. The YASI (Orbis Partners, 2000) was developed for use with youth to include additional items that reflect unique experiences relevant to females and thus embeds gender responsive items within the domains that are not traditionally found in existing gender neutral risk assessment instruments for youth. For example, items relating to mental health (e.g., suicidal ideation) trauma (e.g., history of abuse), and victimization (e.g., amount of past victimization). Given that

the YASI includes both gender neutral and gender responsive items, Scott et al. (2019) argued that it may be a particularly good choice for use with justice-involved females.

Moreover, an Adverse Childhood Experience (ACE; Felitti et al., 1998) proxy measure has been coded from different domains of the YASI to capture childhood adversity. The ACE measure includes ten childhood experiences, which are gender responsive and are summed up to produce a final score representing childhood adversity. The ten items include: emotional abuse, sexual abuse, physical abuse, emotional neglect, physical neglect, witnessing domestic violence, household substance abuse, parental separation/divorce, household mental illness, and the presence of a household member with a criminal record.

Again, although the YASI cannot be deemed as a gender responsive assessment tool, it is categorized as a gender informed assessment tool. The YASI includes gender neutral variables such as antisocial attitudes, antisocial associates, school/work, and leisure/recreation. In combination with the ACE Proxy Measure, it also includes gender responsive variables such as mental health, and adversity. Finally, it includes variables that are common to both gender neutral and gender responsive perspectives such as substance abuse and family/relational variables.

### **Current Study**

Therefore, based on the gaps in the literature and the demands for future research, for the purpose of the current study, a person-centered, gender informed LPA using 17 indicators derived from the YASI was used with an archival sample of 1,782 justice-involved youth. It examined the following questions:

***Research Question 1:*** How do risks and strengths cluster to form different profiles of justice-involved youth, and do these profiles vary as a function of gender?

Hypothesis 1: It was hypothesized that several unique profiles of justice-involved youth will emerge for males and females, with more profiles emerging for males than females due to the difference in sample size. Based on previous studies that examined both male and female youth (i.e., Brown, Wanamaker et al., in press, Campbell et al., 2019, Charak et al., 2019, Ford et al., 2013, Lanctôt, 2018, and Schwalbe et al., 2008), it was hypothesized that there would be between three to five separate profiles for males and females. It was expected that one of the groups of each gender consisting of youth who are high needs, and low strengths, another group consisting of youth who are low needs, high strengths, and a third group consisting of higher levels of mental health concerns and adversity. From evidence of previous studies (i.e., Brown, Wanamaker, et al. in press; Cusworth Walker et al. 2016) it was expected that the proportion of females will be higher in this third group compared to the males.

***Research Question 2:*** Do Pre-Screen aggregate risk scores influence the prediction of profile membership?

Hypothesis 2: It was hypothesized that YASI Pre-Screen aggregate risk scores would influence the profiles. It was expected that the resultant profiles which consist of youth who are high needs, low strengths would have higher Pre-Screen risk scores, compared to the resultant profiles of youth who are low needs high strengths, which were expected to have lower YASI Pre-Screen risk scores.

***Research Question 3:*** Is profile membership related to age and race?

Hypothesis 3: Out of the five studies that examined how age is related to profile membership, only one study found a significant relationship. Therefore it was hypothesized that age will not be significantly related to the resultant latent profiles. Additionally, out of the six studies that examined how race is related to profile membership, only two studies found a significant

relationship. Therefore, it was hypothesized that race will not be significantly related to the resultant latent profiles.

**Research Question 4:** Do recidivism rates vary as a function of resultant latent profiles, and is the predictive validity of the YASI related to profile membership?

Hypothesis 4: Similarly to Campbell et al. (2019), it was hypothesized that recidivism rates will vary as a function of resultant latent profiles. It was also expected that the predictive validity of the YASI would be related to profile membership based on the study by Brown, Wanamaker, and colleagues (in press). It was expected that the YASI would perform better for those youth who are in a profile that is deemed more high needs, low strengths, than those who are deemed more low needs, high strengths.

## Method

### Participants

This study used archival YASI data provided by Orbis Partners Inc. Orbis is a Canadian consulting firm based in Ottawa, Ontario that specializes in implementing evidence-based services for clients who are at-risk for justice involvement, including assessments, programs, case work training, and research and evaluation. The original database included a total of 2,712 (79.3% male [ $n = 2151$ ]; 20.7% female [ $n = 561$ ]) youth aged 7-23, receiving juvenile justice services in the community in Milwaukee County between 2012 and 2014. The subsample used in the current study is composed of 1,782 justice-involved youth (80.1% male [ $n = 1,428$ ]; 19.9% female [ $n = 354$ ], aged 13-17<sup>4</sup>).

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<sup>4</sup> This age group was determined according to developmental research which outlines the stages of adolescence. Although the chronological threshold between each stage of adolescence varies across studies, adolescence tends to be defined as beginning around the age of 13 and ending at the age of 17, causing youth under the age of 13 to be categorized as children, and those over the age of 17 to be categorized as adults (Pickhardt, 2013).

A preliminary descriptive analysis of all 1,782 participants revealed that the mean age of the sample at the time of the initial assessment was 15.00 ( $SD = 1.11$ ); the mean age was 14.98 ( $SD = 11.13$ ) for females and 15.01 ( $SD = 1.10$ ) for males (see Table 2). The relationship between age and gender was not significant  $t(1780) = .44, p = .66$ . Results found that 76.5% ( $n = 1,364$ ) were Black, 12.0% ( $n = 213$ ) were White, and 11.5% ( $n = 205$ ) were of other ethnic origin (e.g., Hispanic, Asian, Native American etc.). The relationship between race and gender was also not significant  $\chi^2(2, N = 1782) = 1.27, p = .53$ .

The sample was mixed, comprised of youth in conflict with the law at some level: probation (45.5%), awaiting trial and disposition (20.7%), within a custody facility (2.5%), unspecified/other (22.5%), as well as those who were referred to protective services following their disposition (8.8%). Protective services includes Juveniles in Protected Services (JIPS); Family and Individual Support System Services (FISS); and First Time Juvenile Offenders Program (FTJOP). All 1,782 youth were scored on the Pre-Screen and Full Assessment version of the Youth Assessment Screening Instrument (YASI, Orbis, 2000), during the initial data collection phase. Note the Full Assessment version is reserved for those who score moderate to high on the Pre-Screen version (see Youth Assessment Screening Instrument section for a more detailed description of each version). Therefore this sample is not reflective of the entire sample of youth that receive services from the Department of Health and Human Services in Milwaukee County, such as those who were categorized as low-risk on the YASI Pre-Screen and hence do not go on to complete the Full Assessment.

**Table 2***Demographic Differences and Similarities by Gender*

Variable	Females ( <i>N</i> = 354)		Males ( <i>N</i> = 1,428)	
	%	( <i>n</i> )	%	( <i>n</i> )
<i>Age<sup>a</sup></i>				
13	12.4	(44)	11.6	(165)
14	21.8	(77)	20.3	(290)
15	27.1	(96)	29.4	(420)
16	33.1	(117)	33.4	(477)
17	5.6	(20)	5.3	(76)
<i>Race<sup>b</sup></i>				
Black	78.8	(279)	76.0	(1085)
White	10.7	(38)	12.3	(175)
Other <sup>a</sup>	10.5	(37)	11.8	(168)

*Note.* <sup>a</sup>Other = Hispanic, Asian, Native American, unknown etc.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

<sup>a</sup> $t(1,780) = 0.44, p = .66 (d = .03)$

<sup>b</sup> $\chi^2(2, N = 1,782) = 1.27, p = .53$  (Cramer's  $V = .03$ )

**Measures*****The Youth Assessment Screening Instrument (YASI; Orbis Partners, 2000)***

As stated, the YASI (Orbis, 2000) is a risk, need and strength assessment and case management planning instrument, used for justice-involved youth. This tool can be used with youth in both institutional and community-based justice settings, and incorporates information from a semi-structured interview and file information. Data is gathered from a semi-structured interview, accompanied with additional information offered by parents, or an alternative legal guardian, and a systematic review of collateral sources including police files, probation records, school records, and mental health reports (Orbis Partners, 2007a).

The Pre-Screen contains 33 static and dynamic risk<sup>5</sup> (i.e., criminogenic needs) and protective items embedded across nine domains: Legal History, Family History, School, Community and Peers, Alcohol and Drugs, Mental Health, Aggression & Violence, Attitudes, and Skills (see Appendix A). Noteworthy, the YASI developers conceptualize protective factors as those which (a) moderate the effect of risk and (b) identify critical targets of change to promote and enhance positive growth in justice-involved youth. Some protective factors within the YASI exist as the opposite end of a risk factor (e.g., item B15 in the Family History domain: “Parental love, caring, and support of youth” can be scored as a dynamic risk or dynamic protective score). Conversely, other protective factors within the YASI exist exclusive of risk (e.g., item D07 in the Community and Peers domain: “Number of existing positive adult relationships in the community” is scored only as a dynamic protective score).

All items’ responses are scored on either a dichotomous yes/no scale, or a five-point Likert scale. An example of an item rated on a five-point Likert scale is Compliance with parental rules (item B03 within the family history domain) and is rated as follows: “youth obeys, and follows rules”, “youth sometimes obeys, or obeys some rules”, “youth often disobeys rules”, “youth consistently disobeys, and/or is hostile”, “no pro-social rules in place”). Each response is summed to produce aggregate scores using the Nuffield Burgess method (Nuffield, 1982). The Pre-Screen yields both an overall risk total score (ranging from 0-124), and an overall protective total score (ranging from 0-25). Resultant total scores are then classified into one of the three subcategories ‘low’, ‘moderate’ or ‘high’, to describe the level of risk of recidivism that the individual would present, with higher resultant scores indicating higher levels of risk. Cut-off scores for each risk category differ by gender and were determined from a preliminary

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<sup>5</sup> The YASI uses the term dynamic risk with regard to domain scores (DR). These correspond to criminogenic needs and are therefore synonymous with the term dynamic need.

recidivism study conducted internally at Orbis Partners, based on juvenile probationers in Illinois. For illustrative purposes, Pre-Screen risk/need and strength items are listed in Appendix A. The Pre-Screen is used to make initial risk classification decisions and results in recidivism estimates (i.e., low, moderate, high); it also determines which clients should receive the Full Assessment (ideally those identified as moderate or high risk on the Pre-Screen).

The Full Assessment version includes all of the 33 items of the Pre-Screen, along with 66 additional items with a higher concentration of dynamic and strength items. These 99 total items are embedded across the same nine domains as listed above, as well as a tenth domain: Employment & Free Time. Similar to the Pre-Screen, items' responses are scored on either a dichotomous yes/no scale, or a five-point Likert scale, and responses are summed to produce aggregate scores using the Nuffield Burgess method (Nuffield, 1982). However, unlike the Pre-Screen, the Full Assessment yields up to four domain-level scores for each domain (if relevant): dynamic risk (DR), dynamic protective (DP), static risk (SR), and static protective (SP)<sup>6</sup>. The four domain categories are then summed to produce six overall total scores: overall dynamic risk, overall dynamic protective, overall static risk, overall static protective, overall total risk, overall total protective. Finally, resultant total scores are classified into one of the six subcategories 'low', 'low moderate', 'moderate', 'moderate high', 'high', or 'very high' to describe the level of risk of recidivism that the individual would present, with higher resultant scores indicating higher levels of risk (see Appendix A for the Full Assessment items). Note that for the current study, only the Full Assessment DR and DP domain scores will be used as variables in the LPA due to dynamic factors' strong ability to change and predict recidivism

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<sup>6</sup> An example of a static protective factor is item J02 in the Employment and Free Time domain: "Total number of times youth has been employed."

(Schlager & Pacheco, 2011)<sup>7</sup>. Dynamic typologies therefore drive treatment and intervention strategies. Additionally, for the purpose of this study, the raw domain scores will be used rather than the subcategories (i.e., low, low moderate etc.) to enhance variability.

In addition to the aforementioned studies in the review of the literature (Jones, 2011; Orbis Partners, 2007a), further research have explored the YASI's psychometric properties (e.g., Baird et al., 2013; Jones et al., 2016; Scott et al., 2019). Studies have demonstrated that the predictive validity of the YASI Pre-Screen risk has been established for youthful males (ranging from AUC = .61 – AUC = .82) and to some extent for youthful females (ranging from AUC= .55 -AUC = .68). Additionally, evidence suggests that the YASI Full Assessment is also predictive, yet more research focusing on the Full Assessment domain scores is needed to replicate these findings. The YASI Pre-Screen overall risk score and YASI Full Assessment overall risk and protective scores also exhibited adequate reliability with alpha coefficients of .65, .83, and .92 respectively (Jones, 2011). Finally, the inter-rater agreement for the California adapted version of the YASI's overall risk scores averaged within the 'fair' to 'good' range (i.e., ICC >.40, < .74) with intraclass correlation coefficients (ICCs) of .63,-.72 across four correctional facilities (Skeem et al., 2011).

There were three types of YASI-derived indicator variables used in the LPA model. These include: (1) 15 YASI dynamic risk (i.e., criminogenic needs) domains, and strength domains (2) a mental health flag, and (3) the ACE total score. Each variable is described in Table 3.

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<sup>7</sup> The Criminal History domain does not include a DR or DP domain score and therefore will not be included. Additionally, the Alcohol & Drugs domain does not include a DP domain score. The developer of the tool does not conceptualize the abstinence of substance abuse as protective.

**Table 3***YASI<sup>a</sup>-Derived Indicator Variables Used to Form Latent Profiles*

YASI-Derived Indicator Variable	# of Items	Description and Sample Item <sup>b</sup>
Family DR <sup>c</sup> Score	8	Negative family influences (e.g., B03: <i>Compliance with parental rules</i> )
Family DP <sup>d</sup> Score	9	Positive family influences (e.g., B13: <i>Family provides opportunities for youth to participate in family activities</i> )
School DR Score	7	Negative performance, attendance, and attitudes regarding school (e.g., C02: <i>Youth's attendance in the last three months of school</i> )
School DP Score	7	Positive performance, attendance, and attitudes regarding school (e.g., C08: <i>Youth believes receiving an education is beneficial to him or her</i> )
Community & Peers DR Score	5	Negative peer influences/adult role models (e.g., D03: <i>Admiration/emulation of high risk delinquent peers</i> )
Community & Peers DP Score	7	Positive peer influences/adult role models (e.g., D02: <i>Attachment to positively influencing peers</i> )
Alcohol & Drugs DR Score	4	Frequency of alcohol/drug use and alcohol/drug-related problems (e.g., E02: <i>Youth is receptive to participation in alcohol/drug treatment</i> )
Aggression & Violence DR Score	3	Negative anger management skills, beliefs about the use of violence (e.g., G02: <i>Hostile interpretation of actions and intentions of others in a common non-confrontational setting</i> )
Aggression & Violence DP Score	2	Positive anger management skills, beliefs about the use of violence (e.g., G03: <i>Tolerance for frustration</i> )
Attitudes DR Score	7	Antisocial attitudes, lack of empathy, and unreceptive toward change (e.g., H05: <i>Attitude when engaged in delinquent/criminal acts</i> )
Attitudes DP Score	7	Prosocial attitudes, strong empathy, and receptive toward change (e.g., H07: <i>Respect for authority figures</i> )

*Table continues on next page*

YASI-Derived Indicator Variable	# of Items	Description and Sample Item <sup>b</sup>
Skills DR Score	7	Negative adaptive skills, deficits in problem solving, interpersonal skills, and other cognitive skills (e.g., I05: <i>Loss of control over maladaptive behaviour</i> )
Skills DP Score	7	Positive adaptive skills, strengths in problem solving, interpersonal skills, and other cognitive skills (e.g., I07: <i>Goal-setting skills</i> )
Employment & Free Time DR Score	3	Negative experiences related to employment, negative unstructured leisure pursuits (e.g., J01: <i>Total number of times youth has been employed</i> )
Employment & Free Time DP Score	6	Positive experiences related to employment, positive unstructured leisure pursuits (e.g., J07: <i>Challenging/exciting hobbies/activities</i> )
Mental Health Flag <sup>e</sup>	6	A count variable of mental health concerns from six items, aggregated into a variable rated from 0 (no flags) to 2 (two or more flags) (e.g., F03: <i>Suicidal ideation</i> )
ACE Total Score <sup>f</sup>	10	Adverse Childhood Experiences proxy measure total score (e.g., <i>Emotional Neglect</i> )

Note. <sup>a</sup>YASI = Youth Assessment Screening Instrument. <sup>b</sup>See Appendix A for the full list of items included in each score. <sup>c</sup>DR = dynamic risk (i.e., criminogenic needs). <sup>d</sup>DP = dynamic protective. <sup>e</sup>See Appendix A for further details about the Mental Health Flag. <sup>f</sup>See YASI-Based Proxy Adverse Childhood Experiences Measure section for details about this variable. See Appendix B for a list of the YASI items that are included in the ACE proxy).

### ***YASI-Based Proxy Adverse Childhood Experiences (ACEs) Measure***

Adverse childhood experiences, or ACEs, (Felitti et al., 1998) are potentially traumatic events that occur in an individual's life from birth to age 18. Adopting the original definition of the ACEs, the Centers for Disease Control and Prevention (n.d.) revised ACE Questionnaire, which lists the following ten domains: physical abuse, sexual abuse, emotional abuse, physical neglect, emotional neglect, witnessing domestic violence, household substance abuse, parental separation/divorce, household mental illness, and the presence of a household member with

criminal record. Each item is scored dichotomously (Yes/No) and scores are summed to provide a total ACE score between 0 (indicating no exposure) and 10 (indicating exposure to all items).

Previous studies have used the ACE or components of the ACE in various versions and supported the reliability and validity of the measure (Finkelhor et al., 2015; Pinto et al., 2014). Additionally, studies have used the YASI to create an ACE proxy measure (e.g., Baglivio et al., 2015; Kelly & Salisbury, 2016), which has also been validated (Conley, 2016), and been found to have strong reliability for both males and females (.74; Brown et al., 2018). Moreover, research using the ACE with justice involved youth have demonstrated higher prevalence rates of adversity and ACEs compared to the general population (Abram et al., 2003; Dierkhising et al., 2013). An ACE proxy measure derived from the domains of the YASI (Orbis Partners, 2000) will be used to capture childhood adversity.

### ***Recidivism***

Four recidivism outcomes<sup>8</sup> of interest were examined independently: any negative outcome, any new offenses, and any technical violations, and any violent offenses. All variables were coded dichotomously (0 = No; 1 = Yes), and were assessed over a 1-year fixed follow-up period. The four outcomes are each described in detail:

- (1) Any negative outcome(s):** this outcome includes any failure with regards to the criminal justice system, such as new petitions for offenses, new adjudications, new technical violations, admissions to custody, admissions to detention, and any reconviction.
- (2) Any new offense(s):** this outcome excludes any technical violations, but includes any new charges that are non-violent, sexual, or violent in nature.

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<sup>8</sup> Although the inclusion of positive outcomes would also be valuable, due to the nature of the archival data, only recidivism outcomes were examined.

**(3) Any technical violation(s):** this outcome consists of any breaches of court-ordered or community supervision conditions resulting in failure to comply, or failure to appear.

This outcome excludes any new offense charges.

**(4) Any violent offense(s):** this outcome excludes technical violations and non-violent charges, but includes any new charges that are violent in nature (e.g., causing bodily harm, uttering threats, all forms of assault, weapon-related offenses, robbery, harassment etc.

### **Procedure**

The current study used an archival dataset obtained from Orbis Partners Inc. (Orbis), currently under contract with Milwaukee County Health and Human Services Department. All youth included in the sample were assessed by departmental staff who completed a 4-day training on the administration and use of the YASI. Participants' understanding in regard to the data is that the data is used to assess risk to reoffend, and to manage their risk via targeting needs for treatment and using strengths to mitigate risk.

A Memorandum of Understanding (MOU) between Orbis, Milwaukee County Health and Human Services Department, and Carleton University, was signed, granting permission for the use of data for this study, and outlines data sharing parameters (see Appendix C). Ethics clearance was also granted from Carleton University (see Appendix D).

### **Statistical Approach**

Analyses were performed using Statistical Software Package for the Social Sciences (SPSS) version 25, and Mplus 8.1 (Muthén & Muthén, 1998-2017). Preliminary analyses were conducted such as data cleaning to identify potential data errors and outliers, and missing data, followed by descriptive statistics, including t-tests and chi square analyses, to measure the

means, standard deviations, and ranges for the YASI items, for both genders across all risk and strength levels.

### ***Phase One***

Phase One addressed the first research question of whether gender impacts the way that risks and strengths cluster to form profiles of justice-involved youth. Mplus was used to conduct the LPAs with the 8 YASI dynamic need domain scores, 7 YASI dynamic strength domain scores as well as the Mental Health Flag score and Proxy ACEs score acting as continuous indicator variables. Indicator variables are those that are directly used in the analysis model to inform profile formation. Since gender was disaggregated, two separate LPAs were conducted, one for each gender to ensure that any male-specific results do not suppress any potential female-specific results given the disparities in gender representation. Power implications were explored and are discussed accordingly.

As previously mentioned, latent profile analysis (Lazarsfeld & Henry, 1968) is a person-centered statistical technique that is used to identify profiles (also known as latent classes/profiles) of an underlying, unobservable construct (also known as latent variable) with data obtained from cross-sectional designs (Williams & Kibowski, 2016). It is recommended that one should explore solutions with varying numbers of profiles and select the one that makes most sense in relation to theory, previous research, the nature of the profiles, and the interpretation of the results, as well as the goodness of fit indices and tests of statistical significance (Marsh et al., 2009). Multiple indicators of model fit and model selection were used to determine the correct number of profiles in LPA: Akaike's Information Criterion (AIC; Akaike, 1987), the Bayesian Information Criteria (BIC), the Integrated Completed Likelihood (ICL) criterion, and the Bootstrap Likelihood Ratio Test (BLRT). The AIC is an estimation of

the distance between the specified model and the true model. Additionally, the BIC is a measure of similarity between a predicted probability distribution and the probability distribution resulting from a specified model (Vrieze, 2012). The ICL is similar to the BIC, however, it adds a penalty on solutions with greater entropy or classification uncertainty. Finally, the BLRT compared the model fit between k-1 and k cluster models, meaning it looks to see if an increase in profiles increases fit (Williams & Kibowski, 2016). Once the decision was made with regard to how many profiles to keep in the solution, the results were plotted in order to view how the profiles differed on the indicators. This was done to ensure the chosen solution was theoretically meaningful, and the differences that are viewed in the plot made logical sense.

### *Phase Two*

Phase Two addressed the second research question of whether YASI Pre-Screen aggregate risk scores impacted the prediction of LPA profiles. This variable was used as a covariate. While indicator variables are used to inform profile formation, covariates are used to predict profile membership. By including covariates into the model, classification accuracy is improved (Lubke & Muthén, 2007). Covariates are factors that are thought to potentially impact profile classification and therefore are controlled for when building the typologies. The YASI Pre-Screen aggregate risk score variable was added into the model for analyses. A series of analysis of variance (ANOVA) tests were conducted as well as a latent categorical regression to determine the YASI Pre-Screen aggregate risk score's impact on profile formation.

Phase two also addressed the third research question of whether age and race were related to the resultant LPA profiles derived in Phase One. These variables were used as auxiliary variables. In contrast to covariates, auxiliary variables are not used directly in the analysis model, and are instead examined after the LPAs are conducted to see if there are differences in

proportions in the composition of the typologies that emerged. SPSS was used to conduct these analyses. A series of ANOVAs and chi-square tests of independence were performed to examine the relationship between age and the LPA profiles, and race and the LPA profiles.

Finally, Phase Two also addressed the fourth research question of whether recidivism outcomes varied as a function of profile membership, and if the predictive validity of the YASI was related to profile membership. Recidivism outcomes were analyzed as distal outcome variables. Whereas covariates can be seen as the *cause* of the profile membership, distal outcomes can be seen as the *consequence*. Being able to predict a distal outcome from latent profile membership provides etiological information about how the convergence of characteristics and/or behaviours at an initial time point predicts an outcome of interest. This was examined by conducting chi-square tests to examine the relationship between the four binary distal outcomes (any negative outcome, any new offense, any violent offense, any technical violation) and the LPA profiles, as well as profile comparisons. Secondly, AUC analyses from ROC curves were used to determine the extent to which the predictive validity of the YASI domain scores, varied as a function of resultant profiles.

## **Results**

### **Preliminary Analyses**

There were no missing data for any of the 17 indicator variables used to generate the LPA profiles. There was also no missing data for the covariate or auxiliary variables. Covariance matrices for the variables used in the LPAs were examined to assess coverage (minimum threshold for good coverage is .10; Muthén & Muthén, 1998-2017). The covariance coverage indicated good coverage.

Data was examined for violations of assumptions. The assumption of chi-square analyses that there must be at least five expected frequencies in each group of the categorical variable was never violated. However, the assumption that none of the dichotomous variables have less than 10% frequencies in any one category was violated once. The recidivism category ‘any violent offense’ had a frequency of less than 10% for females. Caution was exercised when interpreting the results of this variable. Additionally, variables were examined for skewness. The majority of the domain scores were positively skewed. However, variables were treated as normally distributed continuous variables since it is likely that latent profile models contain a variety of normal distributions from different types of people involved with the law (Kreuter & Muthén, 2008). Finally, the main assumption of latent variable models—local independence (which assumes that the latent variables explain why observed variables are related, and therefore all variables within each profile are unrelated) was not tested, as it is only required for models which contain dichotomous variables (Magidson & Vermunt, 2004).

### *Descriptive Statistics*

A series of *t*-tests and chi-square tests of independence were performed to examine the relationship between gender and the YASI Pre-Screen and Full Assessment aggregate scores. As shown in Table 4, the relationship between gender and the YASI Pre-Screen risk score was not significant, nor was the relationship between gender and the YASI Pre-Screen protective score. Similarly, the relationships between gender and the YASI Full Assessment aggregate scores were not significant, with females and males scoring similarly across both the risk and protective score.

**Table 4***YASI<sup>a</sup> Pre-Screen and Full Assessment Aggregate Scores (Risk and Protective), by Gender*

YASI Scores	Females ( <i>N</i> = 354)			Males ( <i>N</i> = 1,428)			<i>t</i>	<i>d</i>
	<i>M</i>	( <i>SD</i> )	Range	<i>M</i>	( <i>SD</i> )	Range		
<i>Pre-Screen</i>								
Risk	29.23	(16.86)	0-78	29.44	(16.71)	0-97	.21	.01
Protective	6.50	(6.12)	0-25	6.75	(5.84)	0-25	.72	.04
<i>Full Assessment</i>								
Overall Risk	101.55	(52.91)	0-238	101.75	(52.04)	0-269	.07	.00
Overall Protective	30.10	(24.35)	0-123	30.33	(22.66)	0-116	.17	.00

*Note.* <sup>a</sup>YASI = Youth Assessment Screening Instrument. *M* = Mean. *SD* = Standard deviation. *t* = *t*-test. *d* = Cohen's *d*. *p* < .05.

\*\* *p* < .01. \*\*\**p* < .001.

A series of *t*-tests and chi-square tests of independence were also performed to examine the relationship between gender and the YASI-derived indicator variables (see Table 5). Significant gender differences were observed for five of the domains: Family (risk and protective), Community and Peers (risk and protective), Alcohol and Drugs (risk), Aggression and Violence (risk and protective), and Employment and Free Time (risk and protective), as well as for the Mental Health flag and for the ACE total score. Females had significantly higher risk levels and lower protective levels relating to family, aggression and violence, employment, mental health, and ACEs than males. Comparatively, males had significantly higher risk levels and lower protective levels relating to community and peers, and alcohol and drugs than females. Notably, although these differences were significant, the effect sizes were found to meet Cohen's (1988) convention for a small effect ( $d = .20 - d = .49$ ). Females and males scored similarly across the other three domains: School (risk and protective), Attitudes (risk and protective), and Skills (risk and protective).

**Table 5***Means for Each of the YASI<sup>a</sup>- Derived Indicator Variables by Gender*

YASI-Derived Indicator Variables	Females ( <i>N</i> = 354)			Males ( <i>N</i> = 1,428)			<i>t</i>	<i>d</i>
	<i>M</i>	( <i>SD</i> )	Range	<i>M</i>	( <i>SD</i> )	Range		
Family History- Risk	10.35	(8.06)	0-40	8.53	(7.93)	0-41	-3.86 ***	.22
Family History- Protective	7.48	(5.61)	0-19	8.34	(5.66)	0-19	2.56*	.15
School- Risk	11.88	(8.35)	0-30	11.84	(8.44)	0-30	-.91	.00
School- Protective	5.10	(4.60)	0-17	4.93	(4.41)	0-17	-.66	.04
Community & Peers- Risk	9.88	(7.90)	0-27	11.11	(7.63)	0-27	2.71**	.16
Community & Peers- Protective	5.85	(5.23)	0-20	5.13	(5.01)	0-20	-2.39*	.14
Alcohol & Drugs- Risk	4.23	(6.01)	0-20	6.30	(6.85)	0-20	5.21***	.32
Aggression & Violence- Risk	10.22	(5.64)	0-17	8.97	(5.67)	0-17	-3.72***	.22
Aggression & Violence- Protective	0.92	(1.83)	0-9	1.20	(1.94)	0-9	2.45*	.15
Attitudes- Risk	17.20	(10.50)	0-35	16.37	(10.25)	0-35	-1.35	.08
Attitudes- Protective	4.81	(5.68)	0-22	4.77	(5.10)	0-22	-.12	.01
Skills- Risk	20.08	(10.50)	0-35	20.16	(9.73)	0-35	.12	.01
Skills- Protective	4.37	(6.24)	0-28	4.11	(5.78)	0-28	-.75	.04
Employment & Free Time – Risk	2.77	(1.91)	0-7	2.34	(1.95)	0-7	-3.74***	.22
Employment & Free Time – Protective	1.37	(1.35)	0-7	1.54	(1.27)	0-7	2.24*	.13
Mental Health- Flag <sup>b</sup>	0.90	(0.90)	0-2	0.62	(0.83)	0-2	-5.56 ***	.32
ACEs <sup>c</sup>	1.84	(1.76)	0-7	1.42	(1.50)	0-8	-4.57***	.26

*Note.* <sup>a</sup>YASI = Youth Assessment Screening Instrument. <sup>b</sup>The Mental Health flag is a count variable of mental health concerns, aggregated into a variable rated from 0 (no flags) to 2 (two or more flags; See Appendix A). <sup>c</sup>ACEs = *Adverse Childhood Experiences*. *M* = Mean. *SD* = Standard deviation. *t* = *t*-test. *d* = Cohen's *d*.

\*  $p < .05$ . \*\*  $p < 01$ . \*\*\* $p < .001$ .

Additionally, a correlation matrix was conducted to examine the differences between all of the YASI-derived indicator variables (see Table 6). The majority of variables were found to be weakly ( $.3 > |r| < .5$ ) to moderately ( $.5 > |r| < .7$ ) correlated. However, six domains had strong correlations ( $r > .7$ ) between the domain's risk and protective scores. These six domains included Family History, School, Community and Peers, Aggression and Violence, Attitudes, and Skills. The strongest correlations were found between the Attitude Risk domain score and the Attitude Protective domain score  $r(1,780) = -.83, p < .001$ , and between the Skills Risk domain score and the Skills Protective domain score,  $r(1,780) = -.87, p < .001$ .

**Table 6**

*Correlation Matrix of YASI<sup>a</sup>-Derived Indicator Variables*

	Family History DR	Family History DP	School DR	School DP	Community & Peers DR	Community & Peers DP	Alcohol & Drugs DR	Aggression & Violence DR	Aggression & Violence DP	Attitudes DR	Attitudes DP	Skills DR	Skills DP	Employment & Free Time DR	Employment & Free Time DP	Mental Health Flag	ACEs	
Family History DR <sup>b</sup>	1																	
Family History DP <sup>c</sup>	-.70	1																
School DR	.45	-.48	1															
School DP	.40	.49	-.81	1														
Community & Peers DR	.46	-.50	.49	-.47	1													
Community & Peers DP	-.37	.49	-.45	.48	-.79	1												
Alcohol & Drugs DR	.28	-.28	.29	-.28	.41	-.37	1											
Aggression & Violence DR	.48	-.50	.45	-.43	.44	-.39	.18	1										
Aggression & Violence DP	-.34	.44	-.35	.38	-.33	.35	-.18	-.71	1									
Attitudes DR	.52	-.57	.55	-.49	.49	-.41	.23	.59	-.46	1								
Attitudes DP	-.43	.57	-.49	-.49	-.46	.46	-.22	-.56	.57	-.83	1							
Skills DR	.45	-.57	.53	-.51	.47	-.43	.21	.61	-.54	.75	-.74	1						
Skills DP	-.38	.55	-.46	.48	-.43	.45	-.20	-.56	.62	-.62	.77	-.87	1					
Employment & Free Time DR	.28	-.32	.39	-.36	.30	-.30	.23	.24	-.16	.33	-.27	.32	-.25	1				
Employment & Free Time DP	-.23	.29	-.33	.33	-.30	.34	-.18	-.24	.21	-.28	.29	-.30	.26	-.62	1			
Mental Health Flag <sup>d</sup>	.29	-.21	.10	-.07	.08	-.00	.06	.25	-.21	.23	-.18	.21	-.18	.07	-.04	1		
ACEs <sup>e</sup>	.51	-.36	.17	-.16	.20	-.15	.15	.27	-.21	.26	-.20	.23	-.20	.13	-.12	.42	1	

*Note.* <sup>a</sup>YASI = Youth Assessment Screening Instrument. <sup>b</sup>DR = risk. <sup>c</sup>DP = protective. <sup>d</sup>The Mental Health flag is a count variable of mental health concerns, aggregated into a variable rated from 0 (no flags) to 2 (two or more flags; See Appendix A). <sup>e</sup>ACEs = *Adverse Childhood Experiences*.

Finally, four chi-square analyses were conducted to examine the relationship between gender and recidivism outcomes. At the 1 year follow-up, rates of failure were similar for males and females for any negative outcome (see Table 7). However, males had significantly higher rates of offenses and violent offenses than females. In contrast, females had significantly higher rates of technical violations than males.

**Table 7**

*General and Violent Recidivism by Gender, Using a 1-Year Fixed Follow Up*

Recidivism Outcome	Females ( <i>N</i> = 354)		Males ( <i>N</i> = 1,428)		$\chi^2$	<i>V</i>
	%	( <i>n</i> )	%	( <i>n</i> )		
<i>Any Negative Outcome</i>					3.41	.04
No	49.2	(174)	43.7	(624)		
Yes	50.8	(180)	56.3	(804)		
<i>Any Offense</i>					21.72***	.11
No	82.2	(291)	69.8	(997)		
Yes	17.8	(63)	30.2	(431)		
<i>Any Violent Offense</i>					5.88*	.06
No	91.0	(322)	86.1	(1,230)		
Yes	9.0	(32)	13.9	(198)		
<i>Any Technical Violation</i>					8.82**	.07
No	59.9	(212)	68.2	(974)		
Yes	40.1	(142)	31.8	(454)		

Note.  $\chi^2$  = chi-square. *V* = Cramer's *V*.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

## Main Analyses

### *Research Question One: Impact of Gender on Latent Profile Analyses*

**Profile Structure Formation.** The 17 YASI indicator variables, and the covariate-YASI Pre-Screen aggregate risk score, were entered into an Mplus syntax to conduct the LPAs. A one, two, three, four, five, and six-profile model solution were run sequentially to identify the best fitting model for females and males independently (Table 8). The resultant number of profiles

was determined based on multiple statistical criteria, a priori hypotheses based on theory, and interpretation of the profiles. Statistical criteria included: (a) multiple fit indices: Akaike Information Criterion (AIC), Bayesian Information Criterion (BIC), and sample size Adjusted Bayesian Information Criterion (ABIC) —lower values = better fit, (b) entropy: a measure of classification accuracy with values approaching 1 indicative of stronger classification (values > .80 are indicative of highly discriminating latent profiles; Muthén & Muthén, 1998-2017) and (c) Lo-Mendell-Rubin (LMR) test of likelihood ratio—with smaller  $p$  values indicating a better fit.

For females, as Table 8 illustrates, the LMR test is significant at  $p < .05$  for the two and three-profile structures. Once you get to the four-profile structure, the LMR is no longer significant at  $p < .05$ . The AIC, BIC, and ABIC support the structures with the highest number of profiles. Finally, the entropy value is high for the two to four-profile structures. After considering a combination of these results as well as theory (that states three to five profiles for females), and the interpretation of the various profiles, it was determined that a three-structure profile solution fit the data best for females.

Similarly for males, as Table 8 illustrates, the LMR test is significant at  $p < .05$  for the two and three-profile structures. Once you get to the four-profile structure, the LMR is no longer significant at  $p < .05$ . Again, the AIC, BIC, and ABIC support the structures with the highest number of profiles. Finally, the entropy value is the highest for the three-profile model. After considering a combination of these results as well as theory (that states three to five profiles for males), and the interpretation of the various profiles, it was determined that a three-structure profile solution fit the data best for males.

**Table 8***Relative Fit Statistics for Females and Males, Independently*

Females						
Profile	AIC	BIC	ABIC	Entropy	LMR	<i>p</i>
1-Structure	38923	39070	38950	--	--	--
2-Structure	32723	32932	32761	.949	2120.42	.013
<b>3-Structure</b>	<b>32021</b>	<b>32308</b>	<b>32073</b>	<b>.949</b>	<b>735.94</b>	<b>.011</b>
4-Structure	31714	32078	31779	.968	344.41	.053
5-Structure	31458	31899	31538	.926	293.00	.733
6-Structure	31228	31746	31321	.931	268.33	.280
Males						
Profile	AIC	BIC	ABIC	Entropy	LMR	<i>p</i>
1-Structure	155205	155405	155284	--	--	--
2-Structure	131020	131304	131133	.930	7755.34	< .001
<b>3-Structure</b>	<b>128020</b>	<b>128409</b>	<b>128174</b>	<b>.932</b>	<b>3019.10</b>	<b>&lt; .001</b>
4-Structure	126771	127266	126967	.906	1280.61	.565
5-Structure	125980	126580	126218	.896	825.00	.291
6-Structure	125158	125864	125438	.893	855.53	.190

*Note.* AIC = Akaike's Information Criterion. BIC = Bayesian Information Criteria. ABIC = Sample size adjusted Bayesian Information Criteria. LMR = Lo-Mendell-Rubin test.

**Posterior Profile Membership Probabilities.** Posterior profile membership probabilities were also examined for males and females (see Table 9). This determines the likelihood of a participant being classified in the correct profile. The probabilities of correct classification for the three-profile structure for females ranged from .97 to .99, and for the 3-Profile structure for males ranged from .96 to .98. These probabilities of correct classification are considered good as probabilities >.70 are deemed acceptable. These results supported the decision of the three-profile structure for both females and males.

**Table 9**

*Posterior Profile Membership Probabilities for a Three-Profile Structure for Females and Males, Independently*

Females			
Most Likely Profile Membership	Latent Profiles		
	1	2	3
1	<b>.966</b>	.009	.024
2	.011	<b>.989</b>	.000
3	.018	.000	<b>.982</b>
Males			
Most Likely Profile Membership	Latent Profiles		
	1	2	3
1	<b>.979</b>	.000	.021
2	.000	<b>.973</b>	.027
3	.008	.031	<b>.961</b>

*Note.* Probability of profile membership classification equal to or greater than .70 is considered acceptable.

**Resultant Female Profiles.** The means of the female profiles are presented in Table 10. Also, to help facilitate interpretation and inform post-hoc power as recommended by Tein et al. (2013), all possible pairwise comparisons were conducted. Importantly, out of the 51 pairwise comparisons, with the exception of five pairwise comparisons ( $.43 > d < .49$ ), the magnitude of the mean differences between all of the female profile indicators was considerably high ( $.50 > d < 6.00$ ). Notably, 73% (37 of 51) of the pairwise comparisons evidenced profile separations characterized as large ( $.80 > d < 6.00$ ); 32 of these were characterized as very large ( $d > 1.00$ ).

The magnitude of the mean differences of indicators were the largest between the first and the third profiles. The indicators that demonstrated the largest mean differences across the female profiles were the Skills Risk domain score ( $2.26 > d < 6.00$ ; average  $d = 3.60$ ), the

Attitudes Risk domain score ( $1.76 > d < 4.41$ ; average  $d = 2.75$ ), and the Attitudes Protective domain score ( $1.59 > d < 3.24$ ; average  $d = 2.29$ ). The indicators that demonstrated the smallest mean differences across the female profiles were the Alcohol and Drugs Risk domain score ( $.45 > d < .92$ ; average  $d = .62$ ), the Mental Health Flag ( $.45 > d < 1.10$ ; average  $d = .72$ ), and the ACEs total score ( $.44 > d < 1.20$ ; average  $d = .80$ ).

**Table 10**

*Means for Each of the YASI<sup>a</sup>-Derived Indicator Variables Across the Three Profiles of Females*

YASI-Derived Indicator Variables	Profile 1 ( <i>n</i> = 56)	Profile 2 ( <i>n</i> =123)	Profile 3 ( <i>n</i> =175)	Profile 1 vs. Profile 2	Profile 1 vs. Profile 3	Profile 2 vs. Profile 3
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>d</i>	<i>d</i>	<i>d</i>
Family History- Risk	2.38 (3.75)	8.26 (6.61)	14.38 (7.50)	1.09	2.02	.87
Family History- Protective	15.27 (4.06)	8.77 (4.61)	4.09 (3.34)	1.50	3.00	1.16
School- Risk	3.57 (4.17)	8.46 (6.79)	16.95 (6.83)	.87	2.36	1.25
School- Protective	10.50 (4.26)	6.11 (4.35)	2.66 (2.75)	1.02	2.19	.95
Community &Peers- Risk	3.09 (5.01)	6.89 (5.41)	14.15 (7.62)	.73	1.72	1.10
Community & Peers- Protective	11.00 (4.87)	6.60 (4.90)	3.67 (4.12)	.90	1.62	.65
Alcohol & Drugs- Risk	1.20 (2.98)	3.04 (4.99)	6.03 (6.82)	.45	.92	.50
Aggression & Violence- Risk	2.43 (3.27)	9.70 (4.87)	13.08 (4.03)	1.75	2.90	.76
Aggression & Violence- Protective	3.56 (2.64)	0.74 (1.46)	0.20 (0.54)	1.32	1.76	.49
Attitudes- Risk	2.96 (2.98)	12.07 (6.20)	25.35 (6.54)	1.76	4.41	2.08
Attitudes- Protective	14.59 (5.44)	5.48 (3.15)	1.20 (2.13)	2.05	3.24	1.59
Skills- Risk	3.07 (3.88)	16.16 (6.13)	28.29 (4.50)	2.55	6.00	2.26
Skills- Protective	15.70 (6.83)	4.53 (3.14)	0.63 (1.25)	2.10	3.07	1.63
Employment & Free Time- Risk	1.55 (1.25)	2.18 (1.66)	3.57 (1.87)	.43	1.27	.79
Employment & Free Time- Protective	2.64 (1.99)	1.53 (1.11)	0.85 (0.85)	.69	1.17	.69
Mental Health- Flag <sup>b</sup>	0.30 (0.68)	0.78 (0.85)	1.17 (0.89)	.62	1.10	.45
ACEs <sup>c</sup>	0.63 (0.94)	1.63 (1.59)	2.38 (1.83)	.77	1.20	.44

*Note.* <sup>a</sup>YASI = Youth Assessment Screening Instrument. <sup>b</sup>The Mental Health flag is a count variable of mental health concerns, aggregated into a variable rated from 0 (no flags) to 2 (two or more flags; See Appendix A). <sup>c</sup>ACEs = *Adverse Childhood Experiences*. *M* = Mean, *SD* = Standard deviation. *d* = Cohen’s *d*.

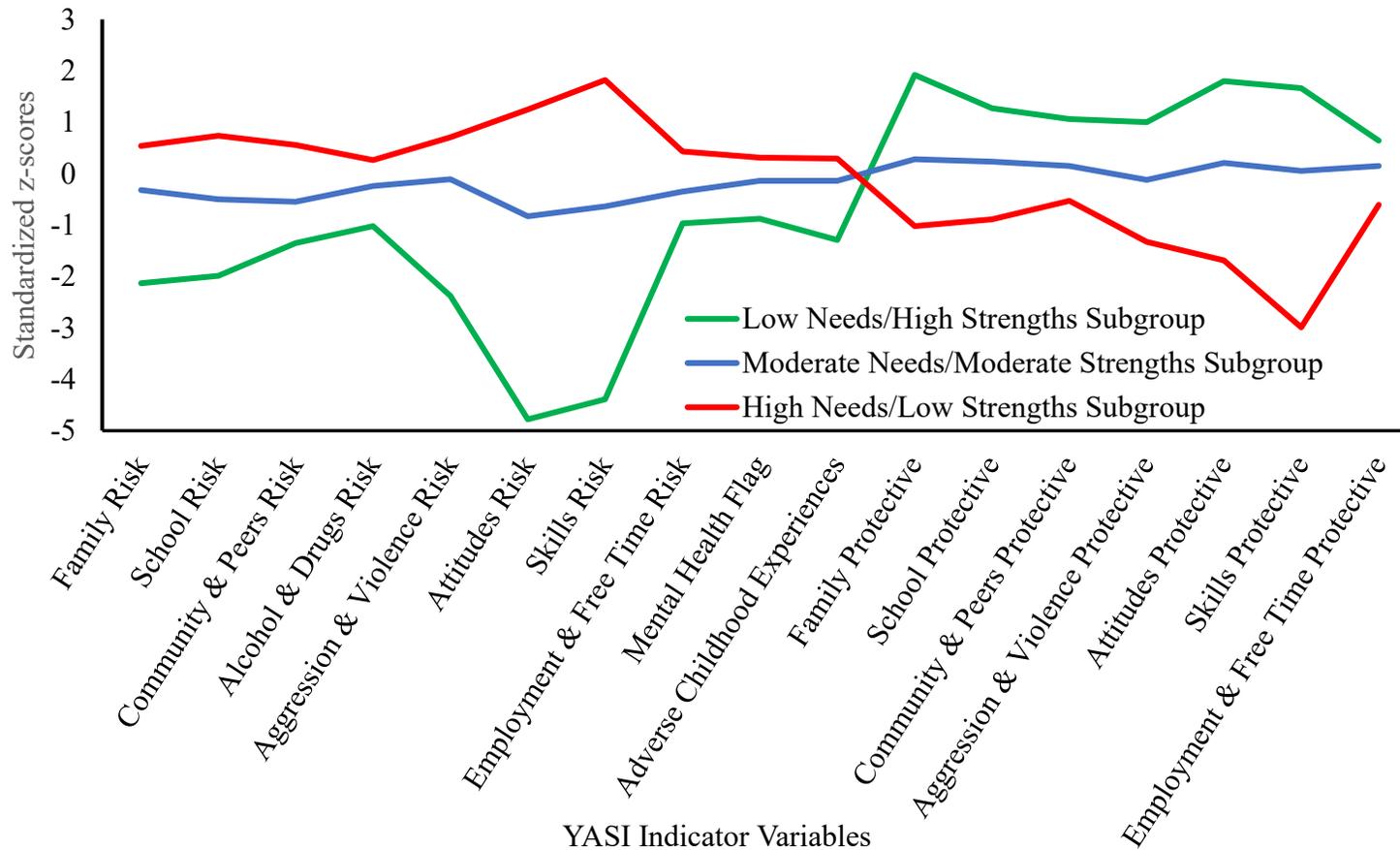
The three female profiles are best described as: (1) a *low needs, mental health concerns, and adversity/high strengths*<sup>9</sup> profile ( $n = 56$ ; 15.8%) hence forth known as *low needs/high strengths*, (2) a *moderate needs, mental health concerns, and adversity/moderate strengths* profile ( $n = 123$ ; 34.7%) hence forth known as *moderate needs/moderate strengths*, and (3) a *high needs, mental health concerns, and adversity/low strengths* profile ( $n = 175$ ; 49.4%) hence forth known as *high needs/low strengths*. The *moderate needs/moderate strengths* profile is characterized by female youth scoring moderately high on the Mental Health Flag and ACEs (adversity) as well as criminogenic needs: family/parenting problems, education concerns, criminal/antisocial associates, aggression and violence, substance misuse, antisocial attitudes, adaptive skills deficits, and poor use of leisure time/lack of employment. Additionally, these female youth scored moderately high on all strengths. In contrast, the *low needs/high strengths* profile evidenced comparably lower levels of mental health concerns, ACEs/adversity, and criminogenic needs, and comparably higher levels of strength factors. Notably, the *low needs/high strengths* profile scored particularly low on attitudes and skills risk levels and high on attitudes and skills protective levels. Finally, the *high needs/low strengths* profile scored comparably higher levels of mental health concerns, ACEs/adversity, and criminogenic needs, and comparably lower levels of strength factors. In contrast to the *low needs/high strengths* profile, the *high needs/low strengths* profile scored particularly high on attitudes and skills risk levels and particularly low on attitudes and skills protective levels. See Figure 1 for a graphical representation of the female profiles.

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<sup>9</sup> Importantly, the terms *high*, *moderate* and *low* when describing the profiles that emerged do not coincide with the definitions of *high* and *low* scores used by the YASI. Rather, the reference to high and low risk and strength in the profile descriptions is in relation to the scores on each of the domains in comparison to the rest of the sample.

**Figure 1**

*Standardized Z-Scores for the YASI<sup>a</sup> Indicator Variables Across the Three Profiles of Females*



*Note.* <sup>a</sup>YASI= Youth Assessment Screening Instrument. Low Needs/High Strengths = *low needs, mental health concerns, and adversity/high strengths* profile. Moderate Needs/Moderate Strengths = *moderate needs, mental health concerns, and adversity/moderate strengths* profile. High Needs/Low Strengths= *high needs, mental health concerns, and adversity/low strengths* profile. The Mental Health flag is a count variable of mental health concerns, aggregated into a variable rated from 0 (no flags) to 2 (two or more flags; See Appendix A).

**Resultant Male Profiles.** The means of the male profiles are presented in Table 11. Again, to also help facilitate interpretation and inform post-hoc power as recommended by Tein et al. (2013), all possible pairwise comparisons were conducted. Importantly, out of the 51 pairwise comparisons, with the exception of six pairwise comparisons ( $.23 > d < .46$ ), the magnitude of the mean differences between all of the male profile indicators was also considerably high ( $.50 > d < 4.82$ ). Notably, 78% (40 of 51) of the pairwise comparisons evidenced profile separations characterized as large ( $.80 > d < 4.82$ ); 33 of these were characterized as very large ( $d > 1.00$ ).

As with the females, the magnitude of the mean differences of indicators for males were the largest between the first and third profiles. The indicators that demonstrated the largest mean differences across the male profiles were Skills-Risk ( $1.43 > d < 4.82$ ; average  $d = 2.95$ ), Attitudes-Risk ( $1.77 > d < 3.66$ ; average  $d = 2.34$ ), and Skills-Protective ( $1.04 > d < 3.04$ ; average  $d = 2.10$ ). The indicators that demonstrated the smallest mean differences across the male profiles were Mental Health Flag ( $.23 > d < .66$ ; average  $d = .44$ ), ACEs ( $.42 > d < .92$ ; average  $d = .61$ ) and Employment and Free Time-Protective ( $.29 > d < .92$ ; average  $d = .62$ ).

**Table 11**

*Means for Each of the YASI<sup>a</sup>-Derived Indicator Variables Across the Three Profiles of Males*

YASI-Derived Indicator Variables	Profile 1 ( <i>n</i> = 206)	Profile 2 ( <i>n</i> =592)	Profile 3 ( <i>n</i> =630)	Profile 1 vs. Profile 2	Profile 1 vs. Profile 3	Profile 2 vs. Profile 3
	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>d</i>	<i>d</i>	<i>d</i>
Family History- Risk	1.64 (2.50)	5.20 (5.09)	13.92 (7.82)	.89	2.12	1.32
Family History- Protective	15.75 (3.82)	9.91 (4.75)	4.45 (3.35)	1.35	3.15	1.33
School- Risk	3.39 (3.88)	8.03 (5.91)	18.19 (6.80)	.93	2.67	1.59
School- Protective	9.68 (3.89)	6.44 (3.94)	1.94 (2.45)	.83	2.38	1.37
Community & Peers- Risk	2.87 (4.09)	8.72 (5.99)	16.07 (6.36)	1.14	2.47	1.19
Community & Peers- Protective	11.20 (4.77)	5.88 (4.67)	2.44 (3.00)	1.13	2.20	.88
Alcohol & Drugs- Risk	2.39 (4.43)	4.81 (5.96)	8.96 (7.23)	.46	1.10	.63
Aggression & Violence- Risk	1.84 (2.90)	7.39 (4.86)	12.80 (3.75)	1.39	3.27	1.25
Aggression & Violence- Protective	4.01 (2.66)	1.21 (1.51)	0.27 (0.82)	1.29	1.90	.77
Attitudes- Risk	3.52 (3.58)	12.15 (6.74)	24.56 (7.29)	1.60	3.66	1.77
Attitudes- Protective	13.14 (5.38)	5.46 (3.26)	1.37 (2.12)	1.73	2.88	1.49
Skills- Risk	3.83 (4.31)	18.46 (6.68)	27.11 (5.30)	2.60	4.82	1.43
Skills- Protective	14.92 (6.26)	3.74 (3.39)	0.91 (1.83)	2.22	3.04	1.04
Employment & FT- Risk	1.29 (1.44)	1.81 (1.66)	3.18 (1.20)	.33	1.43	.95
Employment & FT- Protective	2.21 (1.43)	1.81 (1.28)	1.07 (1.01)	.29	.92	.64
Mental Health- Flag <sup>b</sup>	0.28 (0.61)	0.58 (0.82)	0.77 (0.86)	.42	.66	.23
ACEs <sup>c</sup>	0.63 (0.99)	1.23 (1.38)	1.86 (1.60)	.50	.92	.42

*Note.* <sup>a</sup>YASI = Youth Assessment Screening Instrument. <sup>b</sup>The Mental Health flag is a count variable of mental health concerns, aggregated into a variable rated from 0 (no flags) to 2 (two or more flags; See Appendix A). <sup>c</sup>ACEs = *Adverse Childhood Experiences*. *M* = Mean, *SD* = Standard deviation. *d* = Cohen’s *d*.

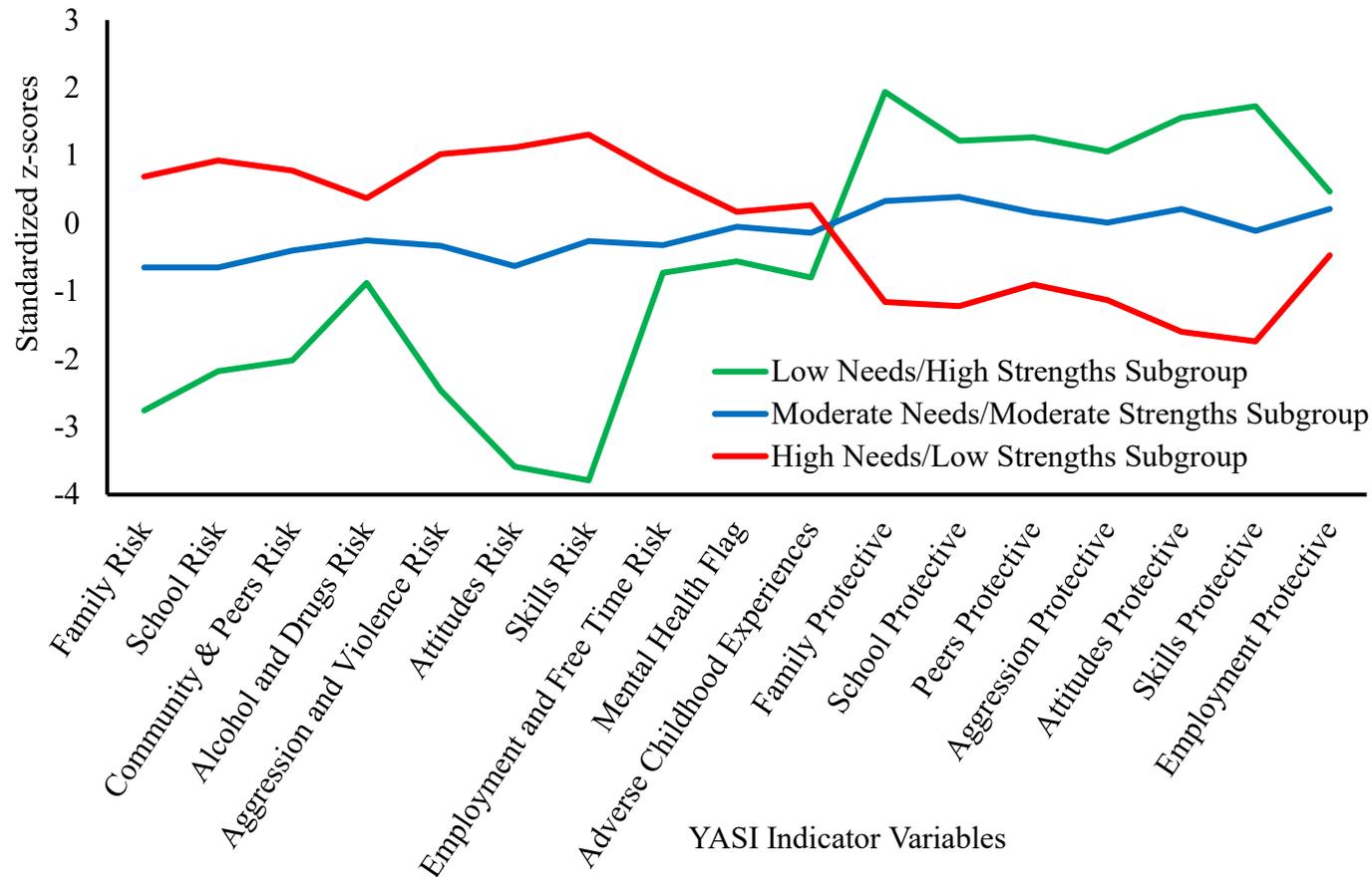
The three male profiles mirrored the female profiles and are similarly best described as: (1) a *low needs, mental health concerns, and adversity/high strengths* profile ( $n = 206$ ; 14.4%) hence forth known as *low needs/high strengths*, (2) a *moderate needs, mental health concerns, and adversity/moderate strengths*<sup>10</sup> profile ( $n = 592$ ; 41.5%) hence forth known as *moderate needs/moderate strengths*, and (3) a *high needs, mental health concerns, and adversity/low strengths* profile ( $n = 630$ ; 44.1%) hence forth known as *high needs/low strengths*. Corresponding to the female profiles, the *moderate needs/moderate strengths* profile is characterized by male youth scoring moderating high on the Mental Health Flag and ACEs total score (adversity) as well as all the other criminogenic needs: family/parenting problems, education concerns, criminal/antisocial associates, aggression and violence, substance misuse, antisocial attitudes, adaptive skills deficits, and poor use of leisure time/lack of employment. Additionally, these male youth scored moderately high on all strengths. In contrast, the *low needs/high strengths* profile evidenced comparably lower levels of mental health concerns, ACEs/adversity, and criminogenic needs, and comparably higher levels of strength factors. Notably, the *low needs/high strengths* profile scored particularly low on attitudes and skills risk levels and high on attitudes and skills protective levels. Finally, the *high needs/low strengths* profile scored comparably higher levels of mental health concerns, ACEs/adversity, and criminogenic needs, and comparably lower levels of strength factors. In contrast to the *low needs/high strengths* profile, the *high needs/low strengths* profile scored particularly high on attitudes and skills risk levels and particularly low on attitudes and skills protective levels. See Figure 2 for a graphical representation of the male profiles.

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<sup>10</sup> Importantly, the terms *high*, *moderate* and *low* when describing the profiles that emerged do not coincide with the definitions of *high* and *low* scores used by the YASI. Rather, the reference to high and low risk and strength in the profile descriptions is in relation to the scores on each of the domains in comparison to the rest of the sample.

**Figure 2**

*Standardized Z-Scores for the YASI<sup>a</sup> Indicator Variables Across the Three Profiles of Males*



*Note.* <sup>a</sup>YASI= Youth Assessment Screening Instrument. Low Needs/High Strengths = *low needs, mental health concerns, and adversity/high strengths* profile. Moderate Needs/Moderate Strengths = *moderate needs, mental health concerns, and adversity/moderate strengths* profile. High Needs/Low Strengths= *high needs, mental health concerns, and adversity/low strengths* profile. The Mental Health flag is a count variable of mental health concerns, aggregated into a variable rated from 0 (no flags) to 2 (two or more flags; See Appendix A).

**Profile Comparisons by Gender.** The hypothesis for the first research question was that between three to five profiles would emerge for males and females, but that more profiles would emerge for males than females due to the difference in sample size. Additionally, it was hypothesized that one of the profiles of each gender would be categorized as low needs/high strengths, a second profile would be categorized as high needs/low strengths, and finally a third profile would be categorized as high mental health concerns and adversity. Lastly, it was expected that the proportion of females would be higher than the proportion of males, in the high mental health concerns and adversity profile. This hypothesis was partially supported. As seen in Tables 10 and 11, and Figures 1 and 2, three profiles emerged as hypothesized, however they were the same three profiles for females and males. Therefore, more profiles did not emerge for males than females. Additionally, as hypothesized, a profile did emerge for each gender where members scored low on needs and high on strengths, and another profile where members scored high on needs, and low on strengths. However, males and females who scored higher criminogenic needs also scored higher on mental health concerns and adversity (ACEs). Therefore, there was no profile that emerged where members only scored high on mental health concerns and adversity as hypothesized for the third profile. Instead, the third profile that emerged where the members scored moderately high on mental health concerns, adversity and criminogenic needs, and moderately high on strengths.

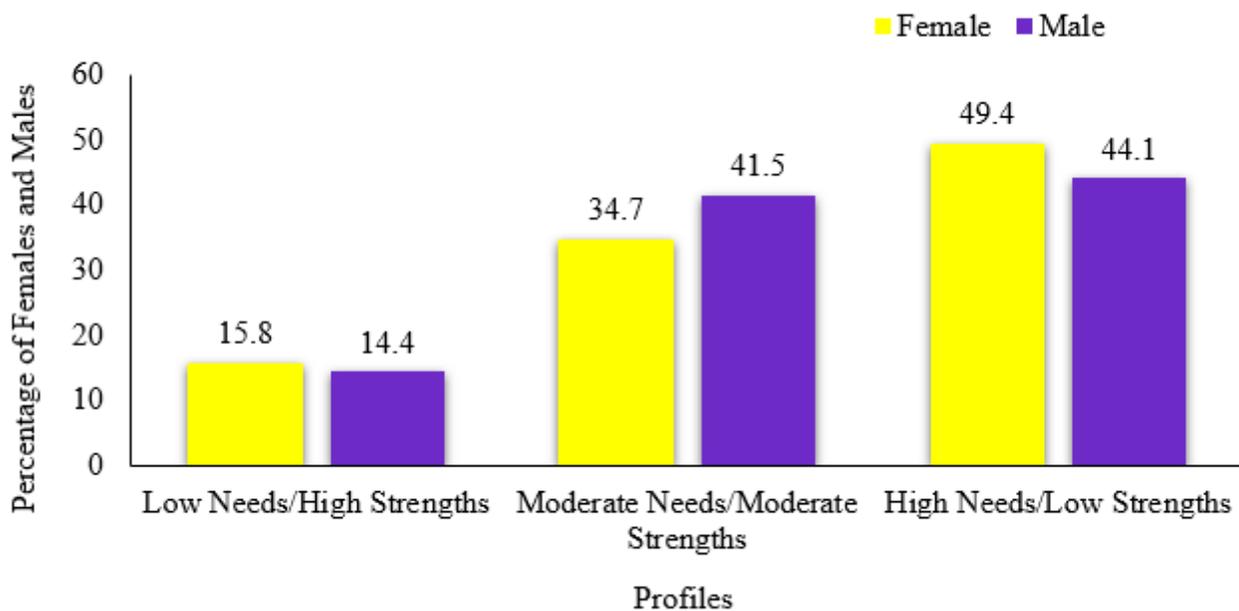
The smallest proportion of both female and male youth were found in the *low needs/high strengths* profiles. The largest proportion of both female and male youth were found in the *high needs/low strengths* profile (See Figure 3 for a gender by profile breakdown). However, a larger proportion of females (49.4%) were members of the *high needs/low strengths* profile compared to males (44.1%) in their respective *high needs/low strengths* profile. Conversely, a larger

proportion of males (41.5%) were members of the *moderate needs/moderate strengths* profile compared to females (34.7%) in their respective *moderate needs/moderate strengths* profile.

Members of both the female and male *low needs/high strengths* profiles scored particularly high on the Attitudes and Skills Protective domain scores and particularly low on the Attitudes and Skills Risk domain scores relative to *both* the female and male *moderate needs/moderate strengths* and *high needs/low strengths* profiles. Conversely, members of both the female and male *high needs/low strengths* profiles scored particularly high on the Attitudes and Skills Risk domain scores and particularly low on the Attitudes and Skills Protective domain scores relative to both the female and male *moderate* and *low needs/high strengths* profiles.

**Figure 3**

*Proportions of Females and Males within Each Profile*



**Power Implications.** Power testing was conducted using average effect sizes, and results are presented in Table 12. In LPAs, power is defined as the ability to accurately identify the

correct number of profiles. The average degree of separation between indicators was very large, and virtually equal between the male ( $.23 > d < 4.82$ ; average  $d = 1.51$ ) and female ( $.43 > d < 6.00$ ; average  $d = 1.53$ ) profiles. Tein et al.'s (2013) LPA power simulation study suggests that when the majority of sizes of separation between profile indicators are  $d > 0.80$ , and there are at least 10 indicators, a sample size of 500 is most likely required to establish a sufficient degree of power. However, with average effect sizes of  $d > 1.50$ , sample size is suggested to play a less important role in the ability to identify the correct number of profiles (Tein et al., 2013). Thus, although the sample size fell short of 500 for the overall female sample ( $n = 354$ ), and was then split into even smaller sizes within each profile, it is balanced out by very large average effect sizes, and a large amount of indicator variables. Therefore, it is assumed that the level of statistical power is sufficient for both males and females.

**Table 12**

*Power Testing with Average Effect Sizes of Profiles, by Gender*

Pairwise Comparison	# of indicators	Female		Male	
		<i>n</i>	<i>d</i>	<i>n</i>	<i>d</i>
Omnibus	17	354	1.53	1,428	1.51
Low <sup>n</sup> /High <sup>s</sup> vs. Moderate <sup>n/s</sup>	17	179	1.21	798	1.12
Low <sup>n</sup> /High <sup>s</sup> vs. High <sup>n</sup> /Low <sup>s</sup>	17	231	2.35	836	2.33
Moderate <sup>n/s</sup> vs. High <sup>n</sup> /Low <sup>s</sup>	17	298	1.04	1,222	1.08

*Note.* <sup>n</sup> = needs; <sup>s</sup> = strengths. *d* = Cohen's *d*.

### ***Research Question Two: Impact of YASI Pre-Screen Aggregate Risk Scores on Profiles***

Two one-way analysis of variance (ANOVA) analyses were conducted to examine the impact of YASI Pre-Screen aggregate risk scores on profile membership (see Table 13). The YASI Pre-Screen aggregate risk scores were included in the analysis as a covariate. Recall that within Mplus, covariates are factors that are thought to potentially impact profile classification

and therefore are controlled for when building the typologies. The hypothesis for the second research question stated that YASI Pre-Screen aggregate scores would influence the profiles. It was expected that the youth that were categorized in a resultant profile as high needs/low strengths would have higher Pre-Screen aggregate risk scores compared to those categorized in a resultant profile as low needs/high strengths.

Results demonstrated a significant relationship between YASI Pre-Screen aggregate risk scores and profile membership for both males and females. Results were clearly linear—as the needs went up (and strengths went down) within the profiles, the Pre-Screen aggregate risk scores went up. In other words, the Pre-Screen aggregate risk scores were the lowest among female members of the *low needs/high strengths* profile, and were the highest among female members of the *high needs/low strengths* profile. The same results were found for the males.

**Table 13**

*Means of the YASI<sup>a</sup> Pre-Screen Aggregate Risk Scores for Each Profile, by Gender*

Profile	Females				Males			
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>F</i>
Low <sup>n</sup> /High <sup>s</sup>	56	10.57	9.78		206	11.23	8.14	
Moderate <sup>n/s</sup>	123	23.78	12.53	117.59***	592	22.77	10.00	642.85***
High <sup>n</sup> /Low <sup>s</sup>	175	39.03	14.29		630	41.67	14.74	

*Note.* <sup>a</sup>YASI= Youth Assessment Screening Instrument. *M* = Mean, *SD* = Standard deviation. <sup>n</sup> = needs. <sup>s</sup> = strengths. *F* = Analysis of Variance (ANOVA).

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

A categorical latent variable regression was further conducted to examine the pairwise comparisons between profiles. As illustrated in Table 14, for females there were significant differences in YASI scores between all of the pairwise comparisons of profiles (i.e., *low needs/high strengths* vs. *moderate needs/moderate strengths* profile, *low needs/high strengths* vs.

*high needs/low strengths* profile, and *moderate needs/moderate strengths* vs. *high needs/low strengths* profile). The same pattern was found for males.

**Table 14**

*Categorical Latent Variable Regression of Profile on YASI<sup>a</sup> Pre-Screen Aggregate Risk Scores, by Gender*

	Odds Ratio	(SE)	p
Females			
<i>Reference: Moderate<sup>n/s</sup></i>			
Low <sup>n</sup> /High <sup>s</sup> on PS risk	0.881	(.036)	.001**
High <sup>n</sup> /Low <sup>s</sup> on PS risk	1.091	(.014)	< .001***
<i>Reference: Low<sup>n</sup>/High<sup>s</sup></i>			
Moderate <sup>n/s</sup> on PS risk	1.136	(.046)	.003**
High <sup>n</sup> /Low <sup>s</sup> on PS risk	1.239	(.055)	< .001***
Males			
<i>Reference: Low<sup>n</sup>/High<sup>s</sup></i>			
High <sup>n</sup> /Low <sup>s</sup> on PS risk	1.339	(.028)	< .001***
Moderate <sup>n/s</sup> on PS risk	1.176	(.020)	< .001***
<i>Reference: High<sup>n</sup>/Low<sup>s</sup></i>			
Low <sup>n</sup> /High <sup>s</sup> on PS risk	0.747	(.015)	< .001***
Moderate <sup>n/s</sup> on PS risk	0.879	(.010)	< .001***

Note. <sup>a</sup>YASI = Youth Assessment Screening Instrument. <sup>n</sup> = needs. <sup>s</sup> = strengths. SE = standard error.

\*  $p < .05$ . \*\*  $p < 01$ . \*\*\* $p < .001$ .

***Research Question Three: Relationship Between Age, Race and Profile Membership***

Two one-way analysis of variance (ANOVA) analyses were conducted to examine the relationship between age and profile membership (see Table 15). Age and race were included in the analysis as auxiliary variables. Recall that within Mplus, auxiliary variables are not used directly in the analysis model, and are instead examined after the LPAs are conducted to see if there are differences in proportions in the composition of the typologies that emerged. The hypothesis for the third research question stated that neither age nor race would influence the resultant profiles. The hypothesis was supported in that the relationship between age and profile

membership was not significant for neither females nor males (see Table 15). The females' average age ranged from 14.87 to 15.21 across the three profiles, and the males' average age ranged from 15.00 to 15.03.

**Table 15**

*Mean Age for Females and Males by Profile*

Profile	Females				Males			
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>F</i>
Low <sup>n</sup> /High <sup>s</sup>	56	15.21	1.22	1.65	206	15.03	1.13	.09
Moderate <sup>n/s</sup>	123	15.02	1.13		592	15.01	1.10	
High <sup>n</sup> /Low <sup>s</sup>	175	14.87	1.08		630	15.00	1.09	

*Note.* <sup>n</sup> = needs. <sup>s</sup> = strengths. *M* = Mean, *SD* = Standard deviation. *F* = Analysis of Variance (ANOVA).

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

Two chi-square tests of independence were performed to examine the relationship between race and resultant profiles (see Table 16). Race was collapsed into three categories based on prevalence levels: Black, White, and other (Hispanic, Asian, Native American etc.). The hypothesis was partially supported. For females there was no significant difference between race and profile membership. For males however, the relationship between race and profile membership was significant, albeit the strength of the relationship was low (Cramer's  $V = .15$ ). Black male youth were more likely to be categorized in the *high needs/low strengths* profile, whereas White male youth were more likely to be categorized in the *low needs/high strengths* profile.

**Table 16***Proportions of Race Distribution in Each Profile, by Gender*

Profile	Black % (n)	White % (n)	Other % (n)	
Females				$\chi^2$ (Cramer's <i>V</i> )
Low <sup>n</sup> /High <sup>s</sup> (n = 56)	69.6 (39)	19.6 (11)	10.7 (6)	
Moderate <sup>n/s</sup> (n = 123)	84.5 (104)	6.5 (8)	8.9 (11)	6.40 (.14)
High <sup>n</sup> /Low <sup>s</sup> (n = 175)	77.7 (136)	10.9 (19)	11.4 (20)	
Males				$\chi^2$ (Cramer's <i>V</i> )
Low <sup>n</sup> /High <sup>s</sup> (n = 206)	64.1 (132)	22.3 (46)	13.6 (28)	
Moderate <sup>n/s</sup> (n = 592)	74.8 (443)	13.0 (77)	12.2 (72)	33.07*** (.15)
High <sup>n</sup> /Low <sup>s</sup> (n = 630)	81.0 (510)	8.3 (52)	10.8 (68)	

*Note.* <sup>n</sup> = needs. <sup>s</sup> = strengths.  $\chi^2$  = chi-square.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

Three more chi-square tests of independence were performed to examine the pairwise comparisons of racial distribution across male profiles (see Table 17). Upon further examination there were significant differences in the racial distributions between all pairs of male profiles. However, the strength of association ranged from little if any (Cramer's *V* < .10) to low (Cramer's *V* .10 - .30).

**Table 17***Chi-square Pairwise Comparisons of Racial Distribution Across Male Profiles*

Profile Comparisons	$\chi^2$	<i>p</i>	Cramer's <i>V</i>
Low <sup>n</sup> /High <sup>s</sup> vs. Moderate <sup>n/s</sup>	11.89	<.01**	.12
Moderate <sup>n/s</sup> vs. High <sup>n</sup> /Low <sup>s</sup>	8.21	.02*	.08
Low <sup>n</sup> /High <sup>s</sup> vs. High <sup>n</sup> /Low <sup>s</sup>	33.57	<.001***	.20

*Note.* <sup>n</sup> = needs. <sup>s</sup> = strengths.  $\chi^2$  = chi-square.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

***Research Question Four: Relationship Between Recidivism and Profile Membership***

Four chi-square tests of independence were conducted to examine the relationship between each recidivism variable and profile membership for females (see Table 18).

Additionally, four chi-square tests of independence were conducted to examine the relationship between each recidivism variable and profile membership for males (see Table 18). Recidivism outcomes were included in the analysis as distal outcome variables. Distal outcomes can be seen as the consequence of profile membership. Recall the recidivism outcome variables that were included were: any negative outcome, any offenses, any violent offenses, and any technical violations. The hypothesis for the fourth research question predicted that recidivism rates would vary as a function of resultant profiles. This hypothesis was largely supported.

For females, the relationship between profile membership and recidivism was significant across all outcomes, bar any violent offense. Not surprisingly, for all four outcomes, the *high needs/low strengths* profile had the highest proportion of females that recidivated, followed by the *moderate needs/moderate strengths* profile, and then the *low needs/high strengths* profile. The largest disparity of proportion across profiles of females who recidivated was found for *any negative outcome*, while the smallest disparity across profiles was found for *any violent offense*.

For males, the relationship between profile membership and recidivism was significant across all outcomes. As with the females, the *high needs/low strengths* profile had the highest proportion of males that recidivated, followed by the *moderate needs/moderate strengths* profile, and then the *low needs/high strengths* profile. The largest disparity across profiles of proportion of males who recidivated was found for *any negative outcome*, while the smallest disparity across profiles was found for *any violent offense*.

**Table 18**

*Relationship Between Profile Membership and Recidivism Outcomes, by Gender*

Females												
	Any Negative Outcome			Any Offense			Any Violent Offense			Any Technical Violation		
	%	(n)	$\chi^2 (V)$	%	(n)	$\chi^2 (V)$	%	(n)	$\chi^2 (V)$	%	(n)	$\chi^2 (V)$
Low <sup>n</sup> /High <sup>s</sup> (n = 56)	14.29	(8)		7.12	(4)		3.57	(2)		8.93	(5)	
Moderate <sup>n/s</sup> (n = 123)	43.09	(53)	49.39*** (.37)	9.76	(12)	19.78*** (.24)	6.50	(8)	5.38 (.12)	34.96	(43)	36.15 (.32)
High <sup>n</sup> /Low <sup>s</sup> (n = 175)	68.00	(119)		26.85	(47)		12.57	(22)		53.71	(94)	
Males												
	Any Negative Outcome			Any Offense			Any Violent Offense			Any Technical Violation		
	%	(n)	$\chi^2 (V)$	%	(n)	$\chi^2 (V)$	%	(n)	$\chi^2 (V)$	%	(n)	$\chi^2 (V)$
Low <sup>n</sup> /High <sup>s</sup> (n = 206)	19.91	(45)		10.68	(22)		3.40	(7)		7.77	(16)	
Moderate <sup>n/s</sup> (n = 592)	45.61	(270)	236.83*** (.41)	25.51	(151)	77.19*** (.23)	13.18	(78)	28.00*** (.14)	21.45	(127)	175.61*** (.35)
High <sup>n</sup> /Low <sup>s</sup> (n = 630)	77.62	(489)		40.95	(258)		17.94	(113)		49.37	(311)	

Note. <sup>n</sup> = needs. <sup>s</sup> = strengths.  $\chi^2$  = chi-square.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

Pairwise comparisons were also conducted between profiles, across all four recidivism outcomes (see Table 19). For females, significant differences were found across all pairs of profiles for any negative outcome and any technical violation. For any offenses, the comparison between the *low needs/high strengths* profile and the *moderate needs/moderate strengths* profile was not significant. Pairwise comparisons were not conducted for the any violent offense outcome for females, since the omnibus chi-square analysis was not significant. For males, there were significant differences between all pairs of profiles across all four of the recidivism outcomes.

**Table 19***Profile Comparisons of Various Recidivism Outcomes, by Gender*

	Females		Males	
	Odds Ratio	<i>p</i>	Odds Ratio	<i>p</i>
<i>Any Negative Outcome</i>				
Low <sup>n</sup> /High <sup>s</sup> vs. Moderate <sup>n/s</sup>	4.543	< .001***	0.333	< .001***
Moderate <sup>n/s</sup> vs. High <sup>n</sup> /Low <sup>s</sup>	0.356	< .001***	4.136	< .001***
Low <sup>n</sup> /High <sup>s</sup> vs. High <sup>n</sup> /Low <sup>s</sup>	0.078	< .001***	0.081	< .001***
<i>Any Offense</i>				
Low <sup>n</sup> /High <sup>s</sup> vs. Moderate <sup>n/s</sup>	1.405	.571	0.349	< .001***
Moderate <sup>n/s</sup> vs. High <sup>n</sup> /Low <sup>s</sup>	0.294	< .001***	2.026	< .001***
Low <sup>n</sup> /High <sup>s</sup> vs. High <sup>n</sup> /Low <sup>s</sup>	0.210	.004**	0.172	< .001***
<i>Any Violent Offense<sup>a</sup></i>				
Low <sup>n</sup> /High <sup>s</sup> vs. Moderate <sup>n/s</sup>	-	-	0.232	< .001***
Moderate <sup>n/s</sup> vs. High <sup>n</sup> /Low <sup>s</sup>	-	-	1.440	.023*
Low <sup>n</sup> /High <sup>s</sup> vs. High <sup>n</sup> /Low <sup>s</sup>	-	-	0.161	< .001***
<i>Any Technical Violation</i>				
Low <sup>n</sup> /High <sup>s</sup> vs. Moderate <sup>n/s</sup>	5.483	< .001***	0.308	< .001***
Moderate <sup>n/s</sup> vs. High <sup>n</sup> /Low <sup>s</sup>	0.463	.002**	3.570	< .001***
Low <sup>n</sup> /High <sup>s</sup> vs. High <sup>n</sup> /Low <sup>s</sup>	0.085	< .001***	0.086	< .001***

*Note.* <sup>n</sup> = needs; <sup>s</sup> = strengths. <sup>a</sup>Pairwise comparisons for any violent offense for females were not conducted as the omnibus chi-square test was not significant.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

Multiple separate AUC analyses were conducted to examine the extent to which the predictive validity of the YASI Pre-Screen and Full Assessment aggregate scores would vary as a function of profile membership. The fourth hypothesis also predicted that profile membership would be related to the predictive validity of the YASI Pre-Screen and Full Assessment aggregate scores. It was expected that the YASI would perform better for those youth who were

members of the high needs/low strengths profile than those in the low needs/high strengths profile, for both genders.

The hypothesis was partially supported as profile membership was related to the predictive accuracy of the YASI, however, the results varied as function of gender. As illustrated in Table 20, for females, the YASI Pre-Screen and Full Assessment aggregate scores (risk and protective) consistently predicted recidivism *more* accurately among the *low needs/high strengths* profile (AUCs ranging from .63 to .94) compared to the *high needs/low strengths* profile (AUCs ranging from .52 to .68) and the *moderate needs/moderate strengths* (AUCs ranging from .30 to .70) profile, across all four outcomes. Between recidivism outcomes, the predictive validity was the highest for the any violent offense outcome for the *low needs/high strengths* profile (AUCs ranging from .71 to .94), and the lowest for the any violent offense outcome for the *moderate needs/moderate strengths* profile (AUCs ranging from .30 to .49). Notably, given the small sample sizes the 95% confidence intervals did overlap substantially.

**Table 20**

*Bivariate Predictive Validity of the YASI<sup>a</sup> Pre-Screen and Full Assessment Aggregate Scores (Risk and Protective) for General and Violent Recidivism by Female Profiles, Using a 1-Year Fixed Follow Up*

	Overall Sample (N = 354)		Low <sup>n</sup> /High <sup>s</sup> (n = 56)		Moderate <sup>n/s</sup> (n = 123)		High <sup>n</sup> /Low <sup>s</sup> (n = 175)	
	AUC	[95% CI]	AUC	[95% CI]	AUC	[95% CI]	AUC	[95% CI]
<i>Any Negative Outcome</i>								
Pre-Screen Risk	.76	[.71, .81]	.82	[.69, .96]	.70	[.61, .80]	.62	[.53, .71]
Pre-Screen Protective	.71	[.69, .74]	.84	[.73, .95]	.63	[.53, .73]	.68	[.59, .76]
Full Assessment Risk	.75	[.70, .80]	.84	[.71, .97]	.66	[.56, .76]	.65	[.56, .74]
Full Assessment Protective	.72	[.69, .75]	.72	[.55, .88]	.69	[.59, .78]	.64	[.55, .73]
<i>Any Offense</i>								
Pre-Screen Risk	.69	[.62, .76]	.76	[.55, .96]	.53	[.38, .68]	.52	[.42, .62]
Pre-Screen Protective	.67	[.60, .74]	.76	[.62, .90]	.55	[.38, .71]	.59	[.49, .68]
Full Assessment Risk	.63	[.56, .70]	.83	[.70, .97]	.49	[.31, .68]	.60	[.50, .69]
Full Assessment Protective	.66	[.59, .74]	.79	[.61, .97]	.44	[.29, .59]	.56	[.46, .65]
<i>Any Violent Offense</i>								
Pre-Screen Risk	.66	[.56, .75]	.94	[.87, 1.0]	.48	[.30, .65]	.55	[.42, .68]
Pre-Screen Protective	.64	[.55, .73]	.83	[.67, .99]	.49	[.29, .70]	.59	[.47, .70]
Full Assessment Risk	.63	[.54, .72]	.93	[.84, 1.0]	.46	[.26, .66]	.60	[.48, .72]
Full Assessment Protective	.61	[.50, .71]	.71	[.40, 1.0]	.30	[.19, .42]	.57	[.44, .70]

*Table continues on next page*

	Overall Sample (N = 354)		Low <sup>n</sup> /High <sup>s</sup> (n = 56)		Moderate <sup>n/s</sup> (n = 123)		High <sup>n</sup> /Low <sup>s</sup> (n = 175)	
	AUC	[95% CI]	AUC	[95% CI]	AUC	[95% CI]	AUC	[95% CI]
<i>Any Technical Violation</i>								
Pre-Screen Risk	.70	[.64, .75]	.77	[.62, .93]	.63	[.53, .74]	.57	[.48, .65]
Pre-Screen Protective	.72	[.67, .77]	.77	[.64, .89]	.63	[.53, .73]	.64	[.55, .72]
Full Assessment Risk	.70	[.65, .75]	.77	[.61, .94]	.60	[.46, .71]	.58	[.50, .67]
Full Assessment Protective	.70	[.65, .76]	.63	[.41, .86]	.66	[.57, .76]	.59	[.51, .68]

*Note.* <sup>a</sup>YASI = Youth Assessment Screening Instrument. <sup>n</sup> = needs. <sup>s</sup> = strengths. AUC = area under the curve. 95% CI = confidence interval [upper limit, lower limit] for AUC.

As illustrated in Table 21, for males, the YASI Pre-Screen and Full Assessment aggregate scores (risk and protective) predicted recidivism more similarly between profiles, across recidivism outcomes. There was less disparity of predictive accuracy between the *low needs/high strengths* profile (AUCs ranging from .51 to .77), *high needs/low strengths* profile (AUCs ranging from .52 to .64), and *moderate needs/moderate strengths* profile (AUCs ranging from .51 to .66). Unlike for females, for males, the *low needs/high strengths* profile only performed better when predicting any violent offense (AUCs ranging from .56- to .77) compared to the *high needs/low strengths* profile (AUCs ranging from .52 to .56) and the *moderate needs/moderate strengths* profile (AUCs ranging from .51 to .61). For any technical violations, the *moderate needs/moderate strengths* profile performed the best (AUCs ranging from .60 to .64). Few differences were found between the three profiles for any negative outcome and any offense. Overall, the predictive accuracy was slightly better among females than males across profiles and recidivism rates.

**Table 21**

*Bivariate Predictive Validity of the YASI<sup>a</sup> Pre-Screen and Full Assessment Aggregate Scores (Risk and Protective) for General and Violent Recidivism by Male Profiles, Using a 1-Year Fixed Follow Up*

	Overall Sample (N = 1,428)		Low <sup>n</sup> /High <sup>s</sup> (n = 206)		Moderate <sup>n/s</sup> (n = 592)		High <sup>n</sup> /Low <sup>s</sup> (n = 630)	
	AUC	[95% CI]	AUC	[95% CI]	AUC	[95% CI]	AUC	[95% CI]
<i>Any Negative Outcome</i>								
Pre-Screen Risk	.76	[.73, .78]	.63	[.54, .73]	.65	[.60, .70]	.64	[.59, .68]
Pre-Screen Protective	.71	[.69, .74]	.61	[.52, .70]	.57	[.52, .61]	.55	[.50, .61]
Full Assessment Risk	.76	[.73, .78]	.56	[.46, .66]	.66	[.61, .70]	.64	[.59, .68]
Full Assessment Protective	.72	[.69, .75]	.54	[.45, .63]	.56	[.52, .61]	.57	[.52, .62]
<i>Any Offense</i>								
Pre-Screen Risk	.69	[.62, .76]	.61	[.48, .73]	.62	[.57, .67]	.53	[.49, .58]
Pre-Screen Protective	.64	[.61, .67]	.63	[.51, .75]	.53	[.47, .58]	.56	[.51, .60]
Full Assessment Risk	.63	[.56, .70]	.55	[.42, .69]	.61	[.56, .66]	.53	[.49, .58]
Full Assessment Protective	.63	[.60, .66]	.51	[.39, .64]	.54	[.49, .59]	.53	[.49, .58]
<i>Any Violent Offense</i>								
Pre-Screen Risk	.61	[.58, .65]	.77	[.61, .93]	.61	[.53, .68]	.56	[.50, .62]
Pre-Screen Protective	.62	[.57, .66]	.76	[.59, .94]	.52	[.45, .59]	.56	[.50, .62]
Full Assessment Risk	.64	[.60, .68]	.74	[.61, .86]	.57	[.50, .64]	.53	[.46, .59]
Full Assessment Protective	.59	[.56, .63]	.56	[.34, .77]	.51	[.45, .58]	.52	[.46, .58]

*Table continues on next page*

	Overall Sample (N = 1,428)		Low <sup>n</sup> /High <sup>s</sup> (n = 206)		Moderate <sup>n/s</sup> (n = 592)		High <sup>n</sup> /Low <sup>s</sup> (n = 630)	
	AUC	[95% CI]	AUC	[95% CI]	AUC	[95% CI]	AUC	[95% CI]
<i>Any Technical Violation</i>								
Pre-Screen Risk	.70	[.68, .74]	.60	[.45, .76]	.63	[.58, .69]	.56	[.52, .61]
Pre-Screen Protective	.70	[.68, .73]	.55	[.42, .68]	.61	[.56, .66]	.55	[.51, .60]
Full Assessment Risk	.72	[.70, .75]	.55	[.39, .71]	.64	[.58, .69]	.56	[.52, .61]
Full Assessment Protective	.71	[.69, .74]	.53	[.40, .67]	.60	[.54, .65]	.57	[.52, .61]

*Note.* <sup>a</sup>YASI = Youth Assessment Screening Instrument. <sup>n</sup> = needs. <sup>s</sup> = strengths. AUC = area under the curve. 95% CI = confidence interval [upper limit, lower limit] for AUC.

### Discussion

Scholars from both gender responsive and gender neutral perspectives have begun to use a different methodological approach to explore diversity amongst justice-involved individuals (Brennan et al., 2012; Lanctôt, 2018; Schwalbe et al., 2008). Opposed to the traditional variable-centered approach, researchers are moving toward a more person-centered approach to determine if underlying variability exists within homogenous groups of justice-involved individuals (i.e. if different subtypes/profiles/classes of justice-involved individuals may exist). Typology research has been prominent over the past decade; eight studies have been conducted using latent class/latent profile analyses with adolescent samples, and have identified between three and five classes/profiles of both justice-involved males and females. However, collectively the results have been varied and complex. Additionally, there are several gaps in adolescent typological studies that required exploration. Few studies have incorporated *both* gender neutral *and* gender responsive variables in the analysis. In addition, only one known study has disaggregated gender in order to identify gender differences and similarities in how variables cluster together (Brown, Wanamaker et al., in press). Finally, no study to date has explored whether strengths impact the classification of LPA/LCA profiles/classes with adolescents.

Accordingly, the objectives of this study were to use a person-centered, gender informed latent profile analysis to examine dynamic need and strength scores derived from the Full Assessment version of the Youth Assessment Screening Instrument (YASI; Orbis Partners, 2000) in a sample of American justice-involved youth. In conducting the current study, four research questions were explored: (1) How do risks and strengths cluster to form different profiles of justice-involved youth, and do these profiles vary as a function of gender? (2) Does the YASI Pre-Screen aggregate risk score impact the prediction of profile membership? (3) Is

profile membership related to age and race? (4) Do recidivism rates vary as a function of resultant latent profiles, and is the predictive validity of the YASI related to profile membership?

### **Impact of Gender in How Risks and Strengths Cluster to Form Profiles**

The hypothesis for the first research question stated that between three to five profiles would emerge for males and females, but that more profiles would emerge for males than females due to the difference in sample size. Additionally, it was hypothesized that one of the profiles of each gender would be categorized as low needs/high strengths, a second profile would be categorized as high needs/low strengths, and finally a third profile would be categorized as high mental health concerns and adversity. Lastly, it was expected that the proportion of females would be higher than the proportion of males, in the high mental health concerns and adversity profile.

Contrary to the hypothesis of the first research question, there were no gender differences in the classification of youth across the resultant profiles. The same three profiles that emerged for both females and males were: (1) *low needs, mental health concerns, and adversity/high strengths*, (2) *moderate needs, mental health concerns, and adversity/moderate strengths*, and (3) *high needs, mental health concerns, and adversity/low strengths*. The *moderate needs/moderate strengths* profiles were characterized as youth scoring moderately high on the Mental Health Flag and ACEs (adversity) as well as criminogenic needs: family/parenting problems, education concerns, criminal/antisocial associates, aggression and violence, substance misuse, antisocial attitudes, adaptive skills deficits, and poor use of leisure time/lack of employment. Additionally, these youth scored moderately high on all strengths. In contrast, the *low needs/high strengths* profile evidenced comparably lower levels of mental health concerns, ACEs/adversity, and criminogenic needs, and comparably higher levels of strength factors. Notably, the *low needs/high strengths* profile scored particularly low on attitudes and skills risk levels and high on

attitudes and skills protective levels. Finally, the *high needs/low strengths* profile scored comparably higher levels of mental health concerns, ACEs/adversity, and criminogenic needs, and comparably lower levels of strength factors. In contrast to the *low needs/high strengths* profile, the *high needs/low strengths* profile scored particularly high on attitudes and skills risk levels and particularly low on attitudes and skills protective levels.

Additionally, results demonstrated only slight differences in the proportions of females and males within each of their respective profiles. The largest number of members were in the *high needs/low strengths* profiles (49.4% females, 44.1% males), followed by the *moderate needs/moderate strengths* (34.7.% females, 41.5% males) and then *low needs/high strengths* (15.8% females, 14.4% males) profiles. This pattern is unsurprising due to the nature of the sample being higher-risk. Recall that this sample consisted of youth who scored moderate to high on the YASI Pre-Screen and therefore were also assessed on the Full Assessment Version. Notably, it is therefore possible that this higher risk sample and resultant profiles are not representative of the general youth justice population in the United States.

Also contrary to the hypothesis, no extra profile emerged for either gender, characterized as having higher levels of only mental health concerns and adversity (e.g., no increased levels of other needs). Instead, individuals who scored higher on mental health concerns and ACE scores were classified as members of the *high needs/low strengths* profile. This suggests that mental health concerns and ACEs co-occur with other criminogenic needs that are deemed gender neutral, supporting the variable-centered as opposed to the person-centered approach. Although unexpected and contrary to previous LPA/LCA findings, these results are encouraging, demonstrating that rarely are individuals criminalized who are categorized as high risk solely based on high levels of mental health concerns and adversity. Importantly, there was a possibility

that the sample size of females ( $n = 354$ ) was underpowered in its ability to correctly detect more complex profiles, and hence more nuanced gender differences. However, power testing demonstrated that the average effect sizes were very large ( $d > 1.50$ ) for both males and females. The very large average effect sizes in addition to the large number of indicator variables outweigh the smaller sample size for females, and therefore it is posited that the sample was not underpowered.

The feminist pathways perspective argues that female's pathways into crime are qualitatively different from their male counterparts (e.g., Daly, 1992; Chesney-Lind, 1997; Chesney-Lind & Shelden, 2004; Dehart, 2008; Jones et al., 2014; Salisbury & Van Voorhis, 2009). Undeniably, gendered subtypes of justice-involved females have consistently emerged in previous research (Brennan et al., 2012; Holfreter & Morash, 2003; Jones et al. 2014; Salisbury & Van Voorhis, 2009; Simpson et al., 2008). However, the majority of this evidence has been derived from studies that have failed to include a male comparison group, thereby limiting the ability to claim that these gendered pathways are truly unique for females. Addressing this limitation, the present study incorporated a male comparison group and found the opposite finding—that there is substantial overlap among males and females in their pathways to crime (i.e., the way in which risks and strengths cluster together). This suggests a gender informed model is superior to a gender responsive model. This blended approach incorporates the value of both gender neutral and gender responsive perspectives, understanding that both similarities and differences exist between males and females pathway to crime. Therefore it is crucial that risk assessments developed for youth continue to examine the Central Eight risk factors from the gender neutral perspective, in combination with variables that are in line with the gender responsive perspective

(e.g., mental health, adversity etc.). This will lead to the most effective risk assessments and treatment interventions.

### **Impact of YASI Pre-Screen Aggregate Risk Scores on Profiles**

The hypothesis of the second research question stated that the YASI Pre-Screen aggregate risk scores would influence the profile membership. It was expected that the youth that were categorized in a resultant profile as high needs/low strengths would have higher Pre-Screen aggregate risk scores compared to those categorized in a resultant profile as low needs/high strengths. In line with this hypothesis, the YASI Pre-Screen aggregate risk score was found to significantly inform the typology formation in a linear way for both genders. The *high needs/low strengths* profiles scored higher than the other two profiles, and the *low needs/high strengths* profiles scored lower than the other two profiles on the Pre-Screen risk score. This illustrates the effectiveness of the YASI Pre-Screen in its ability to accurately classify youth into high and low, risk and strength categories, as they match the profiles that resulted from the LPA. Therefore, these findings support the variable-centered approach, which categorizes individuals in a linear fashion. Latent clustering methods such as LPAs and LCAs have recently become a highly regarded statistical method. However, if current linear methods are equally as effective in categorizing individuals into profiles, then it is questioned whether these clustering methods are truly needed.

### **Relationship Between Age, Race on Profile Membership**

The third research question hypothesized that age would not be significantly related to the resultant profiles. Results supported this hypothesis as age was found to not be significantly related to profile membership. This also supports the results from multiple previous LCA/LPA studies (Cusworth et al., 2016; Lanctôt, 2018; Odgers et al., 2007; Schwalbe et al., 2008).

Further, this finding is also in line with the *age crime curve* which suggests that criminal involvement increases during late childhood/early adolescence, peaks during mid-to-late adolescence, and finally begins to decline during early adulthood (Loeber, Stouthamer-Loeber et al., 1991; Morizot & Kazemian, 2015). All of the youth in the sample were mid-to-late adolescents (aged 13-17), therefore it is not surprising that significant age differences weren't found. It is speculated that if the analyses were run with the entire original sample of youth aged 7-23, that age would be significantly related to the resultant profiles. Notably however, the only study that has found a significant relationship between age and profile membership, had similar a similar age range and variances to the current sample (Campbell et al., 2019).

The third research question also hypothesized that race would not be related to the resultant profiles. Contrary to the hypothesis, race was found to be related to the resultant LPA profiles. However, this finding was only observed for the males, and the relationship between race and profiles lacked a considerable degree of strength of association. The variance of race was also incredibly low with regard to the sample, as three quarters of the youth were Black (78.8% of females, 76.0% of males). Therefore, a strength of this study is its ability to focus its results since it was essentially a study on Black youth.

However, the major concern is why these Black youth are over-represented in the criminal justice system. In the State of Wisconsin, only 6.0% of the population is Black (Division of Juvenile Corrections, 2017). In Milwaukee County, a larger 38.8% of the population is Black (United States Census Bureau, 2018), however, it still does not equate to the near 80% of Black youth in the dataset. Although racial and ethnic inequities in Wisconsin's juvenile justice system have been declining over the past decade, severe disparity still persists (Pelletier et al., 2017). In fact, Wisconsin has the fifth highest Black-White commitment disparity rate in the

country. In 2013, compared to White youth, Black youth in Wisconsin were 19.0 times more likely to be detained, 14.9 times more likely to be committed, and 16.2 times more likely to be incarcerated in a juvenile correctional facility.

Although these statistics highlight the racial disparities in the juvenile justice system in Wisconsin, the issue spans across the country and the world. Therefore, it is vital that typology studies continue to examine intersectionality in order to get the full context around the unique experiences, and thus unique needs of these individuals. Specifically, the examination of the interconnected nature of other social categories that cause discrimination and disadvantages to individuals, other than gender (such as age, race, ethnicity, sexual orientation, and socio-economic status). Emphasizing the vulnerability of only one component (in this case gender) would not provide the full picture with regard to the unique experiences and needs of these individuals.

### **Recidivism Rates and Predictive Validity of the YASI as a Function of Profile Membership**

The fourth research question hypothesized that recidivism rates would vary as a function of resultant profiles. This hypothesis was largely supported. Recidivism likelihood did vary as a function of profile membership for both females and males. Specifically, the *high needs/low strengths* profiles were significantly more likely to recidivate (68% females; 77% males) than their counterparts in the *moderate needs/moderate strengths* profiles (43% females; 45% males) and *low needs/high strengths* profiles (14% females; 20% males) in terms of any failure (any negative outcome). This pattern was replicated across the other three recidivism outcomes as well. These findings were expected given that members in the *high needs/low strengths* profile scored particularly high on criminogenic needs (for both males and females) relative to the other profiles.

The fourth hypothesis also predicted that profile membership would be significantly related to the predictive validity of the YASI Pre-Screen and Full Assessment aggregate scores. It was expected that the YASI would perform better for those youth who were members of the *high needs/low strengths* profile than those in the *low needs/high strengths* profile, for both genders. The YASI Pre-Screen and Full Assessment risk and protective aggregate scores consistently predicted recidivism more accurately among the *low needs/high strengths* profile for females (AUCs = .63-.94) across all four recidivism outcomes. Fewer differences were found between the *high needs/low strengths* profile (AUCs = .52-.68) and the *moderate needs/moderate strengths* profile (AUCs = .30-.70). For males however, the *low needs/high strengths* profile only performed better when predicting any violent offense (AUCs = .56-.77) compared to the *high needs/low strengths* profile (AUCs = .52-.56) and the *moderate needs/moderate strengths* profile (AUCs = .51-.61). For any technical violations, the *moderate needs/moderate strengths* profile performed the best (AUCs = .60-.64). Few differences were found between the three profiles for any negative outcome and any offense. Overall, the predictive accuracy was slightly better among females than males across profiles and recidivism rates.

Importantly, Marsh et al. (2009) reported that by decomposing data into groups, the result is a dilution of the predictive power of hypothesized correlates of said groups. The predictive validity of the YASI was tested across profiles with very little variability within them. This is because the LPA categorizes individuals into profiles where individuals were qualitatively similar. Thereby eliminating the variability within the groups, the YASI was put at an unfair disadvantage as analyses were attempting to differentiate recidivists from non-recidivists within each group. This suggests that the restricted variance of profiles may have produced an

inaccurate view of the predictive validity of the YASI, therefore caution should be exercised when interpreting results. Predictive validity analyses were conducted as hypotheses were made a priori, however it is recommended to exclude predictive validity analyses in future LPA/LCA studies.

### **Theoretical and Methodological Implications**

Two central paradigms informed this thesis: a gender-responsive perspective (i.e., feminist pathways theory), and a gender-neutral perspective (i.e., the RNR model), both with the inclusion of a strengths based perspective. Gender-responsive theorists suggest that incorporating salient and unique concerns for girls and women into policy and programs is crucial in order to improve outcomes for justice-involved females. Overall this study suggests while there are gender differences that need to be accounted for, female and male youth are more similar than different with regard to their classification of treatment profiles. Risk and protective factors from both gender-neutral and gender-responsive perspectives are valuable for classifying typologies of justice-involved youth. Thus, a *gender-informed* model which integrates gender-neutral and gender-responsive risks and strengths is best in effective risk assessment and treatment planning.

Additionally, although the notion that a person-centered risk assessment approach can enhance risk assessment and intervention strategies was expected to be supported, results demonstrated otherwise. The goal of typology research is to identify meaningful clusters of individuals. However, results of this study conclude that this goal can be achieved to the same degree with variable-centered approaches, provided they are derived from a gender-informed perspective. Although latent profile analyses are the novel statistical method, they have provided complex and differing results. This is thought to be due to their strong dependency on sample

size and characteristics, therefore resulting in findings that are unreliable, and unable to be replicated.

### **Practical Implications**

At the Milwaukee County Department of Health and Human Services, the YASI is used for programming and supervision purposes. All youth are assessed with the YASI by a human services worker. A disposition matrix is used which aligns with the YASI according to domains, risks/needs/strengths, and the seriousness of the offense. Additionally, based on the YASI's Collaborate CaseWorks case planning model, the youth is referred to programming. Milwaukee offers multiple pre- and post-dispositional programs for the youth such as Wraparound Milwaukee (a unique system of care for children with serious emotional, behavioural, and mental health needs and their families), Targeted Monitoring Program (extra supervision for high-risk youth), and Alternative Sanctions Program (ASP).

Currently, agencies such as Milwaukee who are using the YASI's Collaborative CaseWorks case planning model to refer their youth to programming, are matching youth to treatment that will effectively reduce their likelihood of recidivism, and promote well-being. Additionally, the gender informed component supports the necessity of holistic treatment regimens. The knowledge of the co-occurrence of high criminogenic needs and high mental health concerns and ACEs is valuable in ensuring the implementation of mental health and trauma-informed services in youth justice settings for *both* females and males.

Additionally as discussed, resultant profiles found that both males and females in the *high needs/low strengths* profiles, scored particularly high on the Attitudes-Risk and Skills-Risk domain scores, and particularly low on the Attitudes-Protective and Skills-Protective domain scores. Therefore, these youth are severely lacking in prosocial attitudes, empathy, receptiveness

toward change, as well as strengths in problem solving, interpersonal skills, and other cognitive skills that normally promote pro-social adjustment. Consequently, programs which target these areas of attitudes and skills should be implemented and/or highlighted for the youth that are deemed as high need. These may include motivational interviewing, behavioural programs, counselling, and self-help education and support.

### **Limitations**

Despite the study's strengths, cautions are warranted. As stated, the sample was comprised of a relatively unique sample of youth who were at a higher risk to reoffend in comparison to the overall youth justice population. Additionally, although the YASI is considered to be a gender informed risk assessment tool which captures gender neutral as well as gender responsive risk and strength factors, particularly with the addition of the ACE Proxy Measure, other gender responsive items such as self-esteem and self-efficacy (Bloom et al., 2003; Salisbury et al., 2016) were not incorporated. Therefore the ability of the LPA to truly distinguish males and females based on gender responsive factors is limited. Further, this study focused on domain-level scores, and therefore cannot speak to how item-level needs and strengths separate from their domains, cluster together to form profiles of justice-involved youth. The influence of any particular item was suppressed by the overall domain score. Thus, it is impossible to truly see the effects of gender responsive items that were embedded within a domain (e.g., victimization within the Aggression and Violence domain). Future research should examine YASI item-level data to see if there are specific items (instead of domains) that cluster together to form profiles of female and male youth.

Finally, strong correlations were found between the dynamic need and dynamic strength score of multiple domains ( $r > .70$ ). These domains included: Family History, School,

Community and Peers, Aggression and Violence, Attitudes, and Skills. This suggests that the YASI dynamic protective domain scores are simply the inverse of the dynamic need domain scores. This is logical due to the fact that most protective factors within the YASI exist as the opposite end of a risk factor. However, perhaps it is then possible that the nature of the tool is impacting the lack of qualitative differences amongst profiles.

### **Future Directions**

It is suggested that future research replicates this study in order to increase the validity of the current study's findings— that current gender informed variable-centered approaches are effective for risk assessment and treatment planning. Therefore, a study should examine profiles of justice-involved youth, with the inclusion of strengths and disaggregated gender. However, in order to increase the strength of the methodology, a few recommendations are being made. First, future studies should examine item-level data, opposed to domain-level, in order to examine how specific need and strength items cluster to form profiles. Secondly, analyses should include more gender responsive items (e.g., self-efficacy, self-worth), in addition to mental health and adversity to truly examine gender differences and similarities. Thirdly, studies should examine other tools in which the dynamic need and strength scores of domains are not strongly correlated, in order to verify whether the nature of the YASI influenced the qualitatively-similar profiles. In addition, measuring positive outcomes (i.e. successes) as well as negative outcomes (i.e., recidivism outcomes) would be beneficial. Lastly, replicating this study with the YASI in an alternate jurisdiction with a larger age range, would also be valuable to examine the impact of age, and allow the impact of race to be explored within a hopefully more equal representative sample.

## Conclusion

In sum, the current study was the first to incorporate gender neutral and gender responsive dynamic need and strength factors to inform profiles of justice-involved youth, while also disaggregating gender in order to assess gender similarities and differences. Contrary to results of prior LPA studies conducted on youth, results of the current study indicate only slight gender differences. For example, there were slight differences with regard to the proportions of males and females within each of their respective profiles. A larger proportion of females (49.4%) were members of the *high needs/low strengths* profile compared to males (44.1%) in their respective *high needs/low strengths* profile. Conversely, a larger proportion of males (41.5%) were members of the *moderate needs/moderate strengths* profile compared to females (34.7%) in their respective *moderate needs/moderate strengths* profile. Additionally, race was significantly related to profile membership for males but not females. However, the strength of the relationship for males was low,  $\chi^2(4, N = 1,428) = 33.07, p < .001, V = .15$ . Finally, the predictive validity of the YASI was higher for females than males, particularly for the *low needs/high strengths* profile. Despite these few gender differences, female and male youth are more similar than different with regard to their classification of treatment profiles. Thus, a gender informed, variable-centered approach to risk assessment and treatment planning is effective.

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Appendix A

*The Youth Assessment Screening Instrument: Pre-Screen and Full Assessment Scoring Manual*

**Individual field and scoring:**

1 Previous referrals for delinquent offenses							PS
Field	Type	Value	Associated phrase	SR	DR	SP	DP
A01	Integer	0	No				
		1	Yes				
Maximum scores:							

- Sequence number (in black box at top left)
- **Item** (“question”) text (in top centre box)
- **PS** - Pre-Screen items are designated in orange box at top right
- **Field** - Database field name
- **Type** - Data type - Response values (assumed “True” for Boolean data type)
- **Value** – response value
- **Associated Phrase** (corresponds to each response value). Note associated phrase may be an abbreviated version of item response contained in YASI Specimen and CaseWorks software.
- Individual item score contribution for relevant scores:
  - o (SR –Static Risk; DR – Dynamic Risk; SP – Static Protective; DP – Dynamic Protective)

**Part A: Legal History**

1 Previous police contacts for delinquent/criminal offenses: (not scored)							PS
Field	Type	Value	Associated phrase	SR	DR	SP	DP
A01	Integer	0	No				
		1	Yes				
Maximum scores:							

2 Age at first police contact for delinquent/criminal offenses:							PS
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Field	Type	Value	Associated phrase	SR	DR	SP	DP
A02	Integer	15+		0			
		13-14		1			
		<13		3			
Maximum scores:				3			

<b>3</b> Number of police contacts:							PS
Field	Type	Value	Associated phrase	SR	DR	SP	DP
A03	Integer	0		0			
		1		0			
		2-3		3			
		4+		6			
Maximum scores:				6			

<b>4</b> Police contacts for felony offenses: (Category I offenses)							PS
Field	Type	Value	Associated phrase	SR	DR	SP	DP
A04	Integer	0	No	0			
		1	Yes	2			
Maximum scores:				2			

<b>5</b> Transfers to adult court:							PS
Field	Type	Value	Associated phrase	SR	DR	SP	DP
A05	Integer	0		0			
		1		0			
		2+		3			
Maximum scores:				3			

<b>6</b> Number of weapon offenses:							PS
Field	Type	Value	Associated phrase	SR	DR	SP	DP
A06	Integer	0		0			
		1-2		5			
		3+		6			
Maximum scores:				6			



		0		0			
		1-2		2			
		3+		5			
			Maximum scores:	5			

<b>12</b>	<b>Escapes:</b>						<b>PS</b>
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
A12	Integer	0		0			
		1+		6			
			Maximum scores:	6			

<b>13</b>	<b>Failure-to-appear in court:</b>						<b>PS</b>
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
A13	Integer	0		0			
		1+		2			
			Maximum scores:	2			

<b>14</b>	<b>Number of Petitions for Violations of Probation or Supervision:</b>						<b>PS</b>
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
A14	Integer	0		0			
		1-4		3			
		5+		6			
			Maximum scores:	6			

**Part B: Family History**

<b>00</b>	<b>Family items do not apply (not scored)</b>						
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
B00	Boolean	True					
			Maximum scores:				

<b>1a</b>	<b>Times kicked out of home:</b>						<b>PS</b>
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>

B01a	Integer						
			Maximum scores:	0			

<b>1b</b>	<b>Times run away:</b>						<b>PS</b>
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
B01b	Integer						
			Maximum scores:	0			

<b>Sum of B01a + B01b</b>							
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
B01		0		0			
		1-6		4			
		7+		6			
			Maximum scores:	6			

<b>2</b>	<b>Has there ever been a family court finding of child neglect:</b>						<b>PS</b>
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
B02	Integer	0	No	0			
		1	Yes	2			
			Maximum scores:	2			

<b>3</b>	<b>Compliance with parental rules:</b>						<b>PS</b>
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
B03	Integer	1	Youth usually obeys, and follows rules		0		4
		2	Youth sometimes obeys, or obeys some rules		1		0
		3	Youth often disobeys rules		5		0
		4	Youth consistently disobeys, and/or is hostile		6		0
		5	No pro-social rules in place		6		0
		0	Not Applicable		0		0
			Maximum scores:		6		4

4		Circumstances of family members who are living in the household:					PS
Field	Type	Value	Associated phrase	SR	DR	SP	DP
B04a1	Boolean	<i>True</i>	<b>MOTHER:</b> Not Applicable		0		
B04b1	Boolean	<i>True</i>	<b>MOTHER:</b> No Problems		0		
B04c1	Boolean	<i>True</i>	<b>MOTHER:</b> Alcohol/Drug Problems		+ 1		
B04d1	Boolean	<i>True</i>	<b>MOTHER:</b> Mental Health Problems		+ 2		
B04e1	Boolean	<i>True</i>	<b>MOTHER:</b> JD/Criminal Record		+1		
B04f1	Boolean	<i>True</i>	<b>MOTHER:</b> Violent JD/Criminal Record		+ 2		
			Maximum scores (Mother):		3		
Field	Type	Value	Associated phrase	SR	DR	SP	DP
B04a2	Boolean	<i>True</i>	<b>FATHER:</b> Not Applicable		0		
B04b2	Boolean	<i>True</i>	<b>FATHER:</b> No Problems		0		
B04c2	Boolean	<i>True</i>	<b>FATHER:</b> Alcohol/Drug Problems		+ 1		
B04d2	Boolean	<i>True</i>	<b>FATHER:</b> Mental Health Problems		+ 2		
B04e2	Boolean	<i>True</i>	<b>FATHER:</b> JD/Criminal Record		+1		
B04f2	Boolean	<i>True</i>	<b>FATHER:</b> Violent JD/Criminal Record		+ 2		
			Maximum scores (Father):		3		
Field	Type	Value	Associated phrase	SR	DR	SP	DP
B04a3	Boolean	<i>True</i>	<b>STEP-PARENT:</b> Not Applicable		0		
B04b3	Boolean	<i>True</i>	<b>STEP-PARENT:</b> No Problems		0		
B04c3	Boolean	<i>True</i>	<b>STEP-PARENT:</b> Alcohol/Drug Problems		+ 1		
B04d3	Boolean	<i>True</i>	<b>STEP-PARENT:</b> Mental Health Problems		+ 2		
B04e3	Boolean	<i>True</i>	<b>STEP-PARENT:</b> JD/Criminal Record		+1		
B04f3	Boolean	<i>True</i>	<b>STEP-PARENT:</b> Violent JD/Criminal Record		+ 2		
			Maximum scores (Step-parent):		3		
Field	Type	Value	Associated phrase	SR	DR	SP	DP
B04a4	Boolean	<i>True</i>	<b>SIBLING:</b> Not Applicable		0		
B04b4	Boolean	<i>True</i>	<b>SIBLING:</b> No Problems		0		
B04c4	Boolean	<i>True</i>	<b>SIBLING:</b> Alcohol/Drug Problems		+ 1		

B04d4	Boolean	<i>True</i>	<b>SIBLING:</b> Mental Health Problems		+ 2		
B04e4	Boolean	<i>True</i>	<b>SIBLING:</b> JD/Criminal Record		+1		
B04f4	Boolean	<i>True</i>	<b>SIBLING:</b> Violent JD/Criminal Record		+ 2		
			Maximum scores (Sibling):		3		
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
B04a5	Boolean	<i>True</i>	<b>OTHER:</b> Not Applicable		0		
B04b5	Boolean	<i>True</i>	<b>OTHER:</b> No Problems		0		
B04c5	Boolean	<i>True</i>	<b>OTHER:</b> Alcohol/Drug Problems		+ 1		
B04d5	Boolean	<i>True</i>	<b>OTHER:</b> Mental Health Problems		+ 2		
B04e5	Boolean	<i>True</i>	<b>OTHER:</b> JD/Criminal Record		+1		
B04f5	Boolean	<i>True</i>	<b>OTHER:</b> Violent JD/Criminal Record		+ 2		
			Maximum scores (Other):		3		
			<b>Maximum scores (Entire Item):</b>		<b>15</b>		
Apply cutoff to B04DR Sum. <b>If sum = 1-2 , B04DR = 1</b> <b>If sum = 3, B04DR = 3</b> <b>If sum = 4+ = B04DR = 5</b>							

<b>5</b>	<b>Historic problems of family members ... in the environment in which the youth was primarily raised:</b>						
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
B05a1	Boolean	<i>True</i>	<b>MOTHER:</b> Not Applicable	0			
B05b1			<b>MOTHER:</b> No Problems	0			
B05c1	Boolean	<i>True</i>	<b>MOTHER:</b> Alcohol/Drug Problems	+ 1			
B05d1	Boolean	<i>True</i>	<b>MOTHER:</b> Mental Health Problems	+ 1			
B05e1	Boolean	<i>True</i>	<b>MOTHER:</b> JD/Criminal Record	+ 1			
B05f1	Boolean	<i>True</i>	<b>MOTHER:</b> Violent JD/Criminal Record	+ 1			
			Maximum scores (Mother):	3			
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
B05a2	Boolean	<i>True</i>	<b>FATHER:</b> Not Applicable	0			
B05b2	Boolean	<i>True</i>	<b>FATHER:</b> No Problems	0			
B05c2	Boolean	<i>True</i>	<b>FATHER:</b> Alcohol/Drug Problems	+ 1			

B05d2	Boolean	<i>True</i>	<b>FATHER:</b> Mental Health Problems	+ 1			
B05e2	Boolean	<i>True</i>	<b>FATHER:</b> JD/Criminal Record	+ 1			
B05f2	Boolean	<i>True</i>	<b>FATHER:</b> Violent JD/Criminal Record	+ 1			
			Maximum scores (Father):	3			
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
B05a3	Boolean	<i>True</i>	<b>STEP-PARENT:</b> Not Applicable	0			
B05b3	Boolean	<i>True</i>	<b>STEP-PARENT:</b> No Problems	0			
B05c3	Boolean	<i>True</i>	<b>STEP-PARENT:</b> Alcohol/Drug Problems	+ 1			
B05d3	Boolean	<i>True</i>	<b>STEP-PARENT:</b> Mental Health Problems	+ 1			
B05e3	Boolean	<i>True</i>	<b>STEP-PARENT:</b> JD/Criminal Record	+ 1			
B05f3	Boolean	<i>True</i>	<b>STEP-PARENT:</b> Violent JD/Criminal Record	+ 1			
			Maximum scores (Step-parent):	3			
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
B05a4	Boolean	<i>True</i>	<b>SIBLING:</b> Not Applicable	0			
B05b4	Boolean	<i>True</i>	<b>SIBLING:</b> No Problems	0			
B05c4	Boolean	<i>True</i>	<b>SIBLING:</b> Alcohol/Drug Problems	+ 1			
B05d4	Boolean	<i>True</i>	<b>SIBLING:</b> Mental Health Problems	+ 1			
B05e4	Boolean	<i>True</i>	<b>SIBLING:</b> JD/Criminal Record	+ 1			
B05f4	Boolean	<i>True</i>	<b>SIBLING:</b> Violent JD/Criminal Record	+ 1			
			Maximum scores (Sibling):	3			
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
B05a5	Boolean	<i>True</i>	<b>OTHER:</b> Not Applicable	0			
B05b5	Boolean	<i>True</i>	<b>OTHER:</b> No Problems	0			
B05c5	Boolean	<i>True</i>	<b>OTHER:</b> Alcohol/Drug Problems	+ 1			
B05d5	Boolean	<i>True</i>	<b>OTHER:</b> Mental Health Problems	+ 1			
B05e5	Boolean	<i>True</i>	<b>OTHER:</b> JD/Criminal Record	+ 1			
B05f5	Boolean	<i>True</i>	<b>OTHER:</b> Violent JD/Criminal Record	+ 1			
			Maximum scores (Other):	3			

			<b>Maximum scores (Entire Item):</b>	<b>15</b>			
<b>6</b>	<b>Youth's current living arrangements: (not scored)</b>						
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
B06a	Boolean	<i>True</i>	Mother				
B06b	Boolean	<i>True</i>	Father				
B06c	Boolean	<i>True</i>	Step-Parent				
B06d	Boolean	<i>True</i>	Siblings				
B06e	Boolean	<i>True</i>	Other Relative				
B06f	Boolean	<i>True</i>	Other Adult				
B06g	Boolean	<i>True</i>	Foster/Group Home				
B06h	Boolean	<i>True</i>	Independent				
B06i	Boolean	<i>True</i>	No permanent address/shelter				
B06j	Boolean	<i>True</i>	Other				
B06jText	Text		Other (specify)				
			Maximum scores:				

<b>7</b>	<b>Parental/custodial supervision:</b>						
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
B07	Integer	1	Good supervision		0		2
		2	Some good supervision		2		0
		3	Some inadequate supervision		3		0
		4	Frequently inadequate supervision		4		0
		5	Consistently inadequate supervision		5		0
		0	Not Applicable		0		0
			Maximum scores:		5		2

<b>8</b>	<b>Appropriate consequences for bad behaviour:</b>						
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
B08	Integer	1	Consistently appropriate consequences		0		2
		2	Usually appropriate consequences		0		1
		3	Sometimes appropriate consequences		2		0
		4	Usually not appropriate consequences		5		0

		5	Never appropriate consequences		5		0
		0	Not Applicable		0		0
			Maximum scores:		5		2

<b>9</b> <b>Appropriate rewards for good behaviour:</b>							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
B09	Integer	1	Consistently appropriate rewards		0		2
		2	Usually appropriate rewards		0		1
		3	Sometimes appropriate rewards		2		0
		4	Usually not appropriate rewards		5		0
		5	Never appropriate rewards		5		0
		0	Not Applicable		0		0
			Maximum scores:		5		2

<b>10</b> <b>Parental attitude toward youth’s maladaptive behaviour:</b>							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
B10	Integer	1	Clearly disapproves...		0		
		2	Some disapproval...		0		
		3	Minimizes, denies, justifies...		6		
		4	Accepts...		6		
		5	Proud of...		6		
		0	Not Applicable		0		
			Maximum scores:		6		

<b>11</b> <b>Support network for family; extended family and friends who can provide additional support:</b>							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
B11	Integer	1	Strong family support network				1
		2	Some family support network				0
		3	No family support network				0
		0	Not Applicable				0
			Maximum scores:				1

<b>12</b> <b>Family member(s) youth feels close to or has good relationship with :</b>							
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Field	Type	Value	Associated phrase	SR	DR	SP	DP
B12a	Boolean	<i>True</i>	Mother/female caretaker				+1
B12b	Boolean	<i>True</i>	Father/male caretaker				+1
B12c	Boolean	<i>True</i>	Female sibling				+1
B12d	Boolean	<i>True</i>	Male sibling				+1
B12e	Boolean	<i>True</i>	Extended family				+1
B12f	Boolean	<i>True</i>	No one				+1
			Maximum scores:				1

<b>13 Family provides opportunities for youth to participate in family activities:</b>							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
B13	Integer	1	Family engages in regular or frequent ...				3
		2	Engages in some family activities				0
		3	No engagement in activities as a family				0
		0	Not Applicable				0
			Maximum scores:				3

<b>14 Family provides opportunities for youth to learn, grow and succeed:</b>							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
B14	Integer	1	Ongoing opportunities for growth provided				2
		2	Some opportunities for growth provided				0
		3	No opportunities for growth provided				0
		0	Not Applicable				0
			Maximum scores:				2

<b>15 Parental love, caring, and support of youth:</b>							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
B15	Integer	1	Consistent love, caring and support		0		2
		2	Usually demonstrates love, caring and...		0		1
		3	Inconsistent love, caring and support		4		0

		4	Usually uncaring, uninterested, unwilling...		5		0
		5	Hostile toward youth, berating and belittling		6		0
		0	Not Applicable		0		0
			Maximum scores:		6		2

<b>16</b> Level of conflict between parents, between youth and parents, and among siblings:							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
B16a	Boolean	<i>True</i>	No conflict		+0		
B16b	Boolean	<i>True</i>	Some conflict that is well managed		+ 1		
B16c	Boolean	<i>True</i>	Some conflict that is distressing		+5		
B16d	Boolean	<i>True</i>	Verbal intimidation, yelling, heated arguments		+ 5		
B16e	Boolean	<i>True</i>	Threats of physical violence		+ 6		
B16f	Boolean	<i>True</i>	Physical violence between parents		+ 6		
B16g	Boolean	<i>True</i>	Physical violence between parent, children		+ 6		
B16h	Boolean	<i>True</i>	Physical violence between siblings		+ 6		
B16i	Boolean	<i>True</i>	Not Applicable		0		
			Maximum scores:		35		

Apply these weights to B16DR – sum: 1-4=1 weight, 5-10=4 weight, 11+=6 weight

**Part C: School**

<b>00i</b> Highest grade completed (not scored)							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
C00i	Integer						
			Maximum scores:				

<b>00</b> School items do not apply (not scored)							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
C00	Boolean	True					

			Maximum scores:				
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<b>1 Youth's current school enrollment status, regardless of attendance: (not scored)</b>							<b>PS</b>
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
C01	Integer	1	Graduated, GED				
		2	Enrolled full-time				
		3	Enrolled part-time				
		4	Dropped out				
		5	Suspended				
		6	Expelled				
		0	Not Applicable				
			Maximum scores:				

<b>2 Youth's attendance in the last three months of school:</b>							<b>PS</b>
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
C02	Integer	1	Attends regularly (at least 90% of time)		0		2
		2	Some partial-day unexcused absences		3		0
		3	Some full-day unexcused absences		4		0
		4	Five or more full-day unexcused absences		4		0
		0	Not applicable		0		0
			Maximum scores:		4		2

<b>3 Youth's conduct in the last three months of school:</b>							<b>PS</b>
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
C03	Integer	1	Positive behavioural adjustment		0		5
		2	No problems reported		0		4
		3	Infractions reported		2		0
		4	Intervention by school administration...		3		0
		5	Police reports filed by school		3		0
		0	Not Applicable		0		0
			Maximum scores:		3		5

<b>4 Youth's academic performance in the last three months of school:</b>							<b>PS</b>
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
C04	Integer	1	B+ or above		0		5
		2	C or better		0		2
		3	C- or lower		2		0
		4	Failing some classes		3		0
		5	Failing most classes		4		0
		0	Not Applicable		0		0
Maximum scores:					4		5

<b>5 Youth's current school conduct:</b>							
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
C05	Integer	1	Consistent, stable		0		
		2	Improving		0		
		3	Worsening		5		
		0	Not Applicable		0		
Maximum scores:					5		

<b>6 Youth's current academic performance: (not scored)</b>							
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
C06	Integer	1	Consistent, stable				
		2	Improving				
		3	Worsening				
		0	Not Applicable				
Maximum scores:							

<b>7 [Type of] special education student/learning, behavioural, or other disability, or formal IEP:</b>							
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
C07a	Boolean	<i>True</i>	No special education status	0			
C07b	Boolean	<i>True</i>	Learning	+ 1			
C07c	Boolean	<i>True</i>	Behavioural	+ 1			
C07d	Boolean	<i>True</i>	Mental Retardation	+ 1			
C07e	Boolean	<i>True</i>	ADHDADD	+ 1			
C07f	Boolean	<i>True</i>	Other:	+ 1			

C07fText	Text		Other(specified)	-			
			Maximum scores:	1	0	0	0

<b>8 Youth believes receiving an education is beneficial to him or her:</b>							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
C08	Integer	1	Believes		0		1
		2	Somewhat believes		4		0
		3	Does not believe		4		0
		0	Not Applicable		0		0
			Maximum scores:		4		1

<b>9 Youth believes school provides a supportive and encouraging environment for him or her:</b>							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
C09	Integer	1	Believes		0		2
		2	Somewhat believes		3		0
		3	Does not believe		6		0
		0	Not Applicable		0		0
			Maximum scores:		6		2

<b>10a Out-of-school suspensions in last two years:</b>							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
C10a	Integer						
			Maximum scores:	0			

<b>10b In-school suspensions in last two years:</b>							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
C10b	Integer						
			Maximum scores:	0			

<b>10c Expulsions since first grade:</b>							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
C10c	Integer						
			Maximum scores:	0			

<b>Sum of C10a + C10b + C10c</b>							
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
C10		0		0			
		1		1			
		> 1		2			
			Maximum scores:	2	0	0	0

<b>11 Age at first expulsion:</b>							
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
C11	Integer	0		0			
		1 - 12		2			
		> 12		0			
			Maximum scores:	2			

<b>12 Youth's involvement in school activities during the most recent school year:</b>							
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
C12	Integer	1	Involved in two or more activities		0		1
		2	Involved in one activity		0		0
		3	Interested but not involved in any activities		1		0
		4	No interest in school activities		4		0
		0	Not Applicable		0		0
			Maximum scores:		4		1

<b>13 Teachers/staff/coaches youth likes or feels comfortable talking with:</b>							
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
C13	Integer	0					0
		1					1
		> 1					1
C13Text	Text		Other (specify)				-
			Maximum scores:				1

**Part D: Community and Peers**

<b>1 Associates the youth spends his or her time with:</b>							<b>PS</b>
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
D01a	Boolean	<i>True</i>	Peers who have a positive pro-social infl...		0		+1
D01b	Boolean	<i>True</i>	No friends or companions, no consistent ...		+0		0
D01c	Boolean	<i>True</i>	Peers who have a negative delinquent...		+1		0
D01d	Boolean	<i>True</i>	Associates or has been seen with gang...		+4		0
D01e	Boolean	<i>True</i>	Family gang member		+3		0
D01f	Boolean	<i>True</i>	Belongs to a gang		+4		0
D01g	Boolean	<i>True</i>	None of the above		0		0
			Maximum scores:		12		1

Apply to D01DR – sum: 1-3=2 weight, 4-8=5 weight, 9+=6 weight

<b>2 Attachment to positively influencing peer(s):</b>							
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
D02a	Boolean	<i>True</i>	Youth maintains ... responsible ...		0		+1
D02b	Boolean	<i>True</i>	Youth admires or emulates...		0		0
D02c	Boolean	<i>True</i>	Youth has a best friend who is supportive ...		0		+1
D02d	Boolean	<i>True</i>	None of the above		4		0
			Maximum scores:		4		2

<b>3 Admiration/emulation of high risk delinquent peers:</b>							
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
D03a	Boolean	<i>True</i>	Youth does not admire, emulate ...		0		2
D03b	Boolean	<i>True</i>	Youth minimally admires, emulates ...		+2		0
D03c	Boolean	<i>True</i>	Youth admires, emulates delinquent peers		+6		0
D03d	Boolean	<i>True</i>	Youth is a delinquent leader who is admired...		+6		0
			Maximum scores:		6		2

<b>4a</b> Number of months youth had been associating with negatively influencing/ delinquent peers:							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
D04a	Integer	<3		0			
		3 - 6		0			
		7 - 17		4			
		18+		5			
			Maximum scores:	5			

<b>4b</b> Number of months youth had been associating with negatively influencing/ delinquent peers:							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
D04b	Integer	<3		0			
		3+		6			
			Maximum scores:	6			

<b>5</b> Amount of free time youth spends with negatively influencing or delinquent peers:							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
D05	Integer	0	No negatively influencing or delinquent peers		0		4
		1	Spends one or two hours of free time ...		2		0
		2	Spends three to seven hours of free time ...		5		0
		3	Spends eight to 14 hours of free time ...		5		0
		4	Spends all or nearly all of free time		6		0
			Maximum scores:		6		4

<b>6</b> Strength of negatively influencing or delinquent peer influence:							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
D06a	Boolean	<i>True</i>	No negatively influencing or delinquent peers		0		4
D06b	Boolean	<i>True</i>	Does not go along with delinquent peers		0		0

D06c	Boolean	<i>True</i>	Sometimes goes along with delinquent peers		+ 1		0
D06d	Boolean	<i>True</i>	Usually goes along with delinquent peers		+ 3		0
D06e	Boolean	<i>True</i>	Leads delinquent peers		+ 3		0
Maximum scores:					7		4

Apply to D06DR – sum: 1=3 weight, 2-4=5 weight, 5+=6 weight

<b>7</b> Number of existing positive adult relationships in the community:							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
D07	Integer	0					0
		1					1
		2-3					2
		4+					4
Maximum scores:							4

<b>8</b> Pro-social community ties:							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
D08	Integer	0	Not Involved				0
		1	Involved				2
		2	Highly Involved				4
Maximum scores:							4

**Part E: Alcohol and Drugs**

<b>1a</b> Alcohol/Drug Use (not scored)							PS
Field	Type	Value	Associated phrase	SR	DR	SP	DP
E01	Integer	0	No				
		1	Yes				
Maximum scores:							

<b>1c</b> (Drug) Times Used in Last Three Months							PS
Field	Type	Value	Associated phrase	SR	DR	SP	DP

E01(x)2	Integer	raw					
			Maximum scores:				

Apply to E01(x)2DR= e01a2-e01j2 – sum: 1-5=2 weight, 6+=5 weight

<b>1d (Drug) Disrupts Function</b>							<b>PS</b>
Field	Type	Value	Associated phrase	SR	DR	SP	DP
E01(x)3	Boolean	<i>True</i>					
			Maximum scores:				

Apply to E01(x)3DR= e01a3-e01j3 – any true=4 weight

<b>1e (Drug) Contributes to Behaviour</b>							<b>PS</b>
Field	Type	Value	Associated phrase	SR	DR	SP	DP
E01(x)4	Boolean	<i>True</i>			1		
			Maximum scores:				

Apply to E01(x)4DR= e01a4-e01j4 – any true=5 weight

<b>1f (Drug) Age at First Use</b>							<b>PS</b>
Field	Type	Value	Associated phrase	SR	DR	SP	DP
E01(x)5	Integer	0 - 10		3			
		11 - 13		2			
		14		1			
		> 14		0			
			Maximum scores:				

Apply to E01(x)5SR= e01a5-e01j5 – sum: 1-2=2 weight, 3-6=5 weight, 7+=6 weight

<b>1g (Drug) Attempts to Cut Back (not scored)</b>							<b>PS</b>
Field	Type	Value	Associated phrase	SR	DR	SP	DP
E01(x)6	Boolean	<i>True</i>					
			Maximum scores:				

The above scoring applies to each drug as follows:

- A Alcohol I02a1 through I02a6
- B Marijuana I02b1 through I02b6
- C Cocaine/Crack I02c1 through I02c6

- D Ecstasy or other club drugs I02d1 through I02d6
- E Heroin I02e1 through I02e6
- F Hallucinogens (LSD, Acid) I02f1 through I02f6
- G Inhalants/Huffing I02g1 through I02g6
- H Amphetamines (Speed) I02h1 through I02h6
- I Prescription drug misuse I02i1 through I02i6
- J Other I02j1 through I02j6

<b>2 Youth is receptive to participation in alcohol/drug treatment:</b>							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
E02	Integer	0	NA/No problem		0		
		1	Receptive		4		
		2	Not Receptive		6		
			Maximum scores:		6		

<b>3 Previous alcohol/drug treatment:</b>							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
E03	Integer	0	NA/No problem	0			
		1	No	1			
		2	Yes	0			
			Maximum scores:	1			

**Part F: Mental Health**

<b>1a Mental Health Problems (not scored)</b>							PS
Field	Type	Value	Associated phrase	SR	DR	SP	DP
F01	Integer	0	No				
		1	Yes				
			Maximum scores:				

<b>1b</b>		<b>[Drug]</b>					<b>PS</b>
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
F01(x)1		<i>True</i>	Diagnosed	+ 2			
F01(x)2		<i>True</i>	Current Treatment		+ 2		
F01(x)3		<i>True</i>	Past Treatment	+ 2			
F01(x)4		<i>True</i>	Current Medication		+2		
F01(x)5		<i>True</i>	Past Medication	+ 2			
F01Text			Other (specify)	-	-		
			Maximum scores:	2	2		

The above scoring applies to each Mental Health problem as follows:

- A Psychoses J04a1 through J04a5
- B Bipolar J04b1 through J04b5
- C Other mood disorders J04c1 through J04c5
- E Adjustment Disorders J04e1 through J04e5
- F Other J04f1 through J04f5

**Scoring method:**

Static and Dynamic scores for all mental health disorders are added together, and sums greater than 2 are treated as 2.

<b>2</b>		<b>Homicidal ideation:</b>					<b>PS</b>
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
F02	Integer	0	No indications	0			
		1	Has planned or attempted to seriously harm ...	3			
			Maximum scores:	3			

<b>3</b>		<b>Suicidal Ideation:</b>					<b>PS</b>
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
F03	Integer	0	No indications	0			
		1	Suicidal thoughts	2			
		2	Suicide attempt	2			
			Maximum scores:	2			

<b>4</b>		<b>Sexual aggression: (not scored)</b>					<b>PS</b>
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Field	Type	Value	Associated phrase	SR	DR	SP	DP
F04	Integer	0	No indications				
		1	Indications				
			Maximum scores:				

5 History of physical or sexual abuse:							PS
Field	Type	Value	Associated phrase	SR	DR	SP	DP
F05a1		<i>True</i>	None: Parent	0			
F05a2		<i>True</i>	None: Sibling	0			
F05a3		<i>True</i>	None: Other family	0			
F05a4		<i>True</i>	None: Outside family	0			
F05b1		<i>True</i>	Physical abuse: Parent	+3			
F05b2		<i>True</i>	Physical abuse: Sibling	+3			
F05b3		<i>True</i>	Physical abuse: Other family	+3			
F05b4		<i>True</i>	Physical abuse: Outside family	+3			
F05c1		<i>True</i>	Sexual abuse: Parent	+3			
F05c2		<i>True</i>	Sexual abuse: Sibling	+3			
F05c3		<i>True</i>	Sexual abuse: Other family	+3			
F05c4		<i>True</i>	Sexual abuse: Outside family	+3			
			Maximum scores:	3			

6 Victimization:							PS
Field	Type	Value	Associated phrase	SR	DR	SP	DP
F06a	Boolean	<i>True</i>	No indications	0			
F06b	Boolean	<i>True</i>	Sexual vulnerability/exploitation	+2			
F06c	Boolean	<i>True</i>	Victim of bullying	+3			
F06d	Boolean	<i>True</i>	Victim of physical assault	+3			
F06e	Boolean	<i>True</i>	Victim of property theft or damage	+4			
			Maximum scores:	12			

Apply to F06SR: f06a-f06e – sum: 1-6=3 weight, 7+=4 weight

**Part G: Aggression and Violence**

1	Violence:	PS
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Field	Type	Value	Associated phrase	SR	DR	SP	DP	VI
G01a	Boolean	<i>True</i>	No reports of violence	0				0
G01b	Boolean	<i>True</i>	Displaying a weapon	+ 6				+1
G01c	Boolean	<i>True</i>	Use of a weapon (illegally)	+ 3				+1
G01d	Boolean	<i>True</i>	Bullying/threatening people	+ 4				+1
G0e	Boolean	<i>True</i>	Violent destruction of property	+ 6				+1
G01f	Boolean	<i>True</i>	Assaultive behaviour	+ 3				+1
G01g	Boolean	<i>True</i>	Assault causing serious injury...	+ 1				+ 1
G01h	Boolean	<i>True</i>	Deliberate fire starting	+ 4				+1
G01i	Boolean	<i>True</i>	Animal cruelty	+ 1				+ 1
			Maximum scores:	28				8

Apply to G01SR – g01a-g01i - sum: 1-3=0 weight, 4-9=2 weight, 10+=6 weight

<b>2</b>		<b>Hostile interpretation of actions and intentions of others in a common non-confrontational setting:</b>						
Field	Type	Value	Associated phrase	SR	DR	SP	DP	VI
G02	Integer	0	Can easily tolerate criticism or hostility		0		5	
		1	Shows constraint in dealing with conflict		0		1	
		2	Recognizes that most people do not have		3		0	
		3	Frequently attributes hostile intentions to		5		0	
		4	Attributes almost all neutral actions ...		5		0	
			Maximum scores:		5		5	

<b>3</b>		<b>Tolerance for frustration:</b>						
Field	Type	Value	Associated phrase	SR	DR	SP	DP	VI
G03	Integer	0	Never gets upset over small things or ...		0		4	
		1	Rarely gets upset over small things or ...		0		2	
		2	Sometimes gets upset over small things		3		0	
		3	Frequently gets upset over small things or		4		0	

			...					
		4	Highly volatile with reputation for fits of anger		4		0	
			Maximum scores:		4		4	

<b>4</b>	<b>Belief in use of physical violence to solve a disagreement or conflict:</b>							
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>	<b>VI</b>
G04	Integer	0	...rarely appropriate or necessary		0			
		1	...sometimes appropriate or necessary		4			
		2	...often appropriate or necessary		4			
			Maximum scores:		4			

<b>5</b>	<b>Belief in use of verbal aggression to solve a disagreement or conflict:</b>							
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>	<b>VI</b>
G05	Integer	0	...rarely appropriate or necessary		0			
		1	...sometimes appropriate or necessary		3			
		2	...often appropriate or necessary		4			
			Maximum scores:		4			

**Part II: Attitudes**

<b>1</b>	<b>Accepts responsibility for PINS/delinquent/criminal behaviour:</b>							<b>PS</b>
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>	
H01	Integer	0	Voluntarily accepts full responsibility for...		0		3	
		1	Recognizes that he or she must accept ...		0		3	
		2	Indicates some awareness of need to ...		0		0	
		3	Minimizes, denies, justifies, excuses, or ...		3		0	

		4	Openly accepts or is proud of behaviour		3		0
			Maximum scores:		3		3

<b>2</b>		<b>Understands the impact of his or her behaviour on others:</b>					
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
H02	Integer	0	Fully understands the nature of harm ...		0		2
		1	Indicates awareness that harm has been ...		1		0
		2	Does not understand or fully appreciate ...		5		0
		3	Minimizes or denies harm caused		5		0
		4	Total lack of empathy for harm caused ...		5		0
			Maximum scores:		5		2

<b>3</b>		<b>Willingness to make amends:</b>					
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
H03	Integer	0	Eagerly indicates plans for making amends		0		3
		1	Indicates a desire to make amends		0		2
		2	Willing to cooperate with making amends		2		0
		3	Non-committal towards making amends		6		0
		4	Unwilling to make amends		6		0
			Maximum scores:		6		3

<b>4</b>		<b>Optimism:</b>					
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
H04	Integer	0	Is very confident the future will be bright		0		2
		1	Looks forward to future with anticipation		0		1
		2	Believes some things matter...		3		0
		3	Believes little matters because ...		3		0

		4	Believes nothing matters, fatalistic		3		0
			Maximum scores:		3		2

<b>5 Attitude when engaged in Delinquent/criminal act(s):</b>							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
H05	Integer	0	Nervous, afraid or worried	0		2	
		1	Uncertain or indecisive	0		1	
		2	Unconcerned or indifferent	0		0	
		3	Hyper, excited, stimulated	1		0	
		4	Confident or brags	2		0	
			Maximum scores:	2		2	

<b>6 Law-abiding attitudes:</b>							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
H06	Integer	0	Clearly positive commitment ...		0		5
		1	Expresses a desire to live in a law-abiding ...		2		0
		2	Expresses neutral attitude toward ...		4		0
		3	Feels law-abiding behaviour does not apply ...		6		0
		4	Openly admits unwillingness to ...		6		0
			Maximum scores:		6		5

<b>7 Respect for authority figures:</b>							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
H07	Integer	0	Indicates respect for the role of authorities		0		3
		1	Appreciates the role of authorities		0		2
		2	Expresses neutral attitude toward authorities		5		0
		3	Expresses resentment toward authorities		6		0
		4	Views all authorities with contempt		6		0
			Maximum scores:		6		3

<b>8</b> <b>Readiness for change:</b>							
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
H08	Integer	0	Actively committed to working on change		0		4
		1	Shows cooperation in taking steps ...		0		1
		2	Believes there may be a need to change		4		0
		3	Exhibits only passive or no support for change		6		0
		4	Hostile or unwilling to make positive ...		6		0
			Maximum scores:		6		4

### Part I: Skills

<b>1</b> <b>Consequential thinking skills:</b>							<b>PS</b>
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
I01	Integer	0	Acts to obtain good and avoid bad ...		0		5
		1	Can identify specific consequences ...		1		0
		2	Understands that there are good and bad ...		4		0
		3	Sometimes confused about consequences ...		4		0
		4	Does not understand there are consequences		4		0
			Maximum scores:		4		5

<b>2</b> <b>Social perspective-taking skills:</b>							
<b>Field</b>	<b>Type</b>	<b>Value</b>	<b>Associated phrase</b>	<b>SR</b>	<b>DR</b>	<b>SP</b>	<b>DP</b>
I02	Integer	0	Can accept other points of view ...		0		2
		1	Tries to understand other points of view		0		2
		2	Can reason there are two sides to a situation		3		0
		3	Difficulty understanding there are other ...		6		0

		4	Unwilling to recognize there can be other ...		6		0
			Maximum scores:		6		2

<b>3 Problem-solving skills:</b>							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
I03	Integer	0	Can apply appropriate solutions to problems		0		5
		1	Can generate different solutions to problems		0		1
		2	Can identify or describe problem behaviours ...		3		0
		3	Can sometimes identify problem behaviours ...		5		0
		4	Cannot identify when problem behaviours ...		6		0
			Maximum scores:		6		5

<b>4 Impulse-control skills to avoid getting in trouble:</b>							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
I04	Integer	0	Uses self-control techniques to avoid trouble		0		4
		1	Knows some self-control techniques ...		0		1
		2	Can identify triggers ...		4		0
		3	Usually fails to identify triggers		4		0
		4	Cannot identify triggers ...		5		0
			Maximum scores:		5		4

<b>5 Loss of control over maladaptive behaviour:</b>							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
I05	Integer	0	Recognizes problem behaviour is ...		0		4
		1	Strives for some control over own behaviour		0		2
		2	Recognizes that some problem behaviour ...		4		0

		3	Believes that most problem behaviour ...		5		0
		4	Believes problem behaviour is completely ...		5		0
			Maximum scores:		5		4

<b>6</b>		<b>Interpersonal skills:</b>					
Field	Type	Value	Associated phrase	SR	DR	SP	DP
I06	Integer	0	Demonstrates social appeal through ...		0		4
		1	Can appropriately express needs and feelings		0		3
		2	Recognizes the need to nurture positive ...		2		0
		3	Has some difficulty in expressing needs ...		4		0
		4	Cannot express needs to others without ...		4		0
			Maximum scores:		4		4

<b>7</b>		<b>Goal-setting skills:</b>					
Field	Type	Value	Associated phrase	SR	DR	SP	DP
I07	Integer	0	Carefully sets out realistic goals and plans ...		0		4
		1	Demonstrates skills in developing realistic ...		0		2
		2	Recognizes the need to plan, but may set ...		4		0
		3	Lacks skills and motivation for developing ...		5		0
		4	Exhibits no interest or desire to set goals ...		5		0
			Maximum scores:		5		4

**Part J: Employment and Free Time**

<b>1 History of Employment:</b>							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
J01a	Boolean	<i>True</i>	Currently employed	0		0	+1
J01b	Boolean	<i>True</i>	Never employed	0		0	0
J01c	Boolean	<i>True</i>	Prior successful employment	0		+1	+1
J01d	Boolean	<i>True</i>	Was fired or quit because of poor ...	+ 1		0	0
J01e	Boolean	<i>True</i>	Was fired or quit because ...	+ 2		0	0
Maximum scores:				2		1	1

<b>2 Total number of times youth has been employed:</b>							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
J02	Integer	0				0	
		1				1	
		> 1				2	
Maximum scores:						2	

<b>3 Number of weeks of longest period of employment</b>							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
J03	Integer	<4				0	0
		4 to 23				1	1
		> 23				2	2
Maximum scores:						2	2

<b>4 Positive personal relationship(s) with employer(s) or adult coworker(s):</b>							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
J04	Integer	0					0
		1					0
		> 1					2
Maximum scores:							2

<b>5 Structured recreational activities:</b>							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
J05	Integer	0	Involved in two or more activities		0		1
		1	Involved in one activity		0		1

		2	Interested but not involved		2		0
		3	Not interested in any activities		2		0
			Maximum scores:		2		1

<b>6 Unstructured recreational activities: (not scored)</b>							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
J06	Integer	0	Involved in two or more activities				
		1	Involved in one activity				
		2	Interested but not involved				
		3	Not interested in any activities				
			Maximum scores:				

<b>7 Challenging/exciting hobbies/activities:</b>							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
J07	Integer	0	Identifies hobby(s) or activity(s) ...		0		1
		1	Can identify hobby(s) or activity(s) ...		0		1
		2	Cannot identify hobby(s) or activity(s) ...		3		0
			Maximum scores:		3		1

<b>8 Decline in interest in positive leisure pursuits:</b>							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
J08	Integer	0	No change, or never experienced positive ...		0		0
		1	Decline in interest in positive leisure pursuits		2		0
		2	Recent increase in interest in positive ...		0		1
			Maximum scores:		2		1

## Appendix B

### *Proxy Adverse Childhood Experiences (ACEs) Measure Coded from the Youth Assessment Screening Instrument*

ACE Items	YASI Items
1. Emotional Abuse	<ul style="list-style-type: none"> <li>• Parents/caregivers are hostile toward youth, berating, belittling</li> <li>• Emotional abuse perpetrated by parent, stepparent, other adult, or currently</li> </ul>
2. Physical Abuse	<ul style="list-style-type: none"> <li>• Physical violence between parents and children</li> <li>• Physical abuse perpetrated by parent, stepparent, other adult, or currently</li> </ul>
3. Sexual Abuse	<ul style="list-style-type: none"> <li>• Sexual abuse perpetrated by parent, stepparent, other adult, or currently</li> </ul>
4. Alcohol/Drugs in Home	<ul style="list-style-type: none"> <li>• Circumstances of family members who are living in the household (alcohol/drug problems with mother, father, stepparent, sibling, or other)</li> <li>• Historic problems of family members who lived in the environment in which the youth was primarily raised (alcohol/drug problems with mother, father, stepparent, sibling, or other)</li> </ul>
5. Mental Health Problems in Home	<ul style="list-style-type: none"> <li>• Circumstances of family members who are living in the household (mental health problems with mother, father, stepparent, sibling, or other)</li> <li>• Historic problems of family members who lived in the environment in which the youth was primarily raised (mental health problems with mother, father, stepparent, sibling, or other)</li> </ul>

- |   |  |
|---|--|
| 6. “Prison” Household                             | <ul style="list-style-type: none"> <li>• Circumstances of family members who are living in the household (mother, father, stepparent, sibling, or other with a youth/adult criminal and/ or violent criminal record)</li> <li>• Historic problems of family members who lived in the environment in which the youth was primarily raised (mother, father, stepparent, sibling, or other with a youth/adult criminal and/or violent criminal record)</li> </ul>   |
| 7. Physical Neglect                               | <ul style="list-style-type: none"> <li>• Times kicked out of home</li> <li>• Court finding of child neglect</li> </ul>   |
| 8. Emotional Neglect                              | <ul style="list-style-type: none"> <li>• Rewards for good behaviour (affection, praise, or other tangible means) are never appropriate or there are no rewards</li> <li>• No family support network</li> <li>• Family provides no opportunities for involvement in family activities</li> <li>• Family provides no opportunities for growth</li> <li>• Youth does not feel close to or have a good relationship with any family member</li> <li>• Parents/caregivers are hostile toward youth, berating, belittling or are indifferent, uncaring, uninterested, and unwilling to help</li> </ul> |
| 9. Violence Toward Mother                         | <ul style="list-style-type: none"> <li>• Physical violence between parents</li> </ul>  |
| 10. Parents Separated or Divorced (Unstable Home) | <ul style="list-style-type: none"> <li>• Total number of placements with Children’s Aids Society (for any reason)</li> <li>• History of being in a foster home</li> <li>• History of living independently (as a youth)</li> <li>• History of homelessness/shelter</li> <li>• Other (depending on location)</li> </ul>  |

*Note.* Participants get a score of ‘1’ if any of the corresponding YASI items are positively endorsed (this is in keeping with the spirit of the original ACE questionnaire). Given that there are a total of 10 individual ACE items, total plausible scores can range from 0 to 10.

## Appendix C

### *Memorandum of Understanding*

#### Addendum to the 2015 Memorandum of Understanding Regarding Research Collaboration Between Milwaukee County Department of Health and Human Services and Orbis Partners Inc.

This Addendum outlines specific conditions that allow sharing of research data produced from the 2015 agreement on research collaboration between Orbis Partners, Inc. (hereinafter referred to as “Orbis”) and the Milwaukee County Department of Health & Human Services (hereinafter referred to as “Milwaukee County”). The Addendum provides permission to Orbis Partners to make available the Milwaukee County YASI validation database for use by Dr. Shelley Brown (hereinafter referred to as Brown) and student Megan Wagstaff (hereinafter referred to as Wagstaff) of Carleton University. All of the provisions regarding data confidentiality and dispersal of research results included in the original MOU apply to the current Addendum

#### Goals:

The goals of this Addendum are to:

1. Provide data for the purpose of research that will contribute to the completion of a Master’s thesis project by Megan Wagstaff under the direction of Dr. Shelley Brown.
2. To provide relevant knowledge to conduct a latent profile analysis (LPA) to examine risk and strength factors derived from the Youth Assessment and Screening Instrument for youth aged 7-17.
3. To contribute to the development of scholarly research suitable for publication in peer-reviewed journals.
4. To contribute to applied knowledge that may help inform the use of the YASI assessment tool in assessing risk, needs and strengths of youth of varying ages that are served by juvenile justice service agencies.

#### Terms:

1. All Milwaukee County data and research materials managed by Orbis is considered confidential and treated accordingly. Specifically, Milwaukee County data and research materials managed by Orbis is stored electronically and password protected. Only members of the Orbis project research team (i.e., Dr. David Robinson and designated staff) have access to data supplied by Milwaukee County in connection with this MOU. The data can be provided to other researchers by Orbis only with the consent of Milwaukee County. This MOU only permits Orbis to provide the Milwaukee County data for use by Brown and Wagstaff and is not understood as permission to provide the data to other research parties unless covered by separate MOUs or Addenda.
2. All data analysis related to this project will be conducted by Brown and Wagstaff. The role of Orbis will be to securely provide databases containing Milwaukee County YASI assessment and recidivism data to Brown and Wagstaff and to provide any documentation necessary to use the data files for the purpose of the research. Orbis will not be involved in the development of hypotheses or analysis of data related to the project. If requested, Orbis may agree to provide consultation on the project or participate in the development of scholarly publications.

3. All data to be shared with Brown and Wagstaff will be in electronic format. Before providing the data, Orbis shall ensure that all personal identifiers are removed to protect the confidentiality of individuals included in these research databases. A secure file transmission protocol will be provided by Orbis to facilitate the transfer of data to Brown and Wagstaff at Carleton University.
4. This Addendum does not provide Brown and Wagstaff with the right to distribute the Milwaukee County data to any other individuals. All data analyses related to this Addendum will be performed by Brown and Wagstaff.
5. The thesis research related to this Addendum will be subjected to review and approval by the Ethics Committee within the Department of Psychology, Carleton University.
6. To ensure that the terms of confidentiality and anonymity have been met, all data/results reported in manuscripts, conference proceedings, and other publications produced by Brown and Wagstaff will be presented in aggregate form.
7. A copy of any intended publications and/or preliminary conference findings will be provided to Milwaukee County for review at least 30 calendar days prior to submission, during which time Milwaukee County may issue feedback, respond with any concerns, or exercise the option to prevent the publication of the information. This restriction does not apply to the submission of the Master's thesis by Wagstaff to Carleton University.
8. When the project is completed, Brown and Wagstaff agree to provide a briefing to Milwaukee County on the research results by providing a brief summary (e.g., 2-3 pages) or PowerPoint presentation. A copy of the thesis will be provided to Milwaukee County and Orbis after acceptance by the Department of Psychology, Carleton University.
9. Following the completion of this research project, Milwaukee County will be permitted to use the research results at their discretion without cost or limitation but with acknowledgement of Wagstaff and Brown and with proper citation if results are published.
10. In any publications or conference proceedings derived from the project, each party will acknowledge the contribution of the other parties in the completion of the research project.
11. This Addendum may be modified as mutually agreed in writing by all parties.
12. This Addendum shall take effect immediately upon Milwaukee County, Orbis, Brown and Wagstaff's signatures and date of full execution and will continue in effect until such time as it is terminated by any party, upon serving written notice to the other parties, or as otherwise modified.

By signing this Addendum, the undersigned officials attest that he or she has legal authority to enter into this agreement on behalf of their respective parties. IN WITNESS WHEREOF, the parties hereto signed this Addendum on the day and year appearing opposite their respective signatures.

ORBIS PARTNERS

By: 

David Robinson  
Print Name

Title: President

Date: 06 04 2020

MILWAUKEE COUNTY DEPARTMENT OF HEALTH & HUMAN SERVICES

By: \_\_\_\_\_  
Signature

\_\_\_\_\_   
Print Name

Title:

Date:

MILWAUKEE COUNTY DEPARTMENT OF HEALTH & HUMAN SERVICES DIVISION OF YOUTH AND FAMILY SERVICES

By:   
Signature

Mark Mertens  
Print Name

Title: Division Administrator

Date: 09 04 2020

Shelley Brown, Faculty, Department of Psychology, Carleton University

By: 

Titl \_\_\_\_\_ / / \_\_\_\_\_

Megan Wagstaff, Student, Department of Psychology, Carleton University

By:   
Signature

Megan Wagstaff  
Print Name

Date: 08 04 2020

**Appendix D***Ethics Approval*

Office of Research Ethics  
4500 ARISE Building | 1125 Colonel By Drive  
Ottawa, Ontario K1S 5B6 61three to  
five20-2600 Ext: 4085  
[ethics@carleton.ca](mailto:ethics@carleton.ca)

**CERTIFICATION OF INSTITUTIONAL ETHICS CLEARANCE**

The Carleton University Research Ethics Board-B (CUREB-B) has granted ethics clearance for the research project described below and research may now proceed. CUREB-B is constituted and operates in compliance with the *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans* (TCPS2).

**Ethics Protocol Clearance ID:** Project # 112847

**Research Team:** Ms. Megan Wagstaff (Primary Investigator) Dr. Shelley Brown (Research Supervisor)

**Project Title:** Gender Differences in How Risks and Strengths Cluster to Form Profiles of Justice-Involved Youth: A Latent Profile Analysis

**Funding Source** (If applicable):

Effective: **May 04, 2020**

Expires: **May 31, 2021.**

**Please ensure the study clearance number is prominently placed in all recruitment and consent materials: CUREB-B Clearance # 112847.**

**In light of the COVID-19 outbreak, the REB has developed guidance for human participants' research at <https://carleton.ca/researchethics/>. However, the situation is evolving rapidly so please check back regularly to keep up with any ongoing changes to this guidance.**

**Restrictions:**

This certification is subject to the following conditions:

1. Clearance is granted only for the research and purposes described in the application.
2. Any modification to the approved research must be submitted to CUREB-B via a Change to Protocol Form. All changes must be cleared prior to the continuance of the research.

3. An Annual Status Report for the renewal of ethics clearance must be submitted and cleared by the renewal date listed above. Failure to submit the Annual Status Report will result in the closure of the file. If funding is associated, funds will be frozen.
4. A closure request must be sent to CUREB-B when the research is complete or terminated.
5. During the course of the study, if you encounter an adverse event, material incidental finding, protocol deviation or other unanticipated problem, you must complete and submit a Report of Adverse Events and Unanticipated Problems Form, found here:  
<https://carleton.ca/researchethics/forms-and-templates/>

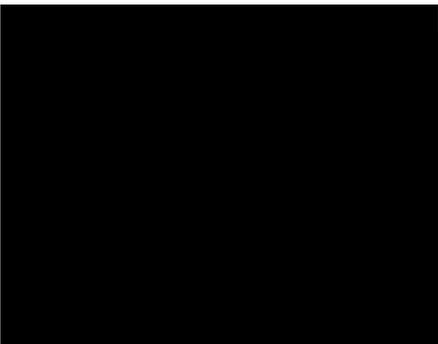
Failure to conduct the research in accordance with the principles of the *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans 2nd Edition* and the *Carleton University Policies and Procedures for the Ethical Conduct of Research* may result in the suspension or termination of the research project.

Upon reasonable request, it is the policy of CUREB, for cleared protocols, to release the name of the PI, the title of the project, and the date of clearance and any renewal(s).

Please contact the Research Compliance Coordinators, at [ethics@carleton.ca](mailto:ethics@carleton.ca), if you have any questions.

**CLEARED BY:**

**Date: May 04, 2020**



Natasha Artemeva, PhD, Chair, CUREB-B



Janet Mantler, PhD, Vice-Chair, CUREB-B