

The Child and Youth Resilience Measure in an Adolescent Offender Population

by

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Abstract

Resilience theory holds potential to assist with risk assessment, risk management, and case formulation for adolescent offenders but its application is impeded due to a lack of tools designed specifically for this population. The Child and Youth Resilience Measure (CYRM) was developed with multi-cultural, at-risk youth populations, has a broad resilience framework, and provides resilience scores on a wide variety of resilience domains in line with Bronfenbrenner's socio-ecological model. In the present study, the CYRM demonstrated adequate psychometric properties (acceptable internal consistency, convergent, and discriminate validity) and specific subscales correlated negatively with concurrent depression/anxiety, reactive and relational aggression, and suicidal ideation. Further investigation is needed in examining the longitudinal applicability of the CYRM with youth offender populations and its utility in informing case management and intervention. At present, the CYRM appears to be psychometrically sound and it relates to various adverse outcomes associated with youth offenders.

Keywords: adolescent offenders; resilience; adverse outcomes, CYRM

Dedication

Thank you to my family, friends, and supervisor for your support and guidance in navigating my way towards this academic milestone. I appreciate your insightful input and encouragement and look forward to your continued influence during the next stage of my academic journey.

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List of Acronyms

CHKS	California Healthy Kids Survey
CYRM	Child and Youth Resilience Measure
DAP	Developmental Assets Profile
MAYSI-2	The Massachusetts Youth Screening Instrument - Version 2
SAVRY	Structured Assessment of Violence Risk in Youth
SRO	Self-report of Offending
YLS/CMI	Youth Level of Service/Case Management Inventory

Introduction

Involvement in antisocial activities during adolescence is considered normative (Elliott, Ageton, Huizinga, Knowles, & Canter, 1983) with adolescents tending to desist from this behaviour as they mature (Moffitt, 1993). Researchers have postulated and examined numerous potential contributors to desistance, such as aging effects (the age-crime curve; Farrington, 1986), maturation (Gardner, 1993; Steinberg & Cauffman, 1996), fatigue (Mulvey et al., 2004) and the transition to fulfilling adult roles (e.g., increased responsibility, decreased leisure time, increased daily structure in work and family time; Mulvey et al., 2004). Another potential contributor to criminal desistance is the concept of resilience; the ability to positively overcome obstacles when presented with a negative situation. However, despite the potential influence of this concept, research on resilience and adolescent offenders is still in its infancy. Progress has been made to advance this field (Rogers, 2000; Gendreau, 1996; Smith, Gendreau, & Swartz, 2009), however, resilience is still overall a developing concept.

The Concept of Resilience

Resilience was first examined in earnest in the 1960s and 1970s (Masten, 2007) and since its conceptual beginnings it has been defined in numerous ways. Despite semantic differences, common overlapping definitional components are that resilience is the ability to “bounce back” from trauma, to engage in adaptive coping, and do well when confronted with adversity (Luthar & Zigler, 1991; Rutter, 1985; Stein, 2005). Work by Luthar (1991, 2000) condenses resiliency into two essential steps: (1) an individual needs to face a potentially harmful situation and (2) they need to overcome the obstacle in a positive manner.

Researchers have debated whether resilience is a trait, process, or outcome (Jacelon, 1997; Masten, 2007; Panter-Brick & Leckman, 2013). Some authors have

viewed resilience as an amalgamation of protective factors both after and prior to exposure to risk whereas other view resilience as an individual protective factor in and of itself, as a dynamic process leading towards positive outcomes, and/or as the successful attainment of a positive outcome, (Egeland, Carlson, & Sroufe, 1993; Kumpfer, 2002; Masten, 2001).

Resilience theory has progressed through at least three stages of development. First, early research examined the existence of resilient qualities, this was followed by outlining the process of resilience, and finally researchers examined a multidisciplinary and adaptive view of resilience (Richardson, 2002). More recently, research focuses on identifying the multidimensional protective factors and qualities that comprise resilience (Masten, 2007; Richardson, 2002) and how resilience functions and in what situations it can be observed (Fletcher & Sarkar, 2013).

Bronfenbrenner's (1977) social-ecological model has been influential to the field of adolescent resilience. Based on this model, three main areas in which an adolescent's resilience can be observed emerged: the microsystem (e.g., parent and individual factors), the exosystem (e.g., school, neighbourhood), and the macrosystem (e.g., culture). This conceptualization of resilience has inspired both tools that assess the presence of resilience (e.g., Child and Youth Resilience Measure; Ungar, 2011) and therapeutic interventions designed for at risk adolescents (e.g., Multisystemic Therapy; Henggeler, Melton, & Smith, 1992). Three main areas that foster resilience can be extracted from Bronfenbrenner's theory (Ungar, 2011): individual (e.g., social competence, attitudes), family/parents (e.g., familial bonding, consistent discipline), and various life context domains (e.g., cultural norms, community disorganization).

A noteworthy application of the Bronfenbrenner's theory is the incorporation of the socio-ecological model into adolescent treatment and intervention. The use of Multisystemic Therapy has been linked to decreased rates of violent/criminal behaviour (Borduin et al., 1995; Henggeler, Melton, Smith, Schoenwald, & Hanley, 1993), decreased rates of substance use (Henggeler, Clingempeel, Brondino, & Pickrel, 2002), and improved mood/emotion functioning (Timmons-Mitchell, Bender, Kishna, & Mitchell, 2006) in adolescent offenders.

Resilience and Mental Health in Adolescents

Adolescent offenders are at increased risk for the development of a wide variety of mental health issues compared to their non-justice involved peers (Atkins et al., 1999). High prevalence rates of mental health issues are found in youth offender populations with roughly 67-85% of youth presenting with symptoms of mental disorders (Robertson, Dill, Husain, & Undesser, 2004; Teplin, Abram, McClelland, Dulcan, & Mericle, 2002; Timmons-Mitchel et al., 1997) and 46-57% with co-morbid diagnoses (Abrams, Teplin, McClelland, & Dulcan, 2003). A recurring finding is the high prevalence of substance abuse (Tapert, Aarons, Sedlar, & Brown, 2001; McClelland, Elkington, Teplin, & Abram, 2004), suicidal ideation (Abram et al., 2008; Penn, Esposito, Schaeffer, Fritz, & Spirito, 2003), and affective/anxiety disorders (Domalanta, Risser, Roberts & Risser, 2003; Teplin et al., 2002) in this population.

Factors which protect against, or reduce, substance use in adolescents have been examined in research using community adolescent populations. For instance, parental involvement and family management have been found to protect against adolescent substance use (Luthar & Barkin, 2012) especially as they offset the link between peer support and increased substance use (Marshal & Chassin, 2000; Steinberg, Fletcher & Darling, 1994; Wills & Vaughan, 1989). Substance use has also been shown to be lowered by the spiritual factors (e.g., devotion, religiosity; Barnes, Farrell, & Banerjee, 1994; Miller, Davies & Greenwald, 2000), high school connectedness (Bond et al., 2007) and high levels of ethnic pride (Marsiglia, Kulis, & Hecht, 2001).

Suicidal ideation and self-harm are dangerous behaviours and have also been examined in adolescent community populations. A variety of resilience factors have appeared in the literature that protect against these outcomes. For instance, high problem solving, coping skills (Beautrais, 2001), religiosity (Donahue & Benson, 1995), and high commitment to cultural spirituality (Garrouette, Goldberg, Beals, Herrell, & Manson, 2003) are all associated with reduced suicidal behaviours.

Depression and anxiety disorders have high prevalence rates, especially among female adolescent offenders (Timmons-Mitchel et al., 1997). Numerous facets of

resilience have been associated with decreased symptomatology in these two disorders. For example, individual factors such as strong interpersonal relationships (parental and peer) have been associated with protection against depression in community adolescents (Carbonell et al., 2002; Stice, Ragan & Randall, 2004). Additional parenting factors such as parental involvement and family management are linked to decreased depression (Carbonell et al., 2002; Yu et al., 2006) in youth. Contextual factors such as spiritual well-being (Davis, Kerr, & Kurpius 2003), having positive religious experiences (Pearce, Little, & Perez, 2003) and high school connectedness (Bond et al., 2007) are also linked to decreased depression/anxiety.

Overall, there is a wide variety of overlap regarding which factors protect against substance use, suicidal ideation, and affective disorders. In general, resilience factors in the domains of family functioning, social support, individual coping skills, and religious/cultural context protect against these adverse outcomes. Factors related to family functioning such as family connectedness, management, and support appear to be especially important protective factors against adverse outcomes.

Resilience and Offending Behaviour

Adolescence is associated with increased rates of engagement in antisocial and criminal activities compared to other developmental periods. For instance, in Canada in 2010-2011 roughly 52, 900 court cases were processed regarding youth between the ages of 12-17 charged with an offence (Statistics Canada, 2012). Reoffending behaviour is concerning as close to 60% of offenders aged 18 to 25 years had a prior conviction in youth or adult court (Statistics Canada, 2002) and those that began offending in early adolescence had double the prior convictions of those who began offending in adulthood, while controlling for years at risk. An interconnected issue is that youth often display high rates of aggression (Connor, 2002) which remain relatively constant over time (Olweus, 1979). Aggression has been classified into many dichotomies, one common categorization uses two broad groupings (Raine et al., 2006): reactive (e.g., impulsive, hostile, affective) and proactive (e.g., instrumental, controlled, organized). Based on these findings, youth offenders are at high risk for both reoffending behaviour and engaging in aggressive acts.

Researchers have examined factors that protect against reoffending behaviour in adolescents. Findings demonstrate that a wide variety of individual, parental, and contextual factors are related to decreases in offending behaviour (Losel & Farrington, 2012). Individual factors such as temperament, coping ability, social support (Losel & Bliesener, 1994) and caregiver factors such as parental involvement, family management and support have been related to criminal desistence (van Domburgh, Loeber, Bezemer, Stallings, & Stouthamer-Loeber, 2009). Additional contextual protective factors against offending behaviour are connectedness to school and religiosity (Resnick, Ireland, & Borowsky, 2004).

Reactive and instrumental aggressions are often separated into distinct concepts when examined in research. Reactive aggression is often linked to decreased peer support (Poulin & Boivin, 2000) whereas instrumental aggression in youth is linked to higher levels of supportive and satisfying friendships (Poulin & Boivin, 1999). Social skills play a role in this finding as aggressive youth with high social skills are often viewed as popular by peers compared to their aggressive peers without this skill set (Farmer, Estell, Bishop, O'Neal, & Cairns, 2003). For both types of aggression, parental monitoring (Leadbeater, Banister, Ellis, & Yeung, 2008) and parental empathy and warmth (Carlo, Raffaelli, Laible, & Meyer, 1999) were linked to decreased aggression in their children.

Resilience in Adolescent Offenders

Although few studies have specifically examined resilience in youth offenders, research regarding normative adolescent samples have found considerable overlap between factors that protect against various adverse outcomes (e.g., parental monitoring and support, religiosity, peer support, etc.). This is largely a result of definitional issues; resiliency is commonly viewed as not succumbing to negative outcomes, and adolescent offenders, by virtue of having engaged in criminal behavior, have already succumbed to their risk. As such, Ungar (2008) argues that resilience in adolescent offenders is best understood as positive functioning after *recovering* from a negative event (i.e., offending). This way, resilience can be observed through outcomes such as desistence and a return to typical functioning, rather than the attainment of an idealized outcome

such as a complete lack of anti-social behaviour and risky behaviour, which is in fact normative behaviour for adolescents (Elliott et al., 1983).

Several factors that may protect against reoffending in adolescents have been identified, including good family management (Herrenkohl et al., 2003), commitment to school, and high intelligence (Shader, 2001). Furthermore, several widely used risk needs assessment tools designed to assess risk and guide treatment planning/interventions now include resilience or protective factors. For instance, on the Structured Assessment of Violence Risk in Youth (SAVRY; Borum, Bartel, & Forth, 2005), evaluators rate adolescents on six protective factors, such as strong attachments and bonds, school commitment, and prosocial involvement. Additionally, the Youth Level of Service/Case Management Inventory (YLS/CMI; Hoge & Andrews, 2002) has evaluators judge the presence of strengths in cluster areas (e.g., employment/education, leisure time, substance use, etc.).

However, in general, there is fairly limited focus on strengths/resilience in violence risk assessment tools. For example, when coding the SAVRY, all 24 risk items are described with detailed instructions and a Likert rating scale, whereas the six protective factors have vague instructions and are coded in a simple present/absent fashion. Furthermore, resilience measures designed for use with adolescent offenders incorporate protective factors which are linked specifically to offending risk rather than more broad and common negative outcomes, such as substance abuse (Tapert et al., 2001; McClelland et al., 2004), suicidal ideation (Abram et al., 2008; Penn et al., 2003), and depression/anxiety (Teplin et al., 2002). Linking resilience theory to these broader outcomes is important for longer term treatment and improved functioning. For instance, a resilience assessment of an adolescent offender might provide a comprehensive picture of factors influencing the youth (Fougere, Daffern, & Thomas, 2012), predict outcomes such as reoffence risk (Rogers, 2000; Stouthamer-Loeber, Loeber, Wei, Farrington, & Wikstrom, 2002; Carr & Vandiver, 2001), and guide treatment planning. All these factors would improve the effectiveness of interventions and assist the youth to desist from criminal and antisocial behaviour.

Few well-validated measures exist that examine broad resilience factors in adolescents. For instance, Ahern, Teplin, McClelland, and Dulcan (2006) conducted a

review of available self-report resilience tools appropriate for use with adolescents and found 370 tools related to resilience. Only six of these measures met criteria of being resilience specific, and having undergone peer review plus demonstrating adequate psychometric properties. Furthermore, only one was deemed as appropriate for use with adolescent populations as it was well validated, reliable, and had been employed in 18 independent studies on adolescent populations. Thus, there is a strong need for research on resilience assessment tools, both in general adolescent populations but also adolescent offenders more specifically. One promising tool to address this need is the Child and Youth Resilience Measure (Ungar, 2008).

The Child and Youth Resilience Measure

The Child and Youth Resilience Measure (CYRM; Ungar, 2008) was developed through collaborative cross cultural consultation (Ungar & Liebenberg, 2011) and research in 11 diverse regions (e.g., Canada, Africa, China, Russia, United States, etc.) at 14 community sites. The resultant measure was created by compilation of quantitative and qualitative data which extracted key recurring resilience themes across all participating cultural groups. The final version claims to lack the Eurocentric bias which plagues many of the popular resilience measures that are currently in use (Ungar & Liebenberg, 2011) and to provide a broad measure of resilience incorporating resilience facets from multiple domains (e.g., spirituality, psychological caregiving, peer support, culture, etc.). The CYRM has been found to have acceptable internal consistency, high face validity, and strong factor loadings within subscales when used with adolescents who are accessing community services such as juvenile justice, social services, and mental health treatment (Liebenberg, Ungar, & Van de Vijver, 2012). The CYRM does not presently have any evidence for predictive validity, but does have high content validity (Windle, Bennett, & Noyes, 2011) in comparison to other broad resilience scales.

Although not designed specifically for adolescent offenders, the CYRM has been applied with this population due to the conceptual overlap between offenders and other at risk adolescent groups found in the CYRM normative sample (e.g., service accessing youth; Liebenberg et al., 2012). The CYRM has also been employed with adolescents in child protective residences in Quebec, Canada (Collin-Vézina, Coleman, Milne, Sell, &

Daigneault, 2011), which found that the CYRM was able to discern different levels and patterns of resilience amongst adolescents who were abused.

One of the main draws of the CYRM is its multicultural framework and applicability to a variety of societies. Since Canada is multicultural, a tool that generates consistent results regardless of an individual's cultural context would be immensely valuable. The CYRM also incorporates Bronfenbrenner's Model that allows for a comprehensive and extensive assessment of resilience in a wide variety of life domains. As the Bronfenbrenner Model has shown positive effects when incorporated into intervention and treatment of youth offenders, there is a potential that a resilience tool incorporating this framework would also improve how youth offenders are conceptualized by treatment providers and the effectiveness of interventions.

Through assessing multiple domains of resilience, and by accounting for culture in its design, the CYRM shows potential to be a well-rounded measure that could be used by researchers, and potentially practitioners. Although the tool was developed to determine strengths and deficits for clinical work and to measure change longitudinally (Liebenberg et al., 2012) rather than to predict outcomes, the vast majority of potential applications of the CYRM have yet to be explored. Resilience measures have the theoretical potential to improve both the description and clinical presentation of individuals as well as assist in the prediction of common adverse outcomes.

The Present Study

The current study sought to describe the reliability, validity and clinical utility of the CYRM in an adolescent offender population by investigating four key research questions:

1. Do the CYRM subscales and total score have adequate internal consistency when used with an adolescent offender population? As past research showed that the precursor tool to the CYRM had high levels of internal consistency when used with an at-risk youth population (including subsamples of youth offenders), it was hypothesized that the updated version used in the present study would have high internal consistency when used with an adolescent offender population.

2. Will the CYRM have convergent and discriminant validity with other measures of resilience and risk factors, respectively? It was hypothesized that the CYRM would correlate highly with other protective factor tools (e.g., DAP, CHKS, and SAVRY Protective) and that the CYRM will correlate inversely with a risk assessment measure (e.g., SAVRY Risk).
3. When used with a West Coast adolescent offender population, how will CYRM results compare to the published data on Atlantic Canadian adolescents who are accessing services (e.g., social work, probation, etc.)? As both samples comprised adolescents involved in services in a Canadian context, it was hypothesized that the present sample would have resilience levels that are comparable to the Atlantic Canadian youth sample.
4. Will the CYRM correlate with scores on measures designed to assess common negative outcomes known to be present in adolescent offenders, including reoffending, aggression (reactive and proactive/relational), substance use (alcohol or drug), suicidal ideation and depression/anxiety. It was predicted that adolescents with higher resilience scores would be less susceptible to adverse outcomes, such as mental health issues (anxiety, depression, substance use, suicidal ideation) and antisocial behaviour (offending, aggression). Specifically, it was predicted that negative correlations would be observed between CYRM scores and scores on tools measuring the various adverse outcomes.

Method

Participants

The present sample comprised adolescents sentenced to probation orders living in Vancouver and the Fraser Valley in British Columbia, Canada. The present sample comprised 55 participants between the ages of 12-17 ($M = 15.93$, $SD = 1.14$), the majority of whom were male (70.1%; $n = 39$). Participants self-reported a variety of ethnicities including Caucasian (32.3%; $n = 18$), Aboriginal (30.9%; $n = 17$), Asian (12.7%; $n = 7$), East Indian (5.5%; $n = 3$), Hispanic (5.5%; $n = 3$), and as other races/ethnicities not otherwise identified (12.7%; $n = 7$). Overall, participants were convicted of 2.04 index charges ($SD = 2.04$) and spent an average of 172.7 days on probation ($SD = 145.5$). Their index convictions were varied and involved offences related to non-sexual violence (60.4%; $n = 32$), sexual violence (3.8%; $n = 2$), property crime (30.2%; $n = 16$), and other offences (22.6%; $n = 12$), such as violations and weapon related offences. Demographic characteristics of the present sample are presented in Table 1.

Materials

Child and Youth Resilience Measure (CYRM: Resilience Research Centre, 2009). The CYRM is a 28-item, self-report questionnaire that assesses three dimensions of resilience which are further broken down into a total of eight factors: Individual (personal skills, peer support, and social skills), Caregivers (caregivers' physical and psychological caregiving), and Contextual factors (spiritual context, educational context, and cultural context). The questionnaire has a Likert response format with a 5-point scale ranging from "not at all (like me)" to "a lot (like me)". The potential range of scores is from 28 to 140, with higher scores indicating the presence of more resilient qualities.

The CYRM was recently validated on a sample of Canadian adolescents in Atlantic Canada (Liebenberg et al., 2012). The sample comprised 497 youth accessing mandated services (e.g., mental health, juvenile justice, social welfare, etc.) and contained both male and female as well as minority and majority youth. Cronbach's alphas for the three main domain components ranged from .65 to .91 indicating good internal consistency (Cronbach, 1951). Cross-temporal stability was shown to be good and interclass correlations measuring absolute agreement between two time points spaced 3-5 weeks apart ranged from .58 to .77 demonstrating high test-retest reliability. Female and minority youth scored significantly higher than males and visible majority youth on all eight subscales of the CYRM with gender accounting for 4% of the variance and ethnicity accounting for 18% of the variance, however these effects have yet to be replicated (e.g., Collin-Vezina et al., 2011).

Developmental Assets Profile (DAP; Search Institute, 2004). The DAP is a 58-item self-report measure which taps into both External and Internal resilience assets (assessed by 26 and 32 questions, respectively). All questions are responded to on a 4-point Likert scale from “not at all” to “almost always” and are answered in reference to the previous three-month time period. The potential range of scores is between 0 and 60 points, with higher scores indicating the presence of more assets. The DAP can be utilized by examining scores in terms of asset categories (External assets include: support, empowerment, boundaries and expectations, and constructive use of time, and Internal assets include: commitment to learning, positive values, social competencies, and positive identity) or social Context areas (personal, social, family, school, and community).

Higher DAP scores are associated with positive outcomes (e.g., reduction in risky behaviour and increased academic success; Leffert et al., 1998) and ability to thrive (e.g., good physical and psychological health, healthy relationships, educational attainment; Benson, Scales, Hawkins, Oesterle, & Hill, 2004). The DAP has high reliability with internal consistency ranging from .81-.97 and test-retest ranging from .79-.87 (Search Institute, 2004). Predictive validity for the DAP has been shown to be moderate with $r = -.49$ for predicting risk level and $r = .65$ for predicting thriving (Search Institute, 2004).

In the present study there was little missing data on the DAP and missing data was addressed by following the recommended process outlined in the manual (mean item substitution). Additionally, Cronbach's alpha ranged from .65 - .92 indicating good internal consistency (Cronbach, 1951).

California Healthy Kids Survey (CHKS: Constantine, Benard, & Diaz, 1999). The CHKS assesses external supports and internal traits related to resilience (Constantine & Benard, 2001) and is composed of 56 items responded to on a 4-point Likert scale from “very much true” to “not at all true”. Higher scores on the measure indicate more positive characteristics present in a youth’s life. Both the internal and external asset domains are broken down further into six and three subscales, respectively. The factors making up the internal assets domains are: empathy, self-awareness, cooperation/communication, general self-efficacy, effective help seeking, and goals/aspirations. The factors making up the external assets domains are: caring relationships, high expectations and meaningful participation. The CHKS has shown good internal consistency within subscales with a median coefficient alpha of .72 in pilot testing (Constantine et al., 1999) and has acceptable internal consistency (Hanson & Kim, 2007).

In the present study, youth respond to each question concerning the previous three-month time period. Cronbach's alpha ranged between .72-.95 for the CHKS (with the exception of “Meaningful Participation” whose alpha equaled .52) demonstrating acceptable to excellent internal consistency (Cronbach, 1951).

Reactive, Instrumental, and Relational Aggression Scales (Little’s Aggression Scale; Little, Jones, Henrich, & Hawley, 2003). The Little’s Aggression Scale is a self-report measure composed of 36 items which load onto six subscales of common forms of aggression. Data was collected for the Reactive Overt, Instrumental Overt, and Pure Relational subscales. Overt aggression is defined as violence directed towards others with the intent of causing harm with either hostile (reactive) or deliberate (instrumental) intent (Little et al., 2003) whereas Relational aggression is a more indirect form of aggression design to harm an individual’s relationships and friendships (Little et al., 2003). Questions are responded to on a 4-point Likert scale from “not at all true” to

“completely true” and total scores are derived from summing raw scores. Higher scores on subscales indicate the presence of higher levels of aggression.

Subscales used in the present study were the Reactive Overt aggression and Pure Relational aggression scales, each composed of six items from the complete measure. These two subscales have been found to have high internal consistency (Cronbach’s alpha of .82 and .84, respectively; Little et al., 2003). The Instrumental Overt aggression subscale had a large floor effect (76.7% of the sample scored zero on this subscale) and was not used in the present study.

In the present study, youth respond to each question concerning the previous three-month time period. Cronbach's alpha was .90 for the Reactive Overt aggression scale and .73 for the Pure Relational aggression scale demonstrating excellent internal consistency (Cronbach, 1951). A floor effect was found for both subscales with 11% and 53% of the sample obtaining the lowest score possible for the Reactive Overt aggression scale and the Pure Relational aggression scale, respectively. Both square root and logistic transformations were unsuccessful in achieving a normal distribution of scores for the Pure Relational aggression scale. However, as Cronbach’s alpha and Pearson product moment correlations were examined and as past research has indicated that normalized versus non-normalized data result in similar findings when using these two statistical procedures (Norris & Aroian, 2004), the original scale scores for both subscales were used in subsequent analyses.

The Massachusetts Youth Screening Instrument - Version 2

(MAYSI-2; Grisso & Quinlan, 2005). The MAYSI-2 is a 52-item self-report mental health screening tool designed for use with youth aged 12-17, and is widely employed in youth justice (Cruise, Marsee, Dandreaux, & Deprato, 2007). Participants respond dichotomously (yes/no) and raw scores are summed into six subscales (Alcohol/Drug Use, Angry-Irritable, Depressed-Anxious, Somatic Complaints, Suicide Ideation and, for males, Thought Disturbance). The MAYSI-2 has been found to have good test-retest reliability, construct validity, and concurrent validity (Archer, Simonds-Bisbee, Spiegel, Handel, & Elkins, 2010; Archer, Stredny, Mason, & Arnau, 2004; Grisso, Barnum, Fletcher, Cauffman, & Peuschold, 2001).

In the present study, youth were asked to respond to the MAYSI concerning the previous three month time period and the Alcohol/Drug Use, Depressed-Anxious, and Suicidal Ideation subscales were used in the analyses due to the high levels youth offenders who present with these mental health issues.

Structured Assessment of Violence Risk in Youth (SAVRY; Borum et al., 2003). The SAVRY is a violence risk assessment organized into 24 risk factors in Historical, Social-Contextual, and Individual/Clinical domains and six protective factors. The SAVRY risk items are scored by trained interviewers on a three level scale (low, moderate, and high) and the protective factors are scored present or absent plus raters assign an overall risk level (low, moderate, high). Interviewers in the present study used data collected through a semi-structured interview process, file review, and self-report questionnaires. A total risk score was generated by summing item scores resulting in a range of scores from 0 to 48 with higher scores indicating the presence of a greater number of risk factors.

The SAVRY has a good internal consistency of .82 and has shown an inter-rater reliability of .81 in trained interviewers (Borum, Bartel, & Forth, 2005). Research has shown that the SAVRY has good positive predictive power for violence, at least equal to other risk assessment tools (Olver, Stockdale, & Wormith, 2009). In the present study, intraclass correlation coefficients were calculated for absolute consistency using the random effects for single raters model on ten randomly selected inter-rater reliability cases. All raters had access to the same interview and probation file data but made their ratings independently. Excellent inter-class correlation coefficients (Cicchetti, 1994) were observed for total risk scores (IRR = .94) and protective factor scores (IRR = .91).

Self-Report of Offending (SRO; Huizinga, Esbensen, & Weiher, 1991; Knight, Little, Losoya, & Mulvey, 2004). The SRO assesses the involvement of adolescents in a variety of criminal activities and can be broken down into subscales related to Aggressive offences (e.g., assault) and Income related offences (e.g., thefts). Reoffending was assessed using a modified version of the SRO (Huizinga et al., 1991; Knight et al., 2004) composed of 24 items. Specific modifications include removing two items due to low base rate and ethical issues (i.e., whether the youth had killed someone, and whether the youth used a gun in committing an offence) and changing the

response format to a Likert scale (0 = *Never*, 1 = *1 time*, 2 = *2 or more times*), rather than a dichotomous response. Youth responded to the SRO concerning the previous 3-month time period. The SRO has been reported to have good psychometric properties and can be applied across genders and ethnicities (Knight et al., 2004).

All subscales of the SRO data were skewed positively with adolescents reporting lower levels of offending behaviour. Due to past research indicating that non-normality in data can produce misleading results in Pearson correlations (Blair & Lawson, 1982) the SRO data was normalized through the use of a square root transformation after conducting a linear transformation to set the minimum value for the SRO from zero to 1 as recommended by Osborne (2002). In the present study, Cronbach's alpha for the SRO Income and Aggressive offences subscales fell below the recommended .70 cut off (Nunnally, 1978) (alpha = .56 and alpha = .56, respectfully), however, the Total score (alpha = .70) indicated overall good internal consistency. As such, solely total offending scores were used in the subsequent analyses.

Finally, one participant was found to be an outlier as they reported extremely high offending on the SRO subscales (z-scores above the recommended 3.00 cut off; Cohen, 1977). As such, this participant was removed from the subsequent analyses.

Procedure

Consent was obtained from both the adolescent and their legal guardian (via telephone) prior to participation in the study. Guardians were provided with information (in both written and oral forms) concerning the exact nature of the study and the commitment required by their child/ward. Additionally, participants read and were assessed on their understanding of a consent form regarding the structure of the study as well as legal regulations (e.g. limits of confidentiality, namely the disclosure of information concerning child abuse, harm to self, harm to others, and the potential of having interviews subpoenaed by the court system).

The present study examined data from a semi-structured interview regarding peers, family, school, the justice system, and risky behaviours. Additionally, participants completed a number of self-report inventories related to the above topics.

Subsequently, interviewers reviewed probation files (e.g., contact logs, official reports of offending, services being provided by the system, police reports, and probation officer risk and needs assessment) and completed the SAVRY based on interviews and file information. Participants were compensated for their time with gift cards valued at \$15.

Results

Missing Data and Outliers

Four participants had missing data on the CYRM (7.8%) with an average of two questions (7.1%) left unanswered. These missing items were distributed evenly across items and no question was missing more than one data point. As no instructions were found regarding recommended procedures to address missing data on the CYRM, approaches were extracted and employed from the frameworks of similar tools (e.g., mean item substitution; DAP). Based on this review, it was decided that participant data would be eliminated if they were missing more than 10% of their CYRM data, and none met this criteria. Floor and ceiling effects were also examined for the CYRM with problematic effects defined as when 15% of the sample obtained either the highest or lowest score possible (Terwee et al., 2007; Windle et al., 2011). No floor or ceiling effects were found for the CYRM.

The other measures in the present study were held to the aforementioned 10% missing data regulation as well as to the guidelines regarding missing data in their respective manuals. Overall, individual questions on the SRO, DAP and CHKS were missing 0-2 responses, however no participant was missing data for more than two questions on any measure. The SAVRY, MAYSI, and Little's Aggression Scale did not have any missing data. Additionally, outliers were calculated for all measures and any participant with scores that were three or more standard deviations above the specified tools mean (Cohen, 1977) were viewed as problematic. Only one participant was removed from analyses due to extreme data (see SRO section above).

Pre-Test Group Comparisons

The groups did not differ significantly based on race, age, or sex [$F(5,53) = .84$, $p = .54$, $F(5,53) = 1.10$, $p = .39$, $F(1,54) = .002$, $p = .97$. respectively]. Therefore, these variables were not controlled for in subsequent analyses.

Descriptive Statistics

Means, standard deviations, and Cronbach's alpha were calculated for all subscales and total scores for the CYRM. These values are presented in Table 3. Unless otherwise mentioned, skewness and kurtosis for the tools employed in the present study fell within the recommended values of 0 and +/- 1 (Osborne, 2002).

Internal Consistency

For the CYRM, coefficient alphas were .88 for the total score, .87 for the Individual scale, .85 for the Caregivers scale, and .59 for the Contextual scale. Two items in the Contextual scale correlated negatively with the total score. In particular, the alpha for the Contextual scale would increase to .69 if items 10 and 28 ("I'm proud of my ethnic background" and "I'm proud to be Canadian", respectively) were deleted. Response patterns for both items 10 and 28 had noteworthy ceiling effects (58% and 69% reporting the highest level of endorsement, respectively) and negative skewness (skew = -1.71 and -2.07, respectively). Overall, the CYRM had adequate internal consistency at a total and subscale level (Cronbach, 1951), but inadequate internal consistency for four of the eight subscale facets (see Table 3).

Pearson correlations were calculated between the subscales of the CYRM. All subscales were significantly correlated ($r = .48$, $p < .01$ between Caregivers and Individual, $r = .53$, $p < .01$ between Contextual and Individual, $r = .52$, $p < .01$ between Caregivers and Contextual) at a moderate to large level (Cohen, 1977). The moderate level of correlation between the subscales suggests that the subscales are related, but the lack of perfect correlation suggests that each subscale is measuring a unique component of resilience. Additionally, Cronbach (1951) has indicated that scales that

correlate highly with one another are linked to separate concepts if their relation to other measures is unique. Please see Table 4 for correlation values between subscale facets on the CYRM.

Comparison to Ungar and Liebenberg (2009) Validation Sample

Validation data has been published regarding the CYRM using at-risk Atlantic Canadian youth (Ungar & Liebenberg, 2009) for both “complex needs” (defined as adolescents who accessed two or more mandated services such as “child welfare, mental health services, juvenile justice, special educational supports, and community programs”; Liebenberg et al., 2012) and “low needs” samples (defined as adolescents who accessed only one mandated service). Thus, independent samples t-tests were calculated to compare the present West Coast Canadian sample with their Atlantic Canadian counterparts. Power analysis for independent samples t-tests revealed that based on a sample size of 54 for the present sample and a sample size of 1027 in the validation sample, the procedure has a power of .54 to detect a small effect size, a power of .99 to detect a medium effect size, and a power of .99 to detect a large effect size, should they in fact exist (see Table 2). Therefore, these analyses had adequate power to detect medium to large effects.

In comparison to the total validation sample (scores for both complex and low needs youth amalgamated together), adolescents in the present sample did not differ in level of resilience compared to their Atlantic Canadian peers, however, on a subscale level the present sample scored as possessing more resilience qualities in Individual, Caregivers, and Contextual subscales than this initial validation sample (see Table 5).

Concurrent and Discriminant Validity

In order to assess concurrent validity, the CYRM total score was correlated with total scores of three well validated protective factor tools. Power analysis for the correlational statistics revealed that based on a sample size of 54 the procedure has a power of .11 to detect a small effect size, a power of .57 to detect a medium effect size,

and a power of .95 to detect a large effect size, should they in fact exist. Therefore, these analyses have had insufficient power to detect small to medium sized effects.

Significant correlations were found between the CYRM and the CHKS and the DAP ($r = .62, p = .001$ and $r = .74, p = .001$) which suggests relatively strong concurrent validity. On the other hand, a moderate and non-significant correlation was found between the CYRM total score and total score on the SAVRY Protective factor section ($r = .25, p = .07$). This suggests that the CYRM might tap into a different aspect of protection compared to this measure.

To assess the discriminant validity of the CYRM, the total score was correlated with a well-validated risk assessment tool, the SAVRY. The low non-significant correlations with the SAVRY risk total scores ($r = -.18, p = .19$) suggest discriminant validity between the CYRM and this risk measure. The CYRM total score was not significantly correlated with the subscales of the SAVRY (Historical subscale, $r = -.05, p = .75$; Individual, $r = -.23, p = .10$; Social/Contextual scale ($r = -.27, p = .05$).

Relationship to Concurrent Mental Health Concerns

The CYRM Individual Personal Skills subscale was correlated negatively with suicidal ideation ($r = -.28, p < .05$). The CYRM Total score, Individual subscale score, and Caregiver subscale score were correlated with reduced levels of depression (see Table 6). There were no significant correlations found between the CYRM and alcohol/drug use. However, as with the previous correlational analyses, the current study had adequate power to detect the presence of large correlations but it did not have adequate power to detect small or moderate effects.

Relationship to Antisocial Behaviour Outcomes

There were no significant correlations found between the CYRM and self-reported offending behaviour. Both Reactive Overt aggression and Pure Relational aggression scales were correlated with the CYRM Total, Individual, and Caregiver subscales, but neither were correlated with the Contextual subscale (see Table 6).

Discussion

Primary Findings

The purpose of this study was to assess the psychometric properties of the CYRM and assess the relationship between its method of assessing resilience and the presence of common adverse outcomes (e.g., reactive and relational aggression, reoffending, suicidal ideation, depression/anxiety, drug/substance use). Scores on the CYRM were found to have a normal distribution within the population, with participants achieving a wide variety of scores on the measure. In the present sample there was a lack of significant gender differences in CYRM scores, which is in contrast to recent research conducted by the authors of the tool (Liebenberg et al., 2012). However, the present finding concurs with other studies demonstrating lack of differences between male and female adolescents on CYRM resilience scales (e.g., Collin-Vezina et al., 2011; Daigneault, Dion, Hébert, McDuff, & Collin-Vézina, 2012). In line with past research, the CYRM subscales generally had acceptable internal consistency as defined by Cronbach's alpha (1951). Although the internal consistency for the Contextual scale was low, alpha for this scale increased from .59 to .69 when the items "I'm proud to be Canadian" and "I'm proud of my ethnic background" were removed. This is likely due to the observed ceiling effect in the response pattern to these items (skew = -1.71 and -2.07), as 38 of the 55 respondents indicated that they are proud to be Canadian and 32 of the 55 reported being proud of their ethnic background (rating the item a 5 on a 5-point Likert scale). The item "I'm proud to be (citizenship)" has shown to be problematic in past research as it has been found to have poor factor loadings to the Contextual scale (Daigneault et al., 2012; Liebenburg et al., 2012) but has been retained in the CYRM due to theoretical fit with this subscale (Liebenburg et al., 2012).

Additionally, on a subscale level, it was found that all the subscales were moderately correlated with each other with correlations ranging between .48 and .53. Although this demonstrates that the three components are not completely unique from

one another, moderate correlation values are not sufficient in and of themselves to suggest that the subscales were entirely overlapping or redundant (Gardner, 1995,1996). Indeed, factor analysis research has indicated that the English Version of the CYRM used with Atlantic Canadian youth (Liebenberg et al., 2012) and the French Version of the CYRM used with French Canadian youth both fit into a three component model (Individual, Family, and Community/Spiritual factors). Also, no items on the measure load onto more than one component (Daigneault et al., 2012) congruent with the theoretically informed three-factor solution proposed by the authors of the tool (Liebenberg et al., 2012).

In terms of concurrent validity, the CYRM was highly correlated with other well-validated self-report measures of resilience (e.g., DAP, CHKS), but weakly correlated with the Protective Factors section of the SAVRY. The low correlation between the CYRM and the SAVRY is understandable. The SAVRY was designed to assess the presence or absence of six specific protective factors related in the literature to violent offending behaviour in adolescents. In comparison, the CYRM is a self-report measure designed to provide a broad conceptualization of resilience and is utilized through the use of subscales to measure various *domains* (rather than specific protective *factors*) of resilience. To further support this interpretation, the SAVRY risk also had a low correlation with the CYRM, suggesting that these measures do not have enough conceptual overlap to be comparable in the manner used in the present study. However, the weak inverse correlation between the risk total score on the SAVRY and the CYRM is also supportive of good discriminant validity as the SAVRY and CYRM appear to assess separate components of risk/resilience.

The comparison between the current sample and the sample used by the authors of the CYRM in Atlantic Canada revealed few significant differences between the two groups at a total score level, demonstrating that the two populations were similar overall in the level of resilience present in their lives; however differences existed at a subscale level. The participants in the present study scored significantly higher on all areas of resilience compared to both the complex-needs youth and the low-needs youth in the Liebenberg et al. (2012) sample, with the exception of having similar scores in the Caregivers domain compared to the low-needs youth. Strong conclusions cannot be drawn as it was unclear how similar the present sample was to that used by Liebenberg

et al (2012), and what proportion of the Liebenberg sample were involved in the youth justice system. The results demonstrate that adolescents involved in the justice system as well as service accessing adolescents outside of the justice system hold some level of resilience as defined by the CYRM.

The CYRM is a general, overarching resilience tool which was not designed for the use of predicting offending behaviour. Past research into protective factors for reoffending have not used a *broad* and *comprehensive* resilience framework in their models but have instead relied on a narrow version of resilience by examining *specific* protective factors known to influence recidivism. As such, it is not surprising that the present study did not find significant correlations between the CYRM and the SRO for current offending behaviour. This suggests the potential utility of multiple models of resilience and protective factors in the youth justice system. It is probable that protective factors in risk assessment tools (e.g., the SAVRY) are useful in the prediction of violence/offending, whereas the potential utility of a general resilience framework is in the domain of intervention and case management (Tedeschi & Kilmer, 2005; Ward & Brown, 2004). This is congruent with some of the developers' goals for the CYRM as they postulated that the CYRM could "identify existing components available to the youth that can be built on through intervention" (Liebenberg et al., 2012, p. 225). As such, the lack of findings connecting the CYRM to offending behaviour should not be viewed as an inherent negative, rather, research into treatment matching based on resilience should be considered as a potential future direction to assess the utility of the resilience construct.

The CYRM correlated negatively with both Reactive Overt aggression and Pure Relational aggression scales at both a subscale and a facet level, with the exception of the Contextual subscale. Both forms of aggression examined correlated negatively with the CYRM Total score, Individual total score, Caregiver total score and the facets of Social Skills and Psychological Caregiving. This suggests that increased social skills and higher levels of parental support and warmth are linked to lower levels of both forms of aggression, consistent with past research (Farmer et al., 2003; Gomez, Gomez, DeMello, & Tallent, 2001). Interestingly, Pure Relational aggression was correlated negatively with peer support which was not true of Reactive Overt aggression. Past research has demonstrated that reactively aggressively boys are less likely to have

close friendships than proactively aggressive boys, but that the friendships that do exist are more stable and less coercive (Poulin & Boivin, 1999). Also, relationally aggressive youth are more likely to have higher levels of conflict within their friendship groups than overtly aggressive youth who tend to demonstrate aggression outside of their friendship circle (Grotperter & Crick, 1996). As such, it is possible that when faced with difficult situations relationally aggressive youth do not have solid friendships to rely upon for assistance compared to their reactively aggressive peers who have fewer, but more stable, social supports.

The findings in the present study correlating the subscales of the CYRM to various negative outcomes suggest they are inversely related to levels of depression and anxiety in adolescents. As the rates of mental health issues in adolescents involved in the justice system is higher than that in the typical adolescent population (Cauffman, 2004; Teplin et al., 2002), this is an important finding. These correlations indicate that the CYRM can be used to assess overall well-being in justice involved adolescents. Alternatively, this finding could reflect that adolescents with an absence of mental health symptoms are a resilient population. However, the lack of correlations between the CYRM and the other negative outcomes, most notably substance use, were surprising. It is possible that the CYRM might not fully represent the protective qualities that have been found to be connected to reduced substance use in past studies (e.g., family management), or that the effects fell below the level in which the present study had the power to detect as the present study had low power for detecting smaller effect sizes. In past research, specific components of resilience have been examined (Olsson, Bond, Burns, Vella-Brodrick, & Sawyer, 2003) in relation to specific adverse outcomes with significant results, as such it is possible that the CYRM resilience domains are too broad to map onto a designated outcome. For instance, the “individual personal skills” facet includes questions related to problem solving (e.g., “I am able to solve problems without harming myself or others”), sociability (e.g., “people think that I am fun to be with”), responsibility (e.g., “I try to finish what I start”) and insight (e.g., “I am aware of my own strengths”). Although these questions were clustered together through a factor analyses, they lack face validity and do not appear to examine a coherent underlying construct. This is a common error in scale development (Gardner, 1996) in that multi-dimensional constructs are lumped together solely due to high internal consistency scores without

consideration of whether the construct is actually uni-dimensional. Alternatively, the resilience construct has been linked to broad outcomes such as general health/development, vulnerability to stress, and temperament (see Werner, 2013 for a review), and the specific nature of the outcomes examined in the present study might have been too finite to map onto the overarching influence of resilience.

Study Strengths and Limitations

The present study has a number of methodological strengths which increase the applicability of the findings to real-world settings. First, the sample was composed of both high and low risk youth spanning the age of adolescence (age 12-17), allowing for an examination of the concurrent relationship between the construct of resilience and real life outcomes that these adolescents are confronted with in the community. Additionally, the present study was able to compare the CYRM against other general resilience tools used with adolescent populations (e.g., DAP, CHKS). This is beneficial as past research has compared general resilience tools to specific factors of resilience (e.g., school attendance, family connectedness, self-esteem, etc.) rather than to a similar broad framework.

One limitation of the current study is the reliance on self-report measures and interviewers relying on self-report interview data and self-report questionnaires to code the SAVRY. There are a variety of problems with self-report regarding a specified time period, such as memory and over/under reporting. Also, the sample size and power were low which decreased the likelihood of discovering significant longitudinal effects in the follow up data. This resulted in a reduced ability to determine the direction of the correlations (e.g., whether decreased depression resulted in resilience or whether the presence of resilience resulted in reduced depression) making speculation on cause and effect relationships difficult. Also, various models concerning the function of resilience have been proposed (e.g., moderator, mediator, direct effects, compensatory) but the present study was only able to examine the direct effects model. Additionally, correlations were overall in the moderate range, indicating that the present findings are noteworthy but not strong. Finally, the resilience literature is still in its early stages, thus

the current study was limited by the present state of general resilience theory and knowledge.

Conclusion

The goal of the present study was to add to the body of research concerning resilience in youth offenders. The importance of examining resilience when working with adolescents has been stressed in the practice guidelines by the American Psychological Association concerning recommended practice when working with youth and children (American Psychological Association Task Force on Evidence-Based Practice for Children and Adolescents, 2008). These guidelines include the need to examine resilience as it relates to a child's cultural background and to expand the examination of a child to include both risk and resilience factors.

As there exist few measures that assess resilience accurately in adolescent offender populations, a measure of resilience which is applicable to this population would be extremely beneficial. In the present study, the CYRM demonstrated the potential to be a psychometrically sound tool for use with an adolescent offender population. Although the CYRM did not demonstrate utility in the prediction of reoffending behaviour, it was linked to both Reactive Overt Aggression and Pure Relational Aggression and depression/anxiety. As such, the CYRM may prove to be a valuable tool to employ in treatment planning and case management, aiding in properly matching interventions to adolescents to ensure maximum benefits to these individuals. Further study of the applications of this tool is necessary to better understand the utility of self-report resilience tools with an adolescent offender population.

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Table 1 Youth Characteristics – Baseline Interviews

Demographic	<i>N</i>	%	<i>M</i>	<i>SD</i>
Gender				
Male	39	69.6%		
Female	16	28.6%		
Age (years)			15.93	1.14
Ethnicity				
Caucasian	18	32.7%		
Aboriginal	17	30.9%		
Asian	7	12.7%		
East Indian	3	5.5%		
Hispanic	3	5.5%		
Other minority (e.g., South Indian, Hispanic, Fijian, Russian, etc)	7	12.7%		
Time since placed on probation (days)			172.73	145.47
Number of index charges			2.82	4.43
Number of index convictions			2.04	2.04
Type of index convictions				
Sexual violence	2	3.8%		
Non-sexual violence	32	60.4%		
Property	16	30.2%		
Drug	0	0.0%		
Other (e.g., Fail to Comply, Breach, etc.)	12	22.6%		

Table 2 **Power analyses for correlations between CYRM scales and adverse outcomes**

Effect size Correlation(N = 54)	Non-Centrality Parameter	Power (from Statable)
.1	0.728	.106
.3	2.184	.573
.5	3.640	.946

Effect size t-test (N = 54, N = 2161)	Non-Centrality Parameter	Power (from Statable)
.2	2.053	.537
.5	5.132	.999
.8	8.213	.999

Effect size t-test (N = 54, N = 1027)	Non-Centrality Parameter	Power (from Statable)
.2	2.026	.526
.5	5.065	.999
.8	8.104	.999

Table 3 *Internal consistency of the CYRM at a subscale level*

Subscale Name	# of Items	Mean	SD	Cronbach's Alpha
CYRM Total	52	111.38	15.68	.88
Individual Total	11	4.30	.57	.87
Individual Personal Skills	5	4.28	.57	.70
Individual Peer Support	2	4.32	.79	.72
Individual Social Skills	4	4.33	.66	.71
Caregivers Total	7	3.72	.98	.85
Caregivers Physical Caregiving	2	3.65	1.01	.33
Caregivers Psychological Caregiving	5	3.75	1.07	.84
Contextual Total	10	3.74	.59	.59
Contextual Spiritual	3	3.06	1.13	.63
Contextual Educational	2	4.10	.91	.41
Contextual Cultural	5	4.01	.56	.18

Table 4 **Correlations between subscale levels of the CYRM**

		Individual Subscale			Caregivers Subscale		Contextual Subscale		
		Personal Skills	Peer Support	Social Skills	Physical	Psychological	Spiritual	Education	Cultural
Individual Subscale	Personal Skills								
	Peer Support	.71**							
	Social Skills	.59**	.66**						
Caregiver Subscale	Physical	.26	.31*	.17					
	Psychological	.38**	.52**	.49**	.65**				
Context Subscale	Spiritual	.24	.27	.37**	.18	.33*			
	Education	.28*	.31*	.52**	.18	.41**	.24		
	Cultural	.36*	.37**	.38**	.33*	.45**	.28*	.34*	

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

Table 5 Comparing means of current sample with total validation sample published by the Resilience Research Institute (2012)

	CYRM Validation Data		Present Study		
	Total Sample Mean (SD)	Total Sample Size	Mean (SD)	Sample Size	Independent Samples t-test
CYRM Total Score	108.60 (18.66)	2198	110.37 (15.49)	55	t = 0.67, p = .50
CYRM Individual	35.95 (5.93)	2197	47.14 (6.23)	55	t = 13.31, p < .001**
CYRM Caregivers	24.01 (5.57)	2161	25.81 (6.78)	55	t = 2.27, p < .05*
CYRM Contextual	30.86 (6.05)	2198	37.42 (5.88)	55	t = 7.66, p < .001**
	Complex Need Sample Mean (SD)	Complex Need Sample Size	Mean (SD)	Sample Size	Independent Samples t-test
CYRM Total Score	103.85 (20.18)	1071	110.37 (15.49)	55	t = 2.28, p < .05*
CYRM Individual	34.90 (6.37)	1070	47.14 (6.23)	55	t = 13.65, p < .001**
CYRM Caregivers	22.68 (6.19)	1041	25.81 (6.78)	55	t = 3.51, p < .001**
CYRM Contextual	29.65 (6.62)	1071	37.42 (5.88)	55	t = 8.23, p < .001**
	Low Need Sample Mean (SD)	Low Need Sample Size	Mean (SD)	Sample Size	Independent Samples t-test
CYRM Total Score	113.12 (15.82)	1128	110.37 (15.49)	55	t = 1.22, p = .23
CYRM Individual	36.96 (5.30)	1127	47.14 (6.23)	55	t = 13.31, p < .001**
CYRM Caregivers	25.26 (4.58)	1120	25.81 (6.78)	55	t = 0.81, p = .42
CYRM Contextual	32.01 (5.19)	1027	37.42 (5.88)	55	t = 7.22, p < .001**

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

Table 6 *Correlations between CYRM total score and subscales with concurrent aversive outcomes*

	Offending Behaviour	Alcohol and Drug Use	Reactive Overt Aggression	Pure Relational Aggression	Suicidal Ideation	Depressed/Anxious Mood
CYRM Total	-.15	-.20	-.36**	-.32*	-.05	-.32*
Individual Total	-.10	-.21	-.31*	-.29*	-.18	-.34*
Individual Personal Skills	-.10	-.21	-.21	-.16	-.28*	-.26
Individual Peer Support	-.05	-.18	-.22	-.34*	-.18	-.36**
Individual Social Skills	-.10	-.19	-.34*	-.31*	-.02	-.31*
Caregivers Total	-.22	-.20	-.34*	-.29*	-.07	-.30*
Caregivers Physical Caregiving	-.20	-.15	-.18	-.19	.03	-.08
Caregivers Psychological Caregiving	-.21	-.20	-.37**	-.30*	-.10	-.35*
Contextual Total	-.01	-.06	-.22	-.21	.13	-.13
Contextual Spiritual	.00	-.06	-.16	-.10	.17	.02
Contextual Educational	-.12	-.06	-.15	-.18	.00	-.33*
Contextual Cultural	.04	-.02	-.18	-.20	.08	-.10

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