

AN ASSESSMENT OF PROTECTIVE FACTORS IN PREDICTING JUVENILE
REOFFENDING

By

Ashlee R. Barnes

A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

Psychology-Doctor of Philosophy

2017

ABSTRACT

AN ASSESSMENT OF PROTECTIVE FACTORS IN PREDICTING JUVENILE REOFFENDING

By

Ashlee R. Barnes

Juvenile court practitioners use risk assessment to evaluate level of risk and criminogenic areas of need to determine the most appropriate consequence for young offenders, and to determine goals for case planning. Recently, juvenile court practitioners and researchers have gained interest in evaluating young offenders' internal and external strengths, or protective factors. Some scholars assert that incorporating measures of protective factors into the risk assessment process can increase the accuracy of identifying young offenders' odds of recidivating. Relatively few juvenile risk assessment validation studies have evaluated the predictive validity of protective factor items. Moreover, protective factor items that are included in many existing risk assessment tools are narrow in scope, particularly within family-, school-, and community-level protective factor domains.

The current study examined the relationship between protective factors and recidivism for 278 young probationers from a Midwestern juvenile county court. The study was conducted in two parts. First, a strengths-based measure of risk of recidivism (Protective Factors for Reducing Juvenile Reoffending, PFRJR) was created and its factor structure and reliability was evaluated. Second, the predictive validity, incremental validity, and differential predictive validity of the PFRJR were examined. In the first study, the author identified two factors, Individual/Community and Family/Social; both subscales demonstrated strong internal consistency. In the second study, the author found no significant differences in mean level composite protective factor scores across gender, however African American offenders had

significantly lower protective factor scores than White offenders. The PFRJR significantly predicted recidivism and time-to-recidivism, and produced AUC effect sizes that ranged from small to large for the total sample and across young offender subgroups. The author did not find evidence of differential predictive validity across gender, however the author found differential predictive validity by race/ethnicity. Regarding the incremental validity of protective factor scores, the PFRJR composite scores did not increase the amount of variance explained in recidivism after accounting for the variance explained by composite risk factor scores (as measured by the Youth Level of Service/Case Management Inventory). Broadly, the current study highlights the feasibility of integrating a complementary strengths-based measure into traditional risk assessment procedures. Findings from the current study also contributed to the paucity of risk assessment validation studies that emphasized the predictive validity of protective factor scores.

Copyright by
ASHLEE R. BARNES
2017

To the young people who have lost their lives to senseless violence

ACKNOWLEDGMENTS

First, I want to acknowledge *God* for giving me the strength, discipline, and perseverance to successfully complete this journey. I recognize that having the opportunity to earn a doctorate degree is a privilege that I do not take for granted. I also thank God for blessing me with extraordinary family, friends, colleagues, mentors, and community members that have supported me in multiple ways.

Mommy, you are the strongest woman I know. You managed to raise four children practically on your own, with very little help. Thank you for putting us first and emphasizing the value of education. Without your love and support, none of this would have been possible. Thank you, mommy.

Gerald and Kamran, there were many nights that I did not cook dinner, or watch our favorite TV show, or read a bedtime story. I know there were a million other things I probably forgot or put on the back burner to focus on my work. Thank you both for believing in me and understanding that this process would only be temporary. Thank you for your love, support, and encouraging me to keep going when things got hard.

To my family: April, Amber, DJ, Big C, Grandma Shirley, Grandma Ethel & Papa, Renita, and Dr. Jasmine Lee. Thank you all for words of encouragement, babysitting, hugs, pep talks, patience, and prayers. I love ya'll!

To my friends: Jennifer, Ciera, Nkiru, Norida, Christina, Liz, Jasmine Abrams, Marva, and Latonya. Each of you played a very specific role in this process. Thank you all for being YOU. Thank you for holding me accountable, brainstorming ideas, being a shoulder to cry on, making me laugh, offering a listening ear, and saying exactly what I needed to hear at the exact time I needed to hear it.

To friends and mentors in the MSU community and to my Lansing community partners:

Sean H. Dr. Isis S., Dr. NiCole B., Dr. Zaje H., Dr. Tony N., Dr. Julius J., Steven T., Dr. Dagbovie, Dr. Kellie M., Dr. Ashley S., Chris S., Ivan W., Sheila B., Kristen M., Jill M., Scott L., Sue P., Willard W. and to the AGEP learning community. Thank you all for providing social support, professional resources, and words of wisdom. You all helped make this possible!

To my dissertation committee members: Dr. Ignacio Acevedo, Dr. NiCole Buchanan, and Dr. Jennifer Cobbina. I humbly appreciate you taking the time to serve on my committee. Your mentorship, guidance, and support will not be forgotten.

A final (and very special thanks) to my advisor, Dr. William Davidson. Bill, you were more than just my academic advisor. It was clear to me from the beginning that you were not only interested in guiding me through graduate school, but also supporting me as a whole person. Thank you for having a healthy balance of both nurturing and challenging me. Thank you for showing me what it means to be a community researcher by affording me the opportunity to “learn on the job.” Thank you for encouraging me to be myself. Thank you for listening to my candid thoughts and (probably too honest) opinions. Thank you for not only being my advisor, but for treating me like family.

TABLE OF CONTENTS

LIST OF TABLES	x
INTRODUCTION	1
Theoretical Framework: Resilience Theory.....	2
STUDY 1: DEVELOPMENT OF THE PROTECTIVE FACTORS FOR REDUCING JUVENILE REOFFENDING SCALE	5
Risk Assessments with Protective Factor Items.....	5
Limitations of Existing Risk Assessments with Protective Factor Items	6
Summary of Review	7
Current Study	8
METHOD	10
Setting and Sample	10
Training and Procedures	10
Construction of the PFRJR	11
RESULTS	14
Investigating Factor Structure.....	15
Assessing Reliability	19
Summary of Study 1	19
STUDY 2: INVESTIGATING THE VALIDITY OF THE PFRJR	21
Predictive Validity of Single Item Protective Factors	22
Individual-Level Single Protective Factor Items	23
Family-Level Single Protective Factor Items	24
School-Level Single Protective Factor Items.....	26
Community-Level Single Protective Factor Items	27
Predictive Validity and Incremental Validity of Composite Protective Factor Scores	29
Predictive Validity by Gender.....	31
Predictive Validity by Race/Ethnicity	32
Summary of Literature Review Findings.....	33
Current Study	34
METHOD	35
Measures	35
RESULTS	38
Descriptives: Mean Level Differences Across Subgroups	38
Evaluation of PFRFR Predictive Validity	39
Evaluation of PFRJR Incremental Validity	42
DISCUSSION.....	45
Mean Level Differences Across Race/Ethnicity and Gender	45

Predictive Validity of Single Protective Factor Items	46
Predictive Validity and Differential Predictive Validity of PFRJR Scores	47
Predictive and Incremental Validity of PFRJR Scores with Time-To-Recidivism	47
Limitations	49
APPENDICES	52
APPENDIX A: STUDY 1 LITERATURE REVIEW TABLE	53
APPENDIX B: PFRJR INITIAL ITEM POOL	70
APPENDIX C: PFRJR ITEMS	77
APPENDIX D: YLS/CMI ITEMS	78
REFERENCES	79

LIST OF TABLES

Table 1. Summary of Exploratory Factor Analysis Results for the PFRJR using Maximum Likelihood Estimation (N = 278).....	17
Table 2. Item-level Responses (N = 278).....	18
Table 3. PFRJR Composite and Subscale Means and Standard Deviations by Gender and Race/Ethnicity	39
Table 4. AUC Statistics for Single PFRJR Items	40
Table 5. Recidivism Rates and PFRJR AUC Statistics For Full Sample and Offender Subgroups	41
Table 6. Hierarchical Cox Regression to Examine Incremental Validity of PFRJR Total Scores	44
Table 7. Summary of Literature Review of Relevant Protective Factors	54
Table 8. Summary of Protective Factors in Risk Assessment Literature Review	65
Table 9. Summary of Table 8	68
Table 10. Initial Pool of PFRJR Items	70
Table 11. YLS/CMI Items	78

INTRODUCTION

Juvenile courts should recognize the potential that strengths-based risk assessment procedures could have on facilitating positive change (Nissen, 2006). Juvenile justice practitioners use risk assessment tools to assess risk of recidivism and to evaluate young offenders' areas of criminogenic (crime causing) need (e.g., substance abuse, education, and family circumstances). Moreover, juvenile justice practitioners use the risk and criminogenic needs information gathered from the risk assessment process to create goals for case management and to decide the most appropriate sanctions (e.g., probation, community service, and incarceration) for young offenders. Traditionally, risk assessment tools are exclusively comprised of criminogenic risk factors. Past research findings indicate that risk assessment tools have strong reliability and are able to predict risk of recidivism with about 70% accuracy (James, 2015; Latessa & Lovins, 2010). Nevertheless, there is considerable room for improvement as risk assessment accounts for minimal variation in recidivism predictions (Onifade et al., 2008). Researchers have suggested that narrowly focusing on criminogenic risk factors while neglecting protective factors may contribute to erroneous projections of violent reoffending (de Vogel, de Vries Robbé, Ruiters, & Bouman, 2011; Miller, 2006; Rogers, 2000). Furthermore, given the multiple disparities that pervade the juvenile justice system it is also important that researchers understand whether the relationship between protective factors and recidivism varies across offender subpopulations as past research findings have indicated inconsistencies in the predictive validity of risk assessment tools for racial minority and female offenders (Shepherd, Luebbers, & Dolan, 2013),

Incorporating evaluations of young offenders' strengths could not only improve recidivism predictions, but might also support justice system effectiveness by encouraging probation officers to implement interventions that could mitigate risk factors while also

enhancing protective factors (Nissen, 2006). A major shortcoming of understanding the role of protective factors in recidivism prediction models is that few validated risk assessment measures incorporate protective factors (Loeber & Farrington, 2012). Moreover, researchers that study these measures, rarely examine the predictive validity of the protective factor domains. It is this exact topic that is the focus of the current research.

The goal of this dissertation is to build knowledge on the relationship between protective factors and recidivism. The dissertation is presented in two parts: Study 1 and Study 2. Study 1 details the construction of a measure comprised exclusively of protective factors, Protective Factors for Reducing Juvenile Reoffending (PFRJR). In this study, the factor structure and reliability of the tool were evaluated. The purpose of Study 2 was threefold:

- 1) to evaluate whether single protective factor items and composite protective factor scores predict recidivism and time-to recidivism,
- 2) to evaluate whether composite protective factor scores predict recidivism differently across gender and race/ethnicity and
- 3) to evaluate whether incorporating protective factors into risk assessment improves overall predictive validity.

Theoretical Framework: Resilience Theory

Resilience theory was born out of behavioral scientists' concern that although there was a clear understanding of the factors that contributed to psychopathology, there was a gap in knowledge about the factors or processes that facilitated normal development, particularly in high-risk populations (Masten, 2011). Specifically, resilience theorists are concerned with studying individuals that thrive despite risky conditions (Bleuler, 1984; Zolkoski & Bullock, 2012). Over the past few decades, theories of resilience have gained popularity across many

disciplines however, some believe that the lack of congruence on definitions, central terminology, and model conceptualization have limited the growth of the field (Fergus & Zimmerman, 2005; Luthar, Cicchetti, & Becker, 2000). Much of the debate around definitions of resilience are concerned with identifying the construct as a static, individual characteristic, versus a process of positive adaptation (Fergus & Zimmerman, 2005; Fougere & Daffern, 2011). Some scholars believe that defining resilience exclusively as an individual trait fails to capture the importance of contextual factors that promote individual resilience, in addition to implying that individuals without a resilient personality do not have the ability to succeed in the face of adversity (Fergus & Zimmerman, 2005; Luthar et al., 2000).

Despite variations in central terminology (resources, strengths, assets, protective factors, promotive factors, buffering factors, etc.), there is a consensus around three models of resilience: compensatory, protective, and challenge (see Fergus & Zimmerman, 2005; Garmezy et al., 1984 for a detailed explication). Every model of resilience includes one or more risk and protective factor(s), (Fougere & Daffern, 2011; Masten, 2011; Zolkoski & Bullock, 2012). Risk factors are social and environmental characteristics that increase the probability of a negative outcome (Fergus & Zimmerman, 2005). Protective factors are attributes of the individual and the environment that serve to buffer the impact of risk, thereby increasing the probability of a positive outcome (Rutter, 1985).

A shift in focus from exclusively reducing risk to also promoting prosocial behavior has recently gained attention in criminology (Chapman et al., 2006; Farrington, 2007; Fougere & Daffern, 2011; Lodewijks et al., 2010). Resilience theory could enhance criminological theories of delinquency as it highlights the positive resources of those exposed to criminogenic risk and aims to understand the mechanisms that delays the onset of delinquency or facilitates desistance

(complete termination of engaging in crime/delinquency) (Walker et al., 2013). In the following section, a brief discussion of risk assessment tools that contain protective factors will be presented.

STUDY 1: DEVELOPMENT OF THE PROTECTIVE FACTORS FOR REDUCING JUVENILE REOFFENDING SCALE

It is well documented that only a small percentage of young offenders are responsible for committing the majority of new crimes (Cottle, Lee, & Heilbrun, 2001; Milligan, 2010). Consequently, justice system practitioners aim to identify strategies that enable them to recognize those most likely to become repeat offenders; risk assessment is one such strategy. Risk assessment tools are comprised of criminogenic risk factors that assess risk of recidivism, specify areas of need that provide guidelines for case planning, and standardize decision-making processes (Schwalbe, 2007). Using risk assessment to estimate level of risk to commit a new crime can be beneficial for juvenile justice practitioners, as accurate assessments of risk support the allocation of intensive services (e.g., residential placement) for individuals most likely to recidivate and who therefore, require increased supervision (Meyers & Schmidt, 2008; Schwalbe et al., 2004). Similarly, young offenders deemed unlikely to reoffend also receive treatment options (e.g., community-based programming, diversion) that are aligned with their level of risk (Krysick & LeCroy, 2002). Historically, risk assessment research has focused on youth at highest risk of reoffending, with little attention given to youth who either possess high levels of strengths, or youth who do not engage in future delinquency (Loeber & Farrington, 2012).

Risk Assessments with Protective Factor Items

Measuring young offenders' strengths has gained attention in the juvenile justice system only in the past few decades (Loeber & Farrington, 2012); therefore, risk assessment measures that contain protective factors have rarely been investigated. The author used ProQuest to search for peer-reviewed risk assessment studies (Key terms: *juvenile risk assessment and protective factors, predictive validity and protective factors, juvenile risk assessment validation and protective factors, juvenile risk assessment and buffering protective factors, juvenile risk*

assessment and compensatory factors, juvenile risk assessment and strengths, juvenile risk assessment and assets, juvenile risk assessment and resources, juvenile risk assessment and promotive factors, risk assessment and resilience) and found that few (31 out of 608) risk assessment studies investigated the validity of protective factor scores. Within the 31 studies, the following juvenile risk assessment tools were represented: the Positive Achievement Change Tool (PACT; Winokur-Early, Hand, & Blakenship, 2012), the San Diego Risk and Resiliency Assessment (SDRRC; Turner & Fain, 2007), the Santa Barbara Assets and Risk Assessment (SBARA; Jimerson, Sharkey, O'Brien, & Furlong, 2003), the Strengths Assessment Inventory-Youth (SAI-Y; Rawana & Brownlee, 2010), the Structured Assessment of Violence Risk in Youth (SAVRY; Borum, Bartel, & Forth, 2000), the Washington State Juvenile Court Assessment (WSJCA; Washington State Institute for Public Policy, 2000), and the Youth Assessment and Screening Instrument (YASI; Orbis Partners, 2000). Using resilience theory as a framework, the author aimed to address some of the limitations of the aforementioned measures with the development of a strengths-based tool that evaluates risk of recidivism, the Protective Factors for Reducing Juvenile Reoffending scale.

Limitations of Existing Risk Assessments with Protective Factor Items

The first limitation of existing risk assessment tools is that the most consistent findings are based on youth who committed violent offenses. The SAVRY was the most investigated measure in the current review as 14 of 31 studies used this tool to evaluate risk of recidivism. The SAVRY is also the only published risk assessment that measures risk of violence for young offenders; therefore, it was not surprising to find that 93% of the research that examined protective factors with violent offenders used this tool. Conversely, there was much more variation in the number of tools used to evaluate the relationship between protective factors and

recidivism for young offenders who committed non-violent offenses. The SAVRY is a valid and reliable measure and yielded consistent findings; however, it was designed to exclusively evaluate risk of violence, leaving a gap in our knowledge concerning the predictive validity of protective factors for non-violent offenders. The author aimed to fill a gap in the literature by developing a strengths-based tool, the Protective Factor for Reducing Juvenile Reoffending (PFRJR), designed to measure general recidivism for youth who do not commit violent offenses.

The aforementioned risk assessment measures contain protective factors that span across multiple ecological domains (i.e., individual, family, school, and community), however the most notable gap is that single protective factor items being measured in the community domain are narrow in scope. Specifically, the PACT, SAVRY, and SAI-Y exclusively measure prosocial involvement in organized activities. The WSJCA and the SDRRC measure both prosocial involvement and support outside the family. Finally, in addition to adult role models and use of free time, the SBARA was the only measure that included an item on neighborhood crime. The current study aimed to build knowledge on the importance of protective factors for young offenders by developing a tool that encompasses community-level protective factors items that are rarely examined (e.g., involvement in organized activities, positive adults in the community, perceived safety, and access to resources).

Summary of Review

Although growing, the topic of protective factors in risk assessment is largely under researched (Fougere & Daffern, 2011). There are few studies that examined the predictive validity of protective factors and almost half of these studies used the SAVRY to evaluate risk of recidivism. The SAVRY is a valid and reliable measure; however, it was designed to evaluate

risk of violence, leaving a gap in knowledge concerning the validity of protective factors for youth who commit non-violent offenses. It is also apparent that risk assessment tools are measuring protective factors across similar domains (individual, family, school, and community), yet there is an under emphasis on community-level protective factors. For example, community-level protective factors primarily included measures of prosocial involvement and relationships with adults outside of the family, and fell short in capturing ecological variables found to be associated with desistance (complete termination of engaging in crime/delinquency) such as access to resources/services (Molnar, Cerda, Roberts, Buka, 2008) or perceived neighborhood safety (Reingle et al., 2013).

It is also important to note that existing risk assessment tools do not include protective factor items that delinquency prevention scholars have found to be associated with recidivism such as positive relationships with teachers, religiosity, and access to prosocial community resources (e.g., Hartman, Turner, Daigle, Exum, Cullen, 2009; Krohn et al., 2014; Molnar et al., 2008). Therefore, the current study sought to build knowledge on the importance of protective factors for young offenders by developing a tool that encompasses community-level protective factors items that are rarely examined.

Current Study

Incorporating protective factors into risk assessment has the potential to provide a more comprehensive evaluation of risk of recidivism and may encourage practitioners to approach case management from a strength-based perspective (Nissen, 2006). The goal of the current study was to build knowledge on protective factors that reduce juvenile reoffending, and to meet the needs of juvenile justice practitioners who desired to respond more effectively to young offenders' internal and external strengths. The Protective Factors for Reducing Juvenile

Reoffending (PFRJR) measure was developed to contribute to the small number of strengths-based tools designed to assess risk of recidivism. The current study:

- 1) described how the PFRJR items were selected; and
- 2) examined the factor structure and reliability of the measure.

METHOD

Setting and Sample

The current study took place in a medium sized, Midwestern juvenile court. The current study included youth who were involved in the Truancy and Delinquency divisions. Youth in the Truancy division were referred to the juvenile court for being truant from school. The school district officials that refer youth to court define truancy as being absent from school for 10 hours or more per academic semester. Truant youth are assigned a juvenile court officer who is responsible for holding them accountable for attending school. Youth involved in the Delinquency division have been adjudicated for committing a criminal act or status offense. In addition to being assigned a judge and a juvenile court officer, delinquent youth may also be required to complete one or more court-supervised programs. The data excluded duplicate cases and had no refusals. The sample ($N = 278$) is comprised of 75 youth who were supervised in the Truancy division and 203 youth who were supervised in the Delinquency division. The average age for the total sample is 15.37 years. Thirty-three percent of the sample is female ($n = 93$). The racial/ethnic composition of the sample is as follows: 41.9% African American; 27.4% Caucasian; 10.1% Hispanic/Latinx; 19.9% Multi-racial.

Training and Procedures

Juvenile court officers administered the risk assessment and protective factor measures through semi-structured interviews for every offender on their caseloads. Prior to using the instruments, juvenile courts officers received 40 hours of training on how to administer and score the assessments. Training activities included providing definitions, clarifying the protocol and scoring guide, explaining what each item measures, mock interviews, and coding previously taped cases. Inter-rater reliability for the PFRJR and YLS/CMI was conducted in November

2015 and reached 94% exact agreement. Specifically, of the 63 total items there was 100% item-level agreement (e.g., agreed on the absence of risk and protective factor items) for 47 items across 9 raters. For the remaining 16 items, item-level agreement ranged from 56% -89%. Overall, eight out of nine raters agreed on how to score the youth for seven items. Seven out of nine raters agreed on how to score the youth for four items. Six out of nine raters agreed on how to score the youth on three items. Five out of nine raters agreed on how to score the youth for two items.

Construction of the PFRJR

Items for the Protective Factors for Reducing Juvenile Reoffending (PFRJR) were derived from multiple sources including a review of the delinquency prevention and juvenile offending literature, existing resilience and risk assessment measures, and expert knowledge from juvenile justice practitioners. The author searched electronic databases (ProQuest and Google Scholar) using search terms that included: *protective factors and delinquency, strengths and delinquency, assets and delinquency, risk assessment and protective factors, buffering protective factors, promotive factors, compensatory factors, juvenile offenders and resilience, desistance, protective factors and neighborhoods, female offenders and protective factors, culture and protective factors*. The initial search produced more than 100 peer-reviewed published manuscripts that were used to inform the selection of items for the PFRJR. Based on findings from the review, 74 protective factors items were identified. For a list of the studies reviewed and the initial item pool, please see Appendices A and B, respectively.

Protective factor items from existing risk assessment instruments were also reviewed, including: the Positive Achievement Change Tool (PACT; Winokur-Early, Hand, & Blakenship, 2012), the San Diego Risk and Resiliency Assessment (SDRRC; Turner & Fain, 2007), the Santa

Barbara Assets and Risk Assessment (SBARA; Jimerson, Sharkey, O'Brien, & Furlong, 2003), the Strengths Assessment Inventory-Youth (SAI-Y; Rawana & Brownlee, 2010), the Structured Assessment of Violence Risk in Youth (SAVRY; Borum, Bartel, & Forth, 2000), the Washington State Juvenile Court Assessment (WSJCA; Washington State Institute for Public Policy, 2000), and the Youth Assessment and Screening Instrument (YASI; Orbis Partners, 2000). Many of the protective factor items from these tools overlapped with the items identified in literature review of studies that did not employ actuarial measures of recidivism risk.

The juvenile justice practitioners who contributed to the development of the PFRJR were employed at the juvenile court of interest and included the Deputy Court Administrator (38 years experience), the Director of Juvenile Services (20 years experience), the Director of Juvenile Programs (14 years experience), and the Intensive Neglect Services Assistant Administrator (28 years experience). The juvenile justice practitioners were highly involved in the process of generating items, as well as providing feedback on the practical relevance, phrasing, and response format of the initial list of items produced based on findings from the literature and existing measures. For example, the literature review revealed the buffering effects of high academic achievement in core subjects (e.g., math) on criminogenic risk (for example, see van Domburgh et al., 2009). The justice practitioners were concerned that very few youth would be high achievers, restricting the variation in the data; therefore, they suggested an item be included that would measure whether a youth is passing or failing their core subjects.

The experts also provided feedback on the content and phrasing of the semi-structured interview protocol questions used to score the PFRJR items. For instance, the literature revealed the protective effects of having never used drugs/alcohol (for example, see Herrenkohl, Lee, & Hawkins, 2012). The original question, "Have you ever used drugs/alcohol?" appeared to lack

important contextual information about whether a youth is actively abstaining from drugs, especially given that experimenting with drugs /alcohol at least once was stated to be commonly reported. Therefore, the experts recommended that the item should measure whether a youth is abstaining from drug use. They suggested additional probes concerning whether a youth can identify their triggers and the strategies they use to actively abstain as a way to differentiate those who are choosing to be drug free from those who are avoiding drugs/alcohol only until they were released from probation. This collaborative process took place during bi-weekly meetings that occurred between November 2014 and October 2015 (28 total meetings). Appendix B provides information on the juvenile justice practitioners' role in the generation of items.

A senior juvenile court officer (16 years experience) piloted the PFRJR with a newly adjudicated offender. The author, two graduate students (of criminal justice and psychology), a juvenile justice researcher (47 years experience), and 19 juvenile court officers (254 years combined experience, 13.4 average years experience) reviewed a de-identified audio recording of the semi-structured interview to evaluate the face and content validity of the tool and to identify areas where more effective probing and adjustments were necessary.

As a result of this extensive collaborative process, the initial item pool of 74 items was reduced to a final measure consisting of 22 binary items (0 indicating the absence of protection, 1 indicating the presence of protection) that measure internal, interpersonal, and external characteristics that are theoretically and empirically related to recidivism. The PFRJR is an additive scale with scores ranging from 0 to 22, in which higher scores indicate higher protective factor levels.

RESULTS

EFA (Exploratory Factor Analysis) was used to identify the number of latent constructs and the underlying factor structure of the PFRJR. Although (PCA) Principal Components Analysis (PCA) is the default method of factor analysis for many statistical packages, EFA or common factor analysis is recommended because it aims to reveal any latent variables that cause items to covary and unlike PCA, it solely analyzes the shared variance among items to reveal the underlying factor structure (Costello & Osborne, 2005; Floyd & Widaman, 1995; Netemeyer, Bearden, & Sharma, 2003). Moreover, EFA is the preferred approach as it produces results that are more applicable to a CFA (Confirmatory Factor Analysis) (Floyd & Widaman, 1995). The factors were extracted using the Maximum likelihood method. Maximum likelihood is the best choice as it allows statistical significance testing of factor loadings, correlations among factors, and calculation of confidence intervals (Costello & Osborne, 2005; Fabrigar, Wegener, MacCallum, & Strahan, 1999). A parallel analysis was conducted to help identify the number of factors that should be extracted in the EFA. Parallel analysis uses adjusted correlation matrices and random normal data generation to produce principal components eigenvalues (Buja & Eyuboglu, 1992). In parallel analysis, eigenvalues from the generated data are statistically compared to the real data eigenvalues to determine whether the eigenvalues from the real data were yielded beyond chance. Several rotational methods were implemented to produce the simplest factor structure, facilitating the cleanest interpretation of the extracted factors (Netemeyer et al., 2003). As recommended, factor loadings above .40 were retained (Costello & Osborne, 2005; Floyd & Widaman, 1995; Netemeyer, Bearden, & Sharma, 2003).

To evaluate the reliability of the PFRJR, Cronbach's alpha coefficient, inter-item correlations, and corrected item correlations were calculated. The goal was to obtain a widely accepted alpha coefficient of .80 or higher, an average inter-item correlation that falls between

.15 and .50 (Clark & Watson, 1995), and corrected item total correlations that are least .50. (Bearden & Netemeyer, 1998).

Investigating Factor Structure

Prior to running the factor analysis, a number of steps were taken to ensure that the data was suitable for this statistical procedure. Bartlett's test of sphericity was used to examine the observed correlation matrix and to identify whether there is enough redundancy between variables that the data can be summarized into one or more factors (Bartlett, 1951). The results demonstrated a significant chi-square ($\chi^2(231) = 1907.79, p < .05$) indicating that the data correlation matrix was sufficient to factor analyze (Bartlett, 1951). Next, the KMO (Kaiser-Mayer-Olkin) index was used to evaluate sampling adequacy by testing whether the proportion of variance among the variables in the data might be common variance. KMO values range from 0 to 1 and values above 0.6 indicate the sample is adequate (Cerny & Kaiser, 1977). The KMO test produced a value of .88. Finally, based on recommendations from the literature, the current study's total sample size (e.g., minimum of 100) and participant to item ratio (5 to 10 per items) was deemed more than appropriate for analysis (Clark & Watson, 1995; Floyd & Widaman, 1995).

Initial eigenvalues indicated a five-factor solution in which the factors explained 21.9%, 10%, 4.6%, 4.3%, and 2.8% of the variance, respectively. In this solution, the first factor produced an eigenvalue of 6.5, while the remaining factors had eigenvalues slightly larger than 1. Based on the structure of the scree plot, the results of the parallel analysis, and the small amount of variance explained by each additional factor, a five-factor solution did not seem appropriate therefore, a two-factor solution was examined using a orthogonal varimax, oblique oblimin rotation as well as an oblique promax rotation. In the two-factor solution, the factors

explained 26.9% and 3.9% of the variance, respectively. The Pattern and Structure matrices for this solution produced the simplest structure when rotated using the promax rotation, as the factors were allowed to correlate with each other. A total of seven items (High Achievement, Passing, Positive Relationships with Teachers, Actively Abstaining from Drugs, Low Availability of Drugs, Actively Seeking Help and Consistent Supervision) were eliminated because they failed to meet the minimum criteria of having a primary factor loading of .40 or above (Costello & Osborne, 2005; Floyd & Widaman, 1995; Netemeyer, Bearden, & Sharma, 2003).

For the final stage, an EFA of the remaining 15 items using promax and varimax rotations was conducted in a model extracting two factors. In this solution, the two factors accounted for 43% of the total variance. The promax rotation provided the best-defined factor structure in which there were no cross loadings and the primary loadings were above .70. The factor loadings, eigenvalues, communalities, and percentage of total variance for this final solution is presented in Table 1. Factor 1 represented items that theoretical align with what could be described as Individual and Community domains (Strong Social Skills, Prosocial Attitudes, Positive Adults, Access to Resources, Positive Response to Authority, Perceived Safety, and Low Aggression). Factor 2 represented items that theoretical align with what could be described as Family and Social domains (Strong Family Management, Consistent Parenting, Positive Personal Interests, Commitment to School/Education, Strong Adult Bonds, Involvement in Organized Activities, Close Bonds with Positive Peers, and Religiosity). The Factor Correlation Matrix demonstrated a strong relationship ($r = .66$, $p < .05$) between the two factors. Composite scores were created for each subscale based on the total number of items within each domain.

Table 1. Summary of Exploratory Factor Analysis Results for the PFRJR using Maximum Likelihood Estimation (N = 278)

Item	Individual/ Community	Family/ Social	Communalities
Strong Social Skills	.79		.53
Prosocial Attitudes	.72		.53
Positive Adults	.63		.44
Access to Resources	.59		.31
Positive Response to Authority	.56		.49
Perceived Safety	.55		.25
Low Aggression	.43		.24
Strong Family Management		.74	.51
Consistent Parenting		.57	.42
Positive Personal Interests		.56	.32
Commitment to School/Education		.53	.37
Strong Adult Bond(s)		.46	.21
Involvement in Organized Activities		.46	.21
Close Bonds with Positive Peer(s)		.44	.24
Religiosity		.43	.12
Eigenvalue	4.99	1.52	
% of total variance	33.27	10.17	

Table 2 illustrates the proportion of youth who endorsed each perspective item. As illustrated, item-level endorsement of protective factors ranges from 21.6% to 63.3% for the

Individual/Community domain, and 15.5% to 54.3% for the Family/Social domain. A paired samples t-test yielded significant findings ($t(277) = -4.29, p < .05$, Cohen's $d = .24$), indicating that youth in the current sample had higher average protective factor scores in the Family/Social domain ($M = 3.07, SD = 2.32$) than the Individual/Community domain ($M = 2.52, SD = 2.17$).

Table 2. Item-level Responses (N = 278)

Item	% of Sample Endorsing the Item
<i>Individual/Community</i>	
Strong Social Skills	21.6%
Prosocial Attitudes	30.2%
Positive Adults	48.9%
Access to Resources	57.9%
Positive Response to Authority	37.1%
Perceived Safety	63.3%
Low Aggression	37.4%
<i>Family/Social</i>	
Strong Family Management	21.6%
Consistent Parenting	22.3%
Positive Personal Interests	48.9%
Commitment to School/Education	42.4%
Strong Adult Bond(s)	54.3%
Involvement in Organized Activities	27.3%
Close Bonds with Positive Peer(s)	19.8%
Religiosity	15.5%

Assessing Reliability

Inter-item correlations for the 15-item tool ranged between .04 and .59 with an average inter-item correlation of .27. The average inter-item correlation falls within the range of acceptable correlations for a tool that measures a broadly defined construct (Clark & Watson, 1995). Corrected item correlations were also calculated and ranged between .23 and .63. The Cronbach's alpha coefficients for the Individual/Community (7 items, $\alpha = .82$) and Family/Social subscales (8 items, $\alpha = .76$) demonstrated strong internal consistency. Eliminating items did not result in any substantial increases in the alpha coefficient.

Summary of Study 1

Study 1 described the development of a protective factor assessment, Protective Factors for Reducing Juvenile Reoffending (PFRJR). Overall, the PFRJR is a multidimensional measure and the domains within the underlying constructs are correlated. Findings from an Exploratory Factor Analysis with a promax rotation revealed a simple two-factor structure for 15 out of the 22 items. Both factors were well defined and demonstrated acceptable internal consistency. Items that measured school- and substance abuse-related protective factors were not included in the final solution given their insufficient factor loadings. Resilience theory proposes there are four protective factor domains (individual, family, school, and community); findings from the current study conveyed that Individual and Community indicators, and Family and Social indicators shared underlying constructs within desistance (complete termination of engaging in crime/delinquency) from offending. Other studies that have measured substance abuse- and education-related protective factors have found that they are related to recidivism (e.g., van der Put et al., 2014; Shepherd et al., 2016), so it may be worth retaining the eliminated items for case management purposes. Given the rise in popularity of non-traditional academic institutions (e.g.,

online learning, alternative education program, in-person computerized instruction), anecdotal information from juvenile justice practitioners indicated the challenges of identifying the academic progress of youth who attend these schools as they typically use a credit system and not the more traditional grading system described in the interview protocol. Theoretically, school is a salient institution for adolescents so these items may have contributed to the factor structure if the items were written in a way that was more relevant to young offender populations. Therefore, school-related items that were removed (Passing, High Achievement, Positive Relationship with Teacher) will be rewritten in an attempt to strengthen the factor structure of the PFRJR. An important limitation of Study 1 is the inability to identify whether the factor structure is invariant across young offender subpopulations. Future studies will include conducting a CFA (Confirmatory Factor Analysis) to identify the level of fit of the 2-factor structure as well as examine measurement invariance across gender, race, and ethnicity.

In addition to describing the theoretical framework for choosing items, identifying the factor structure of the underlying construct, and establishing reliability, it is important to also evaluate the validity of a newly developed scale; this was the goal for Study 2.

STUDY 2: INVESTIGATING THE VALIDITY OF THE PFRJR

It is important to understand the state of the risk assessment literature regarding the predictive validity, differential predictive validity (across race/ethnicity and gender), and incremental validity of protective factors with young offenders. The goal of the literature review was to identify studies that investigated the predictive validity of juvenile risk assessment tools that include protective factors. Relevant studies were identified through several avenues. Electronic databases were searched (ProQuest, Google Scholar, etc.) for peer-reviewed studies using search terms that included: *risk assessment and protective factors*, *risk assessment and strengths*, *risk assessment and assets*, *risk assessment and buffering factors*, *risk assessment and promotive factors*, *risk assessment and compensatory factors*. Studies that used risk assessment tools specifically designed to measure risk of sexual recidivism were outside of the scope of the current study and were excluded as there may be offense-specific risk factors for youth who sexually offend (van der Put & Asscher, 2015b). Studies that examined the predictive validity of protective factors exclusively with youth that committed sexual offenses were also excluded. The search returned 608 studies published between 2004 and 2016. Of the 608 studies, 52 studies met the following search criteria:

- Risk assessment validation study
- Juvenile risk assessment tool with protective factors
- Juvenile offender sample
- Exclusion of studies that exclusively investigated sex offenders.

After careful examination of these results, the author excluded 29 studies as they did not specifically examine the predictive validity of the protective factor items included in the risk assessment measure, resulting in 23 articles. Next, the reference sections of the 23 articles were

examined to capture any relevant literature that may have been overlooked. An additional eight studies were identified, resulting in a final total of 31 published articles in the current review.

In the section that follows, research that examined the predictive validity of single item protective factors within individual, family, school, and community domains is presented. Thereafter, research that investigated the predictive validity and incremental validity of composite protective factor scores is described. The final sections of the literature review highlights research that examined the differential predictive validity of protective factors across race/ethnicity and gender. Finally, a summary of the research findings and details about how the current study filled gaps in the literature is presented.

Predictive Validity of Single Item Protective Factors

Protective factors are defined as “aspects of an individual and their situation that contribute to a decreased likelihood of criminal behavior by having a direct effect on problem behaviors or by moderating the relationship between risk factors and criminal behavior” (Fougere & Daffern, 2011, p. 245). A youth’s “situation” can be interpreted as including every level of their social environment from family dynamics and peer relationships to neighborhood safety. Following the lead of resilience pioneers, scholars have defined, understood, and measured protective factors by grouping them into ecologically-relevant domains: individual, family, school, and community (Garmezy, 1985; Krohn, Lizotte, Bushway, Schmidt, Phillips, 2014; Losel & Farrington, 2012; Pollard, 1999; Smith, Lizotte, Thornberry, & Krohn, 1995; Zolkoski & Bullock, 2012). A summary of the predictive validity of single item protective factors is described using this framework.

Individual-Level Single Protective Factor Items

Individual-level protective factors are characteristics associated with an offender's internal or personal resources. Researchers have identified multiple internal protective factors related to non-offending such as emotional control (Stattin, Romelsjo, & Stenbacka, 1997), self-regulation (Gardner, Dishion, & Connell, 2008), social competence (Stepp, Pardini, Loeber, & Morris, 2011), resilient personality (Fougere, Daffern, & Thomas, 2012; Mowder, Cummings, & McKinney, 2010; Rennie & Dolan, 2010), and prosocial attitudes (Loeber et al., 1991; Pardini, Loeber, Farrington, & Stouthamer-Loeber, 2012; Stouthamer-Loeber et al., 2002). Of the studies reviewed, resilient personality and prosocial attitudes were the most investigated individual-level protective factors.

Resilient personality has been attributed to overcoming adversity; therefore, researchers have examined the influence of this personality type (Fougere & Daffern, 2011). At least five studies have examined the relationship between resilient personality and offending behavior using a popular juvenile risk assessment, Structured Assessment of Violence Risk in Youth (SAVRY) (Gamelgård et al., 2015; Lodewijks, Doreleijers, Ruiters, & Borum, 2008; Lodewijks et al., 2010; Rennie & Dolan, 2010; Shepherd et al., 2016). Researchers assessed resilient personality as a predictor of violence at different stages of the judicial process including pre-trial, during residential placement, following release of a residential facility (Lodewijks et al., 2010), and during incarceration (Gamelgård et al., 2015; Lodewijks et al., 2008; Rennie & Dolan, 2010; Shepherd et al., 2016). With the exception of one study (Rennie & Dolan, 2010), past research findings conveyed that resilient personality did not predict recidivism. Resilient personality has been deemed an important protective factor in the resilience literature (Fougere & Daffern, 2011)

however; research that has examined this protective factor with young offender samples does not support this assertion.

Given that having criminal attitudes is one of the strongest predictors of engaging in delinquency (Andrews et al., 2012), it is not surprising that researchers have identified prosocial attitudes and beliefs as a protective factor associated with recidivism (e.g., Gamelgård et al., 2015). Prosocial attitudes include respecting authority, believing in the legitimacy of having laws and following rules, and recognizing the importance of seeking help (Ayers et al., 1999; Chui & Chan, 2012). Of the six studies that investigated the predictive validity of prosocial attitudes (Gamelgård et al., 2015; Lodewijks et al., 2008; Lodewijks et al., 2010; Rennie & Dolan, 2010; Shepherd et al., 2016; van der put et al., 2015b), one did not find prosocial attitudes as a predictor of violence (Rennie & Dolan, 2010). Therefore, based on the existing literature, prosocial attitudes appear to be an important predictor of recidivism.

Past research using non-offender samples has also identified other internal protective factors related to delinquency such as impulse control (Williams, Ryan, Davis-Kean, McLoyd, & Schulenberg, 2014), refusing drugs (Cuervo & Villanueva, 2015; Lee & Villagrana, 2015), low aggression (van der Put et al., 2015b), and social skills (Jones et al., 2016; Thompson & Pope, 2005; van der Put et al., 2015b). The current study contributed to the risk assessment literature by evaluating the predictive validity of under researched (or never examined) individual-level protective factors (e.g., positive personal interests, actively abstaining from drugs, strong social skills, and low aggression).

Family-Level Single Protective Factor Items

Resilience scholars and criminologists consistently acknowledge that critical protective factors are promoted within the family environment (for example, Hirschi, 1969; Moffitt, 1993;

Hawkins et al., 1985; Sampson & Laub, 1993). Researchers have identified parental discipline (Jimerson et al., 2004), monitoring (Williams et al., 2014), parenting practices (Cuervo & Villanueva, 2015), and social/emotional support (Gamalgård et al., 2015; Jimerson et al., 2004; Lodewijks et al., 2008; 2010; Shepherd et al., 2016) as protective factors related to desistance. Past research has also identified the important role that parent-child relationships play in reducing future delinquency in community-based non-offender samples (Chui & Chan, 2012; Fagan, Van Horn, Hawkins, & Arthur, 2007; Hardaway, McLoyd, & Wood, 2012; Ryan et al., 2008; Smith et al., 1995; Youngblade et al., 2007); however, there is less support for the importance of strong parental bonds with young offenders. For example, of the six studies investigating this relationship (Gamalgård et al., 2015; Jimerson et al., 2004; Lodewijks et al., 2008; 2010; Shepherd et al., 2016), only two demonstrated that strong attachments and bonds with family are predictors of recidivism (Lodewijks et al., 2008; 2010).

Few studies from the current review specifically investigated the relationship between parental monitoring, discipline and recidivism therefore it deserves further investigation. For example, Jimerson and colleagues (2004a; 2004b) used the Santa Barbara Assets and Risk Assessment to investigate convergent, construct, and predictive validity with a sample of first-time offenders. In addition to establishing composite score predictive validity, logistic regression analyses revealed that fair and consistent discipline was a predictor of recidivism for both male and female youth. In another study, Williams et al. (2014) used the Washington State Juvenile Court Assessment (WSJCA) to investigate the relationship between protective factors and recidivism in a sample of African American probationers. Forty-four percent of the youth reported good parental supervision; and this protective factor reduced the probability of re-arrest by 27% (Williams et al., 2014).

Collectively, the limited and ambiguous findings within this domain emphasize that scholars should conduct research that aims to support—or clarify—the theoretical and empirical importance of familial protective factors for young offenders. The current study contributed to the risk assessment literature by evaluating the predictive validity of minimally examined family-level protective factors (e.g., consistent supervision and parenting, parental bonds).

School-Level Single Protective Factor Items

Children and adolescents spend the majority of their daily lives in academic settings hence, it is not surprising that past research has identified protective factors in the educational context that contribute to reducing delinquency (Ayers et al., 1999; Baglivio, 2014; Crosnoe, Erickson, & Dornbusch, 2002; Bernat, Oakes, Pettingell, & Resnick, 2002; Reingle, Jennings, Lynne-Landsman, Cottler, & Maldonado-Molina, 2013). For example, past research has used risk assessment to examine the protective functions of high academic achievement (Cuervo and Villanueva, 2015), relationships with positive peers, and (Cuervo & Villanueva, 2015; van der Put et al., 2015b; Williams et al., 2014), commitment to education (Gamelgård et al., 2015; Lodewijks et al., 2008; 2010, Rennie & Dolan, 2010; van der Put, Creemers, & Hoeve, 2014).

One of the most apparent protective factors in the school context is academic achievement. Although studies using non-offender samples have extensively measured the relationship between high academic achievement and delinquency (e.g., Baglivio, Jackowski, Greenwald, & Howell, 2014; Bernat et al., 2012), no studies from the current review investigated the predictive validity of academic achievement; therefore it is not clear whether this characteristic serves as a protective factor for this population.

Researchers have suggested that positive peer groups are important predictors of recidivism (van der Put et al. 2015; Williams et al., 2014). In a recent study, seventy-four percent

of the youth reported having pro-social friends; and this protective factor reduced the probability of re-arrest by 22% (Williams et al., 2014). Another study also investigated the predictive validity of the protective factors measured in the peer relationships subscale of the WSJCA and found that the subscale was significantly, however not strongly, related to recidivism (van der Put and colleagues, 2015b).

Commitment to school/education is another protective factor that has been highly investigated among community samples (Chui & Chang, 2012; Crosnoe et al., 2002; Fagan et al., 2007). Again, risk assessment research that investigated commitment to school among young offenders is scarce and inconclusive. For instance, Rennie and Dolan (2010) and Gamelgård et al. (2015) both conducted logistic regression analyses to investigate whether strong commitment to school predicted recidivism. In both studies, commitment to school did not independently predict recidivism. Conversely, using similar methods as the previously mentioned studies, Lodewijks et al. (2008, 2010) and van der Put et al. (2014) found commitment to education to be associated with recidivism. Past research on the relationship between school-level protective factors and recidivism is promising, yet it is also limited, thus further investigation is warranted. The current study contributed to the risk assessment literature by evaluating the predictive validity of educational protective factors that are missing from existing risk assessment measures (e.g., achievement, relationships with teachers).

Community-Level Single Protective Factor Items

Some research suggests that community-level protective factors are crucial to understanding the causes and correlates of delinquency and recidivism; (Molnar et al., 2008) yet, protective factors within this domain were rarely investigated. Community-level protective factors specifically measured in the context of risk assessment were limited to involvement in

prosocial activities (Cuervo & Villanueva, 2015; Gamelgård et al., 2015; Lodewijks et al., 2008; 2010, Rennie & Dolan, 2010; Shepherd et al., 2016) and support from adults in the community (Thompson & Pope, 2005; Williams et al., 2014). Researchers did not find a significant relationship between recidivism and support from adult community members (Thompson & Pope, 2005; Williams et al., 2014); however, findings supported the importance of involvement in organized positive activities for reducing recidivism among young offenders (Cuervo & Villanueva, 2015; Gamelgård et al., 2015; Shepherd et al., 2016). For example, Shepherd et al. (2016) identified prosocial involvement as the strongest predictor of general and violent recidivism (Shepherd et al., 2016). The current study aimed to contribute to this growing body of literature by examining the predictive validity of community-level protective factors that are not included in current risk assessment measures (i.e., perceived safety, access to resources).

To summarize, the theoretical and empirical value of individual, family, school, and community protective factors has been extensively investigated with non-offender adolescents, yet rarely with juvenile offenders, a major limitation. Collectively, researchers suggested that the predictive value of protective factors in the individual domain are: prosocial attitudes (Gammelgård et al., 2015; Jones et al., 2016; Lodewijks et al., 2008; 2010; Shepherd et al., 2016; van der Put et al., 2012; 2015a; 2015b), impulse control (Williams et al., 2014), social skills (Jones et al., Thompson et al., 2005), and resilient personality (Rennie & Dolan, 2008). Researchers also suggested the predictive validity of protective factors within the family domain are: parental supervision (Williams et al., 2014), discipline (Jimerson et al., 2004a), social support (Gammelgård et al., 2015; Lodewijks et al., 2008; 2010), and strong attachment and bonds (Lodewijks et al., 2008; 2010). Moreover, scholars have found protective factors within the school domain to be associated with recidivism including: positive peers (Jimerson et al.,

2004b; Turner et al., 2006; Williams et al., 2014), commitment to education (Lodewijks et al., 2008; 2010; Shepherd et al., 2016), and progress towards graduation (Jimerson et al., 2004a; Jimerson et al., 2004b). Finally, community-level protective factors such as low neighborhood crime (Jimerson et al., 2004a) and prosocial involvement (Gammelgård et al., 2015; Shepherd et al., 2016) have also been found to decrease the odds of reoffending. Based on the number of studies reporting significant findings, the literature most strongly supports the predictive validity of prosocial attitudes, social support, positive peers, and commitment to education. The current study examined the predictive validity of single protective factor items to build knowledge on the specific protective factors most related to recidivism.

Predictive Validity and Incremental Validity of Composite Protective Factor Scores

Many researchers that examined the predictive validity of composite protective factor scores found they were significant predictors of recidivism, indicating that evaluating offenders' protective factors shows promise in effectively reducing odds of recidivism (e.g., Hilterman, Bongers, Nicholls, & van Nieuwenhuizen, 2016). Significant findings were consistent across multiple recidivism outcomes and samples including: violent recidivism (Hilterman et al., 2016; Rennie & Dolan 2010; Shepherd et al., 2016), general recidivism (Khanna, Shaw, Dolan, & Lennox, 2014; Penney, Lee, & Moretti, 2010), youth in detention (Gammelgård et al., 2015; Rennie & Dolan 2010; Vincent, Chapman, Cook, 2011), and probationers (Lee & Villagrana, 2015). Moreover, protective factors were found to be valid predictors of recidivism across multiple international contexts including China (Chu et al., 2016), Australia (Penney et al., 2010; Shepherd et al., 2016), the United Kingdom (Dolan & Rennie, 2008), Finland (Gammelgård et al., 2015), The Netherlands (Lodewijks et al., 2008; 2010), Canada (Jones et al., 2016), Spain

(Cuervo & Villanueva, 2015) and the United States (Turner & Fain, 2006; Williams, Ryan, Davis-Kean, McLoyd, & Schulenberg, 2014).

In addition to investigating overall predictive validity, researchers have also examined whether protective factors add incremental value (beyond of risk factors) in recidivism prediction models (Chu et al., 2016; Cuervo & Villanueva, 2015; Dolan & Rennie, 2008; Hilterman et al., 2016; Jones et al., 2016; Lodewijks et al., 2008; 2010; Penney et al., 2010; van der Put et al., 2015b). Of the nine studies in the current review that examined the incremental predictive validity of protective factors, four produced significant findings (Cuervo & Villanueva, 2015; Dolan & Rennie, 2008; Lodewijks et al., 2008; 2010). For instance, Dolan and Rennie (2008) examined protective factors with an all-male sample of recently released young offenders and found that protective factors added incremental validity to risk factors in a model predicting general recidivism. In another study, Cuervo & Villanueva (2016) found that measures of youth's strengths increased the validity of general recidivism predictions. Similarly, Lodewijks and colleagues (2008; 2010) found that protective factor scores predicted violence beyond risk factors for young offenders awaiting trial, detained offenders, as well as recently released offenders.

Overall, findings from the current review affirmed that composite protective factor scores were significant predictors of recidivism across multiple samples and offense types (e.g., Gamelgård et al., 2015). Conversely, research studies that highlighted the investigation of the incremental validity of protective factor scores were scarce and inconclusive as less than half of the studies that examined this relationship produced significant findings. The current study contributed to the risk assessment literature by examining the predictive and incremental validity of composite protective factor scores.

Predictive Validity by Gender

The differential predictive validity of protective factors across gender has been rarely investigated, however it is potentially important to support gender-specific rehabilitation as well as the improvement of recidivism predictions for female offenders. Jones and colleagues (2016) published the first investigation of the Youth Assessment and Screening Instrument (YASI). Although the YASI developers (YASI; Orbis Partners, 2000) consider the tool to be gender-responsive, Jones and colleagues (2016) found that the YASI did not predict recidivism equally across gender. Area under the curve (AUC) effect sizes revealed statistically stronger predictive validity for boys than girls ($AUC = .82; .68$, respectively). Furthermore, while level of strengths (low, moderate, and high) was associated with recidivism for boys, the same relationship did not emerge for girls.

In another study, Craig and colleagues (2016) used components of social control theory to examine how strong or weak attachments to conventional others (e.g., prosocial nonfamily adults or friends) impacted exposure to adverse childhood experiences. Results indicated that social bonds decreased the odds of re-arrest for female, but not male offenders (Craig et al., 2016). Jimerson et al. (2004b) found that emotional support and low drug use were significant predictors for female youth, but not for males. Further demonstrating the ambiguity of predictive validity across gender, Williams et al. (2014) found that impulse control significantly predicted recidivism for female offenders, but not for their male counterparts.

Overall, few studies consistently reported whether there were differences in the predictive validity of protective factors for male and female young offenders (Craig et al., 2016; Jimerson et al., 2004; Penney et al., 2010; Turner & Fain, 2006; Williams et al., 2014). To build

knowledge in this area, the current study explored whether the predictive validity of composite protective factor scores varied by gender.

Predictive Validity by Race/Ethnicity

Researchers have investigated differential predictive validity of protective factors for racial/ethnic minorities in the United States, as well as international contexts (Craig et al., 2016; Jones et al. 2016; Pearl, Ashcraft, & Geis, 2009; Shepherd et al., 2014; Turner & Fain, 2006; Vincent et al., 2011). For example, correlational analyses revealed the relationship between protective factors and recidivism was stronger for African American ($r = .37$) and Hispanic ($r = .36$) offenders than for White offenders ($r = .15$) (Pearl et al., 2009).

In another study, researchers investigated whether bonds with prosocial others moderated the relationship between adverse childhood experiences and recidivism (Craig et al., 2016). The authors found that Hispanic youth who had higher exposure to adverse experiences and stronger social bonds were (marginally) less likely to reoffend with odds of re-arrest at 6% compared to 9% and 11% odds of re-arrest for African American and White offenders, respectively (Craig et al., 2016).

Researchers in Australia examined the predictive validity of the SAVRY for youth who identified as ESB (English-Speaking Background), CALD (Culturally and Linguistically Diverse), or IND (Indigenous) (Shepherd et al., 2014). The researchers found that the protective factor domain significantly predicted violent ($AUC = .77$) and general ($AUC = .80$) recidivism for youth that identified as ESB. Conversely, protective factor scores did not predict violent ($AUC = .57, n.s.$) or general ($AUC = .57, n.s.$) recidivism for CALD offenders. As for Indigenous youth, protective factors demonstrated the strongest prediction of general recidivism ($AUC =$

.91), however composite scores did not predict violent recidivism for this offender group ($AUC = .67, n.s.$).

Investigating whether there is a differential relationship between total protective factor scores and recidivism across groups may be critical to seeking ways to improving predictive validity for these vulnerable offenders. Although research in this area is growing, more research is necessary to better understand this relationship. To build knowledge in this area, the current study examined the differential predictive validity of composite protective factor scores by race/ethnicity.

Summary of Literature Review Findings

Scholars have proposed that protective factors are an important but often overlooked component of risk assessment (Rennie & Dolan, 2010). Relative to the risk assessment research that focuses on the predictive validity risk factors, the state of the literature on the predictive validity of protective factors is scarce, yet developing. The current review identified research studies that examined the predictive validity of single protective factor items within individual, family, school, and community domains. Based on studies reporting significant findings, the literature most strongly supports the predictive validity of prosocial attitudes, social support, positive peers, and commitment to education. The most consistent finding that emerged from the current review is that composite protective factor scores are valid predictors of recidivism, supporting the further exploration of the role of protective factors in reducing the likelihood of reoffending. Moreover, there was a paucity of studies that investigated the incremental validity of protective factors; collective findings were inconclusive as less than half of these studies (four out of nine) produced significant findings. Finally, findings from past studies also indicated the importance of exploring the role of gender and race/ethnicity as many researchers identified

evidence of differential predictive validity of protective factors across offender subgroups. The goal of the current study was to contribute to the risk assessment literature by addressing the aforementioned gaps in knowledge about protective factors.

Current Study

The current state of the risk assessment literature indicates that the relationship between protective factors and recidivism is in need of further exploration in order to better understand whether incorporating protective factors into recidivism prediction models can improve predictive validity. The purpose of the current study was to identify whether the Protective Factors for Reducing Juvenile Reoffending (PFRJR) is a valid tool.

The following research questions were investigated:

1. Are there significant differences in composite and subscale protective factors scores across gender? Are there significant differences in composite and subscale protective factors scores across race/ethnicity?
2. Do single protective factor items and composite protective factor scores predict recidivism?
3. Is there differential predictive validity across race/ethnicity and gender?
4. Do composite protective factor scores predict time-to-recidivism? Do composite protective factor scores add incremental validity to risk factor scores in predicting time-to-recidivism?

METHOD

See Study 1 for information on the Setting and Sample, and Training and Procedures as they are identical for Study 2.

Measures

The YLS/CMI is a widely investigated third-generation risk assessment tool that was designed to predict general recidivism for young offenders ages 12-18 (Hoge & Andrews, 2002). The YLS/CMI was adapted from the Level of Service Inventory-Revised (LSI-R), an adult risk assessment tool used in correctional systems (Andrews, Hoge, & Leschied, 2002). Andrews, Robinson, and Hoge (1984) created the Youth Level of Service Inventory (YLSI) by conducting a literature review and identifying 112 risk factors that demonstrated the strongest relationships with initial delinquency. Later, scholars investigated (e.g., Andrews, Robinson, & Balla, 1996) the psychometric properties of the YLSI and determined that 42 of the 112 items were consistently associated with juvenile recidivism. Simourd, Hoge, and Andrews (1991) conducted a factor analysis and the 42 items were grouped into 8 domains, resulting in the current study's measure, the YLS/CMI (See Appendix D for a list of items and alpha coefficients).

The YLS/CMI is an additive scale administered via semi-structured interview and each item is scored dichotomously indicating whether or not risk is present (i.e., the presence of risk represents a score of one for each item). The items are totaled and the composite score is translated into a level of risk; low (0-8), moderate (9-22), and high (23-42). The instrument has consistently produced acceptable reliability ($\alpha = .91$) and predictive validity ($AUC = .64$) across multiple samples (McGrath & Thompson, 2012; Onifade et al., 2008; Schmidt, Campbell, & Houlding, 2011; Schwalbe, 2007).

The PFRJR is a new measure that was developed by the author in order to fill a gap in the risk assessment literature, build knowledge on protective factors that reduce juvenile reoffending, and to meet the needs of juvenile justice practitioners who desired to respond more effectively to young offenders' responsivity factors (i.e., non-criminogenic needs). The PFRJR is a multidimensional, additive scale comprised of 15 dichotomous items, and is administered using a semi-structured interview format (see list of items in Appendix C). Findings from Study 1 revealed that the instrument has acceptable reliability ($\alpha = .88$) and overall predictive validity (AUC = .64).

The dependent variable for assessing the predictive validity of the newly developed measure (PFRJR) is recidivism. Recidivism was defined as any new court petition(s) received within seven months subsequent to the date of the risk assessment and protective factor tools' administration. Recidivism was coded as either 1 (new petition) or 0 (no new petitions). A petition is a legal document in which a prosecutor officially files charges against a young offender based on an allegation of committing a delinquent act (Snyder & Sickmund, 2006). Although there are multiple methods of measuring recidivism (e.g., re-arrest, re-adjudication, re-incarceration), evaluation of petitions is among one of the most common approaches (Harris, Lockwood, & Mengers, 2009). Given that not all arrests result in a petition to juvenile court, petitions are also considered an appropriate measure of official recidivism, as it requires screening by the police, a prosecutor, or court intake officer (Harris et al., 2009; Maltz, 1984). Recidivism data was collected archivally through the court data management system and was provided to the author in de-identified form. In the event that a young offender aged out of the juvenile justice system during the current study, both juvenile and adult records were examined to track any new petitions acquired.

The second dependent variable for the current study was time-to-recidivism. This measure reflected the number of days until the occurrence of a new juvenile or adult petition following the administration of the YLS/CMI and PFRJR. For young offenders that did not recidivate, this measure reflected the number of days until the end of the study period (12/31/2016). Follow-up data were collected for at least seven months for the entire sample. The maximum follow-up time for this sample was 13 months.

RESULTS

Descriptives: Mean Level Differences Across Subgroups

Both an ANOVA and a MANOVA (multivariate analysis of variance) were implemented in order to examine whether there were significant differences across composite and protective factor subscale scores by gender and race/ethnicity. A MANOVA tests the effect of multiple independent variables on multiple dependent variables. MANOVAs can protect against Type I errors that could occur as a result of running multiple ANOVAs or t-tests as it takes into account colinearity among dependent variables. In other words, a MANOVA acts as a Bonferonni correction as it keeps the probability of making a Type I error less than 5% (Tweedy & Lunardelli, 2014).

Descriptive statistics are displayed in Table 3. The multivariate and univariate results showed no significant differences in composite or subscale PFRJR scores for male and female young offenders. Regarding race/ethnicity, an ANOVA with a planned contrast (White versus African American youth) revealed that African American youth had significantly lower composite PFRJR scores ($F(3,272) = 1.85, p > .05$; $t(272) = 2.33, p < .05, d = .33$) however, composite PFRJR scores did not significantly differ between African American, Hispanic, and Multi-racial young offenders. Moreover, composite PFRJR scores did not significantly differ between White, Hispanic, and Multi-racial young offenders. As for PFRJR subscales, a post hoc Tukey test revealed that White youth scored significantly higher than African American youth in the Individual/Community subscale, Pillai' Trace = .05, ($F(6,544) = 2.31, p < .05$), yet PFRJR subscale scores did not statistically differ in the Individual/Community or Family/Social subscales for any of the remaining subgroups.

Table 3. PFRJR Composite and Subscale Means and Standard Deviations by Gender and Race/Ethnicity

Group	N	Composite M(SD)	Family/Social M(SD)	Individual/Community M(SD)
Full Sample	278	5.57(3.94)	2.50(2.16)	3.06(2.32)
Female	93	5.61(3.76)	2.38(2.01)	3.32(2.34)
Male	185	5.54(4.03)	2.58(2.25)	2.95(2.31)
White	76	6.41(4.22)*	2.75(2.31)	3.65(2.44)*
Hispanic	28	5.32(3.44)	2.35(1.80)	2.96(2.28)
African American	117	5.05(3.93)*	2.47(2.28)	2.58(2.22)*
Multi-Racial	55	5.62(3.70)	2.30(1.88)	3.30(2.32)

Note. *Means are significantly different from each other across groups. ($p < .05$).

Evaluation of PFRJR Predictive Validity

To evaluate the predictive validity of the measure for the total sample and across offender subgroups; a Receiver Operating Characteristic/Area Under the Curve (ROC/AUC) analysis was implemented. This test specifies the proportion of true positives, or the number of offenders predicted to reoffend that did in fact commit a future offense, to the number of true negatives, or the number of youth predicted to not reoffend that indeed did not commit a future crime (Singh, 2013). The AUC can range from 0.0—indicating that a measure cannot discriminate between reoffenders and non-reoffenders—to 1.0, demonstrating perfect discrimination. This statistic calculates the probability that a randomly selected recidivist would score higher on the PFRJR than a randomly selected non-recidivist. In other words, an AUC above .50 indicates that the predictive validity of the measure is better than chance (Rice & Harris, 2005). Rice & Harris (2005) described AUC values of .556 as small, .639 as moderate, and .714 as large predictive validity effect sizes. This statistic is useful when comparing the predictive validity across samples because it controls for base rates of the criterion variable (Rice & Harris, 2005; Singh, 2013).

ROC/AUC analyses were conducted to evaluate the predictive validity of each protective factor item, the protective factor composite score for the total sample, as well as the protective factor total score across young offender subgroups. Results of the ROC/AUC analysis of single protective factor items are displayed in Table 4. As illustrated, the protective factor items that significantly predicted recidivism produced small to moderate AUC statistics (.59 - .63), including Strong Adult Bonds, Positive Response to Authority, Prosocial Attitudes, Access to Resources, and Positive Adults. It is also worth mentioning that Strong Family Management, Positive Personal Interests, Low Aggression, and Strong Social Skills produced small AUC statistics that ranged from .58-.59 and yielded marginal statistical significance ($p < .10$).

Table 4. AUC Statistics for Single PFRJR Items

PFRJR Items	AUC	Std. Error	<i>p</i> value	CI
1. Family Management	.59	.04	.06	.51-.67
2. Commitment to School	.53	.04	.58	.44-.61
3. Organized Activities	.53	.04	.56	.44-.61
4. Personal Interests	.58	.04	.09	.49-.66
5. Religiosity	.47	.05	.43	.38-.55
6. Positive Peers	.55	.04	.25	.47-.63
7. Consistent Parenting	.57	.04	.14	.49-.65
8. Strong Adult Bonds	.59	.04	.05*	.50-.67
9. Response to Authority	.59	.04	.05*	.50-.67
10. Prosocial Attitudes	.59	.04	.04*	.51-.67
11. Low Aggression	.58	.04	.09	.49-.66
12. Social Skills	.59	.04	.06	.50-.67
13. Perceived Safety	.55	.05	.30	.46-.63
14. Access to Resources	.63	.04	.00*	.55-.72
15. Positive Adults	.59	.04	.05*	.50-.67

Note. * = ($p < .05$). AUC statistic reverse coded for interpretability.

Table 5 shows the recidivism rates and PFRJR total score AUC statistics for the full sample and offender subgroups. Recidivism rates for male, female, White, and racial minority youth ranged from 7.9% to 22.8%. Chi-square tests revealed no statistical differences in male and female youths recidivism rates, however racial minority youth had significantly higher recidivism rates than their White counterparts ($\chi^2(1) = 8.04, p < .05$).

The PFRJR total score significantly predicted recidivism for the full sample, male youth, and White youth. The AUC for youth who identified as racial minority reached marginal statistical significance and the AUC for female youth did not yield significant findings. To identify whether the PFRJR predicted recidivism differently across gender and race/ethnicity, post hoc significance tests were conducted. The results revealed that PFRJR scores were not differentially valid predictors of recidivism for male and female offenders ($p > .05$), yet results revealed that the PFRJR is a differentially valid predictor of recidivism for White and racial minority youth. In other words, the PFRJR predicts recidivism comparably well across gender, however the tool predicts recidivism better for White youth.

Table 5. Recidivism Rates and PFRJR AUC Statistics For Full Sample and Offender Subgroups

Group	Recidivism Rate (%)	AUC	Std. Error	p value	CI
Full Sample	18.7	.64	.04	.00	.56-.72
Female youth	18.3	.64	.07	.07	.49-.79
Male youth	18.9	.65	.05	.00	.55-.74
White youth	7.9*	.90*	.04	.00	.83-.98
Racial minority youth	22.8*	.59*	.05	.07	.49-.67

Note. * = ($p < .05$). AUC statistic reverse coded for interpretability.

Evaluation of PFRJR Incremental Validity

A survival analysis was used to investigate the predictive validity and incremental validity of protective factor scores. Survival analysis is a collection of statistical procedures that examine time-to-event outcome data. Cox Proportional Hazards Model, or Cox regression--a popular model in survival analyses--is a semiparametric test that models the relationship between predictor variables (i.e., risk and protective factors) and an event (i.e., recidivism), while accounting for differences in time to the occurrence of the event (Blakely & Cox, 1972; Shepherd et al., 2016; Singer & Willet, 2003; Vincent et al, 2011). Given that every young offender does not recidivate during the study period (i.e., censored cases), the Cox regression is able to estimate time to a hypothetical date of recidivism for censored cases, based on the survival times of young offenders who recidivated (Hosmer & Lemeshow, 1999).

The Cox regression is particularly popular as its mathematical modeling approach is similar to a logistic regression, yet allows for the estimation of survival curves while accounting for multiple explanatory variables (Kleinbaum & Klein, 2005). Predictor variables that produce positive regression coefficients (β) decrease survival times, and variables with negative regression coefficients increase survival times. Put simply, the author anticipates that higher levels of protective factors are associated with longer time periods before recidivism occurs. In the Cox regression, the preferred indices for interpretation are Hazard ratios ($\text{Exp}[B]$). Hazard ratios represent the ratio of the likelihood that a youth will recidivate relative to a specified survival time. For instance, an ($\text{Exp}[B]$) of 1.23 denotes that a one-unit increase in total score would lead to a 23% increased likelihood of recidivism, given the specified survival time.

The average survival time (number of days until recidivism or censoring) for the current sample was $M = 412.33$, $SD = 137.96$. There were no significant differences in average survival

times across gender, however results of a Tarone-Ware chi-square test ($\chi^2(1) = 9.61, p < .05$) revealed that White youth had significantly longer survival times ($M = 452.76, SD = 83.17$) than African American youth ($M = 405.70, SD = 139.77$) and Multi-racial youth ($M = 376.11, SD = 170.31$).

A Cox regression was implemented to examine the predictive strength of PFRJR total scores; the protective factor scores were negatively related to time-to-recidivism ($\beta = -.13, SE = .04, \text{Exp}[B] = .88, p < .05$), $\chi^2(1) = 10.14, p < .05$. In other words, at any time point during the study period, for every one-point increase in composite protective factor score, youth were 12% less likely to recidivate.

In order to examine the incremental predictive validity of composite protective factor scores relative to composite risk factor scores, a hierarchical Cox regression was performed. YLS/CMI total risk scores were entered in the first block, and the PFRJR total protective factor scores were added to the second block. In the first model, YLS/CMI risk scores significantly predicted time-to-recidivism ($\beta = .06, SE = .02, \text{Exp}[B] = 1.06, p < .05$), $\chi^2(1) = 9.72, p < .05$. Put simply, at any time point during the study period, for every one-point increase in composite risk scores, youth were 6% more likely to recidivate. Results for the final model are shown in Table 6. As illustrated, YLS/CMI risk scores did not remain a significant predictor once PFRJR protective factor scores were entered in the model. Moreover, entering PFRJR scores in Block 2 did not add incremental value to the prediction model. Cox regressions were also conducted by entering PFRJR scores in the first block and YLS/CMI scores in the second block (not shown in Table). Protective factor scores significantly predicted recidivism and risk scores did not add incremental value to the model.

Table 6. Hierarchical Cox Regression to Examine Incremental Validity of PFRJR Total Scores

	β (SE)	Exp[B]	Overall χ^2 (df)	p value	Exp[B] CI
Block 1: YLS/CMI scores	.03 (.03)	1.03	9.82 (1)	.21	.98 – 1.09
Block 2: PFRJR scores	-.09 (.05)	.91	11.86 (2)	.09	.82 – 1.01

Notes. YLS/CMI scores = Youth Level of Service/Case Management Inventory; PFRJR = Protective Factors for Reducing Juvenile Reoffending. χ^2 values are for the overall model after each block.

DISCUSSION

Scholars have criticized risk assessment processes that exclusively evaluate risk factors. (de Vogel et al., 2011; Loeber & Farrington, 2012; Miller, 2006; Rogers, 2000). Although the field is slowly shifting its focus away from exclusively measuring risk with the emergence of studies exploring both risk and protective factors, there is still much work to be done to better understand the individual and ecological characteristics that contribute to desistance (Walker et al., 2013). The current study described the development of a strength-based assessment tool comprised solely of protective factors, the Protective Factors for Reducing Juvenile Reoffending (PFRJR). The current study also described the tool's factor structure, reliability, predictive validity, differential predictive validity, and incremental predictive validity.

Mean Level Differences Across Race/Ethnicity and Gender

Male and female offenders reported mean PFRJR scores that were not statistically different. Conversely, White offenders also scored significantly higher than African American offenders on composite PFRJR scores. It is important to note that differences in predictive validity and mean composite scores across race/ethnicity could be attributed to the assessment process itself. For instance, Chapman et al. (2006) found that African American youth were rated as being significantly lower in risk of violence, and higher in prosocial involvement, strong attachment and bonds, and resilient personality than their White counterparts. The researchers noted that in their sample, young offenders were often assigned to juvenile court officers who identified as having a similar race/ethnicity. This is not the common practice in the current study's court of interest as the racial/ethnic composition of the court officers (approximately 10% racial/ethnic minority) is not commensurate with the racial/ethnic composition of the young offenders (approximately 60% racial/ethnic minority). Therefore, it is possible that the current study's findings reflect bias in the assessment process in which racial minority youth are being

perceived as having fewer assets and strengths than White youth. Future studies should aim to integrate the PFRJR into risk assessment procedures in juvenile courts with more balanced court officer to young offender racial/ethnic compositions, as well as qualitatively examining the potential for implicit bias to enter the risk assessment process.

Predictive Validity of Single Protective Factor Items

The author investigated the predictive validity of single protective factor items to understand which items were most related to recidivism. Of the 15 items retained on the PFRJR, 5 were significantly related to recidivism: Strong Adult Bonds, Positive Response to Authority, Prosocial Attitudes, Access to Resources, and Positive Adults. All but one of these items belong to the Individual/Community domain, as they strongly loaded onto the first factor in the EFA. Past research findings supported the predictive validity of these individual-level items as having a positive response to authority (Lodewijks et al., 2010), prosocial attitudes (Gamegård et al., 2015), and strong bonds with prosocial adults (Lodewijks et al., 2008) has emerged in the literature as predictors of recidivism. Based on the results of the literature review conducted by the author, community-level items are far less examined with young offender samples. Nevertheless, research that examined the relationship between delinquency and protective factors with non-offender samples has indicated that access to resources in one's community as well as living in a community with prosocial adults is associated with decreased odds of engaging in delinquency (Molnar et al., 2008). Overall, these results supported past empirical findings as well as theoretical arguments that highlight the contributions of both individual and ecological factors in predicting delinquency and recidivism.

Predictive Validity and Differential Predictive Validity of PFRJR Scores

Results of the ROC/AUC analyses revealed that composite protective factor scores were significant predictors of recidivism ($AUC = .64, p < .05$). These findings are comparable with AUC statistics produced by SAVRY protective factor scores ($AUC = .72$; Lodewijks et al., 2010). Regarding predictive validity by gender, there were no significant differences for male and female offenders. Regarding the predictive validity by race/ethnicity, composite protective factor scores demonstrated a stronger relationship with recidivism for White youth compared ($AUC = .90, p < .05$) to racial minority youth ($AUC = .59, p < .05$), suggesting that the tool may lack cultural relevance. Many of the PFRJR items were derived from risk assessment validation studies and community-based longitudinal studies that employed largely White samples. In other words, the PFRJR may be missing items that are specifically salient in reducing the odds of recidivism for racial minority offenders. Scholars have suggested that coping abilities and family ethnic socialization may be important protective factors for racial minority youth (Caldwell, Kohn-Wood, Schmeelk-Cone, Chavous, & Zimmerman, 2004; Sexias & Wade, 2014; Wright & Younts, 2009). In the future, the PFRJR will be modified to include theoretically based culturally specific items that could potentially improve predictive validity for racial minority young offenders.

Predictive and Incremental Validity of PFRJR Scores with Time-To-Recidivism

As expected, the author found that composite PFRJR scores predicted time-to-recidivism. In other words, higher levels of protection were related to longer periods of time to committing a new offense. This finding is consistent with past research that has examined the relationship between time-to-recidivism and protective factors using similar methods and analyses (Chu et al., 2015; Shepherd et al., 2016; Vincent, Chapman & Cook, 2011). It is worth noting that

Vincent and colleagues (2011) found that protective factor scores predicted time to recidivism solely for White youth, illuminating the need to cautiously acknowledge findings that have not considered the potential influences of race/ethnicity or gender. In the future, the author will investigate whether race/ethnicity (as well as intersections of race/ethnicity and gender) moderates the relationship between PFRJR scores and time-to-recidivism, an important contribution.

Composite PFRJR protective factor scores did not add incremental validity to YLS/CMI risk scores. There was also interest in whether YLS/CMI scores added incremental validity to PFRJR scores and similar (non-significant) results were produced. Interestingly, both scores predicted time-to-recidivism when in the model alone, however when the respective composite score was entered into the second block of the model, both composite scores failed to remain a significant predictor of the outcome. Given the correlation between PFRJR and YLS/CMI scores ($r = -.67$), the author speculated that there may be an issue of multicollinearity, however results of Tolerance and Variance Inflation Factor tests did not confirm this conjecture.

Although scholars have proposed that the addition of protective factors may improve risk assessment prediction models (de Vogel et al., 2011; Rogers, 2000), findings from the literature review described earlier suggested that this notion is inconclusive, as less than half of the studies exploring this hypothesis produced significant results. It is worth noting that de Vogel and colleagues (2011) and Rogers (2000) specifically emphasized the importance of protective factors for predicting violent reoffending. It seems that the most apparent distinction between the studies that yielded significant findings and those that did not, was the use of detained offenders (primarily violent offenders) versus probationers. Compared to youth on probation, youth who are detained, in theory, likely have higher risk scores and likely commit more serious offenses.

Future research should separately examine the predictive validity of the PFRJR using both violent and non-violent recidivism outcomes.

Moreover, if models of resilience as outlined in resilience theory are also considered, one could speculate that protective factors scores improve risk assessment prediction models specifically for more serious offenders. In other words, given that resilience (in this case, desistance from delinquency or non-recidivating) is conceptualized as having a successful outcome despite risky conditions, youth at higher risk of recidivism may reap greater benefits of the presence of protective factors than low risk offenders (see Lodewijks et al., 2010). To build knowledge on the role of protective factor models of resilience in risk assessment research, future studies should examine the buffering effect of protective factor scores at high and low levels of risk.

Limitations

It is important to mention the methodological shortcomings of the current study. The most salient drawbacks of this study are connected to data collection time restraints. First, the author evaluated the reliability and validity of the PFRJR with the same sample in which the measure was developed. Scholars admonish this practice and encourage researchers to cross-validate new measures as any results obtained are likely specific to the sample, therefore, lacking generalizability (Dawis, 2000). In future studies, the author will obtain additional data from the court of interest and as well as initiate data collection in a different juvenile court to more rigorously evaluate the psychometric properties of the PFRJR. The current study's sample size was also a limitation as psychometricians recommend the use of large samples ($N \geq 400$) to optimize the results of factor analysis and to ensure the validity of the selected items (Dawis, 2000). Moreover, the sample size was a limitation given the authors' interest in exploring the

moderating effect of race/ethnicity by gender interactions. Theories and methods of intersectionality are rarely emphasized in criminological research (Potter, 2013), however it is important given that individuals' experiences with the justice system can vary by their intersecting identities (e.g., race, ethnicity, class, gender, etc.). Finally, although survival analysis controlled for various times at risk, over 80% of the sample was censored, which was likely due to the minimum follow up period (i.e., seven months). Future studies should follow the total sample of youth for at least 12-months to capture a fuller trajectory of juvenile recidivism.

Findings from the current study are promising and aimed to make important contributions to the juvenile risk assessment literature. These findings also have critical practical implications for juvenile justice practitioners. Training, implementing and evaluating any evidence-based intervention takes time, money, and buy-in from juvenile justice practitioners (Vincent, Paiva-Salisbury, Cook, Guy, & Perrault, 2012). Courts that are employing validated risk assessments that are integrated into standing policies and procedures may be less resistant to adopting strengths-based strategies if they are presented with a supplemental measure of protective factors that can be adapted to their existing practices, like the PFRJR. The dominant model of offender rehabilitation, Risk-Need-Responsivity, emphasizes the importance of using interventions that target offenders' specific criminogenic needs (Andrews et al., 2006). Proponents of RNR assert that juvenile courts should assess risk factors (e.g., poor academic achievement) and implement strategies (e.g., tutoring) intended to reduce risk of reoffending (James, 2015). Targeting risk factors is critical; however working towards enhancing an offender's existing assets could also contribute to decreasing risk of recidivism (Baglivio et al., 2014; Lodewijks et al., 2008). In addition, promoting protective factors could facilitate goal setting in case management as well as improve service delivery because practitioners would have a thorough evaluation of the

offenders' criminogenic and non-criminogenic profiles. Researchers should continue to investigate the role of protective factors in the risk assessment process as they have the potential to improve recidivism predictions while promoting positive youth development.

APPENDICES

APPENDIX A: STUDY 1 LITERATURE REVIEW TABLE

The following tables provide a summary of the information found from the literature review that was conducted to identify protective factors associated with desistance. The table provides a visual representation of the studies that were used to write the initial list of items for the newly developed measure, Protective Factors for Reducing Juvenile Reoffending. Each column illustrates the following information: 1) Author: first author and year of publication; 2) Protective Factor Measure: the scale or example of items used to measure protective factors; 3) Sample: the population (community, offenders, etc.) that the study's sample was drawn from; 4) Percent female: the percentage of female offenders reported in each study; 5) Examined gender: indicates whether the authors tested for differential effects across gender 4) Percent minority: the percentage of minority offenders reported in each study; 5) Examined culture: indicates whether the authors tested for differential effects across race/ethnicity or cultural heritage; 8) Domain: indicates which domains (community, individual, family, and school) the protective factors examined belonged to and 9) significant findings: indicates whether the study found any one protective factor to be negatively associated with delinquency. Detailed descriptions of the key findings from exemplar studies are available upon request.

Table 7. Summary of Literature Review of Relevant Protective Factors

Author	Protective factor measure	Sample	Percent Female	Examined Gender	Percent Minority	Examined culture	Domain	Significant Findings
Larzelere, 1990	22 items (monitoring)	Community	0%	Yes <input type="checkbox"/> No <input type="checkbox"/>	NR	Yes <input type="checkbox"/> No <input type="checkbox"/>	F	Yes <input type="checkbox"/> No <input type="checkbox"/>
Loeber, 1991	188 items (school functioning)	Community	0%	Yes <input type="checkbox"/> No <input type="checkbox"/>	50%	Yes <input type="checkbox"/> No <input type="checkbox"/>	FIS	Yes <input type="checkbox"/> No <input type="checkbox"/>
Stouthamer-Loeber, 1993	188 items (peer support)	Community	0%	Yes <input type="checkbox"/> No <input type="checkbox"/>	50%	Yes <input type="checkbox"/> No <input type="checkbox"/>	FIS	Yes <input type="checkbox"/> No <input type="checkbox"/>
Smith, 1995	18 items (attachment)	Community	26%	Yes <input type="checkbox"/> No <input type="checkbox"/>	85%	Yes <input type="checkbox"/> No <input type="checkbox"/>	CFIS	Yes <input type="checkbox"/> No <input type="checkbox"/>
Hoge, 1996	4 items (respect for authority)	Offenders	20%	Yes <input type="checkbox"/> No <input type="checkbox"/>	NR	Yes <input type="checkbox"/> No <input type="checkbox"/>	IS	Yes <input type="checkbox"/> No <input type="checkbox"/>
Born, 1997	Desistance from offending	Offenders	20%	Yes <input type="checkbox"/> No <input type="checkbox"/>	NR	Yes <input type="checkbox"/> No <input type="checkbox"/>	FIS	Yes <input type="checkbox"/> No <input type="checkbox"/>

Table 7 (cont'd)

Stattin, 1997	5 items (IQ)	Community	0%	Yes <input type="checkbox"/> No <input type="checkbox"/>	NA	NS	I	Yes <input type="checkbox"/> No <input type="checkbox"/>
Ayers, 1999	Communities that Care Youth Survey	Community	48%	Yes <input type="checkbox"/> No <input type="checkbox"/>	50%	Yes <input type="checkbox"/> No <input type="checkbox"/>	CFIS	Yes <input type="checkbox"/> No <input type="checkbox"/>
Pollard, 1999	8 items (prosocial attitudes)	Community	NR	Yes <input type="checkbox"/> No <input type="checkbox"/>	28%	Yes <input type="checkbox"/> No <input type="checkbox"/>	FIS	Yes <input type="checkbox"/> No <input type="checkbox"/>
Duncan, 2000	6 items (family support)	Community	47%	Yes <input type="checkbox"/> No <input type="checkbox"/>	19%	Yes <input type="checkbox"/> No <input type="checkbox"/>	CFIS	Yes <input type="checkbox"/> No <input type="checkbox"/>
Wikström, 2000	42 items (ADHD)	Community	0%	Yes <input type="checkbox"/> No <input type="checkbox"/>	57%	Yes <input type="checkbox"/> No <input type="checkbox"/>	FI	Yes <input type="checkbox"/> No <input type="checkbox"/>
Carr, 2001	23 items (self-esteem)	Offenders	43%	Yes <input type="checkbox"/> No <input type="checkbox"/>	87%	Yes <input type="checkbox"/> No <input type="checkbox"/>	FIS	Yes <input type="checkbox"/> No <input type="checkbox"/>
Arthur, 2002	Communities that Care Youth Survey	Community	49.1%	Yes <input type="checkbox"/> No <input type="checkbox"/>	NR	Yes <input type="checkbox"/> No <input type="checkbox"/>	CFIS	Yes <input type="checkbox"/> No <input type="checkbox"/>

Table 7 (cont'd)

Calvert, 2002	6 items (temperament)	Community	16%	Yes <input type="checkbox"/> No <input type="checkbox"/>	47%	Yes <input type="checkbox"/> No <input type="checkbox"/>	FIS	Yes <input type="checkbox"/> No <input type="checkbox"/>
Chung, 2002	Communities that Care Youth Survey	Community	49%	Yes <input type="checkbox"/> No <input type="checkbox"/>	54%	Yes <input type="checkbox"/> No <input type="checkbox"/>	CFIS	Yes <input type="checkbox"/> No <input type="checkbox"/>
Crosnoe, 2002	6 items (teacher bonding)	Community	56%	Yes <input type="checkbox"/> No <input type="checkbox"/>	35%	Yes <input type="checkbox"/> No <input type="checkbox"/>	FS	Yes <input type="checkbox"/> No <input type="checkbox"/>
Hogue, 2002	25 items (school involvement)	Community	56%	Yes <input type="checkbox"/> No <input type="checkbox"/>	97%	Yes <input type="checkbox"/> No <input type="checkbox"/>	FIS	Yes <input type="checkbox"/> No <input type="checkbox"/>
McKnight, 2002	16 items (religiosity)	Community	100%	Yes <input type="checkbox"/> No <input type="checkbox"/>	40%	Yes <input type="checkbox"/> No <input type="checkbox"/>	FIS	Yes <input type="checkbox"/> No <input type="checkbox"/>
Stouthamer- Loeber, 2002	188 items (school functioning)	Community	0%	Yes <input type="checkbox"/> No <input type="checkbox"/>	50%	Yes <input type="checkbox"/> No <input type="checkbox"/>	FIS	Yes <input type="checkbox"/> No <input type="checkbox"/>
Clingempeel, 2003	10 items (social competence)	Offenders	22%	Yes <input type="checkbox"/> No <input type="checkbox"/>	51%	Yes <input type="checkbox"/> No <input type="checkbox"/>	FIS	Yes <input type="checkbox"/> No <input type="checkbox"/>

Table 7 (cont'd)

Deković, 2003	Relationship quality with peers and parents	Community	51%	Yes <input type="checkbox"/> No <input type="checkbox"/>	NR	Yes <input type="checkbox"/> No <input type="checkbox"/>	F	Yes <input type="checkbox"/> No <input type="checkbox"/>
Herrenkohl, 2003	Communities that Care Youth Survey	Community	49%	Yes <input type="checkbox"/> No <input type="checkbox"/>	64%	Yes <input type="checkbox"/> No <input type="checkbox"/>	CFIS	Yes <input type="checkbox"/> No <input type="checkbox"/>
Aspy, 2004	Youth Assets	Community	51%	Yes <input type="checkbox"/> No <input type="checkbox"/>	52%	Yes <input type="checkbox"/> No <input type="checkbox"/>	CFIS	Yes <input type="checkbox"/> No <input type="checkbox"/>
Caldwell, 2004	Multidimensional Inventory of Black Identity	Community	55%	Yes <input type="checkbox"/> No <input type="checkbox"/>	100%	Yes <input type="checkbox"/> No <input type="checkbox"/>	I	Yes <input type="checkbox"/> No <input type="checkbox"/>
Resnick, 2004	30 items (neighborhood safety)	Community	52%	Yes <input type="checkbox"/> No <input type="checkbox"/>	NR	Yes <input type="checkbox"/> No <input type="checkbox"/>	CFIS	Yes <input type="checkbox"/> No <input type="checkbox"/>
Stouthamer-Loeber, 2004	188 items (positive peers)	Community	0%	Yes <input type="checkbox"/> No <input type="checkbox"/>	50%	Yes <input type="checkbox"/> No <input type="checkbox"/>	FIS	Yes <input type="checkbox"/> No <input type="checkbox"/>
Sprott, 2005	12 items (school bonding)	Community	50%	Yes <input type="checkbox"/> No <input type="checkbox"/>	NR	Yes <input type="checkbox"/> No <input type="checkbox"/>	S	Yes <input type="checkbox"/> No <input type="checkbox"/>

Table 7 (cont'd)

Cantillon, 2006	Neighborhood advantage	Community	55%	Yes <input type="checkbox"/> No <input type="checkbox"/>	0	Yes <input type="checkbox"/> No <input type="checkbox"/>	C	Yes <input type="checkbox"/> No <input type="checkbox"/>
Chapman, 2006	SAVRY	Offenders	30%	Yes <input type="checkbox"/> No <input type="checkbox"/>	64%	Yes <input type="checkbox"/> No <input type="checkbox"/>	FIS	Yes <input type="checkbox"/> No <input type="checkbox"/>
*Miller, 2006	IORNS	Offenders	0%	Yes <input type="checkbox"/> No <input type="checkbox"/>	83%	Yes <input type="checkbox"/> No <input type="checkbox"/>	IS	Yes <input type="checkbox"/> No <input type="checkbox"/>
Barnes, 2007	Time spent in prosocial activities	Community	55%	Yes <input type="checkbox"/> No <input type="checkbox"/>	30%	Yes <input type="checkbox"/> No <input type="checkbox"/>	FI	Yes <input type="checkbox"/> No <input type="checkbox"/>
Fagan, 2007	Communities that Care Youth Survey	Community	52%	Yes <input type="checkbox"/> No <input type="checkbox"/>	20%	Yes <input type="checkbox"/> No <input type="checkbox"/>	CFIS	Yes <input type="checkbox"/> No <input type="checkbox"/>
Hart, 2007	5 scales (Healthy Kids Survey)	Community	47%	Yes <input type="checkbox"/> No <input type="checkbox"/>	90%	Yes <input type="checkbox"/> No <input type="checkbox"/>	FIS	Yes <input type="checkbox"/> No <input type="checkbox"/>
Liau, 2007	67 items (social skills)	Offenders	29%	Yes <input type="checkbox"/> No <input type="checkbox"/>	NA	NA	FI	Yes <input type="checkbox"/> No <input type="checkbox"/>
Youngblade, 2007	17 items (family closeness)	Community	51%	Yes <input type="checkbox"/> No <input type="checkbox"/>	16%	Yes <input type="checkbox"/> No <input type="checkbox"/>	CF	Yes <input type="checkbox"/> No <input type="checkbox"/>

Table 7 (cont'd)

Fredricks, 2007	Organized activities	Community	51%	Yes <input type="checkbox"/> No <input type="checkbox"/>	67%	Yes <input type="checkbox"/> No <input type="checkbox"/>	I	Yes <input type="checkbox"/> No <input type="checkbox"/>
Benhorin, 2008	Social Support Scale for Children	Community	66%	Yes <input type="checkbox"/> No <input type="checkbox"/>	100%	Yes <input type="checkbox"/> No <input type="checkbox"/>	FS	Yes <input type="checkbox"/> No <input type="checkbox"/>
Gardner, 2008	Self-regulation	Community	49%	Yes <input type="checkbox"/> No <input type="checkbox"/>	56%	Yes <input type="checkbox"/> No <input type="checkbox"/>	I	Yes <input type="checkbox"/> No <input type="checkbox"/>
Molnar, 2008	74 items (neighborhood resources)	Community	50%	Yes <input type="checkbox"/> No <input type="checkbox"/>	87%	Yes <input type="checkbox"/> No <input type="checkbox"/>	CFI	Yes <input type="checkbox"/> No <input type="checkbox"/>
Ryan, 2008	13 items (commitment)	Foster care	0%	Yes <input type="checkbox"/> No <input type="checkbox"/>	100%	Yes <input type="checkbox"/> No <input type="checkbox"/>	FIS	Yes <input type="checkbox"/> No <input type="checkbox"/>
Vanderbilt-Adriance, 2008	32 items (nurturing parenting)	Community	0%	Yes <input type="checkbox"/> No <input type="checkbox"/>	50%	Yes <input type="checkbox"/> No <input type="checkbox"/>	FI	Yes <input type="checkbox"/> No <input type="checkbox"/>
Chilenski, 2009	5 items (school leadership)	Community	50%	Yes <input type="checkbox"/> No <input type="checkbox"/>	15%	Yes <input type="checkbox"/> No <input type="checkbox"/>	CFIS	Yes <input type="checkbox"/> No <input type="checkbox"/>

Table 7 (cont'd)

Domburgh, 2009	40 items (academic achievement)	Community	0%	Yes <input type="checkbox"/> No <input type="checkbox"/>	62%	Yes <input type="checkbox"/> No <input type="checkbox"/>	CFIS	Yes <input type="checkbox"/> No <input type="checkbox"/>
Hartman, 2009	55 items (religiosity)	Community	50%	Yes <input type="checkbox"/> No <input type="checkbox"/>	67%	Yes <input type="checkbox"/> No <input type="checkbox"/>	FIS	Yes <input type="checkbox"/> No <input type="checkbox"/>
Petts, 2009	24 Items (parental resources)	Community	NR	Yes <input type="checkbox"/> No <input type="checkbox"/>	NR	Yes <input type="checkbox"/> No <input type="checkbox"/>	FI	Yes <input type="checkbox"/> No <input type="checkbox"/>
Laan, 2010	139 items (academics)	Community	50%	Yes <input type="checkbox"/> No <input type="checkbox"/>	NA	NA	FIS	Yes <input type="checkbox"/> No <input type="checkbox"/>
Lodewijks, 2010	SAVRY	Offenders	0%	Yes <input type="checkbox"/> No <input type="checkbox"/>	NA	NA	FIS	Yes <input type="checkbox"/> No <input type="checkbox"/>
Mowder, 2010	Resiliency Scales for Children & Adolescents	Offenders	76%	Yes <input type="checkbox"/> No <input type="checkbox"/>	44%	Yes <input type="checkbox"/> No <input type="checkbox"/>	I	Yes <input type="checkbox"/> No <input type="checkbox"/>
Rennie, 2010	SAVRY	Offenders	0%	Yes <input type="checkbox"/> No <input type="checkbox"/>	15%	Yes <input type="checkbox"/> No <input type="checkbox"/>	FIS	Yes <input type="checkbox"/> No <input type="checkbox"/>
Whitney, 2010	47 items (future orientation)	Community	45%	Yes <input type="checkbox"/> No <input type="checkbox"/>	20%	Yes <input type="checkbox"/> No <input type="checkbox"/>	FI	Yes <input type="checkbox"/> No <input type="checkbox"/>

Table 7 (cont'd)

Hirshfield, 2011	15 items (academic engagement)	Community	52%	Yes <input type="checkbox"/> No <input type="checkbox"/>	93%	Yes <input type="checkbox"/> No <input type="checkbox"/>	S	Yes <input type="checkbox"/> No <input type="checkbox"/>
Stepp, 2011	8 items (social competence)	Community	0%	Yes <input type="checkbox"/> No <input type="checkbox"/>	58%	Yes <input type="checkbox"/> No <input type="checkbox"/>	I	Yes <input type="checkbox"/> No <input type="checkbox"/>
Stevens, 2011	12 items (support)	Community	100%	Yes <input type="checkbox"/> No <input type="checkbox"/>	28%	Yes <input type="checkbox"/> No <input type="checkbox"/>	FIS	Yes <input type="checkbox"/> No <input type="checkbox"/>
Bernat, 2012	10 items (activities with parents)	Community	55%	Yes <input type="checkbox"/> No <input type="checkbox"/>	33%	Yes <input type="checkbox"/> No <input type="checkbox"/>	CIFS	Yes <input type="checkbox"/> No <input type="checkbox"/>
Briney, 2012	Communities that Care Youth Survey	Community	49%	Yes <input type="checkbox"/> No <input type="checkbox"/>	30%	Yes <input type="checkbox"/> No <input type="checkbox"/>	CIFS	Yes <input type="checkbox"/> No <input type="checkbox"/>
Chui, 2012	Social Bond Scale	Community	52%	Yes <input type="checkbox"/> No <input type="checkbox"/>	NA	NA	IF	Yes <input type="checkbox"/> No <input type="checkbox"/>
Coster, 2012	Maternal employment	Community	NR	Yes <input type="checkbox"/> No <input type="checkbox"/>	NR	Yes <input type="checkbox"/> No <input type="checkbox"/>	F	Yes <input type="checkbox"/> No <input type="checkbox"/>

Table 7 (cont'd)

Fougere, 2012	Resilience Scale	Offenders	15%	Yes <input type="checkbox"/> No <input type="checkbox"/>	36%	Yes <input type="checkbox"/> No <input type="checkbox"/>	I	Yes <input type="checkbox"/> No <input type="checkbox"/>
Hardaway, 2012	25 items (school climate)	Community	50%	Yes <input type="checkbox"/> No <input type="checkbox"/>	89%	Yes <input type="checkbox"/> No <input type="checkbox"/>	IFS	Yes <input type="checkbox"/> No <input type="checkbox"/>
Henry, 2012	36 items (attitude towards school)	Community	51%	Yes <input type="checkbox"/> No <input type="checkbox"/>	74%	Yes <input type="checkbox"/> No <input type="checkbox"/>	IFS	Yes <input type="checkbox"/> No <input type="checkbox"/>
Herrenkohl, 2012	25 items (school attachment)	Community	49%	Yes <input type="checkbox"/> No <input type="checkbox"/>	53%	Yes <input type="checkbox"/> No <input type="checkbox"/>	CFIS	Yes <input type="checkbox"/> No <input type="checkbox"/>
Kurlycheck, 2012	22 items (collective efficacy)	Community	27%	Yes <input type="checkbox"/> No <input type="checkbox"/>	85%	Yes <input type="checkbox"/> No <input type="checkbox"/>	C	Yes <input type="checkbox"/> No <input type="checkbox"/>
Pardini, 2012	141 items (prosocial attitudes)	Community	0%	Yes <input type="checkbox"/> No <input type="checkbox"/>	60%	Yes <input type="checkbox"/> No <input type="checkbox"/>	CFIS	Yes <input type="checkbox"/> No <input type="checkbox"/>
Reingle, 2013	12 items (neighborhood safety)	Community	0%	Yes <input type="checkbox"/> No <input type="checkbox"/>	35%	Yes <input type="checkbox"/> No <input type="checkbox"/>	CFIS	Yes <input type="checkbox"/> No <input type="checkbox"/>

Table 7 (cont'd)

Robbé, 2013	SAPROF	Clinical patience	0%	Yes <input type="checkbox"/> No <input type="checkbox"/>	NA	NA	I	Yes <input type="checkbox"/> No <input type="checkbox"/>
Baglivio, 2014	Positive Achievement Change Tool	Offenders	27%	Yes <input type="checkbox"/> No <input type="checkbox"/>	60%	Yes <input type="checkbox"/> No <input type="checkbox"/>	IFS	Yes <input type="checkbox"/> No <input type="checkbox"/>
Krohn, 2014	19 items (attachment to teacher)	Community	25%	Yes <input type="checkbox"/> No <input type="checkbox"/>	85%	Yes <input type="checkbox"/> No <input type="checkbox"/>	IFS	Yes <input type="checkbox"/> No <input type="checkbox"/>
Van der Put, 2014	WSJCA	Offenders	37%	Yes <input type="checkbox"/> No <input type="checkbox"/>	40%	Yes <input type="checkbox"/> No <input type="checkbox"/>	IFS	Yes <input type="checkbox"/> No <input type="checkbox"/>
Burt, 2015	Ethnic-racial socialization scale	Community	100%	Yes <input type="checkbox"/> No <input type="checkbox"/>	100%	Yes <input type="checkbox"/> No <input type="checkbox"/>	F	Yes <input type="checkbox"/> No <input type="checkbox"/>
Hardaway, 2015	Kinship Support Scale; Parenting Style Index	Community	50%	Yes <input type="checkbox"/> No <input type="checkbox"/>	71%	Yes <input type="checkbox"/> No <input type="checkbox"/>	F	Yes <input type="checkbox"/> No <input type="checkbox"/>
Henry, 2015	Teenager Experience of Racial Socialization Scale	Community	57%	Yes <input type="checkbox"/> No <input type="checkbox"/>	100%	Yes <input type="checkbox"/> No <input type="checkbox"/>	FI	Yes <input type="checkbox"/> No <input type="checkbox"/>

Table 7 (cont'd)

Summary	9% of studies used risk assessments	18% used offender samples	32% of studies had less than 25% female youth	37% examined gender	14% did not report percent minority; 24% reported less than 25% minority	24% examined culture effects	I-83% F-82% S-65% C-28%	
---------	-------------------------------------	---------------------------	---	---------------------	--	------------------------------	----------------------------------	--

Note: I-Individual, F-Family, S-School, C- Community; NR-not reported

The following table displays a summary of the information found from the literature review that was conducted to identify juvenile risk assessment validation studies that investigated protective factors. Table 2 presents the first author and year of publication (First author); the actuarial risk assessment used to measure protective factors (Measure); protective factor domains represented in the measure (Domains); whether the study examined the predictive validity of single protective factor items (Single items examined); whether the study examined the predictive validity of protective factor composite scores (Composite score examined); whether the study examined the incremental validity of protective factors (Incremental validity examined); whether the study tested the protective factor model of resilience (Resilience model examined); whether the authors explored the relationship between protective factors and gender (Gender examined); and whether the authors explored the relationship between protective factors and race/ethnicity (Race/ethnicity) examined.

Table 8. Summary of Protective Factors in Risk Assessment Literature Review

First author	Measure	Domains	Single items examined	Composite score examined	Incremental validity examined	Gender examined	Race/ethnicity examined
Jimerson, 2004	SBARA	CFIS	CFIS	No	No	Yes	No
Jimerson, 2004	SBARA	CFIS	CFIS	Yes	No	Yes	No
Thompson, 2005	YLS-AA	CFI	CFI	Yes	No	No	No
Turner, 2006	SDRRC	CFIS	CFIS	Yes	No	Yes	Yes
Upperton, 2007	YLS-AA	CFIS	No	Yes	No	No	No
Lodewijks, 2008a	SAVRY	CFIS	CFIS	Yes	No	No	No
Lodewijks, 2008b	SAVRY	CFIS	No	Yes	Yes	No	No
Dolan, 2008	SAVRY	CFIS	No	Yes	Yes	No	No
Pearl, 2009	SDRRC	CFIS	No	Yes	No	Yes	Yes

Table 8 (cont'd)

Penney, 2010	SAVRY	CFIS	No	Yes	Yes	Yes	No
Rennie, 2010	SAVRY	CFIS	CFIS	Yes	No	No	No
Lodewijks, 2010	SAVRY	CFIS	CFIS	Yes	Yes	No	No
Vincent, 2011	SAVRY	CFIS	No	Yes	No	No	Yes
van der Put, 2012	WSJCA	CFIS	CFIS	Yes	No	No	No
Khanna, 2014	YLS & SAVRY	CFIS	No	Yes	No	No	No
Shepherd, 2014a	YLS & SAVRY	CFIS	No	Yes	No	No	No
Hilterman, 2014	YLS & SAVRY	CFIS	No	Yes	Yes	No	No
Baglivio, 2014	PACT	CFIS	CFIS	No	No	No	No
Shepherd, 2014b	SAVRY	CFIS	No	Yes	No	No	Yes

Table 8 (cont'd)

Williams, 2014	WSJCA	CFIS	CFIS	No	No	Yes	Yes
van der Put, 2015a	WSJCA	CFIS	CFIS	No	No	No	No
van der Put, 2015b	WSJCA	CFIS	CFIS	Yes	Yes	Yes	No
Chu, 2015	YLS/CMI 2.0	CFIS	No	No	No	Yes	No
Gamelgård, 2015	SAVRY	CFIS	CFIS	Yes	No	No	No
Cuervo, 2015	YLS/CMI	CFIS	No	Yes	Yes	No	No
Lee, 2015	SDRRC	CFIS	CFIS	Yes	No	No	No
Shepherd, 2016	SAVRY	CFIS	CFIS	No	No	No	No
Chu, 2016	YLS & SAVRY	CFIS	No	Yes	Yes	No	No
Royer-Gagnier, 2016	SAI-Y	CFIS	No	No	No	No	No

Table 8 (cont'd)

Craig, 2016	PACT (social bonds)	CFIS	F	No	No	Yes	Yes
Jones, 2016	YASI	FIS	CFIS	Yes	Yes	Yes	Yes

Note. Positive Achievement Change Tool = PACT; San Diego Risk and Resiliency Assessment = SDRRC; Santa Barbara Assets and Risk Assessment = SBARA; Strengths Assessment Inventory-Youth = SAI-Y; Structured Assessment of Violence Risk in Youth = SAVRY; Washington State Juvenile Court Assessment = WSJCA; Youth Assessment and Screening Instrument = YASI; I-Individual, F-Family, S-School, C- Community

Table 9. Summary of Table 8

Measure	45% percent of the studies investigated the predictive validity of the SAVRY. 26% percent of the studies investigated the predictive validity of versions of the YLS. 13% percent of the studies investigated the predictive validity of the WSJCA. 10% percent of the studies investigated the predictive validity of the SDRRC. 6% percent of the studies investigated the predictive validity of the PACT and SBARA. 3% percent of the studies investigated the predictive validity of the YASI and SAI-Y.
Domain	93% of the studies used measures that were comprised of protective factors across each domain. Each risk assessment tool measured community-level factors (i.e., prosocial involvement), however only four measures captured more ecological factors (e.g., neighborhood crime).
Single Items Examined	55% of studies examined the independent predictive validity of single protective factor items.
Composite Score	74% of studies examined the predictive validity of the protective factor cumulative score.
Incremental Validity	29% of studies examined the incremental validity of the protective factor cumulative score.

Table 9 (cont'd)

Gender	32% of studies examined the differential predictive validity of protective factors by gender.
Race/ethnicity	26% of studies examined the differential predictive validity of protective factors by race and/or ethnicity.

APPENDIX B: PFRJR INITIAL ITEM POOL

Table 10. Initial Pool of PFRJR Items

Scale Items	Item adopted from	Domain	Decision for final scale
Passing core subjects	Justice experts	Education	Retained
Grades in core subjects	Ayers, 1999	Education	Retained
Positive school history	Baglivio, 2014	Education	Limited evidence
No special education needs	Chilenski, 2009	Education	Limited evidence
Commitment to school	Chui, 2012	Education	Retained
Mostly A's	Crosnoe, 2002	Education	Limited practical relevance
Attitudes towards school	Crosnoe, 2002	Education	Adapted as an interview question
Grades in math and science	Bernat, 2006	Education	Redundant
Standardized test scores	Hartman, 2009	Education	Difficult to consistently measure
Positive school environment	Hartman, 2009	Education	Limited evidence
Teacher reported study skills	Henry, 2012	Education	Difficult to consistently measure
Bonding to school	Herrenkohl, 2012	Education	Redundant

Table 10 (cont'd)

Emotional engagement	Hirschfield, 2011	Education	Limited evidence
Good school achievement	Hoge, 1996	Education	Redundant
Academic competence	Kelly, 2012	Education	Redundant
Aspirations	Krohn, 2014	Education	Limited relevance
Teacher reported performance	Laan, 2010	Education	Difficult to measure consistently
Motivation to succeed	Lodewijks, 2010	Education	Redundant
Parent attitude toward education	Losel, 2012	Education	Limited evidence
Fair teachers	Mcknight, 2002	Education	Retained
Academic Achievement	Pardini, 2012	Education	Redundant
Grade point average	Reingle, 2013	Education	Redundant
Positive school relationships	Simoës, 2008	Education	Redundant
Attachment to teachers	Smith, 1995	Education	Adapted as an interview question
Teacher report of hard working	Stouthamer-Loeber, 2002	Education	Difficult to measure consistently
Few opportunities to get weed	Ayers, 1999	Individual	Adapted as an interview question

Table 10 (cont'd)

Norms against drug use	Ayers, 1999	Individual	Adapted as an interview question
Infrequent past use	Baglivio, 2014	Individual	Limited relevance
Availability of drugs	Chung, 2002	Individual	Retained
Peer use of drugs	Fagan, 2007	Individual	Limited evidence
Actively abstaining	Justice experts	Individual	Retained
Low access to drugs	Herrenkohl, 2012	Individual	Redundant
Monitoring	Cantillon,	Family	Retained
Support	Carr, 2001	Family	Adapted as an interview question
Parental bonding	Chui, 2012	Family	Retained
Attachment to mother	Coster, 2012	Family	Redundant
Household organization	Crosnoe, 2002	Family	Retained
Consistent discipline	Domburgh 2009	Family	Retained
Family functioning	Domburgh 2009	Family	Redundant
Relationship with parents	Fagan, 2007	Family	Retained

Table 10 (cont'd)

Demanding/responsive parents	Hart, 2007	Family	Redundant
Family management	Herrenkohl, 2003	Family	Retained
Family cohesion	Hjemdal, 2006	Family	Not clearly defined
Attachment and monitoring	Krohn, 2014	Family	Redundant
Low parental stress	Laan, 2010	Family	Limited evidence
Parents marital status	Liau, 2007	Family	Limited evidence
Parental support	Lodewijks, 2010	Family	Redundant
Positive relationships	Loeber, 1991	Family	Redundant
Strict discipline	Loeber, 1991	Family	Redundant
Feeling loved	Mcknight, 2002	Family	Limited evidence
Having many friends	Carr, 2001	Peers	Limited relevance
Low peer delinquency	Bernat, 2006	Peers	Adapted as an interview question
Quality relationships	Clingepeel, 2003	Peers	Adapted as an interview question
Peers obey rules	Molnar, 2008	Peers	Adapted as an interview question

Table 10 (cont'd)

Low peer deviance	Pardini, 2012	Peers	Redundant
Prosocial attitudes	Baglivio, 2014	Individual	Retained
Belief in legal system	Chui, 2012	Individual	Adapted as an interview question
Positive response to authority/help	Lodewijks, 201	Individual	Retained
Negative attitudes towards delinquency	Pardini, 2012	Individual	Adapted as an interview question
Guilt feelings	Stouthamer-Loeber, 2002	Individual	Limited evidence
Low aggression	Born, 1997	Individual	Retained
Positive personality	Carr, 2002	Individual	Not clearly defined
Resilient personality	Chapman, 2006	Individual	Limited evidence
Elicits positive attention	Hawkins, 1995	Individual	Adapted as an interview question
Low ADHD	Loeber, 1991	Individual	Limited evidence
Healthy self-esteem	Chapman, 2006	Individual	Adapted as an interview question

Table 10 (cont'd)

Positive personal interests	Justice experts	Individual	Retained
Neighborhood resources	Molnar, 2008	Community	Retained
Prosocial involvement	Chapman, 2006	Community	Retained
Organization involvement	Chui, 2012	Community	Redundant
Involved in activities	Fredericks, 2008	Community	Redundant
Good use of time	Hoge, 1996	Community	Adapted as an interview question
Use of time	Van der put, 2014	Community	Redundant
Social ties	Chung, 2006	Community	Limited evidence
Non-parent mentor	Molnar, 2008	Community	Redundant
Perceived safety	Reingle, 2013	Community	Retained
Advantaged neighborhood	Stouthamer-Loeber, 2002	Community	Lacked practical relevance
Advantaged neighborhood	Wikström, 2000	Community	Redundant
Caring adults	Hart, 2007	Community	Retained
Religiosity	Hartman, 2009	Community/Indv.	Retained

Table 10 (cont'd)

Religious attendance frequency	Herronkohl, 2012	Community/Indv.	Adapted as an interview question
Religious commitment	Ryan, 2008	Community/Indv.	Adapted as an interview question
Religious attendance	Stevens, 2011	Community/Indv.	Adapted as an interview question
Social competence	Stepp, 2011	Individual	Redundant
Social skills	Van der put, 2014	Individual	Retained
Skills for interacting	Ayers, 1999	Individual	Redundant
Personal competence	Hjemdal, 2006	Individual	Redundant
Summary of final decisions	<p>Adapted as an interview question ($n = 16$)</p> <p>Retained ($n = 22$)</p> <p>Redundant ($n = 25$)</p> <p>Limited evidence or practical relevance ($n = 14$)</p> <p>Total items ($N = 77$)</p>		

APPENDIX C: PFRJR ITEMS

Commitment to School/Education

Strong Family Management

Consistent Parenting

Strong Adult Bond(s)

Involvement in Organized Activities

Positive Personal Interest(s)

Religiosity

Positive Response to Authority

Prosocial Attitudes

Close Bonds with Positive Peer(s)

Low Aggression

Strong Social Skills

Perceived Safety

Access to Resources

Positive Adults

APPENDIX D: YLS/CMI ITEMS

Table 11. YLS/CMI Items

<p>Prior/Current Offenses ($\alpha = .67$)</p> <ol style="list-style-type: none"> 1. Three or More Prior Convictions 2. Two or more failures to comply 3. Prior Probation 4. Prior Custody 5. Three or More Current Convictions 	<p>Substance Abuse ($\alpha = .79$)</p> <ol style="list-style-type: none"> 19. Occasional Drug Use 20. Chronic Drug Use 21. Chronic Alcohol Use 22. Substance Abuse Interferes with Life 23. Substance Use Linked to Offense(s)
<p>Education ($\alpha = .69$)</p> <ol style="list-style-type: none"> 6. Low Achievement 7. Problems with Teachers 8. Problems with Peers 9. Disruptive Classroom Behavior 10. Disruptive Behavior on School Property 11. Truancy 	<p>Family Circumstances ($\alpha = .67$)</p> <ol style="list-style-type: none"> 24. Inadequate Supervision 25. Difficulty in Controlling Behavior 26. Inappropriate Discipline 27. Inconsistent Parenting 28. Poor Relations (Father-Youth) 29. Poor Relations (Mother-Youth)
<p>Leisure & Recreation ($\alpha = .68$)</p> <ol style="list-style-type: none"> 12. Lack of Organized Activities 13. Could Make Better Use of Time 14. No Personal Interests 	<p>Attitudes & Orientation ($\alpha = .75$)</p> <ol style="list-style-type: none"> 30. Not Seeking Help 31. Actively Rejecting Help 32. Defies Authority 33. Antisocial/Procriminal Attitudes 34. Callous, Little Concern for Others
<p>Peer Relations ($\alpha = .75$)</p> <ol style="list-style-type: none"> 15. Lack of Positive Peer Acquaintances 16. Lack of Positive Friends 17. Some Delinquent Peer Acquaintances 18. Some Delinquent Friends 	<p>Personality & Behavior ($\alpha = .67$)</p> <ol style="list-style-type: none"> 35. Short Attention Span 36. Poor Frustration Tolerance 37. Verbally Aggressive/Verbally Intimidating 38. Explosive Episodes 39. Physically Aggressive 40. Inadequate Guilt Feelings 41. Inflated Self-Esteem 42. *Unemployment/Not Looking for Work

*Note: The variable Unemployment/Not looking for Work was omitted from the measure. This item was not relevant to this sample due to average age and had no variation.

REFERENCES

REFERENCES

- Andrews, D., Bonta, J., & Wormith, J. (2006). The recent past and near future of risk and/or need assessment. *Crime and Delinquency*, 52 (1), 7-27.
- Andrews, D., Guzzo, L., Raynor, P., Rowe, R., Rettinger, L., Brews, A., et al. (2012). Are the major risk/need factors predictive of both female and male reoffending? A test with the eight domains of the Level of Service/Case Management Inventory. *International Journal of Offender Therapy and Comparative Criminology*, 56 (1), 113-133.
- Andrews, D. A., Hoge, R. D., & Leschied, A. W. (2002). Youth level of service and case management inventory. Toronto, Canada: Multi-Health Systems.
- Andrews, D. A., Robinson, D., & Balla, M. (1996). Risk principle of case classification and the prevention of residential placements: An outcome evaluation of the share the parenting program. *Journal of Consulting and Clinical Psychology*, 54, 203–207.
- Andrews, D. A., Robinson, D., & Hoge, R. D. (1984). Manual for the youth level of service inventory. Ottawa, Ontario: Department of Psychology, Carleton University.
- Baglivio, M. T., Jackowski, K., Greenwald, M. A., & Howell, J. C. (2014). Serious, violent, and chronic juvenile offenders. *Criminology & Public Policy*, 13(1), 83-116.
- Bernat, D. H., Oakes, J. M., Pettingell, S. L., & Resnick, M. (2012). Risk and direct protective factors for youth violence: results from the National Longitudinal Study of Adolescent Health. *American Journal of Preventive Medicine*, 43(2).
- Blakely, R. J., & Cox, A. (1972). Evidence for short geomagnetic polarity intervals in the early Cenozoic. *Journal of Geophysical Research*, 77(35), 7065-7072.
- Borum, R., Bartel, P., & Forth, A. (2000). Manual for the Structured Assessment of Violence Risk in Youth (SAVRY). Tampa: University of South Florida.
- Chapman, J. F., Desai, R. A., Falzer, P. R., & Borum, R. (2006). Violence risk and race in a sample of youth in juvenile detention: The potential to reduce disproportionate minority confinement. *Youth Violence and Juvenile Justice*, 4(2), 170-184.
- Chu, C. M., Goh, M. L., & Chong, D. (2016). The predictive validity of SAVRY ratings for assessing youth offenders in Singapore: a comparison with YLS/CMI ratings. *Criminal Justice and Behavior*, 43(6), 793-810.
- Chu, C. M., Lee, Y., Zeng, G., Yim, G., Tan, C. Y., Ang, Y., ... & Ruby, K. (2015). Assessing youth offenders in a non-Western context: The predictive validity of the YLS/CMI ratings. *Psychological Assessment*, 27(3), 1013.

- Chui, W. H., & Chan, H. C. O. (2012, August). An empirical investigation of social bonds and juvenile delinquency in Hong Kong. In *Child & Youth Care Forum* (Vol. 41, No. 4, pp. 371-386). Springer US.
- Costello, A. B., & Osborne, J. W. (2011). Best practices in exploratory factor analysis: four recommendations for getting the most from your analysis. *Pract Assess Res Eval* 2005; 10. URL <http://pareonline.net/getvn.asp>, 10(7).
- Cottle, C. C., Lee, R. J., & Heilbrun, K. (2001). The prediction of criminal recidivism in juveniles: A meta-analysis. *Criminal Justice and Behavior*, 28, 367-294.
- Craig, J. M., Baglivio, M. T., Wolff, K. T., Piquero, A. R., & Epps, N. (2017). Do social bonds buffer the impact of adverse childhood experiences on reoffending? *Youth Violence and Juvenile Justice*, 15(1), 3-20.
- Crosnoe, R., Erickson, K. G., & Dornbusch, S. M. (2002). Protective functions of family relationships and school factors on the deviant behavior of adolescent boys and girls reducing the impact of risky friendships. *Youth & Society*, 33(4), 515-544.
- Cuervo, K., & Villanueva, L. (2015). Analysis of risk and protective factors for recidivism in Spanish youth offenders. *International Journal of Offender Therapy and Comparative Criminology*, 59(11), 1149-1165.
- Dawis, R. V. (2000). Scale construction and psychometric considerations. *Handbook of applied multivariate statistics and mathematical modeling*, 65-94.
- de Vogel, V., de Vries Robbé, M., de Ruiter, C., & Bouman, Y. H. (2011). Assessing protective factors in forensic psychiatric practice: Introducing the SAPROF. *International Journal of Forensic Mental Health*, 10(3), 171-177.
- Dolan, M. C., & Rennie, C. E. (2008). The Structured Assessment of Violence Risk in Youth as a predictor of recidivism in a United Kingdom cohort of adolescent offenders with conduct disorder. *Psychological Assessment*, 20(1), 35.
- Fabrigar, L. R., Wegener, D. T., MacCallum, R. C., & Strahan, E. J. (1999). Evaluating the use of exploratory factor analysis in psychological research. *Psychological Methods*, 4(3), 272.
- Fagan, A. A., Van Horn, M. L., Hawkins, J. D., & Arthur, M. W. (2007). Gender similarities and differences in the association between risk and protective factors and self-reported serious delinquency. *Prevention Science*, 8(2), 115-124.
- Farrington, D. P. (2007). Advancing knowledge about desistance. *Journal of Contemporary Criminal Justice*, 23(1), 125-134.

- Fergus, S., & Zimmerman, M. A. (2005). Adolescent resilience: A framework for understanding healthy development in the face of risk. *Annu. Rev. Public Health, 26*, 399-419.
- Floyd, F. J., & Widaman, K. F. (1995). Factor analysis in the development and refinement of clinical assessment instruments. *Psychological Assessment, 7*(3), 286.
- Fougere, A., & Daffern, M. (2011). Resilience in young offenders. *International Journal of Forensic Mental Health, 10*(3), 244-253.
- Gammelgård, M., Koivisto, A. M., Eronen, M., & Kaltiala - Heino, R. (2015). Predictive validity of the structured assessment of violence risk in youth: A 4 - year follow - up. *Criminal Behaviour and Mental Health, 25*(3), 192-206.
- Garmezy, N. (1985). Stress-resistant children: The search for protective factors. In J. E. Stevenson (Ed.), *Recent research in developmental psychopathology* (pp. 213-233). New York, NY: Elsevier Science.
- Garmezy, N., Masten, A. S., & Tellegen, A. (1984). The study of stress and competence in children: A building block for developmental psychopathology. *Child Development, 97*-111.
- Hardaway, C. R., McLoyd, V. C., & Wood, D. (2012). Exposure to Violence and Socioemotional Adjustment in Low - Income Youth: An Examination of Protective Factors. *American Journal of Community Psychology, 49*(1-2), 112-126.
- Hartman, J. L., Turner, M. G., Daigle, L. E., Exum, M. L., & Cullen, F. T. (2009). Exploring the gender differences in protective factors: Implications for understanding resiliency. *International Journal of Offender Therapy and Comparative Criminology, 53*(3), 249-277.
- Hawkins, J. D., & Weis, J. G. (1985). The social development model: An integrated approach to delinquency prevention. *Journal of Primary Prevention, 6*(2), 73-97.
- Hilterman, E. L., Bongers, I., Nicholls, T. L., & Van Nieuwenhuizen, C. (2016). Identifying gender specific risk/need areas for male and female juvenile offenders: Factor analyses with the Structured Assessment of Violence Risk in Youth (SAVRY). *Law and Human Behavior, 40*(1), 82.
- Hirschi, T. (1986). On the compatibility of rational choice and social control theories of crime. *The reasoning criminal: Rational choice perspectives on offending, 105*-118.
- Hoge, R. D., & Andrews, D. A. (2002). Youth Level of Service. Case Management Inventory™(YLS/CMI™): User's Manual. Toronto, Canada: MultiHealthServices.

- Jimerson, S. R., Sharkey, J. D., Furlong, M. J., & O'Brien, K. M. (2004). Using the Santa Barbara Assets and Risks Assessment to examine the ecology of youths experiencing behavior problems. *The California School Psychologist*, 9(1), 99-113.
- Jimerson, S. R., Sharkey, J. D., O'Brien, K. M., & Furlong, M. J. (2004). The Santa Barbara Assets and Risks Assessment to predict recidivism among male and female juveniles: An investigation of inter-rater reliability and predictive validity. *Education and Treatment of Children*, 353-373.
- Jones, N. J., Brown, S. L., Robinson, D., & Frey, D. (2016). Incorporating strengths into quantitative assessments of criminal risk for adult offenders: The Service Planning Instrument. *Criminal Justice and Behavior*, 42(3), 321-338.
- Khanna, D., Shaw, J., Dolan, M., & Lennox, C. (2014). Does diagnosis affect the predictive accuracy of risk assessment tools for juvenile offenders: Conduct Disorder and Attention Deficit Hyperactivity Disorder. *Journal of Adolescence*, 37(7), 1171-1179.
- Krohn, M. D., Lizotte, A. J., Bushway, S. D., Schmidt, N. M., & Phillips, M. D. (2014). Shelter during the storm: A search for factors that protect at-risk adolescents from violence. *Crime & Delinquency*, 60(3), 379-401.
- Latessa, E. J., & Lovins, B. (2010). The role of offender risk assessment: A policy maker guide. *Victims and Offenders*, 5(3), 203-219.
- Lee, S. Y., & Villagrana, M. (2015). Differences in risk and protective factors between crossover and non-crossover youth in juvenile justice. *Children and Youth Services Review*, 58, 18-27.
- Lipsey, M., Howell, J., Kelly, M., Chapman, G., & Carver, D. (2010). Improving the effectiveness of juvenile justice programs: A new perspective on evidence-based practice. Georgetown University. Washington DC: Center for Juvenile Justice Reform.
- Lodewijks, H. P., Doreleijers, T. A., De Ruiter, C., & Borum, R. (2008). Predictive validity of the Structured Assessment of Violence Risk in Youth (SAVRY) during residential treatment. *International Journal of Law and Psychiatry*, 31(3), 263-271.
- Lodewijks, H. P., de Ruiter, C., & Doreleijers, T. A. (2010). The impact of protective factors in desistance from violent reoffending a study in three samples of adolescent offenders. *Journal of Interpersonal Violence*, 25(3), 568-587.
- Loeber, R., & Farrington, D. P. (2012). Advancing knowledge about direct protective factors that may reduce youth violence. *American Journal of Preventive Medicine*,
- Lösel, F., & Farrington, D. P. (2012). Direct protective and buffering protective factors in the development of youth violence. *American Journal of Preventive Medicine*, 43(2), S8-S23.

- Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development, 71*(3), 543-562.
- Masten, A. S. (2011). Resilience in children threatened by extreme adversity: Frameworks for research, practice, and translational synergy. *Development and Psychopathology, 23*(02), 493-506.
- McGrath, A., & Thompson, A. (2012). The relative predictive validity of the static and dynamic domain scores in risk-need assessment of juvenile offenders. *Criminal Justice and Behavior, 39*(3), 250-263.
- Meyers, J., & Schmidt, F. (2008). Predictive validity of the Structured Assessment for Violence Risk in Youth (SAVRY) with juvenile offenders. *Criminal Justice and Behavior, 35*(3), 344-355.
- Miller, H. A. (2006). A dynamic assessment of offender risk, needs, and strengths in a sample of pre - release general offenders. *Behavioral Sciences & the Law, 24*(6), 767-782.
- Milligan, S. (2010). Youth court statistics 2008/2009. Juristat: Canadian Centre for Justice Statistics, 30(2), 1F.
- Moffitt, T. E. (1993). Adolescence-limited and life-course-persistent antisocial behavior: a developmental taxonomy. *Psychological Review, 100*(4), 674.
- Molnar, B. E., Cerda, M., Roberts, A. L., & Buka, S. L. (2008). Effects of neighborhood resources on aggressive and delinquent behaviors among urban youths. *American Journal of Public Health, 98*(6), 1086-1093.
- Netemeyer, R. G., Bearden, W. O., & Sharma, S. (2003). Scaling procedures: Issues and applications. Sage Publications.
- Nissen, L. (2006). Bringing strength-based philosophy to life in juvenile justice. *Reclaiming Children and Youth, 15*(1), 40.
- Onifade, E., Davidson, W., Campbell, C., Turke, G., Malinowski, J., & Turner, K. (2008). Predicting recidivism in probationers with the Youth Level of Service Case Management Inventory (YLS/CMI). *Criminal Justice and Behavior, 35*(3), 474-483.
- Pardini, D. A., Loeber, R., Farrington, D. P., & Stouthamer-Loeber, M. (2012). Identifying direct protective factors for nonviolence. *American Journal of Preventive Medicine, 43*(2), S28-S40.
- Partners, O. (2000). Youth Assessment Screening Inventory (YASI). Ottawa, Ontario, Canada: Author.

- Pearl, N., Ashcraft, R. G., & Geis, K. A. (2009). Predicting juvenile recidivism using the San Diego regional resiliency check-up. *Federal Probation*, 73, 46.
- Penney, S. R., Lee, Z., & Moretti, M. M. (2010). Gender differences in risk factors for violence: An examination of the predictive validity of the Structured Assessment of Violence Risk in Youth. *Aggressive Behavior*, 36(6), 390-404.
- Pollard, J. A., Hawkins, J. D., & Arthur, M. W. (1999). Risk and protection: Are both necessary to understand diverse behavioral outcomes in adolescence?. *Social Work Research*, 23(3), 145-158.
- Reingle, J. M., Jennings, W. G., Lynne-Landsman, S. D., Cottler, L. B., & Maldonado-Molina, M. M. (2013). Toward an understanding of risk and protective factors for violence among adolescent boys and men: A longitudinal analysis. *Journal of Adolescent Health*, 52(4), 493-498.
- Rennie, C. E., & Dolan, M. C. (2010). The significance of protective factors in the assessment of risk. *Criminal Behaviour and Mental Health*, 20(1), 8-22.
- Rice, M., & Harris, G. (2005). Violent recidivism: Assessing predictive validity. *Journal of Consulting and Clinical Psychology*, 63(5), 737-748.
- Rogers, R. (2000). The uncritical acceptance of risk assessment in forensic practice. *Law and Human Behavior*, 24(5), 595.
- Royer-Gagnier, K., Skilling, T. A., Brown, S. L., Moore, T. E., & Rawana, J. S. (2016). The Strengths Assessment Inventory–Youth Version: An evaluation of the psychometric properties with male and female justice-involved youth. *Psychological Assessment*, 28(5), 563.
- Ryan, J. P., Testa, M. F., & Zhai, F. (2008). African American males in foster care and the risk of delinquency: The value of social bonds and permanence. *Child Welfare*, 87(1), 115.
- Rutter, M. (1985). Resilience in the face of adversity. Protective factors and resistance to psychiatric disorder. *The British Journal of Psychiatry*, 147(6), 598-611.
- Sampson, R., & Laub, J. (1993). Structural variations in juvenile court processing: Inequality, the underclass, and social control. *Law and Society Review*, 27(2), 285-311.
- Schmidt, F., Campbell, M., & Houlding, C. (2011). Comparative analyses of the YLS/CMI, SAVRY, and PCL:YV in adolescent offenders: A 10-year follow-up into adulthood. *Youth Violence and Juvenile Justice*, 9(1), 23-42.
- Schwalbe, C. (2007). Risk assessment for juvenile justice: A meta-analysis. *Law and Human Behavior*, 31, 449-462.

- Schwalbe, C., Fraser, M., Day, S., & Arnold, E. (2004). North Carolina Assessment of Risk (NCAR): Reliability and predictive validity with juvenile offenders. *Journal of Offender Rehabilitation*, 40(1/2), 1-22.
- Shepherd, S., Luebbers, S., & Dolan, M. (2013). Gender and ethnicity in juvenile risk assessment. *Criminal Justice and Behavior*, 40(4), 388-408.
- Shepherd, S. M., Luebbers, S., & Ogloff, J. R. (2016). The role of protective factors and the relationship with recidivism for high-risk young people in detention. *Criminal Justice and Behavior*, 43(7), 863-878.
- Shepherd, S. M., Luebbers, S., Ogloff, J. R., Fullam, R., & Dolan, M. (2014). The predictive validity of risk assessment approaches for young Australian offenders. *Psychiatry, Psychology and Law*, 21(5), 801-817.
- Simourd, L., Hoge, R. D., & Andrews, D. A. (1991). The Youth Level of Service Inventory: An examination of the development of a risk/needs instrument. In Presentation at the annual conference of the Canadian Psychological Association, Calgary.
- Singh, J. P. (2013). Predictive validity performance indicators in violence risk assessment: A methodological primer. *Behavioral Sciences & the Law*, 31(1), 8-22.
- Smith, C., Lizotte, A. J., Thornberry, T. P., & Krohn, M. D. (1995). Resilient youth: Identifying factors that prevent high-risk youth from engaging in delinquency and drug use. *Current Perspectives on Aging and the Life Course*, 4, 217-247.
- Stouthamer-Loeber, M., Loeber, R., Wei, E., Farrington, D. P., & Wikström, P. O. H. (2002). Risk and promotive effects in the explanation of persistent serious delinquency in boys. *Journal of Consulting and Clinical Psychology*, 70(1), 111.
- Thompson, A. P., & Pope, Z. (2005). Assessing juvenile offenders: Preliminary data for the Australian adaptation of the youth level of service/case management inventory (Hoge & Andrews, 1995). *Australian Psychologist*, 40(3), 207-214.
- Turner, S., & Fain, T. (2006). Validation of the risk and resiliency assessment tool for juveniles in the Los Angeles county probation system. *Federal Probation*, 70, 49.
- van der Put, C. E (2015). Protective factors in male adolescents with a history of sexual and/or violent offending: a comparison between three subgroups. *Sexual Abuse*, 27(1), 109-126.
- van der Put, C. E., & Asscher, J. J. (2015). Female Adolescent sexual and nonsexual violent offenders: A comparison of the prevalence and impact of risk and protective factors for general recidivism. *Sexual Abuse*, 27(1), 109-126.

- van der Put, C. E., Creemers, H. E., & Hoeve, M. (2014). Differences between juvenile offenders with and without substance use problems in the prevalence and impact of risk and protective factors for criminal recidivism. *Drug and Alcohol Dependence*, 134, 267-274.
- Vincent, G., Chapman, J., & Cook, N. (2011). Risk-needs assessment in juvenile justice: Predictive validity of the SAVRY, racial differences, and the contribution of needs factors. *Criminal Justice and Behavior*, 38(1), 42-62.
- Walker, K., Bowen, E., & Brown, S. (2013). Psychological and criminological factors associated with desistance from violence: A review of the literature. *Aggression and Violent Behavior*, 18(2), 286-299.
- Williams, A. B., Ryan, J. P., Davis-Kean, P. E., McLoyd, V. C., & Schulenberg, J. E. (2014). The Discontinuity of Offending Among African American Youth in the Juvenile Justice System. *Youth & Society*, 0044118X14551322.
- Youngblade, L. M., Theokas, C., Schulenberg, J., Curry, L., Huang, I. C., & Novak, M. (2007). Risk and promotive factors in families, schools, and communities: A contextual model of positive youth development in adolescence. *Pediatrics*, 119(Supplement 1), S47-S53.
- Zolkoski, S. M., & Bullock, L. M. (2012). Resilience in children and youth: A review. *Children and Youth Services Review*, 34(12), 2295-2303.