The Search for Protective Factors Against Recidivism in Adolescents Found Not Criminally Responsible on Account of Mental Disorder

by

Nicol Patricny

A thesis submitted in partial fulfillment of the requirements for the degree of

Doctor of Philosophy

in

SCHOOL AND CLINICAL CHILD PSYCHOLOGY

Department of Educational Psychology

University of Alberta

Abstract

In their quest to better understand the development and varying trajectories of psychopathology, developmental psychopathologists seek to identify both risk and protective factors (Rutter & Sroufe, 2000). This approach is relevant to forensic professionals working with young persons within forensic psychiatric settings. Understanding the full range of factors associated with desistance from offending in this population is of the utmost importance to forensic professionals. It pertains to the management and treatment of adolescents who have offended, with implications for their civil liberties and community safety alike. The primary goal of this research was to explore the impact of theoretical protective factors for nonrecidivism for individuals found Not Criminally Responsible on Account of Mental Disorder (NCRMD) during adolescence or emerging adulthood. The secondary goal was to measure the predictive validity of any such protective factors and determine whether they could be used within the context of risk assessment.

I have organized and conducted this research within three independent papers that complement and build upon each other. First, I begin with Chapter 2, a comprehensive literature review of protective factors against delinquency and offending for adolescents. The purpose was to broadly examine the extant quantitative research on protective factors and later offending behaviour. This chapter summarizes 21 unique protective factors that are empirically supported by longitudinal research and sets the groundwork for the subsequent studies. Next, Chapter 3 is a quantitative study of protective factors against recidivism, specifically amongst the Alberta NCRMD adolescent population. The research is a long-term retrospective study. The main purpose was to explore whether any theoretical protective factors are associated with an increased likelihood of later general nonrecidivism or violent nonrecidivism. Lastly, Chapter 4 is

a study that examined the predictive and incremental validity of the protective factor identified in Chapter 3, that is, the protective effect of *resistance to antisocial peers*. The study explored whether the inclusion of this protective factor into an existing well-validated risk assessment scale, the *Violence Risk Appraisal Guide – Revised*, is warranted. The studies in Chapter 3 and 4 are the first to examine protective factors for later nonrecidivism within a NCRMD adolescent population. Together, they provide empirical evidence that *resistance to antisocial peers* is an important protective factor for Not Criminally Responsible adolescents, one with possible implications for treatment and assessment within clinical forensic practice. To summarize, my paper-based dissertation is situated within a developmental psychopathology framework and explores the role of protective factors within the NCRMD adolescent population.

Preface

This thesis is an original work by Nicol Patricny. This thesis is part of a larger research project which received research ethics approval from the University of Alberta Research Ethics Board, Project Name "Evaluating the Concurrent Validity and Interrater Reliability of Multiple Risk Instruments in/for Patients Under the Alberta Review Board", Pro00048695, June 5, 2014.

Some of the research conducted for this thesis forms part of a research collaboration, led by Assistant Clinical Professor A.M. Haag as the lead collaborator at the University of Alberta. I completed the data collection of protective factors in Chapter 3 by myself, with the assistance of Professor A.M. Haag. Professor A.M. Haag previously completed the data collection of the recidivism outcomes in Chapter 2 and data collection of the VRAG-R in Chapter 3. The data analysis in Chapter 3 and Chapter 4 are my original work, as well as the literature review in Chapter 2.

Acknowledgements

Table of Contents

List of Tables

xii

Chapter 1. Introduction

Preface

I began conceptualizing the ideas that informed and propelled this research long before returning to academia to pursue my doctorate. The forensic individuals who I have worked with as a psychologist have varied greatly: (a) a man from a halfway home who had never used a computer before, (b) a young woman on a secure ward with an intellectual disability whose expressive speech was limited to a select few words, (c) a youth who was raised within a series of group/foster homes since early childhood, (d) a teenager with fetal alcohol spectrum disorder who was deeply entrenched within an organized gang, (e) a young man with conduct disorder who later met the criteria for psychopathy, (f) a youth with a psychotic disorder who grew up in a loving family yet dropped out of high school, and (g) a young man who was raised on a First Nations reserve rampant with community violence and suicides. These individuals were: parents, and parents whose children had been permanently removed from their care; pregnant women; homeless persons; individuals with trauma histories of family suicides, murders, and domestic violence; victims and perpetrators; people with addictions; those with personality disorders; and individuals with neurological or developmental conditions (e.g., attention deficit/hyperactivity disorder or autism spectrum disorder). Moreover, their offence histories varied largely, from unpaid public transit tickets to serious violent offences.

Through my many interactions, I began to question existing risk-based frameworks and processes within the criminal justice system. A primary function of the criminal justice system is to prevent future reoffending from occurring. This has led to a strong focus, both clinically and within research, on predictors of reoffending such as substance use and criminal history. But how well do risk-based approaches fully capture or apply to the diversity within forensic populations?

Certainly, many individuals within the forensic system possess a wide array of risk factors, resulting from interactions between their genetic predispositions and their environments (Barnes & Jacobs, 2013; Barnes et al., 2019; Tuvblad et al., 2006). Although researchers and clinicians have a strong empirical understanding of the risk factors associated with reoffending, much less is known about the protective factors associated with desistance from offending.

Theoretically, the presence of risk factors does not entirely preclude individuals from possessing protective factors. Alluding to my earlier clinical experiences: (a) the man from the halfway home had a strong connection to his Indigenous background, (b) the young woman made peers and staff around her smile each day, (c) the youth raised within group/foster homes went on to reconnect and live with a distant relative, (d) the youth with fetal alcohol spectrum disorder was a role model within structured therapy groups, (e) the man with psychopathy was in a long-term relationship, (f) the youth with a psychotic disorder returned to school and graduated with his high school diploma, and (g) the young man from the reserve had an intelligence quotient within the superior range. Some of these individuals went on to reoffend, but others did not. Others remain within institutional settings. These individuals, with all of their unique histories, complexities, intricacies, and strengths and weaknesses, have served as the inspiration for this dissertation. With this in mind, I set out to explore theoretical protective factors that may help to provide balance to the risk-dominant field that forensic individuals exist within.

Protective Factors

The concept of protective factors falls within the broad scope of positive psychology, which seeks to understand positive individual and group-level traits (Seligman & Csikszentmihalyi, 2000), and developmental psychology, which aims to understand protective and risk mechanisms in the continuity and discontinuity of normality and psychopathology

(Rutter & Sroufe, 2000). Protective factors are defined as, "the internal and external capacities and personal priorities that enhance individuals' well-being and reduce the likelihood that they will harm others or themselves" (Ward, 2017, p. 26). Protective factors have the potential to play an important role in both treatment and assessment. By understanding the role of positive factors in buffering against the effects of adversity and modifying risk factors, researchers may be better able to design interventions that reduce the likelihood of later adverse outcomes (Ward, 2017). Identifying the most important protective factors, that is, those that best protect individuals against later adverse outcomes, may also help clinicians with prioritizing their treatment targets when working with individuals who are at-risk of reoffending.

Risk Assessment

Forensic professionals conduct risk assessments in order to predict the likelihood of future offending and identify those who are most in need of intervention, while protecting communities from crime (Brown & Singh, 2014). It is important for these professionals to collect information from multiple sources (e.g., self-report, clinical interviews, medical file, criminal record, behaviour observations) in order to corroborate, triangulate, and validate information (Leach, 2020). Moreover, in order for professionals to best mitigate risk, risk assessment should be comprehensive, with the inclusion of both risk and protective factors (Rogers, 2000). Protective factors may function to complement risk factors within violence risk assessment, thereby providing clinicians with opportunities to preventatively introduce risk-reducing interventions (de Vries Robbe et al., 2013).

Although there has been a recent emergence of research exploring protective factors (e.g., de Vogel et al., 2015), they remain largely understudied, particularly with forensic populations (Rogers, 2000). This is unfortunate as a major purpose of the criminal justice system is to reduce

individuals' likelihood of reoffending following treatment or incarceration, and protective factors effectively function to decrease the probability of reoffending (Heffernan & Ward, 2017). Given the gap concerning protective factors in the literature, forensic professionals have primarily adopted risk-based assessments, which may contribute to professional negativism and client stigmatization (Rogers, 2000). By exploring and identifying protective factors with empirical evidence to support them, forensic professionals may be better able to adopt protective factors into practice. The inclusion of protective factors would result in a more comprehensive assessment of risk (Hart, 2008). It may also allow for a more holistic view of forensic individuals, that is, human beings who are products of their strengths, resiliencies, and capacities, in addition to their risks and vulnerabilities.

The Not Criminally Responsible Population

One of the more unique forensic populations are those found Not Criminally Responsible on Account of Mental Disorder (NCRMD). NCRMD individuals are distinct from other forensic populations (e.g., those in provincial or federal institutions or receiving community-based sanctions) in that they do not receive criminal sentences for their index offences; rather, these individuals are placed under the jurisdiction of provincial or territorial review boards. This is due to the defence of mental disorder under section 16 of the Criminal Code of Canada (1985) under which, "No person is criminally responsible for an act committed or an omission made while suffering from a mental disorder that rendered the person incapable of appreciating the nature and quality of the act or omission or of knowing that it was wrong." Individuals found NCRMD typically experience severe mental health issues, with most having a psychotic disorder (Miller et al., 2006) such as schizophrenia, schizoaffective disorder, or bipolar disorder with psychotic features. The NCRMD population is an understudied population with low rates of recidivism

(Richer et al., 2018). Given that protective factors have been found to decrease the likelihood of offending significantly more for lower-risk populations than for those with higher levels of pre-existing behavioural risk (e.g., Andershed et al., 2016), protective factors may be particularly relevant to the NCRMD population. However, the use of protective factors in NCRMD individuals' review board hearings is limited (Collins et al., 2018). This may be due to a lack of understanding of protective factors within forensic psychology (de Ruiter & Nicholls, 2011) or the possibility that NCRMD individuals possess few protective factors (Collins et al., 2019), but this remains to be explored.

Adolescents. Of note, the NCRMD population and its governance are not limited to individuals who are adults but includes minors and emerging adults. Within the field of criminal justice, there is significant differentiation in the treatment and management of young offenders versus adult offenders. For example, based on a person's age, individuals may be sent to juvenile or adult correctional institutions. Minors are also governed by the unique laws within the *Youth Criminal Justice Act* (YCJA) (2002) that tend to be more permissive, rather than the *Criminal Code of Canada* (1985). These differences reflect Canadian society's recognition that young persons are still within a vulnerable stage of development wherein they lack the maturity of adults and have "diminished moral blameworthiness or culpability" (Department of Justice Canada, 2013, p. 2). The YCJA reflects values including society's responsibility to address the developmental challenges and needs of youth, to focus on the underlying causes of their crime, and to promote rehabilitation and reintegration (Department of Justice Canada, 2013). Individuals who were found NCRMD during adolescence therefore represent a particularly unique and vulnerable population on two accounts: 1) being NCRMD due to a severe mental disorder, and 2) being in an ongoing stage of important social, emotional, and cognitive

development. An exploration of protective factors in this population is warranted in order to gain an understanding of strength-based factors that may potentially promote healthy developmental trajectories and positive mental health outcomes while also reducing the risk of recidivism.

The Alberta NCR Project. The Alberta NCR (Not Criminally Responsible) Project is a large-scale long-term retrospective study of all individuals ever found NCRMD in Alberta's history since 1941; when Alberta had its first NCRMD/insanity verdict. Researchers involved in the Alberta NCR Project have examined population wide sociodemographic, mental health, and criminological profiles (Haag et al., 2016) and long-term reoffending rates for general, violent, and sexual offences (Richer et al., 2018). Due to the retrospective nature of the NCR Project, I had a rare opportunity to conduct an exploratory study of protective factors for nonrecidivism within Alberta's entire NCRMD youth population.

Overview of Papers

My overarching research aims are as follows: 1) To explore whether there are any empirically supported protective factors for nonrecidivism that exist within Alberta's NCRMD adolescent population, and 2) To determine whether any such protective factors could be used to supplement existing risk assessment approaches. To address these research objectives, I conducted three distinct, yet interrelated studies. I intended to search for empirical evidence that may inform forensic clinical practice.

In paper 1 (Chapter 2), I summarize the extant literature on protective factors against adolescent offending. I discuss the results of my review of 35 original longitudinal studies that focused on protective factors in adolescents and emerging adults (against the perpetration of violence, serious delinquency, or offending). I provide details on 21 protective factors with empirical evidence supporting their role in reducing the likelihood of offending for adolescents. I discuss the strength of the associations between protective factors and later offending, variations

in protective factors within and across studies, and the applicability of protective factors to different adolescent populations and across the broad adolescent developmental period.

In paper 2 (Chapter 3), I explore theoretical protective factors as predictors of nonrecidivism among the entire population of adolescents ever found NCRMD in Alberta, Canada since 1972. I present the results of multiple regression analyses, which lend support towards *resistance to antisocial peers* as an important protective factor for NCRMD adolescents. I discuss the implications of this finding.

In paper 3 (Chapter 4), I extend on the research in paper 2 by examining the predictive validity and incremental validity of the protective factor *resistance to antisocial peers* with the *Violence Risk Appraisal Guide—Revised* (VRAG-R) amongst NCRMD adolescents in Alberta. I present the results of Receiver Operating Characteristic (ROC) Curve classification and Area under the Curve (AUC) analyses, which provide evidence for the predictive validity of *resistance to antisocial peers* as a significant predictor of long-term general nonrecidivism and violent nonrecidivism. I further examine whether this protective factor adds incremental validity to the VRAG-R and discuss the negative findings.

Lastly, in Chapter 5, I close with concluding comments around key findings and overarching themes from these stand-alone papers. I discuss implications for forensic clinical practice in terms of treatment, assessment, and research.

References: Chapter 1

Andershed, A. K., Gibson, C. L., & Andershed, H. (2016). The role of cumulative risk and protection for violent offending. *Journal of Criminal Justice, 45*, 78-84. https://doi.org/10.1016/j.jcrimjus.2016.02.006

Barnes, J. C., & Jacobs, B. A. (2013). Genetic risk for violent behavior and environmental exposure to disadvantage and violent crime: The case for gene–environment interaction. *Journal of Interpersonal Violence, 28*(1), 92-120. https://doi.org/10.1177/0886260512448847

Barnes, J. C., Liu, H., Motz, R. T., Tanksley, P. T., Kail, R., Beckley, A. L., Belsky, D. W., Domingue, B. W., Moffitt, T. E., Pratt, T. C., & Wertz, J. (2019). The propensity for aggressive behavior and lifetime incarceration risk: A test for gene-environment interaction (G× E) using whole-genome data. *Aggression and Violent Behavior, 49*, 101307. https://doi.org/10.1016/j.avb.2019.07.002

Brown, J., & Singh, J. P. (2014). Forensic risk assessment: A beginner's guide. *Archives of Forensic Psychology, 1*(1), 49-59.

Collins, C., Martin, K., & Marshall, L. (2019). Do review tribunals consider protective factors in their decisions about patients found not criminally responsible? *The Journal of Forensic Psychiatry & Psychology, 30*(5), 894-907. https://doi.org/10.1080/14789949.2019.1650097

Criminal Code, 1985, c C-46.

Department of Justice Canada. (2013). *The Youth Criminal Justice Act: Summary and background*. Retrieved from the Government of Canada website: https://www.justice.gc.ca/eng/cj-jp/yj-jj/tools-outils/back-hist.html

de Ruiter, C., & Nicholls, T. L. (2011). Protective factors in forensic mental health: A new frontier. *The International Journal of Forensic Mental Health, 10*(3), 160–170. https://doi.org/10.1080/14999013.2011.600602

de Vogel, V., de Ruiter, C., Bouman, Y., & de Vries Robbe, M. (2015). *SAPROF: Structured assessment of protective factors for violence risk* (2nd ed.). The Netherlands: Van der Hoeven Kliniek.

De Vries Robbe, M., Vogel, V. D., & Douglas, K. S. (2013). Risk factors and protective factors: A two-sided dynamic approach to violence risk assessment. *Journal of Forensic*

Psychiatry & Psychology, 24(4), 440-457.
https://doi.org/10.1080/14789949.2013.818162

Haag, A. M., Cheng, J., & Wirove, R. (2016). Describing the not criminally responsible population in Alberta's history: Socioeconomic, mental health, and criminological profiles. *Journal of Safety & Well-being, 1*(3).
https://journalcswb.ca/index.php/cswb/article/view/24

Hart, S. (2008). Preventing violence: The role of risk assessment and management. In A. C. Baldry & F. W. Winkel (Eds.), *Intimate partner violence prevention and intervention* (pp. 7-18). Hauppage, NY: Nova Science.

Heffernan, R., & Ward, T. (2017). A comprehensive theory of dynamic risk and protective factors. *Aggression and Violent behavior, 37*, 129-141.
http://dx.doi.org/10.1016/j.avb.2017.10.003

Leach, C. L., & Powell, M. B. (2020). Forensic risk assessment interviews with youth: How do we elicit the most reliable and complete information? *Psychiatry, Psychology and Law, 27*(3), 1-13. https://doi.org/10.1080/13218719.2020.1734982

Miller, R., Olin, J., Ball, E. M., Bennett, C., Beven, G. F., & Pitt, S. (2006). The validity of Colorado not criminally responsible findings. *The Journal of Psychiatry & Law, 34*, 37-49.

Richer, K., Cheng, J., & Haag, A. M. (2018). Historical recidivism rates of Alberta's not criminally responsible population. *Journal of Community Safety & Well-Being, 3*(2), 59-64. http://dx.doi.org/10.35502/jcswb.50

Rogers, R. (2000). The uncritical acceptance of risk assessment in forensic practice. *Law and Human Behaviour, 24*, 595-605. https://doi.org/10.1023/A:1005575113507

Rutter, M., & Sroufe, L. A. (2000). Developmental psychopathology: Concepts and challenges. *Development and psychopathology, 12*(3), 265-296.
https://pubmed.ncbi.nlm.nih.gov/11014739/

Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. In *Flow and the Foundations of Positive Psychology.* Springer, Dordrecht.
https://doi.org/10.1007/978-94-017-9088-8_18

Tuvblad, C., Grann, M., & Lichtenstein, P. (2006). Heritability for adolescent antisocial behavior differs with socioeconomic status: gene–environment interaction. *Journal of Child*

Psychology and Psychiatry, 47(7), 734-743. https://doi.org/10.1111/j.1469-7610.2005.01552.x

Ward, T. (2017). Prediction and agency: The role of protective factors in correctional rehabilitation and desistance. *Aggression and Violent Behavior, 32*, 19-28. https://doi.org/10.1016/j.avb.2016.11.012

Youth Criminal Justice Act, S.C. 2002, c. 1.

Chapter 2. Protective Factors against Adolescent Offending: A Review of Longitudinal Studies

Within this review, I aim to summarize the extant literature on protective factors against adolescent offending. I reviewed 35 original longitudinal studies with a focus on protective factors in any population of adolescents aged 12 to 25 years old, a primary outcome measure of violence, serious delinquency, or offending, and a follow-up period of at least two years. I organized the results into static and dynamic categories of protective factors that were supported by two or more longitudinal studies. In total, I found empirical evidence for 21 independent protective factors that reduced the likelihood of offending for adolescents. In isolation, most protective factors had weak associations with later offending and showed variation, within and across studies, in their applicability to different adolescent populations. The cumulative effect of multiple protective factors was more robust across studies, with different adolescent populations, and across the broad adolescent developmental period.

Introduction

During adolescence, participation in delinquency is normative, with delinquency rates rising steadily until peaking at age 17 and dropping quickly thereafter into young adulthood for most adolescents (Moffitt, 1993). Only 5% of adolescents continue with their antisocial behavior into adulthood (Moffitt, 1993). In order to explain the full range of offending behaviour, researchers must aim to better understand both the factors that naturally lead to discontinuity of adolescent offending and the factors associated with continuity of offending (Moffitt, 1993). Most researchers have focused exclusively on the latter by examining risk factors that predispose and perpetuate offending; particularly, in adolescents considered at-risk. For example, in their comprehensive review on adolescent risk factors for violence, Loeber and Farrington (1998)

determined that parenting characteristics, peer associations, and substance use are associated with juvenile violence. Fewer researchers have explored strength-based factors that encourage healthy developmental pathways and mitigate risk of later offending. In their review of research focusing on adolescent resilience against offending behaviour, Fougere and Daffern (2011) concluded that the extant literature on protective factors is limited and there is a need to measure and examine protective factors in a quantifiable and replicable manner with young offender populations. Given the lack of available empirical evidence that takes into account protective factors (Fougere & Daffern, 2011), criminal justice professionals working with adolescents tend to operate from a risk-focused lens that contributes to negative consequences such as professional negativism and client stigmatization (Rogers, 2000).

A more fair, balanced, and comprehensive understanding of adolescents and their offending behaviour requires the inclusion of protective factors (Rogers, 2000) and consideration of their mediating and moderating effects of risk (Bernat et al., 2012). With the emergence of developmental psychopathology in recent decades (see Cicchetti & Toth, 2009), researchers are increasingly appreciating strength-based approaches in their quest to gain a more complete understanding of adolescent offending. Studies that examine adolescents developmentally across time, with consideration of a broad scope of potential protective factors, may help to identify points of intervention to prevent or mitigate enduring patterns of antisocial behaviour (Salekin & Lochman, 2008). Uncovering a full list of empirically supported protective and promotive factors against offending and learning how these factors operate over time with different adolescent populations is essential to better understanding the full array of adolescent offending. It may subsequently help to inform treatment programs aimed at the development of protective factors (Fougere & Daffern, 2011) and contribute towards crime prevention initiatives.

Differentiation between protective and promotive factors. *Protective factors* are defined as positive "factors that buffer youth from problems *in the face of risk*" through moderating effects (Brumley & Jaffee, 2016, p. 804). Essentially, for adolescents with pre-existing high levels of risk for offending, protective factors function to decrease their propensity toward engaging in a problematic behaviour. Protective factors reduce the likelihood of delinquency only in the presence of a risk factor, and not in the absence of one (Farrington et al., 2016). For example, parental factors—including support, monitoring, and communication skills—have been found to act as protective factors that moderate risk around adolescent substance use and violent behaviour (Fergus & Zimmerman, 2005). Related to protective factors are *promotive factors*, which are positive factors associated with decreases in problematic outcomes through main effects, such that as a positive factor increases, rates of problems decrease for all adolescents, regardless of their risk level (Brumley & Jaffee, 2016). Promotive factors reduce the likelihood of delinquency regardless of the presence or absence of a risk factor (Farrington et al., 2016). Lastly, cumulative protective effects occur through accumulations of strength-based factors that may involve both interactive and main effects relationships with risk factors (Fergusson et al., 2007).

Some researchers (e.g., Loeber et al., 2008) have distinguished promotive and risk effects by trichotomizing continuous predictor variables into the worst quartile, middle half, and best quartile (Farrington et al., 2016). Using this method, the same predictor that is linearly related to offending is classified as a risk factor in its "worst" quartile and a promotive factor in its "best" quartile (Farrington et al., 2016). A predictor is considered only a risk factor if offending is high in the worst quartile, but not low in in the best quartile (Farrington et al., 2016). Conversely, a predictor is considered only a promotive factor if offending is low in the best quartile, but not

high in the worst quartile (Farrington et al., 2016). *Mixed* risk-promotive factors are variables associated with a low probability of offending in the best quartile and a high probability of offending in the worst quartile (Farrington et al., 2016).

Current study. This paper offers a comprehensive quantitative review of protective factors for adolescents against later offending. As the focus was on breadth, rather than depth, both promotive and protective factors were included. I was interested in any strength-based predictors that reduce adolescents' likelihood of later offending, regardless of how the predictors operate (i.e., through main or moderating effects) and which populations they apply to in different contexts (i.e., early, middle, or late adolescence; general population or high risk). Definitional inconsistencies in promotive and protective factors across studies, methodological inconsistencies in how risk and protective-factors are defined, and variability in duration of follow-up time, may have otherwise led me to overlook important strength-based predictors that may be relevant to some, if not all, adolescents within various contexts.

For the purpose of this review, I refer to all predictor variables found to reduce risk of offending as protective, including those operationalized as the low-end or absence of a risk factor, and those defined as a high-end of a positive factor. My main objective was to summarize the existing research on protective factors for adolescents that reduce the likelihood of later offending. Through this process, I wished to describe how each protective factor applied to different groups of adolescents (i.e., general population and those with preexisting risk or vulnerabilities for offending). My secondary objective was to similarly summarize findings on the cumulative effect of multiple protective factors against later offending.

Method

        Inclusion and exclusion criteria. I included original research studies with longitudinal

designs, that focused on protective (or promotive) factors in any population of adolescents or emerging adults aged 12 to 25 years old. I did not impose any publication date or publication status restrictions. I only included articles with primary outcome measures of violence, offending, or serious delinquency, and a follow-up period of at least two years. I operationalized serious delinquency to include physical violence, weapons involvement, coerced sex, court petitions, youth convictions, physical fighting, and criminal offending, and exclude lying, verbal aggression, truancy, theft, externalizing problems, psychopathic traits, anger/hostility, cyberbullying, conduct problems, or potential for child abuse. I also excluded articles with other outcomes (e.g., substance use) and those designed primarily to assess intervention-specific treatment outcomes.

Search strategy. I identified articles by searching the PsychInfo database, limiting the search to articles available in English. I used "protective factors OR promotive factors" and "youth OR adolescence OR adolescents OR young adults" as key words and applied the search on October 13, 2018. I limited the initial search to longitudinal studies, literature reviews, systematic reviews, metaanalyses, and metasyntheses in peer-reviewed journals. Using this search strategy, I retrieved 279 records, of which 276 remained after removing duplicate articles with corrections.

Study selection. I inspected each article for eligibility by reading the abstracts and removed 45 records: 11 pertained to adult populations, 8 to child populations, 5 were intervention studies, 9 had medical outcomes, 7 had other non-violent outcomes, 3 did not investigate protective factors specifically, and 2 could not be retrieved even with the assistance of a librarian. I further screened the remaining 231 full-text articles for eligibility and excluded articles with outcomes of general adjustment (N = 27), school drop-out (N = 7), non-violent

psychopathology such as depression and eating disorders (N = 32), trauma (N = 9), suicide (N = 10), sexual health outcomes (N = 17), substance use (N = 51), mixed outcomes not including violence (N = 8), and non-violent or non-criminal delinquency (N = 6). Of the remaining 64 articles, I discarded 11 longitudinal studies because they had a follow-up period under 2 years, 3 because they did not investigate protective factors, 6 that focused on the validity of actuarial tools, and 9 that were general review articles rather than original research studies. The final review included the remaining 35 articles, which were based on 15 different longitudinal studies.

Data extraction and synthesis. For each article, I extracted information on: 1) significant protective (or promotive) factors found, including any cumulative effects, and their operational definitions, 2) sample information, including gender, age, location, and other defining attributes, 3) outcome variable of serious delinquency or offending, and their operational definitions, 4) follow-up period, and 5) analyses and results. I synthesized the information into distinct categories of protective factors that were supported by two or more studies. Given the heterogeneity of the articles, I provide both a narrative description and tabulated summary of quantitative information of all studies that provide evidence for each protective factor; this allows readers to understand the nature and scope of each protective factor across different adolescent populations within the literature I reviewed.

Unless otherwise specified, I describe adolescents as being *high* on a protective factor when they fall within the top quartile of any given positive factor (e.g., the 75th percentile or higher for academic achievement). I label adolescents as *low* on a protective factor when they fall within the bottom quartile on an undesirable factor (e.g., the 25th percentile or lower for antisocial peers). Lastly, I define adolescents as *neutral* on a factor when they fall in the middle two quartiles (i.e., between the 25th and 75th percentile) on any factor.

Results

I first report on one static (i.e., permanent, and unamenable to change) protective factor,

followed by 20 dynamic (i.e., theoretically amenable to change over time) protective factors. I

then report on cumulative protective effects.

Static protective factors.

Female sex. Table 2.1 presents two studies that suggest female biological sex is

protective against youth delinquency. In the *Gang Resistance Education and Training* (*GRET)*

project, researchers modelled the delinquency trajectories of adolescents over four years,

measuring the joint influence of parental monitoring, low self-control, and biological sex

(Jennings et al., 2010). Taken together with these other predictors, being female significantly

decreased the likelihood of being in the moderate rate delinquency group and marginally

decreased the likelihood of being in the low rate delinquency group versus being in the non-

delinquent group (Jennings et al., 2010). In the *Chicago Longitudinal Study (CLS)*, researchers

followed children—most of whom lived in impoverished inner-city neighborhoods—from birth

to age 18 years (Smokowski et al., 2004). Being female was associated with an 87% reduction in

receiving juvenile court petitions by age 18 years as compared to being male (Smokowski et al.,

2004).

Table 2.1. Female Sex as a Protective Factor (PF): Summary of Included Studies.

Study	Sample	PF measure	Outcome measure	Results
Jennings et al. (2010)	*GRET* 170 male/female Grade 6-7 students from large and mid-sized cities (US)	Female sex	Delinquency (S) from age 12 to 16 years	OR = 0.62[+], SE = 0.34 (low rate delinquency) OR = 0.32***, SE = 0.39 (moderate rate delinquency)
Smokowski et al. (2004)	*CLS* 1539 male/female children (most from impoverished inner-city neighbourhoods) (US)	Female sex	Juvenile court petitions by age 18 years	-0.87*** (marginal effects from negative binomial regression)

+p < 0.10, ***p < 0.001
Note. S = self-report; OR = odds ratio; SE = standard error

Although this protective factor may play a role in risk prediction, given the static nature

of biological sex, implications for prevention or treatment related to this factor are likely limited.

Dynamic protective factors.

Low antisocial attitudes and behaviours. Table 2.2 displays seven studies that identify low antisocial attitudes and behaviours—including low "troublesome" behaviours, low dishonesty, high perceived legitimacy of authority, negative or intolerant attitudes toward rule-breaking and delinquency, psychopathic features, and early delinquent activity—as protective for adolescents against later offending. In the *Cambridge Study in Delinquency Development (CSDD)*, boys with low troublesomeness and low dishonesty were less likely to have a legal conviction by age 18 years as compared to boys in the bottom three quartiles of these attributes (Farrington et al., 2016). For boys with a parent who had been convicted of an offence, displaying low dishonesty reduced the conviction rate reduced from 58% to 23%, and exhibiting low troublesomeness reduced the conviction rate from 55% to 30% (Farrington et al., 2016). Among hyperactive boys, low troublesomeness reduced the conviction rate from 40% to 3% (Farrington et al., 2016). In the *Individual Development and Adaption (IDA)* study, researchers followed an entire Grade 3 cohort of boys over 25 years (Andershed et al., 2016). Adolescents with negative attitudes toward rule-breaking and delinquency (upper 50%) were significantly less likely to have committed a violent offence by age 35 years as compared to their counterparts (Andershed et al., 2016). Moreover, among a Grade 1 cohort of boys who were part of the prospective *Pittsburgh Youth Survey (PYS),* adolescents with negative attitudes towards delinquency (upper 25%) were less likely to engage in violence from age 13-14 years as compared to boys whose attitudes toward delinquency were neutral (middle 50%) (Pardini et al., 2012). Similarly, adolescents in the *PYS* rated by their parents and teachers as low (bottom 25%) in psychopathic features were significantly more likely to exhibit less serious violence between ages 13-19 years as compared to those who were neutral for psychopathic features (Jolliffe et al.,

2016); this protective effect extended to boys from deprived (i.e., combination of low SES, welfare, small house and poor quality house) and not deprived families, disrupted families, African American and White boys, those who had repeated or not repeated a grade, and boys from non-deprived neighbourhoods (Jolliffe et al., 2016). Another prospective study of adolescent males from disadvantaged low SES neighbourhoods in the *Montreal Longitudinal Experiment Study (MLES)*, found that adolescents' perceived legitimacy of authorities during mid-adolescence was negatively correlated with violent delinquency during late adolescence (Fontaine et al., 2016). Additionally, when pre-adolescent perceived legitimacy of authorities was high (1 SD above the mean), membership in the moderate aggressive-disruptive group was no longer associated with violent delinquency (Fontaine et al., 2016). For those in the hyperactive-inattentive group, high levels of mid-adolescent perceived legitimacy of authorities were associated with lower levels of violent delinquency (Fontaine et al., 2016). In a sample of female students from the *National Longitudinal Study of Adolescent Health (Add Health)*, Patton (2012) used structural equation modelling (SEM) to measure the association between risk and protective factors and violence over six years. Intolerant attitudes toward deviance, combined with school achievement, had a direct negative association with violence due to its mediating role between risk factors (i.e., poor family connections, poor school connections, and history of abuse) and violence (Patton, 2012). Additionally, among adolescents participating in the *National Longitudinal Survey of Youth (NLSY)* who were followed over 14 years, researchers found several protective factors against delinquency by age 23 years (Murphy et al., 2011). Having a low rate of any early delinquent activity by age 16 years (i.e., 24% for males and 13.7% for females) distinguished adults with a low delinquency trajectory from those with moderate, decreasing, or high rates of delinquency trajectories (Murphy et al., 2011).

Table 2.2. Low Antisocial Attitudes and Behaviours as a PF: Summary of Included Studies.

Study	Sample	PF measure	Outcome measure	Results
Andershed et al. (2016)	*IDA* 475 general population boys from a mid-sized town (Sweden)	Low antisocial attitudes at age 15 years (e.g., disapproval of alcohol intoxication, shoplifting, truancy, and disobedience) (S)	Registered convictions of violent offences between age 12-35 years	OR = 0.314** (compared to bottom 50%)
Farrington et al. (2016)	*CSDD* 411 boys in a working-class area (UK)	Low troublesomeness at age 8-10 years (Pe/T) Low dishonesty at age 8-10 years (Pe)	Not having a legal conviction between age 10-18 years	OR = 6.5* (all) OR = 2.9* (convicted parent) OR = 21.2*, CI = 2.8-158.1 (hyperactive) OR = 3.6* (all) OR = 4.7* (convicted parent)
Fontaine et al. (2016)	*MLES* 1037 White French-speaking boys from disadvantaged low SES neighbourhoods (Canada)	Perceived legitimacy of authorities at age 11-12 (pre-adolescence) and 14-15 years (mid-adolescence) (S)	Violent delinquency (S) during age 16-17 years (late adolescence)	r = -0.32*** (mid-adolescence PF) b = -0.32*, CI = -0.55, -0.10 (pre-adolescent PF × moderate aggressive-disruptive group) b = -0.23*, CI = -0.44, -0.02 (mid-adolescent PF × hyperactive-inattentive group) b = -0.29* (mid-adolescent PF and outcome: hyperactive-inattentive group).
Jolliffe et al. (2016)	*PYS* 503 boys in an age 7 cohort (US)	Low interpersonal and affective features associated with psychopathy (P/T) at age 10-12 years	Official records and violence (S) between age 13-19 years	OR = 2.2* (All) OR = 3.1** (deprived family); OR = 2.8* (not deprived family) OR = 3.2* (disrupted family) OR = 9.6*** (Non-deprived neighborhood) OR = 2.7** (African American); OR = 3.9** (White) OR = 2.5* (Repeated a grade); OR = 3.8** (No repeated grade)
Murphy et al. (2011)	*NLSY* 8984 nationally representative male/female youth (oversampling of African American and Hispanic) (US)	Lower rate of early delinquent activity during mid-adolescence (M = 14 years) (S)	Delinquency (S) until age 23 years	PF* distinguished adults in the low delinquency trajectory group from those in the moderate, decreasing, and high delinquency trajectory groups
Pardini et al. (2012)	*PYS* 503 boys (50% in upper 30% for antisocial behaviour; 50% randomly selected) (US)	High negative attitudes towards delinquency at age 12 years (S)	Violence (S) between age 13-14 years	OR = 0.502*, CI = 0.264, 0.954
Patton (2012)	*Add Health* 2031 female students aged 12-20 years (US)	Intolerant attitudes toward deviance (S) combined with school achievement (e.g., "Have you ever been expelled from school")	Violence (S) over six years	β = -0.07***, t = 0.01 (PF and violent behaviour) β = -0.12*, t = 0.04 (PF as a mediator between risk factors and violence) β = 2.980 (PF and intolerance toward deviance)

*p < 0.05, **p < 0.01, ***p < 0.001

Note. P = parent report; Pe = peer report; S = self-report; T = teacher report; OR = odds ratio; CI = 95% confidence interval; r = bivariate correlation coefficient; b = unstandardized regression coefficient; β = unstandardized path coefficient; t = t value associated with structural coefficients

As demonstrated by these studies, low antisocial attitudes and behaviours during early and middle adolescence appear to have protective effects for a variety of youth against later offending. Prevention programs aimed at increasing youths' anti-delinquency attitudes may be effective in reducing violence throughout adolescence (Pardini et al., 2012).

Academic achievement. Table 2.3 presents eleven studies that identify school achievement or high Grade Point Average (GPA) in children and youth as protective against later offending. In the *Add Health*, bivariate analyses revealed that youth with a high GPA were less

likely to engage in violence during the next year as compared to youth with a neutral GPA, although no long-term protective effect was found for GPA against violence seven years later (Bernat et al., 2012). In a study of students participating in the *Seattle Social Developmental Project (SSDP)*, high academic achievement at age 10-12 years was protective against violence at age 15-18 years as compared to youth in the neutral academic achievement range (Herrenkohl et al., 2012). An analysis of an aggressive subgroup of students in the *SSDP* also revealed that high academic achievement at age 15 years was protective against self-reported violence by age 18 years as compared to youth with academic achievement in bottom three quartiles (Herrenkohl et al., 2003). High academic achievement lowered students' rate of engaging in later violence from 37% to 20% (Herrenkohl et al., 2003). In the *PYS*, boys with high academic achievement at age 10-12 years were significantly less likely to have engaged in violence by age 19 years as compared to those with neutral academic achievement, with violent offending rates reduced from 25.5% to 5.9% (Jolliffe et al. 2016). Moreover, high academic achievement had a greater protective effect against violence for boys from disrupted families than for those from intact families, and for boys from the most deprived neighborhoods as compared to boys from less deprived neighbourhoods (Jolliffe et al., 2016). For boys in the *PYS*, high academic achievement at age 12 years was also directly protective against violence from age 15-18 years (Pardini et al., 2012).

Similarly, in the *Add Health* study, school achievement (in combination with intolerant attitudes toward deviance), protected female youth against violence due to its mediating role between risk factors and violence (Patton, 2012). A separate analysis of adolescent males from the *Add Health* study, followed over 19 years, also revealed that high academic achievement during adolescence protected against membership in the desistors group (i.e., violent during

adolescence but discontinued violence in young adulthood) as compared to membership in the nonviolent group (i.e., no violence during young adolescence or young adulthood) (Reingle, Jennings, Lynne-Landsman, et al., 2013). Similarly, boys in the *CSDD* who had high school achievement at age 8-10 years were less likely significantly less likely to have a youthful conviction between age 10-18 years than boys with neutral school achievement, and this was true for both African American and White individuals (Farrington et al., 2016). In the *Christchurch Health and Development Study (CHDS)* of children, researchers used generalized estimating equation modelling and found that school achievement inversely predicted criminal offending by age 30 years, although it did not mediate the association between early bullying perpetration and later crime (Fergusson et al., 2014). Similarly, in the *CLS*, after adjusting for other risk and protective factors, each unit change increase in Grade 6 average reading and math scores was marginally associated with a 14% ($p < 0.10$) reduction in juvenile court petitions by age 18 years (Smokowski et al., 2004). In bivariate analyses, the average of children's math and reading scores in Grade 1, 3, and 6 were significantly negatively correlated with juvenile court petitions by age 18 years (Smokowski et al., 2004). Lastly, in the *Tracking Adolescents' Individual Lives Survey (TRAILS)*, researchers followed Dutch adolescents and their delinquent behaviour over two years (van der Laan et al., 2010). Although high academic performance was not found to be protective against delinquency for the entire sample, it was a promotive factor for serious delinquent youth (i.e., those who ranked in the top 10% on a delinquency scale), decreasing their likelihood of being a serious delinquent by 4.9% (van der Laan et al., 2010).

Table 2.3. Academic Achievement as a PF: Summary of Included Studies.

Study	Sample	PF measure	Outcome measure	Results
Bernat et al. (2012)	*Add Health* 14,738 nationally representative male/female youth (US)	High GPA (Grade 7: *M* = 13 years)	Violence (S) during past year (*M* = 14 years)	OR = 0.44**, CI = 0.22, 0.87

Farrington et al. (2016)	*CSDD* 411 boys in a working-class area (UK)	High levels of school attainment at age 8-10 years (school English, arithmetic, and verbal reasoning tests)	Legal conviction between ages 10-18 years	OR = 3.1* (all) OR = 10.5*** (African American); OR = 3.7** (White)
Fergusson et al. (2014)	*CHDS* 982 male/female children (New Zealand)	High levels of school achievement at age 15-16 years (based on school examination Grade)	Criminal offending by age 30 years	PF* a significant predictor of crime (inversely)
Jolliffe et al. (2016)	*PYS* 503 boys in a Grade 1 cohort (US)	High academic achievement based on youth's performance in reading, math, writing, and spelling at age 10-12 years (P/T/S)	Official records and violence (S) between age 13-19 years	OR = 5.5*** (all) OR = 19.1**, CI = 2.5, 143.1 (Deprived neighbourhoods); F = 4.2* (Deprived vs. less deprived neighbourhood) OR = 23.9**, CI = 3.2, 177.6 (Disrupted family); F = 6.37* (Disrupted vs. Intact) OR = 6.7**, CI = 2.0, 22.7 (Deprived family)
Herrenkohl et al. (2003)	*SSDP* 154 high risk (i.e., aggressive) Grade 5 male/female students living in high crime neighbourhoods (US)	High academic achievement at age 15 years (school records)	Violence (S) during past year at age 18 years	OR = 0.42* (compared to lower 75%)
Herrenkohl et al. (2012)	*SSDP* 808 Grade 5 male/female students (50% low SES) (US)	High academic achievement at age 10-12 years (achievement test and Grades)	Violence (S) during past year at 15-18 years	OR = 0.608*, CI = 0.407, 0.907 [bivariate logistic regression]
Pardini et al. (2012)	*PYS* 503 boys in Grade 1 cohort (50% in the upper 30% on antisocial behaviour; 50% randomly selected) (US)	High academic achievement based on youth's performance in reading, math, writing, and spelling at age 10-12 years (P/T/S)	Violence (S) between age 15-18 years	OR = 0.558*, CI = 0.325, 0.959 [bivariate logistic regression]
Patton (2012)	*Add Health* 2031 female students aged 12-20 years (US)	School achievement (i.e., Grades in English, science, history, and math) (S) combined with intolerant attitudes toward deviance	Violence (S) over 6 years	β = -0.07***, t = 0.01 (PF and violent behaviour) β = -0.12*, t = 0.04 (PF as a mediator between risk factors and violence) β = 0.035 (PF and school achievement) [SEM modelling]
Reingle, Jennings, Lynne-Landsman, et al. (2013)	*Add Health* 4322 nationally representative male students (US)	Higher academic achievement during at age 13 years	Violent delinquency (S) during past year at age 32 years	OR = 0.79*, CI = 0.65, 0.95 (membership in the desistors group vs. the nonviolent group)
Smokowski et al. (2004)	*CLS* 1539 male/female children (most from impoverished inner-city neighbourhoods) (US)	Average of math and reading scores (Iowa test of basic skills) in Grade 1, 3, and 6	Juvenile court petitions by age 18 years	r = -0.16*** (Grade 1 PF) r = -0.17*** (Grade 3 PF) r = -0.23*** (Grade 6 PF)
van der Laan et al. (2010)	*TRAILS* 2230 male/female youth from five municipalities, both urban and rural (Netherlands)	High academic performance at age 11 years (T)	Delinquency (S) at age 13.5 years	-4.9%**, SE = 1.5 (serious delinquent) [univariate]

*p < 0.05, **p < 0.01, ***p < 0.001
Note. M = mean; P = parent report; S = self-report; T = teacher report; OR = odds ratio; CI = 95% confidence interval; *r* = bivariate correlation coefficient; β = unstandardized path coefficient; *t* = *t* value associated with structural coefficients; F = F-value in ANOVA; SE = standard error

These studies provide evidence for the protective effect of childhood and adolescent school achievement against later offending for male and female youth of different nationalities. Interestingly, there was some evidence that the protective effect of school achievement was stronger for disadvantaged adolescents, including those living in disrupted families or deprived

neighbourhoods (Jolliffe et al., 2016) or displaying high delinquency (van der Laan et al., 2010).

Educational aspirations. Table 2.4 displays five studies that identify high educational aspirations in adolescents as protective against later violence and offending. Among adolescents in the *Add Health* study, having high educational aspirations was found to significantly reduce the likelihood of violence one year later as compared to having neutral range educational aspirations (Bernat at al., 2012). In the *Columbia County Longitudinal Study (CCLS)*, researchers followed boys from age 8-19 years (Dubow et al., 2016). At age 19, high educational aspirations were found to distinguish between violent and non-violent men and independently reduce the risk of violence in adulthood through a risk-buffering role, as compared to adolescents with lower educational aspirations (bottom 75%) (Dubow et al., 2016). In the *Add Health* study, researchers modelled trajectories of violent delinquency over the next 11-years (Reingle et al., 2012). Using bivariate analyses, intention to attend college was marginally protective for adolescents who were desistors (i.e., initial violence but had a decline in violence during the last wave of data collection) or escalators (i.e., lower violence initially with a drastic increase in violence during the last wave of data collection) as compared to the nonaggressive group (Reingle et al., 2012). A different analysis of more ethnically diverse adolescents from the *Add Health* study revealed that high educational aspirations were significantly protective against self-reported weapon involvement two years later for the full sample and the African American and Latino adolescents, but not for the White adolescents (Shetgiri et al., 2016). Lastly, boys in the *CSDD* with high interest in education at age 8-10 years were less likely to have legal convictions from age 10-18 years as compared to those with neutral levels of interest in education (Farrington et al., 2016).

Table 2.4. High Educational Aspirations as a PF: Summary of Included Studies.

Study	Sample	PF measure	Outcome measure	Results

Bernat et al. (2012)	*Add Health* 14,738 nationally representative male/female youth (US)	High educational aspirations (Grade 7: *M* = 13 years)	Violence (S) during past year (*M* = 14 years)	OR = 0.57**, CI = 0.37, 0.87 (bivariate analyses)
Dubow et al. (2016)	*CCLS* 436 socioeconomically heterogeneous boys from a Grade 3 cohort (US)	High educational aspirations at age 19 years	Adulthood violence (age 19, 30, and 48 years) based on official records up to age 18 and (S) during past year	*t* = 3.20*** (PF discriminated non-violent vs. violent men) AOR = 0.66** [logistic regression]
Farrington et al. (2016)	*CSDD* 411 boys in a working-class area (UK)	Interest in education at age 8-10 years (SW)	Legal conviction between ages 10-18 years	OR = 2.8*
Reingle et al. (2012)	*Add Health* 9421 nationally representative male/female youth age 15-26 years (US)	Intention to attend college (*M* = 15 years)	Violent delinquency over the next 11 years (*M* = 26.5 years)	OR = 0.80[+]; CI = 0.74, 0.86 (desistors) OR = 0.91[+]; CI = 0.83, 1.01 (escalators)
Shetgiri et al. (2016)	*Add Health* 11,207 male/female youth (oversampling of Cuban and Puerto Rican students) (US)	High educational aspirations (Grades 7-12) (S)	Weapon involvement (S) 2 years later	OR = 0.9*, CI = 0.8, 0.9 (all) OR = 0.8*, CI = 0.7, 0.9 (African American) OR = 0.8*, CI = 0.7, 0.9 (Latino) [multivariate analyses]

*p < 0.05, **p < 0.01, ***p < 0.001
Note. M = mean; S = self-report; SW = social worker report; OR = odds ratio; AOR = adjusted odds ration; CI = 95% confidence interval; *t* = *t* value

To summarize, there is evidence that high educational aspirations protect at least some adolescents against later violence perpetration and offending. Educational aspirations play a role in future orientation and are linked to decreased engagement in violence and drug use (Johnson et al., 2014). Essentially, when adolescents are aware that the potential negative consequences of a risky behaviour can impede their future goals, they may reduce their engagement in risky behaviors (Johnson et al., 2014).

Low Attention Deficit/Hyperactivity Disorder (ADHD) symptoms. Table 2.5 presents seven studies that identify low ADHD symptoms, including low risk-taking and self-control, as protective against offending. Among Grade 7 youth who participated in the *Add Health* study, having low ADHD symptoms was found to reduce the likelihood of violence one year later compared to those with neutral ADHD symptoms (Bernat at al., 2012). In the *SSDP* involving economically disadvantaged adolescents, low risk-taking at age 10-12 years was protective against adolescent violence in the short-term, at age 13-14 years (Herrenkohl et al., 2012). In addition, having low levels of attention problems at age 10-12 years was directly protective

against violence in the long-term, at age 15-18 years, as compared to neutral levels of attention problems (Herrenkohl et al., 2012). In the *PYS*, boys with low hyperactivity at age 10-12 years were less likely to have engaged in violence between age 13-19 years than boys who were neutral for hyperactivity (Jolliffe et al. 2016). Bivariate logistic regression analysis also revealed that low ADHD problems at age 12 years was directly protective against violence at age 15-18 years as compared to boys with neutral levels of ADHD problems (Pardini et al., 2012). Similarly, boys in the *CSDD* who had low hyperactivity and low daring/risk-taking behaviours at age 8-10 years, were less likely to have a youthful conviction by age 18 years than boys with neutral hyperactivity and neutral daring/risk-taking behaviours (Farrington et al., 2016). In the *Australian Temperament Project (ATP)*, adolescents with high externalizing problems at age 11-12 years were followed over 8 years (Vassallo et al., 2016). Using ordinary least squares regression analyses and taking into account all other protective factors, the researchers found that high levels of self-control throughout early, middle, and late adolescence was significantly associated with lower levels of fighting at age 19-20 years (Vassallo et al., 2016). Lastly, in *GRET*, low self-control was the most robust covariate for distinguishing group membership across different delinquency trajectories for youth (Jennings et al., 2010). Low self-control was associated with increased membership in the low rate delinquency, moderate rate delinquency, and high rate delinquency groups as opposed to membership in the non-delinquent group (Jennings et al., 2010).

Table 2.5. Low ADHD Symptoms as a PF: Summary of Included Studies.

Study	Sample	PF measure	Outcome measures	Results
Bernat et al. (2012)	*Add Health* 14,738 nationally representative male/female youth (US)	Low ADHD symptoms (Grades 7-12: average age 13 years) (S)	Violence (S) during past year (M = 14 years)	OR = 0.46*, CI = 0.22, 0.95 [multivariate regression analyses controlling for gender, ethnicity, public assistance]

Farrington et al. (2016)	*CSDD* 411 boys in a working-class area (UK)	Low hyperactivity at age 8-10 years (T)	Legal conviction between ages 10-18 years	OR = 2.1*
		Low daring/risk-taking at age 8-10 years (S/P)		OR = 3.1*
Herrenkohl et al. (2012)	*SSDP* 808 Grade 5 male/female students (50% from economically disadvantaged families) (US)	Low risk-taking at age 10-12 years	Violence (S) during past year at 13-14 years	OR = 0.68*, CI = 0.471, 0.982
		Low ADHD symptoms / attention problems at age 10-12 years (P/T)	Violence (S) during past year at 15-18 years	OR = 0.614*, CI = 0.407, 0.928
Jennings et al. (2010)	*GRET* 170 male/female Grade 6-7 students from large and mid-sized cities (US)	Low self-control (elements of risk-taking and impulsivity)	Delinquency (S) over the next 4 years (until age 16 years)	OR = 1.11***, SE = 0.03 (low rate delinquency) OR = 1.18***, SE = 0.04 (moderate rate delinquency) OR = 1.31***, SE = 0.06 (high rate delinquency)
Jolliffe et al. (2016)	*PYS* 503 boys in an age 7 cohort (US)	Low ADHD symptoms at age 10-12 years (P) Low Hyperactivity	Official records and violence (S) between age 13-19 years	OR = 3.0**, CI = 1.5, 5.7 (All) OR = 3.1** (African American); OR = 3.3** (White) OR = 3.4** (Repeated Grade); OR = 2.8** (Not repeated Grade) OR = 4.6** (Deprived neighborhood); OR = 2.3* (Non-deprived neighborhood) OR = 3.4** (Deprived family); OR = 3.0* (Not deprived family) OR = 3.5** (Disrupted family)
Pardini et al. (2012)	*PYS* 503 boys in Grade 1 cohort (50% in the upper 30% on antisocial behaviour and 50% randomly selected) (US)	Low ADHD symptoms at age 12 years (T)	Violence (S) between age 15-18 years	OR = 0.563* (CI = 0.318, 0.994) [bivariate logistic regression]
Vassallo et al. (2016)	*ATP* 1033 girls/boys age 11-12 years with high externalizing problems (Australia)	High (top 10%) self-control at age 11-12, 13-14, 15-16, and 19-20 years (P)	Fighting (S) during past year at age 17-18 years Fighting (S) during past year at age 19-20 years	B = -0.043*, CI = -0.077, -0.009 (PF at 11-12 years) B = -0.043**, CI = -0.075, -0.011 (PF at 13-14 years) B = -0.438**, CI = -0.735, -0.141 (PF at 15-16 years) B = -0.030*, CI = -0.059, -0.002 (PF at 13-14 years) B = -0.324**, CI = -0.571, -0.077 (PF at 15-16 years) b = -0.04*, $t(1,193)$ = -2.32 (PF at 11-12 years) b = -0.03[+], $t(1,183)$ = -1.77 (PF at 13–14 years) b = -0.33*, $t(1,182)$ = -1.99 (PF at 15–16 years) b = -0.33*, $t(1,175)$ = -2.17 (PF at 19–20 years)

[+]$p < 0.10$, *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$
Note. M = mean; P = parent report; S = self-report; T = teacher report; SE = standard error; OR = odds ratio; CI = 95% confidence interval; b/B = unstandardized regression coefficient; t = t statistic

From a strength-based perspective, the absence of ADHD symptoms may reflect strong attention, excellent motor and impulse control, good academic performance, and low comorbid behaviour problems (Greven et al., 2016), each which could directly or indirectly relate to non-

delinquency. Individuals with low-extreme ADHD traits show above-average adaptive behaviours and cognition, including lower internalizing and externalizing behaviours, higher general cognitive ability, higher academic performance in English and math, more prosocial behaviour, greater life satisfaction, increased happiness, and special abilities or skills (Greven et al., 2016). These positive associations may provide youth with an adaptive buffer against violence and delinquent behavior during adolescence.

Anxiety/shyness. Table 2.6 displays five studies that provide evidence that some aspects of anxiety, such as shyness, may be protective against adolescent offending. In the *CCLS*, high levels of anxiety about behaving aggressively at age 8 and age 19 years predicted non-violence in adulthood compared to those with low lower levels of aggression anxiety (bottom 75%) (Dubow et al., 2016). High aggression anxiety at age 19 years also reduced the likelihood of adulthood violence for adolescents with at least one risk factor for violence (Dubow et al., 2016). Likewise, in the *CLS* study of adolescents from impoverished neighbourhoods, each unit change increase in shy or anxious behaviour during Grades 6-7 was associated with a 13% reduction in receiving juvenile court petitions by age 18 years, after adjusting for other risk and protective factors (Smokowski et al., 2004). In the *PYS*, boys with high levels of belief in getting caught for delinquent behaviour at age 10-12 years were less likely to have engaged in violence between age 13-19 years than boys with neutral levels of belief in getting caught, and this extended to boys from disrupted families, boys who had repeated a grade, African American boys, boys from deprived neighbourhoods, and boys from deprived and not deprived families (Jolliffe et al. 2016). High levels of shyness and withdrawal behaviour at age 10-12 years were also protective against later violence for those who had repeated a grade and those from a deprived neighbourhood (Jolliffe et al. 2016). Additionally, high levels of anxiety at age 10-12 years were

protective against later violence for the full sample of boys, including those who had repeated a grade and those from deprived neighborhoods (Jolliffe et al. 2016). Likewise, in the *NLSY* study, adolescent males in the low and moderate delinquency trajectory groups could be distinguished from those in the high and decreasing delinquency trajectory groups by their higher rates of perceiving penalty for wrongdoing (i.e., 61% and 60% versus 55% and 56%, respectively), although this trend was not displayed for females (Murphy et al., 2011). Lastly, within *TRAILS*, high shyness at age 11 years was promotive for adolescents, increasing their likelihood of being a non-delinquent two years later by 8.2%, and decreasing their likelihood of being a minor delinquent by 6.1% (van der Laan et al., 2010). In addition, low surgency was promotive for adolescents, increasing their likelihood of being a non-delinquent two years later by 6.5%, and decreasing their likelihood of being a minor delinquent by 4.8% (van der Laan et al., 2010).

Table 2.6. Non-clinical Anxiety/Shyness as a PF: Summary of Included Studies.

Study	Sample	PF measure	Outcome measure	Results
Dubow et al. (2016)	*CCLS* 436 socioeconomically heterogeneous boys from a Grade 3 cohort (US)	High levels of anxiety about behaving aggressively at age 8 and 19 years (Pe) ("who says excuse me even when they have done nothing wrong?" "who will never fight when picked on?")	Adulthood violence (age 19, 30, and 48 years) based on official records up to age 18 and (S) during past year	$t = 2.36*$ (PF at age 8) $t = 3.77***$ (PF at age 19) (PF discriminated non-violent vs. violent men) AOR = 0.47** (PF predicted non-violence in adulthood compared to those without the PF (lower 75%)) $\chi^2 = 7.02**$ (PF at age 19) reduced the likelihood of adulthood violence for adolescents with at least one risk factor
Jolliffe et al. (2016)	*PYS* 503 boys in an age 7 cohort (US)	High belief in likelihood of getting caught by police at age 10-12 years (S) High shyness/withdrawal at age 10-12 years (S/P/T) High anxiety at age 10-12 years (P/T)	Official records and violence (S) between age 13-19 years	OR = 1.9* (all) OR = 3.2*, CI = 1.5-6.7 (disrupted family) OR = 3.7*, CI = 1.4, 9.8 (repeated a grade) OR = 3.3** (African American) OR = 2.6** (Deprived neighborhood) OR = 2.4*, CI = 1.1, 5.0 (deprived family); OR = 5.9** (not deprived family) OR = 4.2*, CI = 1.2, 15.1 (repeated a grade) OR = 2.8* (deprived neighborhood) OR = 1.9* (all) OR = 2.4* (repeated a grade) OR = 2.1* (deprived neighborhood)
Murphy et al. (2011)	*NLSY* 8984 nationally representative male/female youth (oversampling of African American and Hispanic) (US)	Higher rates of perceiving penalty for wrongdoing during mid-adolescence ($M = 14$ years) (i.e., belief one will be arrested for stealing a car)	Delinquency, arrest, and incarceration (S) until age 23 years	PF distinguished males** in the low and moderate delinquency groups from those in the decreasing, and high delinquency groups

Smokowski et al. (2004)	CLS 1539 male/female children (most from impoverished inner-city neighbourhoods) (US)	Shy or anxious behaviour in Grade 6-7 (Teacher-Child Rating Scale shy-anxious behaviour subscale)	Juvenile court petitions by age 18 years	Children with PF showed a 13% reduction[+] in juvenile court petitions as compared to those without the PF (Marginal effects from negative binomial regression = -0.13)[+]
van der Laan et al. (2010)	TRAILS 2230 male/female youth from five municipalities, both urban and rural (Netherlands)	High shyness (i.e., behavioural inhibition to novelty and challenge) at age 11 years	Delinquency (S) at age 13.5 years	+8.2%**, SE = 2.5 (non-delinquent) -6.1%*, SE = 2.8 (minor delinquent) [univariate]
		Low surgency (i.e., pleasure derived from activities involving high intensity or novelty)		PF increased likelihood of being a non-delinquent by 6.5%** (SE = 2.5) and decreased likelihood of being a serious delinquent by 4.8%** (SE = 1.4) (univariate)

[+]p < 0.10, *p < 0.05, **p < 0.01, ***p < 0.001
Note. M = mean; P = parent report; Pe = peer report; S = self-report; T = teacher report; SE = standard error; OR = odds ratio; AOR = adjusted odds ratio; CI = 95% confidence interval; *t* = t statistic; χ^2 = chi-square test statistic

Although anxiety is typically perceived as pathological, these studies suggest that there are adaptive components of non-clinical levels of anxiety that may help protect adolescents from offending behaviour. Further exploration surrounding the relationship between anxiety and adolescent offending, and whether this protective effect extends to clinical levels of anxiety, is warranted.

Social competence and prosocial peer relationships. Table 2.7 presents two studies that identify social competence as protective, along with three studies that suggest prosocial peer relationships are protective for adolescents against later offending. In the *CCLS* study, peer-rated popularity (top 25% versus bottom 75%) at age 19 years predicted whether men would be violent versus nonviolent during adulthood (age 30 or 48 years), when considered separately from childhood and adolescent risk and protective factor scores (Dubow et al., 2016). High popularity at age 8 was also a protective factor, but only for boys with no risk factors for violence (Dubow et al., 2016). Moreover, in the *PYS*, boys with high levels of good peer relationships at age 10-12 years were less likely to have engaged in violence (11.1% versus 21.6%) between age 13-19 years as compared to those with neutral levels of good peer relationships, and this promotive effect extended to African American and White boys, those who had repeated a grade or not, those from deprived and not deprived neighbourhoods, from deprived or not deprived families,

and those from disrupted families (Jolliffe et al. 2016). In the *ATP* study, high levels of supportive peers (top 10%) at age 11-12 years significantly reduced adolescents' risk of fighting at age 17-18 years (Vassallo et al., 2016). Unexpectedly, high levels of supportive friendships at age 13-14 years was a risk factor for fighting at 17-18, and 19-20 years, possibly because the peers of adolescents with externalizing behaviours are more likely to engage in antisocial behaviour, or because there are changes in protective factors over time (Vassallo et al., 2016). In the *CHDS*, high levels of affiliation with prosocial peers at age 15-16 years inversely predicted criminal offending by age 30 years, although it did not mediate the association between early bullying perpetration and later crime (Fergusson et al., 2014). In the *Project on Human Development in Chicago Neighbourhoods (PHDCN)*, researchers followed socioeconomically diverse youth aged 11-16 years—80% of whom had either witnessed or been a victim of violence—over seven years (Jain & Cohen, 2013). Having positive peers at baseline increased youth's behavioural adaptation (partially defined as not acting aggressively) by 42% for youth unexposed to violence, by 13% for youth who witnessed violence, and by 9% for youth who were victims of violence (Jain & Cohen, 2013).

Table 2.7. Social Competence and Prosocial Peer Relationships as a PF: Summary of Included Studies.

Study	Sample	PF measure	Outcome measure	Results
Dubow et al. (2016)	*CCLS* 436 socioeconomically heterogeneous boys from a Grade 3 cohort (US)	High popularity at age 8 and 19 years (Pe) (e.g., "who would you like to have as a best friend?" "who would you like to sit next to in class?")	Adulthood violence (age 19, 30, and 48 years) based on official records up to age 18 and (S) during past year	$\chi^2 = 5.32^*$ (PF at age 8 for boys with no risk factors for violence) $t = 2.33^*$ (PF at age 19 years discriminated non-violent vs. violent men)
Fergusson et al. (2014)	*CHDS* 982 male/female children (New Zealand)	Prosocial peer relationships at age 15-16 years	Criminal offending by age 30 years	PF* a significant predictor of later crime (inversely)
Jain & Cohen (2013)	*PHDCN* 1114 socioeconomically diverse youth age 11-16 years (33% from a single parent home; 80% witnessed or been a victim of violence) (US)	Positive peers (S) ($M = 13.5$ years)	Behavioural adaptation over the next 7 years (< 0.5 SD above the median on a scale of aggression/ delinquency)	OR = 1.42**, CI = 1.17, 1.72 (unexposed to violence) OR = 0.80$^+$, CI = 0.63, 1.13 (witnessed violence) OR = 0.40*, CI = 0.18, 0.83 (victims of violence)

| Jolliffe et al. (2016) | *PYS*
503 boys in an age 7 cohort (US) | High levels of good peer relationships at age 10-12 years (i.e., tendency to get along with peers) (P/T/S) | Official records and violence (S) between age 13-19 years | OR = 2.2** (All)
OR = 2.4** (African American)
OR = 6.8** (White)
OR = 2.7* (Repeated Grade)
OR = 3.0** (No repeated Grade)
OR = 2.5** (Deprived neighbourhood)
OR = 5.2** (Non-deprived neighbourhood)
OR = 2.8** (Deprived family)
OR = 3.6* (Not deprived family)
OR = 2.9** (Disrupted family) |
| Vassallo et al. (2016) | *ATP*
1033 girls/boys age 11-12 years with high externalizing problems (Australia) | High levels (top 10%) of supportive peers at age 11-12 years (S) | Fighting (S) during past year at age 17-18 years and 19-20 years | $b = -0.15^*$, $t(1, 1105) = -2.24$ (PF at 11-12 years for fighting at 17-18 years)
$B = 0.333^*$, CI = 0.0001, 0.666 (RF at 13-14 years for fighting at 17-18 years)
$B = 0.301^*$, CI = 0.018, 0.584 (RF at 13-14 years for fighting at 19-20 years) |

⁺$p < 0.10$, *$p < 0.05$, **$p < 0.01$
Note. M = mean; Pe = peer report; S = self-report; P = parent report; T = teacher report; SD = Standard deviation; OR = odds ratio; CI = 95% confidence interval; t = t statistic; χ^2 = chi-square test statistic; b/B = unstandardized regression coefficient; RF = risk factor

These studies provide evidence that social competence and prosocial peer relationships may protect a variety of adolescents against later offending, likely because these attributes are in some ways incompatible with offending behaviours. Social competence, which is conceptualized as adolescents' attainment of social goals (e.g., peer status) (Allen et al., 1989), is a well-documented predictor of healthy psychological adaptation (Cowen et al., 1973). It requires adolescents to develop a variety of skills, such as perspective-taking, to meet the growing demands of interpersonal relationships and educational challenges (Allen et al., 1989). It further relates to increasing autonomy in interactions with adults while still maintaining strong relationships with peers and adults, for example, by being considerate of adult norms and rules (Allen et al., 1989).

Lack of peer/parental delinquency and peer/parental disapproval of delinquency. Table 2.8 displays seven studies that identify a lack of peer and parental delinquency or attitudes toward delinquency as protective against later violence in adolescence and early adulthood. Among youth in the *IDA*, those who self-reported higher peer disapproval of rule-breaking and delinquency at age 15 years were less likely to have committed a violent offence by age 35 years as compared to youth whose peers endorsed rule-breaking and delinquency (Andershed et al, 2016). Similarly, among youth in the *Add Health* study, low peer delinquency (bottom 25%) was

found to reduce the likelihood of violence seven years later in young adulthood (average age 18 to 20 years) compared to those with neutral peer delinquency (middle 50%) (Bernat et al., 2012). In addition, boys in the *PYS* who had low peer delinquency (bottom 25%) at age 12 were less likely to engage in violence at age 13-14 years and age 15-18 years as compared to those with neutral peer delinquency (Pardini et al., 2012). In a different analysis of the boys from the *PYS*, those with low peer delinquency at age 10-12 years were less likely to engage in violence between age 13-19 years as compared to those with neutral peer delinquency, and this protective effect extended to boys from deprived and non-deprived neighborhoods, boys from deprived and not deprived families, and boys from disrupted and intact families (Jolliffe et al. 2016).

In a study of elementary school children from low-income families, researchers used hierarchical regression analysis to examine lifetime delinquency, violence, and status offences (Herrenkohl et al., 2005). The study found that parent and peer disapproval of antisocial behaviour during elementary school (inversely) predicted delinquency by age 18 years for both abused and nonabused children (Herrenkohl et al., 2005). For nonabused children, parent and peer disapproval of antisocial behavior (inversely) predicted less violence and status offences by age 18 years (Herrenkohl et al., 2005). There is even evidence that the rate of delinquency in a child's school is associated with adolescent convictions; in the *CSDD*, boys whose schools had low rates of delinquency (bottom 25%) were less likely to have had legal convictions by age 18 years (Farrington et al., 2016). Another study that used hierarchical regression analysis revealed that *controls protection* in a youth's environment at age 13-15 years was protective against later problem behaviour at age 15-17 years in both China and the US (Jessor & Turbin, 2014).

Table 2.8. Low Peer/Parental Delinquency or Attitudes toward Delinquency as a PF: Summary of Included Studies.

Study	Sample	PF measure	Outcome measure	Results

Andershed et al. (2016)	475 general population boys from a mid-sized town (Sweden)	Low peer (bottom 50%) antisocial attitudes at age 15 years (i.e., peer attitudes toward rule breaking and delinquency) (S)	Registered convictions of violent offences between age 12-35 years	OR = 0.317** (compared to top 50%)
Bernat et al. (2012)	*Add Health* 14,738 nationally representative male/female youth (US)	Low peer delinquency of three best friends (Grade 7: M = 13 years) (S)	Violence (S) at age 18-20 years	OR = 0.55**, CI = 0.31, 0.98 [bivariate logistic regression] OR = 0.47*, CI = 0.30, 0.72 [multivariate regression controlling for gender, ethnicity, and public assistance]
Farrington et al. (2016)	*CSDD* 411 boys in a working-class area (UK)	Low school delinquency rate (social worker rating)	Legal conviction between ages 10-18 years	OR = 2.7*
Herrenkohl et al. (2005)	457 elementary school children from child welfare and protective service programs, head start centres, and childcare programs, with the majority from low-income families (US)	Parent/peer disapproval of antisocial behaviour during elementary school (i.e., parents/peers communicate that it is not okay to use substances, steal, or perpetrate violence) (S)	Lifetime delinquency at age 18 years	*St. B* = -0.29***, B = -5.73, SE = 1.43, ΔR^2 = 0.08 (Abused children) *St. B* = -0.26***, B = -4.24, SE = 1.02, ΔR^2 = 0.06 (Nonabused children)
			Lifetime violence at age 18 years	*St. B* = -0.16*, B = -0.36, SE = 0.14, ΔR^2 = 0.03 (Nonabused children)
			Lifetime status offences at age 18 years	*St. B* = -0.27***, B = -0.90, SE = 0.22, ΔR^2 = 0.07 (Nonabused children)
Jessor & Turbin (2014)	1368 male/female youth (China) 1087 male/female youth (US)	Controls protection (i.e., rules, regulations, and sanctions in a youth's environment, including friends' disapproval of delinquency and parental sanctions) at age 13-15 years (S)	Problem behaviour (including physical aggression and other delinquent behaviour) at age 15-17	r = -0.48***, b = -2.04 (Chinese) r = -0.57***, b = -2.29 (American)
Jolliffe et al. (2016)	*PYS* 503 boys in an age 7 cohort (US)	Low peer delinquency at age 10-12 years (i.e., participation of the youth's friends in delinquent activities like stealing, vandalism, and physical fighting)	Official records and violence (S) between age 13-19 years	OR = 2.7** (all) OR = 2.9*, CI = 1.1, 7.4 (Deprived neighbourhoods); OR = 5.1** (Not deprived neighbourhood) OR = 2.7*, CI = 1.2, 6.0 (Disrupted family); OR = 10.7* (Intact family) OR = 2.5*, CI = 1.2, 5.3 (Deprived family); OR = 16.6*** (Not deprived family) OR = 2.8*, CI = 1.0, 8.2 (Repeated a grade); OR = 4.1** (No repeated grade) OR = 3.2** (African American); OR = 4.4** (White)
Pardini et al. (2012)	*PYS* 503 boys in Grade 1 cohort (50% in the upper 30% on antisocial behaviour; 50% randomly selected) (US)	Low peer delinquency at age 12 years (i.e., participation of the youth's friends in delinquent activities like stealing and physical fighting)	Violence (S) between age 13-14 years	OR = 0.440*, CI = 0.208, 0.949
			Violence (S) between age 15-18 years	OR = 0.406*, CI = 0.200, 0.812

*p < 0.05, **p < 0.01, ***p < 0.001

Note. M = mean; S = self-report; OR = odds ratio; CI = 95% confidence interval; SE = standard error; *St. B* = standardized regression coefficient; b/B = unstandardized regression coefficient; ΔR^2 = change in total variance explained with the addition of PF after accounting for controls; r = bivariate correlation coefficient

Given that there is both a genetic and environmental component to the manifestation of antisocial traits in adolescents (Loehlin et al., 2005), both nature and nurture must be considered in understanding how a lack of peer and parental delinquency protects adolescents against offending. Conceptually, low antisocial behaviour corresponds to socially responsible attitudes

and behaviours (Loehlin et al. 2005). The genes that parents transmit biologically are believed to have a greater effect on youths' adjustment systems than the environment they provide directly at home and indirectly in the community (Loehlin et al., 2005), so it is likely that the protective effect operates most strongly through parents passing on their "anti-delinquency genes." However, in consideration of youths' environment, parents may also impose their values onto their children through monitoring and control (Loehlin et al. 2005). For example, if youth display delinquent behaviour, they may receive corrective feedback from their parents, thereby decreasing their chances of engaging in further antisocial behaviour.

  School engagement and school attachment. Table 2.9 presents twelve studies that identified school engagement and school attachment as protective for adolescents against later violence and offending. In the *MLES*, boys' pre-adolescent school engagement was negatively correlated with self-reported violent delinquency during late adolescence (Fontaine et al., 2016). When pre-adolescent school engagement was average or high, membership in the moderate aggressive-disruptive group was no longer related to violent delinquency (Fontaine et al., 2016). Additionally, when mid-adolescent school engagement was high, membership in the hyperactive-inattentive group was associated with lower levels of violent delinquency (Fontaine et al., 2016). In the *NLSY* where adolescents were followed over four years, school attendance was a protective factor (Park et al., 2010). For each additional year of school attendance, adolescents' reports of engaging in violent assaults were 25% lower for females and 27% lower for males (Park et al., 2010). In the study of children from low-income families, high levels of school commitment and importance during elementary school predicted less violence, delinquency, and status offenses at age 18 years for both abused and nonabused children, respectively (Herrenkohl et al., 2005). In the *GRET* study, school commitment was associated

with decreased membership in the moderate or high rate delinquency groups as opposed to the nondelinquent group (Jennings et al., 2010). Likewise, bivariate analyses within the *CLS* study revealed that years of average or higher parental school participation in elementary school, years of average or higher classroom adjustment in elementary school, and adolescent self-perception of competence in school during Grade 5-6 correlated negatively with juvenile court petitions by age 18 years (Smokowski et al., 2004). In another study, researchers followed male adolescents (who had sexually offended) over 3.5 years (Worling & Langton, 2015). School functioning was negatively associated with nonsexual recidivism and was a significant predictor of nonsexual reoffending (Worling & Langton, 2015). In the *PYS*, being in the top quartile for positive attitude towards school at age 10-12 years reduced violence between age 13-19 years for boys who were African American (from 33% to 20%), had repeated a grade (from 39% to 18%), from deprived (from 34% to 19%) or disrupted families (from 35% to 5%), or from non-deprived neighbourhoods (from 19% to 4%) (Jolliffe et al., 2016).

In the *SSDP* involving economically disadvantaged youth, having high attachment to school at age 10-12 years was directly protective against adolescent violence at age 13-14 years as compared to neutral school attachment, although this result did not extend to nonviolence at age 15-18 years (Herrenkohl et al., 2012). A subsequent study of adolescents within the *SSDP* found that high levels of school rewards at age 10 years reduced the odds of engaging in higher levels of violence during late adolescence for the full-sample and a low SES subgroup as compared to adolescents with lower school rewards (bottom 75%) (Kim et al., 2016). Moreover, high levels of school bonding at age 13-14 years also reduced the odds of engaging in higher levels of violence during late adolescence for the full-sample and a low SES subgroup as compared to adolescents with lower school bonding (bottom 75%) (Kim et al., 2016). High

levels of school opportunities at age 13-14 years also reduced the odds of violence during late adolescence compared to lower (bottom 75%) levels of school opportunities (Kim et al., 2016). In examining only high-risk adolescents from the *SSDP*, high bonding to school at age 15 years was protective against violence at age 18 years as compared to adolescents with lower school bonding (i.e., bottom 75%), lowering their probability of engaging in violence from 40% to 20% (Herrenkohl et al., 2003). Bonding with teachers also appears to have protective effects against violence. In the *ATP* study of adolescents with high externalizing problems, having a positive relationship with teachers at age 13-14 years was associated with lower rates of physical fighting at age 17-18 years and 19-20 years (Vassallo et al., 2016). In the *National Longitudinal Survey of Youth, Child-Mother (NLSY: C-M)*, researchers followed adolescents—50% of whom were considered high-risk for delinquency—over six years (Hartman et al., 2009). Female youth who positively perceived their school environment had an increased likelihood of resilience against serious delinquency as compared to those who did not (Hartman et al., 2009).

Table 2.9. School Engagement and School Attachment as a PF: Summary of Included Studies.

Study	Sample	PF measure	Outcome measure	Results
Fontaine et al. (2016)	*MLES* 1037 white French-speaking boys from disadvantaged low SES neighbourhoods (Canada)	School engagement at age 11-12 (pre-adolescence) and 14-15 years (mid-adolescence) (S) (high is 1 SD above the mean)	Violent delinquency (S) during age 16-17 years (late adolescence)	$r = -0.44$*** (all; mid-adolescence PF) $b = -0.36$*, CI = -0.66, -0.06 (school engagement × moderate aggressive-disruptive group; age 11-12 years) $b = -0.31$***, CI = -0.56, -0.06 (school engagement × hyperactive-inattentive group; mid-adolescence) $b = -0.43$** (mid-adolescence PF for the hyperactive inattentive group)
Hartman et al. (2009)	*NLSY: C-M* 711 male/female youth (50% high-risk for delinquency) (US)	Positive perception (top 50%) of school environment (Age 10-17 years: $M = 11.6$) (S)	Resilience to delinquency/crime (S) (i.e., no involvement in serious criminal behavior during the next 6 years)	OR = 1.19*, B = 0.17, SE = 0.09 (compared to lower 50%) (females)
Herrenkohl et al. (2003)	*SSDP* 154 high risk (i.e., aggressive) Grade 5 male/female students living in high crime neighbourhoods (US)	High bonding to school at age 15 years	Violence (S) during past year at age 18 years	*OR* = 0.37*

Herrenkohl et al. (2005)	457 elementary school children (majority low SES) (US)	School commitment and importance (top 25%) during elementary school	Lifetime violence at age 18 years	$St. B$ = -0.18*, B = -0.45, SE = 0.20, ΔR^2 = 0.03 (Abused) $St. B$ = -0.13*, B = -0.28, SE = 0.14, ΔR^2 = 0.02 (Nonabused)
			Lifetime delinquency at age 18 years	$St. B$ = -0.22**, B = -4.08, SE = 1.43, ΔR^2 = 0.05 (Abused) $St. B$ = -0.14*, B = -2.34, SE = 1.07, ΔR^2 = 0.02 (Nonabused)
			Lifetime status offences at age 18 years	$St. B$ = -0.26**, B = -1.02, SE = 0.29, ΔR^2 = 0.07 (Abused) $St. B$ = -0.19**, B = -0.64, SE = 0.23, ΔR^2 = 0.03 (Nonabused)
Herrenkohl et al. (2012)	*SSDP* 808 Grade 5 male/female students (50% from economically disadvantaged families) (US)	High attachment to school at age 10-12 years (i.e., liking teacher and school) (S)	Violence (S) during past year at 13-14 years	OR = 0.593*, CI = 0.389, 0.904 (bivariate logistic regression analysis) OR = 0.579*, CI = 0.364, 0.921 [multivariate hierarchic regression analysis controlling for gender, poverty, ethnicity, low Grades, low school commitment, peer delinquency, peer prosocial behaviour, neighborhood kids in trouble, and marijuana exposure]
Jennings et al. (2010)	*GRET* 170 male/female Grade 6-7 students from large and mid-sized cities (US)	School commitment (SE) (e.g., "I try hard in school")	Delinquency (S) over the next 4 years (until age 16 years)	OR = 0.88*, SE = 0.07 (moderate rate delinquency) OR = 0.86*, SE = 0.09 (high rate delinquency)
Jolliffe et al. (2016)	*PYS* 503 boys in an age 7 cohort (US)	Positive attitude towards school at age 10-12 years (S) (i.e., youth's feelings about and behavior at school)	Official records and violence (S) between age 13-19 years	OR = 2.0* (African American) OR = 2.8* (repeated a grade) OR = 5.1* (non-deprived neighborhood) OR = 2.1* (deprived family) OR = 1.9* (disrupted family)
Kim et al. (2016)	*SSDP* 808 youth (25% low SES) (US)	High levels of school rewards (i.e., perceived recognition for school involvement) at age 10 years (S)	Violence (S) during late adolescence (age 15-18 years)	OR = 0.51*** (all); OR = 0.35** (low SES)
		High levels of school bonding (i.e., looking forward to school) at age 13-14 (S)		OR = 0.61** (all) OR = 0.45** (low SES)
		High levels of school opportunities (i.e., chances to take part in class) at age 13-14 years (S)		OR = 0.67* (all)
Park et al. (2010)	*NLSY* 2552 males/females age 12-13 years (oversampling of racial minority and Hispanic) (US)	Years of school attendance (S)	Violent assaults (S) 4 years later during the past year	OR = 0.75*, SE = 0.13 (females) OR = 0.73*, SE = 0.10 (males)
Smokowski et al. (2004)	*CLS* 1539 male/female children (most from impoverished inner-city neighbourhoods) (US)	Years of average or higher parental school participation during elementary school	Juvenile court petitions by age 18 years	r = -0.125*** (parental school participation)
		Years of average or higher classroom adjustment in elementary school		r = -0.148 (classroom adjustment)
		Self-perception of competence in school during Grade 5-6 (S)		r = -0.135 (competence)
Vassallo et al. (2016)	*ATP* 1033 girls/boys age 11-12 years with high externalizing problems (Australia)	Positive relationship with teachers (top 10%) at age 13-14 years (S)	Fighting (S) during past year at age 17-18 years and 19-20 years	B = -0.195**, CI = -0.331, -0.060 (fighting at 17-18 years) B = -0.187**, CI = -0.309, -0.065 (fighting at 19-20 years) b = -0.14*; $t(1, 183)$ = -2.19 (fighting at 19-20 years and accounting for all other PFs)

Worling & Langton (2015)	81 male adolescents with one or more sexual offences (M = 15 years) (Canada)	School functioning (Age 12-19 years: M = 15 years) (P) (BERS School Functioning scale)	Non-sexual recidivism 3.5 years later	r = -0.30** OR = 0.81*, CI = 0.69, 0.95, $\chi^2(1)$ = 6.94*

*p < 0.05, **p < 0.01, ***p < 0.001

Note. M = mean; S = self-report; SD = standard deviation; OR = odds ratio; CI = 95% confidence interval; SE = standard error; *St. B* = standardized regression coefficient; *b/B* = unstandardized regression coefficient; ΔR^2 = change in total variance explained with the addition of PF after accounting for controls; *r* = bivariate correlation coefficient

These studies provide evidence of the protective effects of school engagement and attachment against later offending, over and above academic achievement. School experiences function as a social bond that builds conformity and restrains youth from becoming involved in delinquency (Sprott et al., 2005). Adolescents who experience earlier environmental risks may bond to school when people at school become interested in them and provide a sense of connectedness that they are otherwise missing (Sprott et al., 2005). Because they do not want to jeopardize their school relationships, they inhibit themselves from misbehaviour (Sprott et al., 2005). Strong school bonding has also been found to protect youth against the influence of delinquent peers (Sprott et al., 2005). In addition, class attendance is important because time away from school is thought to support drug use and delinquency (Bonta & Andrews, 2017).

Attendance at religious services. Table 2.10 displays six studies that provide evidence of religious service being protective for adolescents against later offending. In the *CCLS* study, high levels of parental church attendance when children were eight years old distinguished between violent and non-violent men and reduced their risk of violence during adulthood compared to boys whose parents had lower church attendance (bottom 75%) (Dubow et al., 2016). In the *Adolescents in the International Development Study (A-IDS)*, youth—of which 60% had high drug use and 18% had low family SES—were followed over eight years (Hemphill et al., 2016). For adolescents living in a low SES family, high religiosity (versus low religiosity) at age 10-11 years predicted decreased likelihood of violent offending in young adulthood (Hemphill et al., 2016). Among adolescents with high drug usage, high belief in moral order predicted decreased

likelihood of violent offending in young adulthood as compared to adolescents who were low in this area (Hemphill et al., 2016). In the *SSPD* analysis of a high-risk (i.e., aggressive) group of students, high levels of religious service attendance at age 15 years were protective against violence by age 18 years as compared to adolescents without lower religious service attendance (i.e., bottom 75%) (Herrenkohl et al., 2003). Having high levels of religious service attendance lowered these students' probability of engaging in later violence from 41% to 25% (Herrenkohl et al., 2003). In the *NLSY, C-M* study, female adolescents with higher levels of religiosity (top 50%) had an increased likelihood of resilience against delinquency six years later as compared to those with lower religiosity (bottom 50%) (Hartman et al., 2009). In the Herrenkohl et al. (2005) study, children's involvement in a religious community during elementary school predicted less delinquency (including violent delinquency) and fewer status offences by age 18 years for nonabused children (Herrenkohl et al., 2005). Likewise, in the *NLSY*, higher rates of participation in religious activity acted as a protective factor, significantly distinguishing youth in the low delinquency trajectory group (70% of males and 72% of females spending one or more days per week in religious activity) from those in the moderate (64% of males and 68% of females), decreasing (60% of males and 54% of females), and high (57% of males and 51% of females) delinquency groups (Murphy et al., 2011).

Table 2.10. Religious Service Attendance as a PF: Summary of Included Studies.

Study	Sample	PF measure	Outcome measure	Results
Dubow et al. (2016)	*CCLS* 436 socioeconomically heterogeneous boys from a Grade 3 cohort (US)	High levels of parental church attendance at age 8 years	Adulthood violence (age 19, 30, and 48 years) based on official records up to age 18 and (S) during past year	$t = 2.03*$ (PF discriminated non-violent vs. violent men) AOR = 0.73*
Hartman et al. (2009)	*NLSY: C-M* 711 male/female youth (50% high-risk for delinquency) (US)	Importance of religiosity and attendance at religious services (top 50%) (Age 10-17 years: $M = 11.6$ years) (S)	Resilience to delinquency/crime (S) (i.e., no involvement in serious criminal behavior during the next 6 years)	OR = 1.38*, $B = 0.32$, SE = 0.14 (females)

Hemphill et al. (2016)	*A-IDS* 437 male/female youth (60% high drug use; 18% low family SES) (Australia)	High religiosity at age 10-11 years (S) High belief in moral order at age 10-11 years (S)	Violent offending (S) over their lifetime (Grade 5) and in the past year (Grades 9, 11, and young adulthood)	OR = 0.34*, CI = 0.13, 0.88 (low SES) OR = 0.36**, CI = 0.18, 0.74 (high drug use)
Herrenkohl et al. (2003)	*SSDP* 154 high risk (i.e., aggressive) Grade 5 male/female students living in high crime neighbourhoods (US)	High religious service attendance at age 15 years	Violence (S) during past year at age 18 years	OR = 0.47*, B = -0.76, SE = 0.40
Herrenkohl et al. (2005)	457 elementary school children (majority low-SES) (US)	Involvement in a religious community during elementary school	Lifetime delinquency at age 18 years Status offences by age 18 years	*St. B* = -0.21**, B = -3.51, SE = 1.05, ΔR^2 = 0.04 (Nonabused children) *St. B* = -0.20**, B = -0.68, SE = 0.23, ΔR^2 = 0.04 (Nonabused children only)
Murphy et al. (2011)	*NLSY* 8984 nationally representative male/female youth (oversampling of African American and Hispanic) (US)	Days per week engaged in religious activities with family	Delinquency, arrest, and incarceration until age 23 years (S)	PF** distinguished youth in the low delinquency trajectory group from those in the moderate, decreasing, and high delinquency trajectory groups

*p < 0.05, **p < 0.01
Note. M = mean; S = self-report; OR = odds ratio; AOR = adjusted odds ratio; CI = 95% confidence interval; SE = standard error; *St. B* = standardized regression coefficient; *B* = unstandardized regression coefficient; ΔR^2 = change in total variance explained with the addition of PF after accounting for controls; *t* = *t* value

The mechanism by which religious service attendance exerts protective effects against offending is unknown (Herrenkohl et al., 2003). Perhaps adolescents who attend religious services are taught about tolerance and peaceful resolutions to their problems, which leads to the adoption of anti-violence values and beliefs (Herrenkohl et al., 2003). Religious institutions may also provide adolescents with opportunities to interact with prosocial individuals who act as positive role models (Herrenkohl et al., 2003). Alternatively, most adolescents attend religious services with a family member or other responsible adult, so religious service attendance may be a proxy for higher levels of adult supervision.

Caregiver monitoring. Table 2.11 presents nine studies that indicate caregiver monitoring is a protective factor against later adolescent offending. In the *MLES*, boys' parental supervision during mid-adolescence was negatively correlated with violent delinquency at late adolescence (Fontaine et al., 2016). Moreover, membership in the moderate aggressive-behaviour group was no longer associated with violent delinquency when pre-adolescent parental

supervision was average or high (Fontaine et al., 2016). Similarly, in the *PYS*, boys with high family supervision at age 10-12 years were less likely to have engaged in violence between age 13-19 years as compared to those with neutral levels of family supervision, and this extended to African American boys, those from disrupted and intact families, and those who had never repeated a grade (Jolliffe et al. 2016). In the *NLSY*, high parental monitoring at age 12-13 years predicted fewer violent assaults four years later for girls but not boys (Park et al., 2010). Similarly, in the *GRET* project that examined four-year trajectories of violent delinquency for 12-year-old adolescents, parental monitoring was associated with decreased likelihood of membership in the high rate delinquency group as compared to the non-delinquent group (Jennings et al., 2010). In *Project Northland Chicago (PNC)*, Grade 6 youth who had less than one hour without adult supervision per day where less likely to be incarcerated in Grade 12 as compared to those with more than one hour of unsupervised time, when matching for ethnicity, gender, and baseline aggression (Reingle, Jennings, & Komro, 2013). Similarly, boys in the *CSDD* who had high levels of parental supervision at age 8-10 years were less likely to have a youthful conviction between age 10-18 years than boys with neutral family supervision (Farrington et al., 2016). Moreover, for boys described as troublesome, high family supervision was associated with a decrease in future convictions, with only 25% of boys with high parent supervision being convicted versus 52% of boys without that protective factor (Farrington et al., 2016). Another analysis of adolescents in the *NLSY* found that higher rates of maternal authoritative parenting style (as opposed to authoritarian or permissive parenting styles) among males (48%) and females (44%) in the low delinquency trajectory group, distinguished them from those in the moderate (44% of males and 40% of females), decreasing (42% of males and 30% of females), and high delinquency groups (39% of males and 36% of females) (Murphy et

al., 2011). In the *PHDCN* study, adolescents with strong family boundaries, including those exposed to violence, had higher odds of behavioural adaptation (partially defined as not acting aggressively) 2.5 years later (Jain & Cohen, 2013). Lastly, in the *ATP*, receiving moderate to high parental monitoring at age 13-14 years was protective against antisocial behaviour at age 19-20 years for youth who had been bullies as children (Vassallo et al., 2014). Parental monitoring ameliorated the risk between childhood bullying behaviour and later antisocial behaviour, even after controlling for demographic variables (Vassallo et al., 2014).

Table 2.11. Caregiver Monitoring as a PF: Summary of Included Studies.

Study	Sample	PF measure	Outcome measure	Results
Farrington et al. (2016)	*CSDD* 411 boys in a working-class area (UK)	High parental supervision at age 8-10 years (i.e., parents aware of when boys are out of home)	Legal conviction between ages 10-18 years	OR = 2.2* (all) OR = 3.2*, CI = 1.4, 7.4 (troublesome)
Fontaine et al. (2016)	*MLES* 1037 white French-speaking boys from disadvantaged low SES neighbourhoods (Canada)	Parental supervision at age 11-12 years (pre-adolescence) and 14-15 years (mid-adolescence) (i.e., parents' knowledge of when their children are out of the house and with who) (high is 1 SD above the mean)	Violent delinquency (S) during age 16-17 years	r = -0.37*** (all; mid-adolescence PF) b = -0.34**, CI = -0.58, -0.10 (pre-adolescent parental supervision × moderate aggressive-disruptive group)
Jain & Cohen (2013)	*PHDCN* 1114 socioeconomically diverse youth age 11-16 years (33% from single parent home; 80% witnessed or been a victim of violence) (US)	Strong family boundaries (i.e., parental monitoring and clear rules and consequences) (M = 15.5 years)	Behavioural adaptation over the next 2.5 years (< 0.5 SD above the median on a scale of aggression/ delinquency	OR = 1.13**, CI = 1.04, 1.27
Jennings et al. (2010)	*GRET* 170 male/female Grade 6-7 students from large and mid-sized cities (US)	Parental monitoring	Delinquency (S) over the next 4 years (until age 16 years)	OR = 0.81*, SE = 0.10 (high rate delinquency)
Jolliffe et al. (2016)	*PYS* 503 boys in an age 7 cohort (US)	High family supervision at age 10-12 years (i.e., extent of the parent's knowledge of the youth's activities outside of the home: parent and youth report)	Official records and violence (S) between age 13-19 years	OR = 2.3* (all) OR = 2.2* (African American) OR = 3.7** (not repeated Grade) OR = 1.9* (disrupted family) OR = 5.2* (intact family)
Murphy et al. (2011)	*NLSY* 8984 nationally representative male/female youth (oversampling of African American and Hispanic) (US)	Higher rates of maternal authoritative parenting style during mid-adolescence (M = 14 years)	Delinquency, arrest, and incarceration until age 23 years (S)	PF** distinguished youth in the low delinquency trajectory group from those in the moderate, decreasing, and high delinquency trajectory groups
Park et al. (2010)	*NLSY* 2552 males/females age 12-13 years (oversampling of racial minority and Hispanic) (US)	Parental monitoring at age 12-13 years (i.e., parents' knowledge of their child's whereabouts and who they interact with)	Violent assaults 4 years later during the past year (S)	OR = 0.94**, SE = 0.02 (females)
Reingle, Jennings, & Komro (2013)	*PNC* 2165 urban Grade 6 youth (54 incarcerated) (US)	Less than 1 hour spent without adult supervision per day (Grade 6)	Incarceration at Grade 12	OR = 0.746*, CI = 0.617, 0.900 [bivariate conditional logistic regression]

| Vassallo et al. (2014) | *ATP* 1359 male/female youth with high externalizing problems (Australia) | Moderate to high parental monitoring (top 75%) at age 13-14 years (P) (e.g., "how often do you find out where he/she is going . . . with friends?") | Antisocial behaviour during past year at age 19-20 years (S) | Bullies with PF* had significantly lower levels of antisocial behaviour when compared to bullies who experienced low levels of parental monitoring |

*p < 0.05, **p < 0.01, ***p < 0.001

Note. M = mean; S = self-report; OR = odds ratio; CI = 95% confidence interval; SE = standard error; *r* = bivariate correlation coefficient; *b* = unstandardized regression coefficient

Caregiver monitoring, which refers to parents' knowledge of the whereabouts of their children outside of the home (Park et al., 2011), appears to be a robust protective factor against later offending. When caregivers are aware of their children's whereabouts and activities, they may be better able to limit their children's participation in risky environments, for example, by limiting access to antisocial peers or environments with access to substances.

Family management and structure. Table 2.12 displays four studies relating to the protective effect of family management and structure. Among youth participating in the *SSDP,* high levels of family management at age 13-14 years reduced the odds of engaging in higher levels of violence during late adolescence for the full sample, a high-risk subgroup, and a low SES subgroup, as compared to youth with poor family management (bottom 75%) (Kim et al., 2016). In a separate study of high-risk youth in the *SSDP*, good family management by parents at age 15 years was protective against self-reported violence at age 18 years (Herrenkohl et al., 2003). In comparison to adolescents with poor family management (bottom 75%), this factor reduced the probability of risk from 41% to 17%, with the effect coming mainly from African American adolescents rather than White adolescents in the sample (Herrenkohl et al., 2003). The African American adolescents tended to live in neighborhoods where risk of violence was greater, suggesting that effective family management for adolescents who live in high-crime neighborhoods has a deterrent effect on antisocial behaviour (Herrenkohl et al., 2003). Similarly, in the *CSDD*, boys with a convicted parent who experienced good child-rearing practices (top 25%) at age 8-10 years were less likely to have youth convictions during age 10-18 years as

compared to those who experienced neutral range child-rearing practices (Farrington et al., 2016). In isolation, good child rearing practices reduced the conviction rate from 55% to 30% (Farrington et al., 2016). Lastly, in the *TRAILS* study, high family functioning at age 11 was promotive for adolescents, increasing their likelihood of being a non-delinquent by 7.6% and decreasing their likelihood of being a minor delinquent by 5.5% two years later (van der Laan et al., 2010). A positive family environment was also promotive, increasing adolescents' likelihood of being a non-delinquent by 5.2% and decreasing their likelihood of being a minor delinquent by 2.1% two years later (van der Laan et al., 2010). The promotive effect of a positive family environment remained significant even when baseline delinquency was included in the model, increasing adolescents' likelihood of being a non-delinquent by 1.9% (van der Laan et al., 2010).

Table 2.12. Family Management and Structure as a PF: Summary of Included Studies.

Study	Sample	PF measure	Outcome measure	Results
Farrington et al. (2016)	*CSDD* 411 boys in a working-class area (UK)	High levels of good child rearing practices at age 8-10 years (SW)	Legal conviction between ages 10-18 years	OR = 2.8* (convicted parent)
Herrenkohl et al. (2003)	*SSDP* 154 high risk (i.e., aggressive) Grade 5 male and female students from high crime neighbourhoods (US)	High levels of good family management (i.e., rewards and costs of antisocial behaviour: supervision, setting clear rules/expectations, and reinforcing good work habits) by parents at age 15 years	Violence (S) during past year at age 18 years	OR = 0.29*, $B = -1.25$, SE = 0.50 (compared to lower 75%)
Kim et al. (2016)	*SSDP* 808 youth (25% low SES) (US)	High levels of family management (i.e., clear family rules) at age 13-14 years (S)	Violence during late adolescence (age 15-18 years) (S)	OR = 0.751* (all) OR = 0.551** (low SES youth) OR = 0.524** (high-risk youth)
van der Laan et al. (2010)	*TRAILS* 2230 male/female youth from five municipalities, both urban and rural (Netherlands)	High family functioning (i.e., overall healthy family climate) at age 11 years Positive family environment (i.e., low overprotection, low rejection, high family functioning, and low parental stress)	Delinquency (S) at age 13.5 years	+7.6%**, SE = 2.4 (non-delinquent) -5.5%*, SE = 2.8 (minor delinquent) [univariate] +5.2%**, SE = 1.3 (non-delinquent) -2.1%*, SE = 1.1 (minor-delinquent) [univariate] +1.9%*, SE = 0.9 (non-delinquent) [controlling for baseline delinquency]

*p < 0.05, **p < 0.01
Note. S = self-report; SW = social worker rating; OR = odds ratio; CI = 95% confidence interval; SE = standard error; *B* = unstandardized regression coefficient

These studies provide some evidence that family management and structure is protective against later offending for a variety of adolescents. Adolescents who receive strong family management and structure have a clear understanding of rules, expectations, and limits at home

(Kim et al., 2016) that may naturally translate to adherence to community rules and laws and deter against the effect of risky environments.

   Family bonding and involvement. Table 2.13 presents eight studies relating to the protective effect of family bonding, including caregiver involvement, connectedness, and attachment to children. In the *IDA* study, 10-year-old males who reported that mother-child conflict almost never occurs were less likely to have committed a violent offence by age 35 years as compared to males with occasional to very frequent high mother-child conflict (Andershed et al, 2016). In the *CCLS* study, researchers found that low negative family interactions at age 8 years marginally distinguished between violent and non-violent men, and marginally reduced the risk of violence during adulthood as compared to boys with higher negative family interactions (Dubow et al., 2016). Among youth participating in the *SSDP*, high family bonding and high family rewards (i.e., positive caregiver feedback) during middle adolescence (age 13-14 years) reduced the odds of violence in late adolescence (Kim et al., 2016) compared to those lower (bottom 75%) in these areas. High family bonding during early adolescence also reduced the odds of violence in late adolescence for those with high cumulative risk (Kim et al., 2016). Among adolescents in the *Add Health* study, high levels of parental involvement were marginally protective against violent delinquency 11 years later for the 12.3% of youth who were desistors (i.e., initial violence with later decline in violence), although this protective factor did not remain significant in multivariate analyses (Reingle et al., 2012). In a more ethnically diverse sample of adolescents from the *Add Health* study, researchers used multivariate analyses and found that high family connectedness was protective against weapon involvement two years later for the full sample and for Latino youth (Shetgiri et al., 2016). Similarly, in the *CHDS*, quality of parent-child relationships at age 15-16 years inversely predicted criminal offending by age 30

years, although it did not mediate the association between early bullying perpetration and later

crime (Fergusson et al., 2014). Lastly, in the *PHDCN* study, adolescents with high family

support at baseline had higher odds of behavioural adaptation (partially defined as not acting

aggressively) two years later (Jain & Cohen, 2013). High family support increased the odds of

behavioural adaptation by 50% for youth who were unexposed to violence, and by 33% for youth

who had been victims of violence (Jain & Cohen, 2013).

Table 2.13. Family Bonding and Involvement as a PF: Summary of Included Studies.

Study	Sample	PF measure	Outcome measure	Results
Andershed et al. (2016)	*IDA* 475 general population boys from a mid-sized town (Sweden)	Low (bottom 50%) mother-child conflict at age 13 years (S)	Registered convictions of violent offences between age 12-35 years	OR = 0.183* (compared to top 50%)
Dubow et al. (2016)	*CCLS* 436 socioeconomically heterogeneous boys from a Grade 3 cohort (US)	Low negative family interactions at age 8 (P)	Adulthood violence (age 19, 30, and 48 years) based on official records up to age 18 and (S) during past year	$t = 1.94^+$ (PF discriminated non-violent vs. violent men) AOR = 0.79$^+$ (compared to worst 75%)
Fergusson et al. (2014)	*CHDS* 982 male/female children (New Zealand)	Quality of parent-child relationship (i.e., parental attachment, care, and overprotection) at age 15-16 years	Criminal offending by age 30 years	PF* a significant predictor of crime (inversely)
Jain & Cohen (2013)	*PHDCN* 1114 socioeconomically diverse youth aged 11-16 years (33% from a single parent home; 80% witnessed or been a victim of violence) (US)	High family support ($M = 13.5$ years)	Behavioural adaptation over the next 2 years (< 0.5 SD above the median on a scale of aggression/delinquency	OR = 1.2*, CI = 1.0, 1.3
Kim et al. (2016)	*SSDP* 808 youth (25% low SES) (US)	High levels of family bonding (e.g., sharing thoughts and feelings with mom) at age 10 (early adolescence) and 13-14 years (S) (middle adolescence) High levels of family rewards (e.g., parents notice and let youth know when doing a good job) during middle adolescence years (S)	Violence during late adolescence (age 15-18 years) (S)	OR = 0.553* (high risk; early adolescence PF) OR = 0.653** (all; middle adolescence PF) OR = 0.638*** (all; middle adolescence PF)
Reingle et al. (2012)	*Add Health* 9421 nationally representative male/female youth ($M = 15$ years) (US)	High parental involvement (S)	Violent delinquency over the next 11 years ($M = 26.5$ years)	OR = 0.96$^+$; CI = 0.93, 1.00 (desistors)
Shetgiri et al. (2016)	*Add Health* 11,207 male/female youth (oversampling of Cuban and Puerto Rican students) (US)	High family connectedness (S)	Weapon involvement (S) 2 years later	OR = 0.8*, CI = 0.7, 0.9 (all) OR = 0.7*, CI = 0.6-0.9 (Latino) [multivariate analyses]
Vassallo et al. (2016)	*ATP* 1033 girls/boys aged 11-12 years with high externalizing problems (Australia)	Warmth of parent-child relationship at 13-14 years and 15-16 years (P) (e.g., "most of the time how well do you get along with your child?")	Fighting (S) during past year at age 17-18 years	$B = -0.371$**, CI = -0.600, -0.142 (PF at 13-14 years) $B = -0.196$*, CI = -0.350, 0.042 (PF at 15-16 years)

$^+$p < 0.10, *p < 0.05, **p < 0.01, ***p < 0.001
Note. M = mean; S = self-report; P = parent-report; OR = odds ratio; AOR = adjusted odds ratio; CI = 95% confidence interval; SE = standard error; $t = t$ value; B = unstandardized regression coefficient

These studies provide evidence that family bonding and involvement can be protective

for adolescents against later offending, perhaps because a healthy caregiver-child bond encourages healthy social-emotional development. The more that adolescents can talk openly with their parents about their problems (e.g., a frustrating experience), the less likely they are to engage in aggressive behaviour like fighting (Fitzpatrick, 1997). For adolescents who have experienced adversity, receiving support from a family member who encourages success can also buffer them from participating in risk-taking and health-compromising behaviour (Fitzpatrick, 1997). Adolescents with strong parental involvement and family cohesiveness are also less prone to seek out social support through gang affiliation (Li et al., 2002), possibly because their interpersonal needs are being met through their family ties.

Positive neighbourhood. Table 2.14 displays five studies that provide evidence that positive neighborhood variables can be protective for adolescents against later offending. In the *Rochester Youth Development Study (RYDS)*, researchers followed youth, many of whom lived in neighbourhoods with high arrest rates, from their early teenage years until the age of 31 years (Kurlychek et al., 2012). For these youth, parental neighbourhood integration was protective against total risk of youth violence, and parental social integration was protective against youth propensity for violence (Kurlychek et al., 2012). In the *PHDCN* study, neighbourhood-level collective efficacy and neighbourhood support was significantly associated with growth in behavioural adaptation over a 2.5-year period for all youth, including those who had witnessed violence or been victims of violence (Jain & Cohen, 2013). Similarly, in the *PYS*, boys with a good impression of their neighbourhood at age 10-12 years were less likely to have engaged in violence between age 13-19 years as compared to those who were neutral on this factor, and this protective effect also occurred for boys who had repeated a grade (Jolliffe et al. 2016). In the *Add Health* study, having a high perception of living in a safe neighborhood protected adolescent

males against membership in the escalators group (i.e., not violent during adolescence but initiated violence in young adulthood) as compared to membership in the nonviolent group (i.e., no violence during young adolescence or young adulthood), but this result was no longer significant once baseline violence was factored into the model (Reingle, Jennings, Lynne-Landsman, et al., 2013). Lastly, in the earlier described *NLSY* study, lower rates of early experience with neighbourhood or personal violence during mid-adolescence distinguished those in the low delinquency trajectory group from those in the moderate, decreasing, and high delinquency groups (Murphy et al., 2011).

Table 2.14. Positive Neighbourhood as PF: Summary of Included Studies.

Study	Sample	PF measure	Outcome measure	Results
Jain & Cohen (2013)	*PHDCN* 1114 socioeconomically diverse youth aged 11-16 years (33% from a single parent home; 80%witnessed or been a victim of violence) (US)	High levels of neighbourhood support (M = 15.5 years) High levels of neighbourhood-level collective efficacy (i.e., neighborhood cohesion and positive social control) (M = 15.5 years)	Behavioural adaptation over the next 2.5 years (< 0.5 SD above the median on a scale of aggression/delinquency)	OR = 0.88**, CI = 0.81, 0.98 OR = 0.87**, CI = 0.79, 0.95
Jolliffe et al. (2016)	*PYS* 503 boys in an age 7 cohort (US)	High levels of good neighbourhood impression at age 10-12 years (P) (i.e., community problems: abandoned buildings, unemployment, racial tension, and crime)	Official records and violence (S) between age 13-19 years	OR = 1.8* (all) OR = 2.3* (repeated a grade)
Kurlychek et al. (2012)	*RYDS* 854 youth (75% male; many from neighbourhoods with high arrest rates who represented youth at high risk of serious delinquency) (US)	Parental neighborhood integration (i.e., social ties and networks between community residents) at Grade 7/8 Parental social integration (i.e., the number of neighbours one knows and talks to) at Grade 7/8	Number of violence offences reported at age 18 years (from arrest data)	*B* = -0.015*, SE = 0.007 (total risk of violence) *B* = -0.485*, SE = 0.224 (propensity for violence)
Murphy et al. (2011)	*NLSY* 8984 nationally representative male/female youth (oversampling of African American and Hispanic) (US)	Lower rates of early experience with neighborhood or personal violence during mid-adolescence (M = 14 years)	Delinquency, arrest, and incarceration until age 23 years (S)	PF** distinguished youth in the low delinquency trajectory group from those in the moderate, decreasing, and high delinquency trajectory groups
Reingle, Jennings, Lynne-Landsman, et al. (2013)	*Add Health* 4322 nationally representative male students (US)	Perception of living in a safe neighbourhood at age 13 years (S)	Violent delinquency (S) during past year at age 32 years	OR = 0.64*, CI = 0.44, 0.93 (membership in the escalators group vs. the nonviolent group) (ns with baseline violence included in the model)

*p < 0.05, **p < 0.01, ns = not significant
Note. M = mean; S = self-report; OR = odds ratio; CI = 95% confidence interval; *B* = regression coefficient of hierarchical linear modeling; SE = standard error

Taken together, these studies provide some evidence toward the protective role of

positive neighbourhood variables for adolescents against later offending. Major influential characteristics of an adolescents' neighbourhood include the criminal versus noncriminal composition of neighbourhood members, the quality of interpersonal relationships, and the nature of what is modelled, reinforced, and punished (Bonta & Andrews, 2017). Adolescents' criminal behaviour may be influenced by the neighbourhood social context, with some research suggesting that delinquency decreases to some extent when a high-risk family living in a poor neighbourhood moves to a middle-class neighbourhood (Bonta & Andrews, 2017).

Prosociality. Table 2.15 presents four studies pertaining to prosocial characteristics as protective for adolescents against later offending. In the *A-IDS* study, adolescents living in a low SES family who received high family recognition for prosocial involvement at age 10-11 years had a decreased likelihood of violent offending in young adulthood as compared to those with low family recognition for prosocial involvement (Hemphill et al., 2016). In the *PHDCN* study, adolescents who were unexposed to violence or victims of violence had higher odds of behavioural adaptation (partially defined as not acting aggressively) two years later if they had high levels of meaningful participation in structured activities (Jain & Cohen, 2013). Another cross-cultural study found that *behaviour protection* (i.e., participation in school, family, and community activities), and time spent on homework at age 13-15 years was protective against later problem behaviour at age 15-17 years for American adolescents (Jessor & Turbin, 2014). This protective effect was not found for a separate sample of Chinese adolescents, perhaps due to cultural differences (Jessor & Turbin, 2014). Lastly, with the *ATP* study of adolescents with high externalizing problems, those with high levels of responsibility at age 13-14 years or 15-16 years had lower rates of fighting at 17-18 years and 19-20 years (Vassallo et al., 2016). More proximally, those with high levels of empathy at age 19-20 years also had lower rates of physical

fighting at age 19-20 years (Vassallo et al., 2016).

Table 2.15. Prosociality as a PF: Summary of Included Studies.

Study	Sample	PF measure	Outcome measure	Results
Hemphill et al. (2016)	*A-IDS* 437 male and female youth (60% had high drug use; 18% low family SES) (Australia)	High family recognition for prosocial involvement at age 10-11 years (S)	Violent offending (S) over lifetime (Grade 5) and in the past year (Grades 9, 11, and young adulthood)	OR = 0.30*, CI = 0.11, 0.80 (low SES)
Jain & Cohen (2013)	*PHDCN* 1114 socioeconomically diverse youth aged 11-16 years (33% from a single parent home; 80% witnessed or been a victim of violence) (US)	High levels of meaningful participation in structured activities (*M* = 13.5 years)	Behavioural adaptation over the next 2.5 years (< 0.5 SD above the median on a scale of aggression/delinquency	OR = 2.66*, CI = 1.23, 5.75 (unexposed to violence) OR = 0.40*, CI = 0.18, 0.83 (victims of violence)
Jessor & Turbin (2014)	1368 male/female youth (China) and 1087 male/female youth (US)	Behavior protection (i.e., participation in school, family, and community activities, and time spent on homework) at age 13-15 years (S)	Problem behaviour (including physical aggression and other delinquent behaviour) at age 15-17 years	r = -0.27***, b = -0.46 (American)
Vassallo et al. (2016)	*ATP* 1033 girls/boys age 11-12 years with high externalizing problems (Australia)	High levels of responsibility (top 10%) at age 13-14 and 15-16 years (P) High levels of empathy (top 10%) at age 19-20 years (S)	Fighting (S) during past year at age 17-18 and 19-20 years	Fighting at 17-18 years: B = -0.050*, CI = -0.088, -0.011 (PF at 13-14 years) B = -0.293*, CI = -0.570, -0.141 (PF at 15-16 years) Fighting at 19-20 years: B = -0.034*, CI = -0.069, 0.002 (PF at 13-14 years) B = -0.272*, CI = -0.514, -0.029 (PF at 15-16 years) B = -0.305***, CI = -0.483, -0.126 (empathy at 19-20 years)

*p < 0.05, ***p < 0.001
Note. M = mean; S = self-report; P = parent-report; OR = odds ratio; CI = 95% confidence interval; *r* = bivariate correlation coefficient; *b/B* = unstandardized regression coefficient

Although further replication of results is necessary, together, these studies suggest that aspects of prosociality protect adolescents against later offending. The resilient personality characteristics associated with prosociality appear to act by promoting positive outcomes despite adverse conditions or risk for violence (Borum et al., 2003).

Primary language. Table 2.16 displays two studies that suggest use of primary language at home may be protective against violence for adolescents whose second language is English. In the *NLSY* adolescent study, higher rates of primary language spoken at home during mid-adolescence distinguished males in the low delinquency trajectory group (22% speaking native language at home) from those in the moderate (19%), decreasing (17%), and high delinquency

groups (16%) (Murphy et al., 2011). The same was true for females, with 21% of those in the low delinquency trajectory group speaking their primary non-English language at home, compared to 17%, 18%, and 16% of those in the moderate, decreasing, and high delinquency groups, respectively (Murphy et al., 2011). In another study of youth from *PNC*, which involved urban Hispanic adolescents from low-income families, researchers modelled the trajectories of physical aggression from age 11-18 years (Maldonado-Molina et al., 2010). After adjusting for baseline physical aggression using multinomial logistic regression, adolescents across all trajectories of physical aggression who reported that Spanish was their preferred language at home were less likely to engage in physical aggression (Maldonado-Molina et al., 2010).

Table 2.16. Primary Language as a PF: Summary of Included Studies.

Study	Sample	PF measure	Outcome measure	Results
Maldonado-Molina et al. (2010)	*PNC* 731 Urban Hispanic youth (mostly low-income families) (US)	Speaking Spanish at home as a preferred language at age 11 (i.e., a measure of acculturation) (S)	Physical aggression from age 11-18 years (S)	RR = 0.63** (low, stable) RR = 0.37*** (escalators) RR = 0.56+ (early-rapid desistors) RR = 0.33** (high aggression / moderate desistors)
Murphy et al. (2011)	*NLSY* 8984 nationally representative male/female youth (oversampling of African American and Hispanic) (US)	Higher rates of non-English spoken at home during mid-adolescence ($M = 14$ years)	Delinquency, arrest, and incarceration until age 23 years (S)	PF distinguished males** and females* in the low delinquency trajectory group from those in the moderate, decreasing, and high delinquency trajectory groups

+p < 0.10, *p < 0.05, **p < 0.01, ***p < 0.001
Note. M = mean; S = self-report; RR = relative risk

The protective effect of primary language use at home is hypothesized to be due to lower acculturation (Murphy et al., 2011). That is, use of primary non-English language at home allows adolescents to remain connected with their cultural identity, and this may exert a protective effect against involvement in physical aggression or delinquency.

Low use of and exposure to substances. Table 2.17 presents four articles that identified low exposure to and use of illicit substances as protective for adolescents against later offending. In the *SSDP*, low self-perceived marijuana availability and exposure to marijuana at age 10-12 years was directly protective for adolescents against later violence at age 13-14 years as

compared to those who were neutral on this factor (Herrenkohl et al., 2012). Additionally,

adolescents with no self-reported lifetime alcohol use by age 10-12 years had a lower likelihood

of violence at age 13-14 years compared to those who had self-reported alcohol use (Herrenkohl

et al., 2012). Among youth in the *NLSY* study, later substance use initiation for alcohol,

marijuana, and other illicit drugs distinguished males and female adolescents in the low

delinquency trajectory group from those in the moderate, decreasing, and high delinquency

groups (Murphy et al., 2011). Among Grade 6 youth participating in *PNC*, those who were not

incarcerated in Grade 12 were less likely to have used marijuana in the past year (6.3% vs

11.7%, *p* < 0.001), and less likely to have used alcohol in the past year (18.6% vs. 32.1%, *p* <

0.001) and past month (8.8% vs. 15.5%, *p* < 0.05) as compared to those who were incarcerated in

Grade 12 (Reingle, Jennings, & Komro, 2013). In bivariate analyses—when matched on

ethnicity, gender, and aggressive behaviour in Grade 6—youths' past year marijuana use and

marijuana-related behaviors and intentions were associated with decreased odds of incarceration

at Grade 12, however, substance use was no longer related to incarceration in multivariate

analyses that factored in early-onset misbehaviour (Reingle, Jennings, & Komro, 2013). Lastly,

in the *Add Health* study, low parental alcohol use was marginally protective against violent

delinquency over the next 11 years for the 12.3% of adolescents who were desistors (i.e., initial

participation in violence that declined later), although this protective effect was not significant in

multivariate analyses (Reingle et al., 2012).

Table 2.17. Low Use of and Exposure to Substances as a PF: Summary of Included Studies.

Study	Sample	PF measure	Outcome measure	Results
Herrenkohl et al. (2012)	*SSDP* 808 Grade 5 male/female students (50% low SES) (US)	Low marijuana availability and exposure at age 10-12 years (S) No lifetime alcohol use at age 10-12 years (S)	Violence (S) during past year at 13-14 years and 15-18 years	Violence at 13-14 years: OR = 0.492**, CI = 0.307, 0.788 (marijuana) Violence at 15-18 years: OR = 0.585*, CI = 0.39, 0.989 (marijuana) Violence at 13-14 years: OR = 0.536**, CI = 0.353, 0.815) (alcohol) [bivariate logistic regression]

Murphy et al. (2011)	*NLSY* 8984 nationally representative male/female youth (oversampling of African American and Hispanic) (US)	Lower rates of substance use (age of first use and use during past 30 days) during mid-adolescence (*M* = 14 years)	Delinquency, arrest, and incarceration until age 23 years (S)	PF** distinguished youth in the low delinquency trajectory group from those in the moderate, decreasing, and high delinquency trajectory groups Age (years) first used alcohol: *M* = 15.86, SD = 3.61 (low delinquency males) *M* = 16.27, SD = 3.18 (low delinquency females) Age (years) first used marijuana: *M* = 16.93, SD = 3.40 (low delinquency males) *M* = 17.28, SD = 2.80 (low delinquency females) Age (years) first used other illicit drugs: *M* = 18.21, SD = 3.83 (low delinquency males) *M* = 17.90, SD = 3.03 (low delinquency females)
Reingle et al. (2012)	*Add Health* 9421 nationally representative male/female youth (US)	Low parental alcohol use (*M* = 15 years) (P)	Violent delinquency over the next 11 years (*M* = 26.5 years)	OR = 0.84[+] CI = 0.68, 1.03 (desistors) [ns in multivariate analyses]
Reingle, Jennings, & Komro (2013)	*PNC* 2165 urban Grade 6 youth (54 incarcerated) (US)	No marijuana use during past 12 months (Grade 6)	Incarceration at Grade 12	OR = 0.758*, CI = 0.584, 0.971 (marijuana use) [bivariate conditional logistic regression] [ns in multivariate analyses adjusting for behavioral and contextual risk factors]

[+]p < 0.10*p < 0.05, **p < 0.01, ns = not significant

Note. M = mean; S = self-report; P = parent report; OR = odds ratio; CI = 95% confidence interval; SD = standard deviation

Given that substance use is a well-established risk factor for violence (Bonta & Andrews, 2017), it is not surprising that low exposure to substances is protective against offending for adolescents. Use of substances, such as alcohol, impairs important aspects of cognitive functioning such as judgement, memory, and inhibition, and leads to problematic behaviour (American Psychological Association [APA], 2013). Severe alcohol use disorder is associated with criminality; particularly, when individuals also have antisocial traits (APA, 2013). The risk of violence associated with substance use is therefore minimized when adolescents have less exposure to alcohol and other illicit substances.

Easy temperament. Table 2.18 displays two studies that provide evidence that possessing a gentle temperament is protective for adolescents against later offending. In the *TRAILS* study, having an easy temperament was promotive against delinquency two years later, increasing adolescents' likelihood of being a non-delinquent by 5.2%, decreasing their likelihood of being a minor delinquent by 3.1%, and decreasing their likelihood of being a serious delinquent by 2.1% in comparison to adolescents with neutral temperaments (van der Laan et al., 2010). The promotive effect remained significant for nondelinquents and serious delinquents even when

baseline delinquency was included in the model (van der Laan et al., 2010). Similarly, in the *ATP* study of adolescents with high externalizing problems, low negative reactivity at age 13-14 years was marginally protective against antisocial behaviour at age 19-20 years for those who had bullied others, after adjusting for demographic variables (Vassallo et al., 2014).

Table 2.18. Easy Temperament as a PF: Summary of Included Studies.

Study	Sample	PF measure	Outcome measure	Results
van der Laan et al. (2010)	*TRAILS* 2230 male/female youth from five municipalities, both urban and rural (*M* = 11 years) (Netherlands)	Easy temperament (top 25%) at age 11 years (cumulative scale that includes high effortful control, high shyness, and low surgency)	Delinquency (S) at age 13.5 years	+5.2%**, SE = 1.3 (non-delinquent) -3.1%*, SE = 1.5 (minor delinquent) -2.1%*, SE = 0.9 (serious delinquent) [univariate] +4.2%**, SE = 1.2 (non-delinquent) -1.6%*, SE = 0.8 (serious delinquent) [controlling for baseline delinquency]
Vassallo et al. (2014)	*ATP* 1359 male/female youth with high externalizing problems (Australia)	Low reactivity (bottom 25%) at age 13-14 years (P)	Antisocial behaviour during past year at age 19-20 years (S)	B = -0.83[+], CI = -1.75, 0.10, d = 0.27 (bullies only) [adjusted for sex, parental education/occupation, and mother's age]

[+]$p < 0.10$, *$p < 0.05$, **$p < 0.01$
Note. M = mean; P = parent report; CI = 95% confidence interval; SE = standard error; *B* = ordinary least squares regression coefficient; *d* = Cohen's d effect size

Important aspects of temperament include the ability to voluntarily regulate behaviour and attention, behavioural inhibition around novelty and challenge, pleasure attained from high intensity or novel activities, and frustration tolerance (van der Laan et al., 2010). These studies provide preliminary evidence for a possible protective effect of temperament against adolescent delinquency that warrants further investigation.

Low parental stress. Table 2.19 presents two studies that suggest low parental stress may be protective against youth violence. In the *PYS*, low parental stress at age 10-12 years old was promotive against violence at age 13-19 years for boys who lived in deprived neighbourhoods, in disrupted families, or were African American, as compared to boys whose parents had neutral stress (Jolliffe et al. 2016). Additionally, in the *TRAILS* study, low parental stress (i.e., stress experienced by the caregiver in relation to the child) was promotive for youth, increasing their likelihood of being a non-delinquent by 5.4% (van der Laan et al., 2010).

Table 2.19. Low Parental Stress as a PF: Summary of Included Studies.

Study	Sample	PF measure	Outcome measure	Results

Jolliffe et al. (2016)	*PYS* 503 boys in an age 7 cohort (US)	Low parental stress at age 10-12 years (i.e., caretaker's perceptions of their stress levels and ability to handle problems)	Official records and violence (S) between age 13-19 years	OR = 2.5** (deprived neighborhood) OR = 1.9* (disrupted family) OR = 2.3* (African American)
van der Laan et al. (2010)	*TRAILS* 2230 male/female youth from five municipalities, both urban and rural (*M* = 11 years) (Netherlands)	Low parental stress at age 11 years (P) (short form of *Parental Stress Index* that measures the magnitude of stress in the parent-child system)	Delinquency (S) at age 13.5 years	+5.4%**, SE = 2.2 (non-delinquent) [univariate]

*p < 0.05, **p < 0.01

Note. M = mean; S = self-report; P = parent report; OR = odds ratio; SE = standard error

Lack of depression. Table 2.20 displays three studies that suggest a lack of depression is protective for adolescents against later offending. In the *PYS*, boys with low levels of depressed mood at age 12 years were less likely to have engaged in violence at age 15-18 years as compared to those with neutral levels of depressed mood (Pardini et al., 2012). A different analysis of boys in the *PYS* also revealed that low levels of depressed mood at age 10-12 years was protective against violence between age 13-19 years as compared to those with neutral levels of depressed mood, with violence rates dropping from 25% to 15% (Jolliffe et al. 2016). Lastly, among adolescents who participated in the *Add Health* study, low emotional distress (i.e., depression and anxiety) was found to reduce the likelihood of violence one year later compared to those with neutral (middle 50%) emotional distress, after controlling for demographic variables (Bernat at al., 2012). A conflictual result was found among youth in *PNC*, where self-reported sadness in Grade 6 (i.e., felt sad at least once in the past month) was significant within a multivariate logistic regression model containing risk factors for incarceration, reducing the likelihood of incarceration during Grade 12 (OR = 0.51, CI = 0.36, 0.81, *p* < 0.05) (Reingle, Jennings, & Komro, 2013). The authors noted that although the presence of depression is generally considered a risk factor for criminal behaviour, global measures of sadness may operate differently than clinical depression (Reingle, Jennings, Lynne-Landsman, et al., 2013). The relationship between depression and criminality has also been contested. For example, Collins et al. (2011) found no relationship between depression and recidivism in juvenile delinquents after controlling for length of time at-risk (i.e., time spent not in detention), criminal

history, and the presence of other disorders. It may be that adolescents experiencing depressive episodes self-medicate using substances, which in turn increases their risk of recidivism (Wilson et al., 2001).

Table 2.20. Lack of Depression as a PF: Summary of Included Studies.

Study	Sample	PF measure	Outcome measure	Results
Bernat et al. (2012)	*Add Health* 14,738 male/female nationally representative youth (US)	Low emotional distress (i.e., depression and/or anxiety) in Grade 7 (13 years)	Violence (S) during past year ($M = 14$ years)	OR = 0.58*, CI = 0.35, 0.97 [bivariate analyses] OR = 0.51*, CI = 0.28, 0.94 [multivariate regression controlling for gender, ethnicity, and public assistance]
Jolliffe et al. (2016)	*PYS* 503 boys in an age 7 cohort (US)	Low levels of depressed mood at age 10-12 years (S)	Official records and violence (S) between age 13-19 years	OR = 1.8*
Pardini et al. (2012)	*PYS* 503 boys in Grade 1 cohort (50% in upper 30% on antisocial behaviour; 50% randomly selected) (US)	Low levels of depressed mood at age 12 years (S)	Violence (S) between age 15-18 years	OR = 0.413**, CI = 0.243, 0.700

*p < 0.05, **p < 0.01
Note. M = mean; S = self-report; OR = odds ratio; CI = 95% confidence interval

Adverse childhood experiences (APA, 2013), early loss or maltreatment (Kendler et al., 2012), and stress (Hammen, 2009), have all been implicated in the etiology and maintenance of depression, with moderation by factors such as poor coping and affect regulation skills, insufficient support, or poor attachment (Wolff et al., 2017). Many of these associated factors are known risk factors for violence in adolescents (see Borum et al., 2003), so a lack of depression may be a proxy for the absence of certain risk factors for violence.

Socioeconomic status (SES). Table 2.21 presents two studies that suggest aspects of SES—including income, housing quality, and working parents—are protective for adolescents against later offending. In the *PYS*, high SES at age 10-12 years was protective against violence between age 13-19 years for all boys as compared to boys with neutral SES (Jolliffe et al., 2016). Moreover, housing quality was protective against violence between age 13-19 years for all boys, including African American boys, and those from deprived neighbourhoods or disrupted families (Jolliffe et al., 2016). Similarly, for boys in the *CSDD* with a convicted parent, high family income and small family size at age 8-10 years reduced their conviction rate between age 10-18

years (from 59% to 26% for high family income; from 56% to 35% for small family size) (Farrington et al., 2016). For boys described as troublesome, having a full-time working mother also reduced the conviction rate from 53% to 31% (Farrington et al., 2016).

Table 2.21. SES as a PF: Summary of Included Studies.

Study	Sample	PF measure	Outcome measure	Results
Farrington et al. (2016)	*CSDD* 411 boys in a working-class area (UK)	High family income at age 8-10 years	Legal conviction between age 10-18 years	OR = 4.0* (convicted parent)
		Small family size at age 8-10 years		OR = 2.4* (convicted parent)
		Full-time working mother at age 8-10 years		OR = 2.5* (troublesome)
Jolliffe et al. (2016)	*PYS* 503 boys in an age 7 cohort (US)	High housing quality at age 10-12 years (interviewer's assessment of the youth's home based on structural condition, visible signs of deterioration, and cleanliness)	Official records and violence (S) between age 13-19 years	OR = 2.3** (all) OR = 2.9*, CI = 1.0, 8.0 (deprived neighborhood) OR = 2.7* (African American) OR = 2.5** (disrupted family)
		High SES at age 10-12 years		OR = 2.1* (All)

*p < 0.05, **p < 0.01
Note. S = self-report; OR = odds ratio; CI = 95% confidence interval

Whereas adolescents with low SES, such as homeless youth, may resort to shoplifting, robbery, or drug dealing as a means of financial gain to meet basic survival needs (Whitbeck & Hoyt, 1999), those with moderate or high SES may be less likely to engage in such financially opportunistic crimes because they already have access to resources such as food, shelter, clothing, and transportation.

Cumulative protective effects. Table 2.22 displays thirteen studies that provide evidence of *cumulative protective effects*, that is, as the total number of protective factors present increase, adolescents' chances of engaging in later offending cumulatively decreases over and above an individual protective factor in isolation. In the 25-year follow-up *IDA* study of male adolescents, the total number of protective factors at age 13 years within and across individual, school, peer, and family domains was associated with a significant decrease in the likelihood of violent offending (Andershed et al, 2016). Whereas males with only one protective factor had a 20% chance of being convicted for a violent offense, those with eight to ten protective factors had nearly a 0% chance of violent offending (Andershed et al, 2016). In addition, as the total number

of protective factors increased, the probability of violent offending began to decrease more rapidly for males with no adolescent risk factors for violent offending; particularly between the range of one to five protective factors in total (Andershed et al, 2016). Similarly, in the 40-year follow-up *CCLS* study of adolescent males, the sum of protective factors at age 19 years buffered males at risk for violence against the negative effects of risks for likelihood of adulthood violence (Dubow et al., 2016). In the *MLES* study of adolescent males from low SES neighbourhoods, cumulative protective factors during mid-adolescence had a compensatory effect against violent delinquency in late adolescence for all males, and for those from each of the five profiles of delinquency (Fontaine et al., 2016). Interestingly, average levels of protective effects offset the risk of violent delinquency for low and moderately aggressive-disruptive youth (Fontaine et al., 2016). In the eight-year follow-up *A-IDS* study, among adolescents with low family SES, total protective factor score in grade 5 greatly reduced the odds of young adult violent offending (Hemphill et al., 2016). For adolescents with high drug use, the total protective factor score in grade 9 also reduced the likelihood of violent offending in grade 11 and in young adulthood (Hemphill et al., 2016). Similarly, in the *SSDP* analysis of high-risk adolescents, across all risk levels, the more protective factors that youth were exposed to at age 15, the lower their probability of violence at age 18 (Herrenkohl et al., 2003).

In the *Boricua Youth Study (BYS)* involving Puerto Rican adolescents from the Bronx, New York, researchers followed two different age cohorts over three years (Jennings et al., 2016). The presence of cumulative protective factors offset some of the effect that cumulative risk factors had on violence, with children and adolescents who expressed more protective factors being significantly less likely to participate in violence over the follow-up period (Jennings et al., 2016). Similar results were found in the *SSDP*, wherein higher levels of

protective factors during early and middle adolescence reduced the odds of violence during late adolescence for the entire cohort, after controlling for demographic variables and SES (Kim et al., 2016). Higher levels of protective factors during middle adolescence were also protective for the low cumulative risk, high cumulative risk, low SES, and high SES groups (Kim et al., 2016). Interestingly, the cumulative protective effect was greater in reducing violence among adolescents exposed to high levels of cumulative risk than for adolescents exposed to lower levels of cumulative risk (Kim et al., 2016). Although no single protective factor significantly reduced the odds of violence across developmental periods, when controlling for cumulative risk and demographic variables, a one-unit increase in the total protective factor score in middle adolescence significantly reduced the odds violence in late adolescence by 43.1% (Kim et al., 2016).

A different study examined cumulative promotive factors in adolescents who were at risk for high school drop-out (Stoddard et al., 2012). Researchers followed the youth over four years and created a cumulative promotive factor index. For every unit increase in adolescents' cumulative promotive factors, violent behaviour significantly decreased across adolescence (Stoddard et al., 2012). Adolescents who reported higher cumulative promotive factors exhibited lower levels of violence at baseline and over time than adolescents who had lower cumulative promotive factors (Stoddard et al., 2012). Among those with higher cumulative risks (1 SD above the mean), the presence of more promotive factors buffered adolescents' mean violent score over time when compared to those with high cumulative risks and fewer promotive factors (Stoddard et al., 2012). For adolescents with low cumulative risk, violence was comparable between those with low versus high cumulative promotive factors (Stoddard et al., 2012).

Similar results were found in the *NLSY: C-M* study where researchers followed youth

over six years (Hartman et al., 2009). Whereas individual protective factors had only trivial independent effects, the cumulative effect of protective factors for resilience against serious delinquency was strong for the full sample, and robust for females and males (Hartman et al., 2009). Similarly, in a study of elementary school children from low-income families, total protective factors during elementary school was associated with lower lifetime rates of violence, delinquency, and status offences by age 18 years (Herrenkohl et al., 2005). The cumulative protective factor index accounted for 4% to 9% of variance in these outcomes after controlling for age, gender, and early antisocial behavior (Herrenkohl et al., 2005). In the *Welfare, Children & Families: A Three City Study (WCF:TCS)*, researchers followed low-income African American and Latino adolescents over six years (Ernestus & Prelow, 2015). Using cluster analysis, the researchers labelled 43% adolescents as resilient (i.e., had higher levels of protective factors and more positive outcomes overall) (Ernestus & Prelow, 2015). In two out of the three sampled cities, the resilient adolescents demonstrated less delinquency than adolescents with average or low levels of protective factors (Ernestus & Prelow, 2015). Similarly, in the two-year follow-up *TRAILS* study, accumulation of promotive effects decreased likelihood of being delinquent and supported being nondelinquent, regardless of risk level (van der Laan et al., 2010).

Lastly, in the prospective *Kauai Longitudinal Study (KLS)*, researchers followed high-risk children, who had a delinquency record by age 18 years, over 14 years (Werner, 1989; Werner, 1996). Of these individuals, 72% of males and 90% of females did not have a criminal record by age 32 years (Werner, 1996; Werner, 1989). These crime-resistant individuals were characterized by having more protective factors as compared to those who went on to commit adult crimes (Werner, 1996; Werner, 1989). For example, crime-resistant adolescents were more likely to be

raised within an intact family (75%) as compared to their counterparts (17%) who committed

adult crimes (Werner, 1989; Werner, 1996).

Table 2.22. Cumulative Protective Effects: Summary of Included Studies.

Study	Sample	PFs comprising cumulative index	Outcome measure	Results
Andershed et al. (2016)	*IDA* 475 general population boys from a mid-sized town (Sweden)	PFs across and within the individual, school, peer, and family domains at age 13 years	Registered convictions of violent offences between age 12-35 years	OR = 0.685** across domains OR = 0.476** individual domain OR = 0.528** school domain OR = 0.462** peer domain OR = 0.56** family domain
Dubow et al. (2016)	*CCLS* 436 socioeconomically heterogeneous boys from a Grade 3 cohort (268 men retained) (US)	PFs: Aggression anxiety, popularity, parental church attendance, fewer negative family interactions, and educational aspirations at age 8 and 19 years	Adulthood violence (age 19, 30, and 48 years) based on official records up to age 18 and (S) during past year	$\chi^2(2) = 12.93$** (males at-risk for violence)
Ernestus & Prelow (2015)	*WCF:TCS* 930 low-income male/female African American and Latino youth age 10-14 years old (M = 12 years) (US)	PFs: Academic achievement, school engagement and attachment (S), parental monitoring, parent-child trust, neighborhood collective efficacy and low neighborhood problems (mother report) during early adolescence	Delinquency (S) 6 years later (age 15-20 years; M = 18 years)	The resilient cluster of youth (who had more PFs) showed less delinquency (in two out of three cities) than the other two clusters of youth (had fewer PFs)
Fontaine et al. (2016)	*MLES* 1037 White French-speaking adolescent males from low SES neighbourhoods (Canada)	PFs: perceived legitimacy of legal authorities, parental supervision, and school engagement during mid-adolescence (age 14-15 years)	Violent delinquency (S) during age 16-17 years (late-adolescence)	b = -0.29***, CI = -0.39, -0.19 (all)
Hartman et al. (2009)	*NLSY: C-M* 711 male/female youth (> 50% high-risk for delinquency; age 10-17 years: M = 11.6 years) (US)	8 PFs (dichotomized into upper/lower 50%): Self-esteem, self-perceived scholastic competence, self-perceived global self-worth, academic competence, positive school environment, cognitive stimulation, emotional support, and religiosity	Resilience to delinquency/crime (S) (i.e., no involvement in serious criminal behavior during the next 6 years)	OR = 1.36*, B = 0.30, SE = 0.09 (all) OR = 1.33*, B = 0.29, SE = 0.12 (females) OR = 1.39*, B = 0.33, SE = 0.14 (males)
Hemphill et al. (2016)	*A-IDS* 437 male/female adolescents (60% high drug use (N = 264); 18% low family SES (N = 78)) (Australia)	16 PFs in the individual, family, school, and community domains	Violent offending (S) over lifetime (Grade 5) and during past year (Grades 9, 11, and 18-19 years)	OR = 0.07*, CI = 0.01, 0.89 (low SES family: Grade 5 to young adulthood) OR = 0.02**, CI = 0.003, 0.22 (high drug use: Grade 9 to Grade 11) OR = 0.28*, CI = 0.08, 0.96 (high drug use: Grade 9 to young adulthood)
Herrenkohl et al. (2003)	*SSDP* 154 high risk (i.e., aggressive) Grade 5 male/female students living in high crime neighbourhoods (US)	PFs across all domains: community, family, school, peer, and individual at age 15 years	Violence (S) during past year at age 18 years	Across all risk levels, the more PFs that youth were exposed to, the lower their probability of violence
Herrenkohl et al. (2005)	457 elementary school children (majority low-income families) (US)	PFs: Commitment to school and importance of education, parent/peer disapproval of antisocial behavior, positive future orientation, and participation in and importance of religion during elementary school	Lifetime delinquency at age 18 years Lifetime violence at age 18 years Lifetime status offences at age 18 years	*St. B* = -0.29***, B = -2.03, SE = 0.34, ΔR^2 = 0.08 *St. B* = -0.24***, B = -0.22, SE = 0.05, ΔR^2 = 0.05 *St. B* = -0.28***, B = -0.39, SE = 0.07, ΔR^2 = 0.07

Jennings et al. (2016)	*BYS* 1138 Puerto Rican male/female youth in two age cohorts (5-9 years and 10-13 years) (US)	PFs: No impulsivity, academic achievement, not physically/sexually abused, positive parent-child relationship, positive peer relationships, positive school environment, no early developmental delay, being acculturated, no cultural stress	Violence participation 3 years later during past year (S)	OR = 0.551***, -45% (younger cohort) OR = 0.676**, -33% (older cohort) [% decrease in violence participation at year 3 for each 1-point increase in PF index]
Kim et al. (2016)	*SSDP* 808 youth (25% low SES) (US)	PFs across community, family, and school domains during early (age 10-12 years) and middle (age 13-14 years) adolescence	Violence during late adolescence (age 15-18 years) (S)	Early adolescence: OR = 0.556* (all) [controlled for demographic variables / SES] Middle adolescence: OR = 0.389*** (all) [controlled for demographic variables / SES] OR = 0.569***, -43.1% (all) [controlled for risk and demographic variables] Middle adolescence: OR = 0.605* (low cumulative risk); OR = 0.257** (high cumulative risk) OR = 0.343** (low SES) OR = 0.399** (high SES)
Stoddard et al. (2012)	750 youth from a midwestern city at-risk for high school dropout at the beginning of Grade 9 from 4 high schools (80% African American) (US)	PFs (high is 1SD above the mean): self-acceptance, positive attitude about school, school relevance, future expectations, friends' support, friends' positive influences, friends' participation in positive activities, parent support, family participation in recreational/fun events	Violence (S) during the next 4 years (Grade 9 into early adulthood)	$b = -0.01^*$, SE = 0.004 [decrease in violence for every unit increase in cumulative PF index]
van der Laan et al. (2010)	*TRAILS* 2230 male/female youth from five municipalities, both urban and rural (Netherlands)	PFs across individual, family, and school domains at age 11 years	Delinquency (S) at age 13.5 years	Regardless of risk level, accumulation of promotive effects decreased likelihood of being delinquent and supported being nondelinquent
Werner (1989); Werner (1996)	*KLS* 103 high risk multiracial children from a 1955 birth cohort (born into poverty, experienced perinatal stress, and lived in a family environment troubled by discord, divorce, parental alcoholism, or mental illness) with a delinquency record by age 18 (US)	PFs: Not described as "troublesome" during middle childhood (T/P), average range of intelligence (aptitude testing) in early/middle childhood, higher early childhood sensory-motor skills and social competence (pediatrician and psychologist developmental examination), received structure from an older relative (parent, grandparent, aunt, or uncle), and intact family during teenage years	Criminal record by age 32 years	Crime-resistant youth had significantly higher rates of these PFs as compared to their counterparts who committed adult crimes

*p < 0.05, **p < 0.01, ***p < 0.001

Note. M = mean; S = self-report; T = teacher report; P = parent report; OR = odds ratio; CI = 95% confidence interval; SE = standard error; χ^2 = chi-square test statistic; r = bivariate correlation coefficient; b/B = unstandardized regression coefficient; *St. B* = standardized regression coefficient; ΔR^2 = change in total variance explained after accounting for age and gender.

To summarize, numerous longitudinal studies provide support for the effect of cumulative protective factors for adolescents leading to a lower likelihood of offending during adolescence and early adulthood through risk-buffering effects. This effect appears to be evident for both general population adolescents as well as those considered at-risk for offending.

Discussion

The evidence summarized in this review provides support for the existence of various adolescent protective factors that reduce adolescents' likelihood of engaging in serious delinquency, violence, or offending during adolescence and emerging adulthood. Several longitudinal studies (i.e., at least four) provided evidence for the following adolescent protective factors: 1) low antisocial attitudes and behaviours, 2) academic achievement, 3) high educational aspirations, 4) low ADHD symptoms, 5) non-clinical anxiety / shyness, 6) low peer/parental delinquency or attitudes toward delinquency, 7) school engagement and school attachment, 8) religious service attendance, 9) caregiver monitoring, 10) family management and structure, 11) family bonding and involvement, 12) positive neighborhood, 13) social competence and prosocial peer relationships, 14) prosociality, and 15) low use of and exposure to substance use. Fewer longitudinal studies (i.e., three or less) were available to provide support for the following protective factors: 16) primary language, 17) female gender, 18) easy temperament, 19) low parental stress, 20) lack of depression, and 21) SES. Nonetheless, these latter factors warrant further investigation, given that at least two longitudinal studies provided preliminary evidence of their protective effects. Within the risk-focused literature, there is also evidence that the inverse of some of these protective factors are risk factors for offending. For example, anger management problems and history of self-harm or suicide attempts are established risk factors for adolescent violence (Borum et al., 2003), and could be conceptualized as the risk-end of the protective factors of easy temperament, and lack of depression, respectively. Similarly, male biological sex is often included as a risk factor on risk assessment measures as ample research has found that males have higher risk for offending (Funk, 1999), thereby acting as a dichotomous mixed risk-protective factor.

Examined in isolation, most adolescent protective factors had weak associations with later offending. There were some exceptions, with a few moderate to large associations found for protective factors 1, 2, 4, 5, 6, 7, 9, 10, 11, 13, and 21 (as numbered in the previous paragraph in the current discussion section) within some of the studies or subgroup analyses. However, these results should be considered with caution. In many cases, confidence intervals were large (or not reported), diminishing the certainty of the results. Often this occurred in relation to small samples or subgroups used in the analyses; thus, further investigation with larger samples is warranted. Typically, individual protective factors did not significantly reduce the odds of offending across the entire adolescent developmental period (Kim et al., 2016; Hartman et al., 2009), as these factors are weak in isolation, and change or operate differently over time. Moreover, each of the protective factors reported varied in their significance level and effect size across different subgroups of adolescents and different levels of risk and vulnerability. Generally, stronger protective factor associations were found by researchers when offending, delinquency, or violence outcomes were more proximal in time. Within any prediction science, finding predictors becomes more challenging when outcomes become increasingly distal. Many of the studies that were included had follow-up periods that went well beyond the two-year inclusion criteria and into adulthood (e.g., Reingle, Jennings, Lynne-Landsman, et al. 2013). Therefore, although the protective factors that I summarized have mostly weak associations with later offending, they may still have practical significance within the context of risk prediction and crime prevention initiatives. Even small reductions in offending behaviour for a large population of offenders can represent a large number of prevented offences (Wilson et al., 2005).

Notably, several high-quality longitudinal studies provided robust evidence for cumulative protective effects against later offending that transcended throughout the adolescent

developmental period (Kim et al., 2016; Jennings et al., 2016). The cumulative protective effects were applicable to general population adolescents (Van der Laan et al., 2010; Andershed et al., 2016), those with high-risk for offending (Dubow et al., 2016; Herrenkohl et al., 2003; Hartman et al., 2009), and adolescents with low SES (Herrenkohl et al., 2005; Fontaine et al., 2016). Generally, as the total number of protective factors increase, the probability of offending decreases more rapidly for adolescents with no childhood risk factors for violent offending (Andershed et al, 2016), suggesting that protective factors have stronger impact for adolescents with lower baseline risk. For adolescents with higher levels of baseline risk (e.g., living in a disadvantaged environment or being at-risk of school dropout) cumulative protective factors still offset some of the effect that cumulative risk factors have on later offending (Jennings et al., 2016; Stoddard et al., 2012). One study (Kim et al., 2016) found that protective factors had a greater effect in reducing violence among adolescents exposed to high cumulative risk than for those exposed to lower cumulative risk. Inconsistencies across studies in the operational definitions, measurement of, and selection of different risk and protective factors and outcome measures likely accounted for variations in the strength of the cumulative protective effects.

Limitations. The review reported here combines results from numerous quantitative longitudinal studies in order to identify protective factors for adolescents against later offending. I was limited in my ability to meaningfully quantitatively integrate the results on protective factors across studies due to differences in sample populations and methodology, along with inconsistencies in the operational definitions of predictors and outcome measures, and the length of follow-up periods. There was also variation in the quality of the studies that I included, for example, some studies had higher retention rates than others, or relied solely on self-report outcome measures rather than a combination of official convictions and self-report measures. In

addition, due to participant drop-out within longitudinal studies, the results were subject to attrition bias, wherein the presence of protective factors may be overrepresented within the retained participants. Publication bias might account for some of the effects of protective factors that I observed, especially considering that several of the included articles incorporated data from the same major longitudinal studies. Lastly, there are probably other important protective factors missing from the results of this review because they are systematically absent within the research literature. For example, predictors that are not readily available or difficult to measure, such as genetic markers or early developmental factors, are less likely to have been included in research exploring potential promotive and protective factors. These potential predictors warrant exploration as potential protective factors in future research.

Conclusion

Much remains to be learned about the complex operation of protective factors throughout the adolescent developmental period and their association with a reduction in later offending. There is a growing body of literature covering this topic that has revealed promising results which provides researchers with direction for expansion. Through a better understanding of the nature of protective factors, their cumulative effects, and their complex interplay with the pre-existing risks and vulnerabilities of different adolescent populations, researchers and clinicians may increase their capacity to begin to understand how to promote healthy developmental trajectories for adolescents through various individual, family, community, and systemic initiatives. This information would help to inform decision-making within the legal system and guide clinicians in their treatment of justice-involved youth. There would also be implications for the creation and implementation of policies aimed at building safer communities by promoting adolescent resiliency against offending.

References: Chapter 2

Allen, J. P., Weissberg, R. P., & Hawkins, J. A. (1989). The relation between values and social competence in early adolescence. *Developmental Psychology, 25*(3), 458. http://dx.doi.org/10.1037/0012-1649.25.3.458

American Psychiatric Association [APA] (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: American Psychiatric Publishing

Andershed, A. K., Gibson, C. L., & Andershed, H. (2016). The role of cumulative risk and protection for violent offending. *Journal of Criminal Justice, 45*, 78-84. https://doi.org/10.1016/j.jcrimjus.2016.02.006

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), S57-S66. https://doi.org/10.1016/j.amepre.2012.04.023

Bonta, J., & Andrews, A. D. (2017). *The psychology of criminal conduct* (6th ed.). New York, NY: Taylor & Francis.

Borum R., Bartel P., Forth A. (2003). *Manual for the Structured Assessment of Violence Risk in Youth* (SAVRY). Odessa, FL: Psychological Assessment Resources.

Brumley, L. D., & Jaffee, S. R. (2016). Defining and distinguishing promotive and protective effects for childhood externalizing psychopathology: A systematic review. *Social Psychiatry and Psychiatric Epidemiology, 51*(6), 803-815. https://doi.org/10.1007/s00127-016-1228-1

Cicchetti, D., & Toth, S. L. (2009). The past achievements and future promises of developmental psychopathology: The coming of age of a discipline. *Journal of Child Psychology and Psychiatry, 50*(1-2), 16-25. https://www.ncbi.nlm.nih.gov/pubmed/19175810

Colins, O., Vermeiren, R., Vahl, P., Markus, M., Broekaert, E., & Doreleijers, T. (2011). Psychiatric disorder in detained male adolescents as risk factor for serious recidivism. *The Canadian Journal of Psychiatry, 56*(1), 44-50. https://doi.org/10.1177/070674371105600108

Cowen, E. L., Pederson, A., Babigian, H., Isso, L. D., & Trost, M. A. (1973). Long-term follow-up of early detected vulnerable children. *Journal of Consulting and Clinical Psychology, 41*(3), 438. https://doi.org/10.1037/h0035373

Dubow, E. F., Huesmann, L. R., Boxer, P., & Smith, C. (2016). Childhood and adolescent risk and protective factors for violence in adulthood. *Journal of Criminal Justice, 45*, 26-31. http://dx.doi.org/10.1016/j.jcrimjus.2016.02.005

Ernestus, S. M., & Prelow, H. M. (2015). Patterns of risk and resilience in African American and Latino youth. *Journal of Community Psychology, 43*(8), 954-972. https://doi.org/10.1002/jcop.21725

Farrington, D. P., Ttofi, M. M., & Piquero, A. R. (2016). Risk, promotive, and protective factors in youth offending: Results from the Cambridge study in delinquent development. *Journal of Criminal Justice, 45*, 63-70. https://doi.org/10.1016/j.jcrimjus.2016.02.014

Fergus, S., & Zimmerman, M. A. (2005). Adolescent resilience: A framework for understanding healthy development in the face of risk. *Annual Review of Public Health, 26*, 399-419. https://doi.org/10.1146/annurev.publhealth.26.021304.144357

Fergusson, D. M., Boden, J. M., & Horwood, L. J. (2014). Bullying in childhood, externalizing behaviors, and adult offending: Evidence from a 30-year study. *Journal of School Violence, 13*(1), 146-164. https://doi.org/10.1080/15388220.2013.840642

Fergusson, D. M., Vitaro, F., Wanner, B., & Brendgen, M. (2007). Protective and compensatory factors mitigating the influence of deviant friends on delinquent behaviours during early adolescence. *Journal of Adolescence, 30*(1), 33-50. https://doi.org/10.1016/j.adolescence.2005.05.007

Fitzpatrick, K. M. (1997). Fighting among America's youth: A risk and protective factors approach. *Journal of Health and Social behavior, 38*(2), 131. https://www.jstor.org/stable/2955421

Fontaine, N. M., Brendgen, M., Vitaro, F., & Tremblay, R. E. (2016). Compensatory and protective factors against violent delinquency in late adolescence: Results from the Montreal longitudinal and experimental study. *Journal of Criminal Justice, 45*, 54-62. http://dx.doi.org/10.1016/j.jcrimjus.2016.02.013

Fougere, A. & Daffern, M. (2011). Resilience in young offenders. *International Journal of Forensic Mental Health, 10*(3), 244-253. https://doi.org/10.1080/14999013.2011.598602

Funk, S. J. (1999). Risk assessment for juveniles on probation: A focus on gender. *Criminal Justice and Behavior, 26*(1), 44-68. https://doi.org/10.1177/0093854899026001003

Greven, C. U., Merwood, A., van der Meer, J. M., Haworth, C. M., Rommelse, N., & Buitelaar,

J. K. (2016). The opposite end of the attention deficit hyperactivity disorder continuum: genetic and environmental aetiologies of extremely low ADHD traits. *Journal of Child Psychology and Psychiatry, 57*(4), 523-531. https://doi.org/10.1111/jcpp.12475

Hammen, C. (2009). Adolescent depression: Stressful interpersonal contexts and risk for recurrence. *Current Directions in Psychological Science, 18*(4), 200-204. https://doi.org/10.1111/j.1467-8721.2009.01636.x

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. https://doi.org/10.1177/0306624X08326910

Hemphill, S. A., Heerde, J. A., & Scholes-Balog, K. E. (2016). Risk factors and risk-based protective factors for violent offending: A study of young Victorians. *Journal of Criminal Justice, 45*, 94-100. https://doi.org/10.1016/j.jcrimjus.2016.02.012

Herrenkohl, T. I., Hill, K. G., Chung, I. J., Guo, J., Abbott, R. D., & Hawkins, J. D. (2003). Protective factors against serious violent behavior in adolescence: A prospective study of aggressive children. *Social Work Research, 27*(3), 179-191. https://doi.org/10.1093/swr/27.3.179

Herrenkohl, T. I., Lee, J., & Hawkins, J. D. (2012). Risk versus direct protective factors and youth violence: Seattle Social Development Project. *American Journal of Preventive Medicine, 43*(2), S41-S56. https://doi.org/10.1016/j.amepre.2012.04.030

Herrenkohl, T. I., Tajima, E. A., Whitney, S. D., & Huang, B. (2005). Protection against antisocial behavior in children exposed to physically abusive discipline. *Journal of Adolescent Health, 36*(6), 457-465. https://doi.org/10.1016/j.jadohealth.2003.09.025

Jain, S., & Cohen, A. K. (2013). Behavioral adaptation among youth exposed to community violence: A longitudinal multidisciplinary study of family, peer and neighborhood-level protective factors. *Prevention Science, 14*(6), 606-617. https://doi.org/10.1007/s11121-012-0344-8

Jennings, W. G., Gonzalez, J. R., Piquero, A. R., Bird, H., Canino, G., & Maldonado-Molina, M. (2016). The nature and relevance of risk and protective factors for violence among Hispanic children and adolescents: Results from the Boricua Youth Study. *Journal of Criminal Justice, 45*, 41-47. https://doi.org/10.1016/j.jcrimjus.2016.02.009

Jennings, W. G., Higgins, G. E., Tewksbury, R., Gover, A. R., & Piquero, A. R. (2010). A longitudinal assessment of the victim-offender overlap. *Journal of Interpersonal Violence, 25*(12), 2147-2174. https://doi.org/10.1177/0886260509354888

Jessor, R., & Turbin, M. S. (2014). Parsing protection and risk for problem behavior versus pro-social behavior among US and Chinese adolescents. *Journal of Youth and Adolescence, 43*(7), 1037-1051. https://doi.org/10.1007/s10964-014-0130-y

Johnson, S. R. L., Blum, R. W., & Cheng, T. L. (2014). Future orientation: A construct with implications for adolescent health and wellbeing. *International Journal of Adolescent Medicine and Health, 26*(4), 459-468. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4827712/

Jolliffe, D., Farrington, D. P., Loeber, R., & Pardini, D. (2016). Protective factors for violence: Results from the Pittsburgh Youth Study. *Journal of Criminal Justice, 45*, 32-40. https://doi.org/10.1016/j.jcrimjus.2016.02.007

Kendler, K. S., Gardner, C. O., & Prescott, C. A. (2002). Toward a comprehensive developmental model for major depression in women. *American Journal of Psychiatry, 159*(7), 1133-1145. https://doi.org/10.1176/appi.ajp.159.7.1133

Kim, B. E., Gilman, A. B., Hill, K. G., & Hawkins, J. D. (2016). Examining protective factors against violence among high-risk youth: Findings from the Seattle Social Development Project. *Journal of Criminal Justice, 45*, 19-25. https://doi.org/10.1016/j.jcrimjus.2016.02.015

Kurlychek, M. C., Krohn, M. D., Dong, B., Hall, G. P., & Lizotte, A. J. (2012). Protection from risk: Exploration of when and how neighborhood-level factors can reduce violent youth outcomes. *Youth Violence and Juvenile Justice, 10*(1), 83-106. https://doi.org/10.1177/1541204011422088

Li, X., Stanton, B., Pack, R., Harris, C., Cottrell, L., & Burns, J. (2002). Risk and protective factors associated with gang involvement among urban African American adolescents. *Youth & Society, 34*(2), 172-194. https://doi.org/10.1177/0044118802237862

Loeber, R., & Farrington, D. P. (1998). Never too early, never too late: Risk factors and successful interventions for serious and violent juvenile offenders. *Studies on Crime & Crime Prevention*, 7(1), 7-30. http://www.ncjrs.gov/App/publications/abstract.aspx?ID=172920

Loeber, R., Farrington, D.P., Stouthamer-Loeber, M., & White, H.R. (2008). *Violence and serious theft: Development and prediction from childhood to adulthood.* New York: Routledge.

Loehlin, J. C., Neiderhiser, J. M., & Reiss, D. (2005). Genetic and environmental components of adolescent adjustment and parental behavior: A multivariate analysis. *Child development, 76*(5), 1104-1115. https://doi.org/10.1111/j.1467-8624.2005.00900.x

Maldonado-Molina, M. M., Reingle, J. M., Tobler, A. L., Jennings, W. G., & Komro, K. A. (2010). Trajectories of physical aggression among Hispanic urban adolescents and young adults: An application of latent trajectory modeling from ages 12 to 18. *American Journal of Criminal Justice, 35*(3), 121-133. https://doi.org/10.1007/s12103-010-9074-2

Moffitt, T. (1993). Adolescence-limited and life-course persistent antisocial behavior: A developmental taxonomy. *Psychological Review, 100*, 674–701. https://doi.org/10.1037/0033-295X.100.4.674

Murphy, D. A., Brecht, M. L., Huang, D., & Herbeck, D. M. (2011). Trajectories of delinquency from age 14 to 23 in the National Longitudinal Survey of Youth sample. *International Journal of Adolescence and Youth, 17*(1), 47-62. http://dx.doi.org/10.1080/02673843.2011.649401

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. https://doi.org/10.1016/j.amepre.2012.04.024

Park, S., Morash, M., & Stevens, T. (2010). Gender differences in predictors of assaultive behavior in late adolescence. *Youth Violence and Juvenile Justice, 8*(4), 314-331. https://doi.org/10.1177/1541204009361173

Patton, J. D. (2012). The moderating effects of risk, protection and desistance on violence in female adolescents. *Child and Adolescent Social Work Journal, 29*(3), 185-202. https://doi.org/10.1007/s10560-012-0255-3

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. http://dx.doi.org/10.1016/j.jadohealth.2012.08.006

Reingle, J. M., Jennings, W. G., & Maldonado-Molina, M. M. (2012). Risk and protective

factors for trajectories of violent delinquency among a nationally representative sample of early adolescents. *Youth Violence and Juvenile Justice, 10*(3), 261-277. https://doi.org/10.1177/1541204011431589

Rogers, R. (2000). The uncritical acceptance of risk assessment in forensic practice. *Law and Human Behaviour, 24*, 595-605. https://doi.org/10.1023/A:1005575113507

Salekin, R. T., & Lochman, J. E. (2008). Child and adolescent psychopathy: The search for protective factors. *Criminal Justice and Behavior*, *35*(2), 159-172. https://doi.org/10.1177/0093854807311330

Shetgiri, R., Boots, D. P., Lin, H., & Cheng, T. L. (2016). Predictors of weapon-related behaviors among African American, Latino, and white youth. *The Journal of Pediatrics*, 171, 277-282. https://doi.org/10.1016/j.jpeds.2015.12.008

Smokowski, P. R., Mann, E. A., Reynolds, A. J., & Fraser, M. W. (2004). Childhood risk and protective factors and late adolescent adjustment in inner city minority youth. *Children and Youth Services Review, 26*(1), 63-91. https://doi.org/10.1016/j.childyouth.2003.11.003

Sprott, J. B., Jenkins, J. M., & Doob, A. N. (2005). The importance of school: Protecting at-risk youth from early offending. *Youth Violence and Juvenile Justice, 3*(1), 59-77. https://doi.org/10.1177/1541204004270943

Stoddard, S. A., Zimmerman, M. A., & Bauermeister, J. A. (2012). A longitudinal analysis of cumulative risks, cumulative promotive factors, and adolescent violent behavior. *Journal of Research on Adolescence, 22*(3), 542-555. https://doi.org/10.1111/j.1532-7795.2012.00786.x

van der Laan, A. M., Veenstra, R., Bogaerts, S., Verhulst, F. C., & Ormel, J. (2010). Serious, minor, and non-delinquents in early adolescence: The impact of cumulative risk and promotive factors. The TRAILS study. *Journal of Abnormal Child Psychology, 38*(3), 339-351. https://doi.org/10.1007/s10802-009-9368-3

Vassallo, S., Edwards, B., & Forrest, W. (2016). Childhood behavior problems and fighting in early adulthood: What factors are protective? *Journal of Criminal Justice, 45*, 85-93. http://dx.doi.org/10.1016/j.jcrimjus.2016.02.010

Vassallo, S., Edwards, B., Renda, J., & Olsson, C. A. (2014). Bullying in early adolescence and antisocial behavior and depression six years later: What are the protective factors?

Journal of School Violence, 13(1), 100-124.
https://doi.org/10.1080/15388220.2013.840643

Werner, E. E. (1989). High-risk children in young adulthood: A longitudinal study from birth to 32 years. *American Journal of Orthopsychiatry, 59*(1), 72-81.
https://doi.org/10.1111/j.1939-0025.1989.tb01636.x

Werner, E. E. (1996). Vulnerable but invincible: High risk children from birth to adulthood. *European Child & Adolescent Psychiatry, 5*, 47-51. https://doi.org/10.1007/BF00538544

Whitbeck, L. B., & Hoyt, D. R. (1999). Nowhere to grow: Homeless and runaway adolescents and their families. New York: Aldine De Gruyter

Wilson, D. B., Bouffard, L. A., & MacKenzie, D. L. (2005). A quantitative review of structured, group-oriented, cognitive-behavioral programs for offenders. *Criminal Justice and Behavior, 32*(2), 172-204. https://doi.org/10.1177/0093854804272889

Wilson, J. J., Rojas, N., Haapanen, R., Duxbury, E., & Steiner, H. (2001). Substance abuse and criminal recidivism: A prospective study of adolescents. *Child Psychiatry and Human Development, 31*(4), 297-312.
https://link.springer.com/article/10.1023/A:1010234422719

Wolff, J., Frazier, E., Davis, S., Freed, R. D., Esposito-Smythers, C., Liu, R., & Spirito, A. (2017). Depression and suicidality. In C. A. Flessner, & J. C. Piacentini (Eds.), *Clinical handbook of psychological disorders in children and adolescents: A step-by-step manual* (pp. 55-93). New York, NY: The Guildford Press.

Worling, J. R., & Langton, C. M. (2015). A prospective investigation of factors that predict desistance from recidivism for adolescents who have sexually offended. *Sexual Abuse, 27*(1), 127-142. https://doi.org/10.1177/1079063214549260

Chapter 3. Protective Factors for Nonrecidivism in Not Criminally Responsible Adolescents

I explored theoretical protective factors as predictors of nonrecidivism among the entire population of adolescents (N = 147) ever found Not Criminally Responsible on Account of Mental Disorder (NCRMD) in Alberta, Canada from 1972-2018. Using multiple regression, I found that *resistance to antisocial peers* during the NCRMD warrant predicted general nonrecidivism ($F(1, 91) = 5.724$, $p = .019$, $R^2 = .059$) and violent nonrecidivism ($F(1, 91) = 5.77$, $p = .018$, $R^2 = .060$) within the 13.6-year average follow-up period. Using Cox regression survival analysis, the protective effect remained even when accounting for differences in follow-up time. Among adolescents who resisted antisocial peers, 90.4% demonstrated long-term general nonrecidivism and only 9.6% reoffended. Conversely, of those who gravitated towards antisocial peers, 71.4% demonstrated long-term general nonrecidivism and 28.6% reoffended. The study provides evidence that *resistance to antisocial peers* is an important protective factor for NCRMD adolescents. I discuss implications for forensic practice.

Introduction

The Canadian Not Criminally Responsible on Account of Mental Disorder (NCRMD) population is a small but understudied group of individuals that fall under the responsibility of provincial or territorial review boards (Haag et al., 2016). These individuals typically experience severe mental health issues, with the majority having psychotic disorders (Miller et al., 2006). Because of their mental state at the time of their offence(s)—which is determined in part through a comprehensive forensic assessment conducted by a psychiatrist and, sometimes, a psychologist—these individuals are not criminally convicted; rather, they are designated as NCRMD by the court. This court finding is possible when it is demonstrated that (1) an accused is found to have a disease of the mind at the time of the alleged offence(s) and (2) due to the

disease of the mind that Section 16 of the Criminal Code of Canada applied to the accused.

Section 16 of the Criminal Code indicates that "No person is criminally responsible for an act

committed or an omission made while suffering from a mental disorder that rendered the person

incapable of appreciating the nature and quality of the act or omission or of knowing that it was

wrong" (Criminal Code, 1985). After receiving an NCRMD verdict, these individuals are

typically detained in secure forensic psychiatric settings until they can be safely released into the

community. Upon annual review by a provincial or territorial review board, they may be granted

conditional discharge, where they live in the community with certain conditions and restrictions

in place, or ultimately, *absolute discharge*, free of any supervision, once they no longer present a

significant threat to public safety (see section 672.54 of the Criminal Code, 1985).

Recidivism. Within Alberta's NCRMD population, recidivism rates are low, with a

general recidivism rate of 4.5% after 5 years, 10.1% after 10 years, 15.3% after 15 years, 19.5%

after 30 years, and 19.7% after 35 years (see Richer et al., 2018). Recidivism rates are even

lower for violent offences (35-year rate of 12.6%) and major violent offences (30-year rate of

4.6%) (Richer et al., 2018). These rates are drastically lower than that of the general offender

population in Canada, which is estimated at 40.6% to 44.0% for general recidivism after two

years of release from federal institutions (Bonta et al., 2003) and 48.8% reconviction after two

years of release for first time offenders from provincial institutions (Gendreau et al., 1979).

Given the relatively low recidivism rates of NCRMD individuals, it is important for forensic

professionals to be able to correctly identify which NCRMD individuals pose little risk to society

so that they can promptly be safely released into the community.

Adolescents. Within Alberta, youth and emerging adults aged 25 years or under at the

time of their NCRMD verdict account for 27% of the NCRMD population from 1941 until April

2018, with only 13 individuals (2%) being under age 18 years at the time of their NCRMD

verdict (Haag et al., 2016). Youth represent a small subgroup of the NCRMD population that

require special consideration of their developmental stage. Adolescents are in a critical period of

their cognitive, emotional, social, and behavioural development that reflects ongoing adaptation

to their environment (Sroufe, 1997) and consolidation of their personality and identity (Kaltiala-

Heino & Eronen, 2015). Moreover, brain development is ongoing throughout adolescence and

into emerging adulthood. For example, the prefrontal cortex, which is responsible for higher

order cognitive processes and executive functions, continues to develop into the mid-twenties

(Johnson et al., 2009). Forensic professionals may be able to utilize this window of opportunity

for NCRMD adolescents to promote resilience against recidivism during this important

developmental period. However, knowledge of important strength-based factors that set the stage

for healthy developmental pathways in this population and success in the community is currently

lacking.

      Protective factors. Within the developmental psychopathology literature, variables that

buffer youth from problems in the face of risk and promote positive outcomes, are called

protective factors (Brumley & Jaffee, 2016). Protective factors may exist within individual,

family, peer, school, and community domains (Loeber & Farrington, 1998). For example, high

educational aspirations (Dubow et al., 2016), prosocial peers (Fergusson et al., 2014), and

healthy family functioning (van der Laan et al., 2010) are protective factors that have been found

to reduce the risk of violence and criminal behavior in certain youth populations. By

understanding protective factors against offending within youth and their environmental

contexts, professionals may be better equipped to reduce youths' likelihood of engaging in

further crime. In order for researchers to gain a better understanding of protective factors during

important developmental periods, there is a need for longitudinal studies with long-term follow-up periods (Loeber & Farrington, 1998) of recidivism.

Present study. In this study, I examine theoretical protective factors and their relationship to nonrecidivism for adolescents found NCRMD in Alberta, Canada. The purpose is to determine which protective factors—both individual and environmental, static and dynamic—can be used to predict long-term nonrecidivism, and possibly play a role in treatment and the prevention of reoffending.

Methods

Sources of data. All data were pulled from the retrospective Alberta NCR Project, wherein researchers examined population wide sociodemographic, mental health, and criminological profiles through extensive file review for all individuals in Alberta ever found NCRMD from 1941 (when the first NCRMD/insanity verdict was delivered in Alberta) onwards (see Haag et al., 2016 for population-wide description).

NCRMD adolescent population description. The final sample consisted of 119 individuals who were 25 or younger at the time of their NCRMD verdict (i.e., 81% of the entire NCRMD adolescent population). All individuals had one or more mental health diagnoses, with the vast majority (85.7%) having a psychotic disorder. All received their NCRMD verdict between 1972 and 2018, with an average age of 21.7 years (SD = 2.67) at the start of their warrant. In terms of the geographic location of the NCRMD index offence, 94.1% were committed within Alberta and 5.9% were committed out of province. Nearly half (49.6%) of the index offences involved direct violence, when excluding sexual offences, homicide, and attempted homicide. The remainder of the offences were classified as follows, with some individuals having more than one offence: weapons (18.5%), homicide (14.3%), arson (9.2%),

attempted homicide (8.4%), robbery (6.7%), sexual offences (5.9%), criminal harassment

(1.7%), and other offence type (31.9%).

As of April 2018, 45 out of the 119 individuals had received absolute discharge, with a

mean length of time to absolute discharge of 7.1 years. Of those who received absolute

discharge, the average age at the time they received absolute discharge was 28.9 years (SD =

8.4). At the time of absolute discharge, 28 individuals were over the age of 25 years, and 17

individuals were age 25 years or younger. The remaining 63 individuals who had not yet

received absolute discharge had been under the Alberta Review Board for an average of 8.3

years. Of those who received conditional discharge, the average age at the time that they

received conditional discharge was 27.2 years (SD = 6.6). Of note, four individuals died while on

an NCRMD warrant, five were transferred out of province, and two became permanently absent

without official leave. In the entire NCRMD adolescent population (N = 147), seven individuals

(4.8%) were known to be deceased, of which two were recidivists. With mortality rates for

discharged forensic psychiatric patients estimated to range from 0.8% to 2.8% per year (Fazel et

al., 2016), the overall mortality rate of 4.8% amongst the Alberta NCRMD adolescent

population, with an average 13.6-year follow-up period, is relatively low.

Measures.

Recidivism. The dependent variables were general recidivism and violent recidivism.

This was measured by recording official convictions from Criminal Police Information Centre

(CPIC) criminal records from the Royal Canadian Mounted Police. The follow-up for recidivism

started at the time of the earliest unsupervised privilege, or post-NCRMD verdict for those with

convictions prior to the first unsupervised privilege (Richer et al., 2018). For those under full

warrant, the first opportunity for recidivism following hospitalization would typically be once

individuals received unsupervised privileges (Richer et al., 2018). Follow-up continued

throughout the NCRMD warrant and following absolute discharge, where applicable. For each

dependent variable, individuals were coded as if they had no general (or violent) recidivism and

if they committed any general (or violent) offence following their NCRMD verdict. As of April

2018, the average follow-up time for recidivism was 13.6 years (SD = 10.0, N = 111); this

excludes individuals who did not receive any form of unsupervised privilege (N = 7), unless they

were a recidivist. For individuals who were known to be deceased (N = 7), the follow-up times

were determined by calculating the difference between their date of death and the date they first

received any form of unsupervised privilege. Table 3.1 displays the frequency of individuals

within each follow-up period.

Table 3.1. Follow-up Periods of Recidivism for Adolescents found NCRMD in Alberta from 1972 to 2018.

Years of follow-up	N (%)
Between 1-2 years	3 (2.7%)
Between 2-5 years	16 (14.4%)
Between 5-10 years	33 (29.7%)
Between 10-15 years	17 (15.3%)
Between 15-20 years	20 (18.0%)
Between 20-25 years	9 (8.1%)
Between 25-30 years	3 (2.7%)
Between 30-35 years	4 (3.6%)
Between 35-40 years	4 (3.6%)
Between 40-46 years	2 (1.8%)

Note. N = 111

Protective factors.

Selection of theoretical protective factors for nonrecidivism. Based upon the findings of

the literature review on protective factors against adolescent offending (Patricny et al., 2020);

items from the SAPROF (de Vogel et al., 2015), SAPROF – Youth Version (de Vries Robbe et

al., 2015), and the SAVRY (Borum et al., 2003); and trends associated with reduced recidivism

(i.e., female gender, presence of a psychotic disorder, and presences of a mood disorder) found

within the larger Alberta NCR Project (Richer et al., 2018), I first derived a comprehensive list

of list of theoretical protective factors for nonrecidivism amongst the Alberta NCRMD

adolescent population. Second, I conducted a pilot data collection test on 15 randomly selected

individuals in the sample to determine which theoretical protective factors were readily available

from information within the files. I eliminated theoretical protective factors that were not

retrievable across the majority of individuals' forensic files within the pilot sample (e.g.,

empathy). I also created additional mental health diagnostic categories to increase specificity.

Third, I reviewed all available forensic files (N = 130) to retrieve information on all remaining

theoretical protective factors. In the interest of ruling out reverse causality, I scored all the

theoretical protective factors from information within the files that was available prior to

absolute discharge. When performing the scoring, I was blind to the outcomes of general

recidivism and violent recidivism. I scored all theoretical protective factors listed in Table 3.2

according to aspects I believed may increase the odds of nonrecidivism (see *Appendix* for

operational definitions of predictor variables). All theoretical protective factors were scored in a

static fashion as opposed to a dynamic fashion. Table 3.2 lists frequency statistics for each

included predictor variable.

Table 3.2. Frequency Statistics for all Included Theoretical Protective Factors.

Predictor	Categories	(%)
Biological sex	Female	10.9
	Male	89.1
Marital status	Ever married or common-law	16.8
	Never married or common-law	83.2
Pure homicide	Index offence is "pure homicide"	6.7
	Index offence is not "pure homicide"	93.3
Model patient	Described as a "model patient"	4.2
	Not described as a "model patient"	95.8

Ethnicity	White	62.2
	Indigenous,	14.3
	African,	10.1
	Asian,	6.7
	East Indian,	3.4
	Hispanic,	1.7
	Middle Eastern;	1.7
School achievement	Completed Grade 12 or a General Education Degree (GED)	45.4
	Did not complete Grade 12 or a GED	54.5
Fixed address at time of index offence	Had a fixed address	89.1
	Unhoused	10.1
Transition home at time last	Living in a transition home or institution	53.8
	Living in the general community (e.g., own home or with family members or foster parents)	42.0
Children	Has biological children	11.8
	No biological children	87.4
No substance misuse history	No substance misuse history	13.8
	Has substance misuse history	86.2
No substance use during NCRMD warrant	Refrained from all substance use	38.7
	Used substances one or more times	58.0
Resistance to antisocial peers	Keeping to themselves, having mostly prosocial peers, or showing evidence of resisting negative peer influences	43.7
	Interacting selectively with antisocial peers or showing evidence of being easily influenced by negative peers	52.9
Pre-existing compliance	Demonstrated compliance with unit rules and treatment	55.5
	Demonstrated noncompliance	42.9
Absent without Official Leave (AWOL)	No instances of AWOL	66.4
	Has been AWOL one or more times	31.1
Family visits	One or more in-person visits from immediate or extended family members (includes adoptive/foster parents)	89.9
	No family visits	6.7
Low impulsivity	Low or absent impulsivity	26.9
	Moderate or present impulsivity	71.4
No attention-deficit/ hyperactivity disorder (ADHD)	No ADHD	71.4
	Has ADHD	27.7
Anxiety	Anxiety disorder diagnosis or subclinical anxiety	41.2
	No notable anxiety	58.8
Psychotic disorder	Has psychotic disorder	85.7
	No psychotic disorder	14.3
Bipolar disorder	Has bipolar disorder	24.4
	No bipolar disorder	75.6
Major depressive disorder	No MDD diagnosis or depressive episodes	68.9

(MDD)	Has MDD diagnosis or depressive episodes	31.1
No persistent depressive disorder (PDD)	No PDD	96.6
	Has PDD	3.4
No other mood disorder	No other mood disorder or other subclinical mood symptoms	73.9
	Has other mood disorder or other subclinical mood symptoms	26.1
Intelligence	Full Scale Intelligence Quotient (FSIQ)	

Full Scale Intelligence Quotient (FSIQ). FSIQ score was the only continuous predictor, and it was available for 105 individuals (11.8% missing). The mean FSIQ score was 86.0 (95% CI = 82.3-89.7; SE = 1.9). The *Kolmogorov-Smirnov Test of Normality* provided evidence of normality ($p = .20$) with appropriate skewness (.09) and kurtosis (-.21). The *Shapiro-Wilk Test of Normality* also provided evidence of normality for FSIQ for the group of general nonrecidivists ($p = .331$; skewness = -.08, kurtosis = -.74) and recidivists ($p = .943$; skewness = .24, kurtosis = .48). Using *Levene's Test for Equality of Variances*, the variances for IQ score across nonrecidivists versus recidivists were equal, $F(103) = .734$, $p = .394$. However, there was no significant difference in IQ score between the group of 24 recidivists ($M = 89.4$, $SD = 22.3$) and the group of 81 nonrecidivists ($M = 85.0$, $SD = 18.0$).

Missing data. With the exception of FSIQ score, all of the theoretical protective factors had less than 5% missing data among included individuals. Additionally, the dependent variables—general recidivism and violent recidivism—were not missing any data. Given that 5% or less missing data is unlikely to affect the results (Tabachnick & Fidell, 2013), I ran all analyses without compensating for missing data.

Inclusion and exclusion criteria. In total, 147 individuals in Alberta's history from 1941-2018 were 25 years or younger at the time of their NCRMD verdict. Of those, 19 had inaccessible forensic files that were not available at Alberta Hospital Edmonton. Of the 130 accessible files, 11 files were not scorable because they lacked information on theoretical

protective factors. Based on my list of theoretical protective factors and consideration of the desired analyses, I excluded individuals from the data set who were missing six or more pre-determined theoretical protective factors. Using this cutoff score, I retained 81% of the original NCRMD adolescent population.

Included versus excluded individuals.

Age of file. I conducted an independent samples t-test to compare age of file for individuals that were excluded (N = 28) (files that were inaccessible or not scorable) versus included in the final analysis (N = 119). I used age of file as the grouping variable for this analysis, which I calculated by measuring the mean length of time between individuals' NCRMD start date and a present date of January 1, 2020. Using *Levene's Test for Equality of Variances*, the variances for age of file across groups were not equal, $F(145) = 6.45$, $p = .012$. There was a significant difference in the age of file for the group of 28 excluded files ($M = 43.36$ years, $SD = 8.63$ years) and the group of 119 retained files ($M = 15.82$ years, $SD = 11.25$ years); $t(51) = 14.27$, $p < .001$ with equal variances not assumed. These results indicate that the excluded files are older than those retained and used in the analyses. In other words, the retained sample tends to reflect the proportion of the Alberta NCRMD adolescent population from more recent decades, whereas the excluded group reflects individuals from earlier decades.

Dependent variables. I conducted *Chi-Square Tests* to compare the dependent variables—general recidivism, and violent recidivism—between individuals that were excluded versus included. There was significantly more general recidivism (46.6%) among the 28 excluded individuals than the 119 included individuals (21.0%), $\chi^2 (1, N = 147) = 7.641$, $p = .006$. Using *Fisher's Exact Test* (2-sided), the percentage of violent recidivism among the 28 excluded participants (28.6%) and the 119 included individuals (14.3%) did not differ

significantly ($p = .092$). Given that the outcome variables refer to recidivism at any point following the NCRMD verdict, these differences in recidivism are at least partly accounted for by time elapsed since individuals' initial index offences, with longer follow-up periods equating to a greater period of time wherein a given individual may reoffend; the overall correlation between age of file and recidivism was significant for both general recidivism (Pearson's R = .361, $p = .000$) and violent recidivism (Pearson's R = .280, p = .001).

Independent variables. I had access to population-wide data for a select few theoretical protective factors and conducted Chi-Square statistics to examine whether there were differences in these between the included versus excluded files. The percentage of individuals that were included versus excluded did not differ by biological sex ($p = .742$; *Fisher's Exact Test* (2-sided)) or school achievement, χ2 (1, N = 146) = .192, $p = .662$. Excluded versus included individuals also did not differ significantly by any category of ethnicity (all $p > 0.05$ using *Pearson Chi-square* or *Fisher's Exact Test* when cells have an expected count less than 5), with the exception of Caribbean ethnicity ($p = .035$); there were no Caribbean individuals within the included group and two within the excluded group.

The included versus excluded groups differed significantly by lifetime marital status, χ^2 (1, N = 147) = 11.42, $p = .001$, with included individuals having lower rates of ever being common-law / married (16.8%) as compared to excluded individuals (46.6%). There was a positive correlation between age of file and relationship status (*Pearson's R = .222, p = .007*), which suggests that excluded individuals may have been more likely to have been married or common-law because they had a greater period of time to enter into a relationship as compared to included individuals with a smaller time window of opportunity. The frequencies of pure homicide among included versus excluded files also differed significantly ($p = .003$; *Fisher's*

Exact Test (2-sided)), with higher rates of pure homicide among excluded individuals (28.6%) as compared to included individuals (6.7%).

Index Offence. In examining the type of initial index offence (i.e., homicide, attempted homicide, sexual/violent offence, or all others), the frequency of homicide differed significantly across included versus excluded files ($p = .05$; *Fisher's Exact Test* (2-sided)), with higher rates of homicide index offences for excluded individuals (32.1%) than for included individuals (14.3%). This trend was also found for sexual/violent offences, χ^2 (1, N = 147) = 9.512, $p = .002$), with higher rates of sexual/violent offences for excluded individuals (53.8%) than for included individuals (21.4%). There was no significant difference in the frequency of attempted homicide ($p = 0.164$; *Fisher's Exact Test* (2-sided)) among included (8.4%) versus excluded individuals (17.9%), nor in other offence types, χ^2 (1, N = 147) = 0.312, $p = .577$ (23.5% for included individuals and 28.5% for excluded individuals).

Results

Protective factors.

Multiple linear regression analyses. I conducted multiple linear regression to examine if any of the theoretical protective factors listed in Table 3.2 (also refer to *Appendix*) predicted general nonrecidivism and violent nonrecidivism. I entered all variables listed in Table 3.2 using the stepwise method (with a cutoff probability of F of .05 for entering variables and .1 for removing variables) to identify variables that added independently to the prediction of nonrecidivism. I first used this approach with a single dichotomous dependent variable of general nonrecidivism. Two models were significant. In model 1, *resistance to antisocial peers* explained a significant amount of the variance in nonrecidivism (F(1, 91) = 5.72, $p = .019$, $R^2 = .059$, $R^2_{Adjusted} = .049$). Follow-up t-tests revealed that *resistance to antisocial peers* significantly

predicts general nonrecidivism (B = .202, t(117) = 2.393, p = .019). In model 2, *resistance to antisocial peers* and *East-Indian ethnicity* explained a significant amount of the variance in nonrecidivism (F(2, 90) = 5.42, p = .006, R^2 = .108, $R^2_{Adjusted}$ = .088). Follow-up t-tests revealed that *resistance to antisocial peers* was positively associated with general nonrecidivism (B = .199, t(116) = 2.411, p = .018), whereas *East-Indian ethnicity* was negatively associated with general nonrecidivism (B = -.400, t(116) = -2.208, p = .030). Next, I repeated the multiple linear regression, again including all variables listed in Table 3.2, with a single dichotomous variable of violent nonrecidivism. One model was significant. *Resistance to antisocial peers* explained a significant amount of the variance in violent nonrecidivism (F(1, 91) = 5.77, p = .018, R^2 = .060, $R^2_{Adjusted}$ = .049). A follow-up t-test revealed that *resistance to antisocial peers* was positively associated with violent nonrecidivism (B = .176, t(117) = 2.403, p = .018). I also ran each multiple linear regression model a second time, entering only the variables listed in Table 3.2 that did not have extreme proportions across dichotomous categories (i.e., I excluded ethnicity, PDD, and model patient, which had greater than a 5% and 95% split). Using this approach, I obtained the same results, with *resistance to antisocial peers* continuing to explain 5.9% of the variance in general nonrecidivism and 6.0% of the variance in violent nonrecidivism.

 Post-hoc analyses. Using crosstabulation analyses, the results demonstrated that adolescents who displayed *resistance to antisocial peers* during their warrant were more likely to demonstrate general nonrecidivism (χ^2 (1, N = 115) = 6.398, p = .011) and violent nonrecidivism (χ^2 (1, N = 115) = 5.256, p = .022) as compared to those without this protective factor. These results provided evidence that *resistance to antisocial peers* is a statistically significant protective factor against general and violent recidivism. Compared to individuals with select antisocial peers, the base rate of recidivism was 19.0% lower for general recidivism, and 14.8%

lower for violent recidivism. Table 3.3 shows the base rates for general and violent recidivism

for the NCRMD youth population (N = 147), and those in the retained sample (N = 119) with

and without this protective factor.

Table 3.3. Recidivism Base Rates among NCRMD Adolescents in Alberta

Outcome	Total population % (N)	Included population % (n)	Resistance to antisocial peers % (n_1)	Select antisocial peers % (n_2)
Nonrecidivism (general)	74.1% (109)	79.0% (94)	90.4% (47)	71.4% (45)
General recidivism	25.8% (38)	21.0% (25)	9.6% (5)	28.6% (18)
Nonrecidivism (violent)	83.0% (122)	85.7% (102)	94.2% (49)	79.4% (50)
Violent recidivism	17.0% (25)	14.3% (17)	5.8% (3)	20.6% (13)
Summary	(147)	(119)	(52)	(63)

With respect to the predictor of *East Indian ethnicity*, because 50% of the cells had

expected values (counts) less than 5, I used the Continuity Correction which prevents

overestimation of statistical significance for small data. Using this method, *East Indian ethnicity*

was no longer associated with general recidivism (χ^2_{Yates} (1, N = 114) = 2.644, p = .104).

Bivariate logistic regression analyses. I also performed direct bivariate logistic

regression—which does not make any assumptions of normality, linearity, or homogeneity of

variance for the independent variables (Tabachnick & Fidell, 2013)—to similarly assess the

impact of the theoretical protective factors on the likelihood that individuals would not go on

reoffend. I included all theoretical protective factors from Table 3.2, with the exception of those

with extreme proportions across dichotomous categories (i.e., ethnicity, model patient, and PDD,

all of which had greater than a 5% and 95% split) to reduce the possibility of small sample bias.

For the analysis, I used the forward stepwise conditional method (cutoff probability of .05 for

entering variables and .2 for removal), with "0" as the reference category for each predictor, and

general nonrecidivism (coded as "1") as the outcome variable. Only one model (Table 3.4),

containing the predictor of *resistance to antisocial peers*, was significant, χ^2 (1, N = 115) =

5.900, $p = 0.015$. The model was able to distinguish between recidivists and nonrecidivists,

explaining between 6.1% (Cox and Snell R square) and 9.5% (Nagelkerke R^2) of the variance in

general nonoffending outcome. Individuals who demonstrated *resistance towards antisocial*

peers were nearly four times more likely to be nonrecidivists than individuals with select

antisocial peers. Using Chen et al.'s (2010) guidelines for interpreting the magnitudes of odds

ratios, this is equivalent to a medium effect size. This result should be taken with some caution

given the wide range in the 95% confidence interval. Nonetheless, even if taking a conservative

approach, the lower end of the 95% confidence interval still indicates that individuals with

resistance towards antisocial peers were 18% more likely to demonstrate general nonrecidivism,

a small, but not inconsequential effect.

Table 3.4. Bivariate Logistic Regression of Predictor Resistance to Antisocial Peers on Outcome Variable General Nonrecidivism

	Regression coefficient			Odds ratio			Model		
Variable	β	SE β	Wald	Exp (β)	95% CI	-2 Log Likelihood	Model χ^2 (df)	$R^2{}_{CS} - R^2{}_N$	
Constant	.838	.299	7.850[***]	2.313					
Antisocial peers (resistance to vs gravitation towards)	1.359	.606	5.027[*]	3.892	1.187-12.765	90.927	5.900 (1)	.061-.095	

Note. N = 119. SE = standard error; CI = confidence interval; $R^2{}_{CS}$ = Cox & Snell; $R^2{}_N$ = Nagelkerke. [*]$p < .05$; [***] $p < .001$

I then conducted a second bivariate logistic regression analysis using the same procedure

(i.e., entering in all variables in Table 3.2 except for ethnicity, model patient, and PDD) but using

violent nonrecidivism as the outcome variable. Only one model (Table 3.5), containing the

predictor of *resistance to antisocial peers*, was significant, χ^2 (1, N = 115) = 6.216, $p = 0.013$.

The model was able to distinguish between recidivists and nonrecidivists, explaining between

6.5% (Cox and Snell R square) and 11.3% (Nagelkerke R^2) of the variance in violent

nonoffending outcome. Individuals who demonstrated *resistance towards antisocial peers* were

five and half times more likely to be nonrecidivists (of violence) than individuals with select

antisocial peers. This is equivalent to a medium effect size (Chen et al., 2010); again, this result

should be considered with caution given the wide range in the 95% confidence interval.

Table 3.5. Bivariate Logistic Regression of Predictor *Resistance to Antisocial Peers* on Outcome Variable Violent Nonrecidivism

	Regression coefficient			Odds ratio			Model	
	β	SE β	Wald	Exp(β)	95% CI	-2 Log Likelihood	Model χ^2 (df)	$R^2{}_{CS} - R^2{}_N$
Constant	1.229	.328	14.014[***]	3.417				
Antisocial peers (resistance to vs gravitation towards)	1.716	.796	4.643[*]	5.561	1.168-26.481	72.581	6.210 (1)	.065-.113

Note. N = 119. SE = standard error; CI = confidence interval; $R^2{}_{CS}$ = Cox & Snell; $R^2{}_N$ = Nagelkerke. [*]*p* < .05; [***] *p* < .001

Post-hoc analyses. Previous research has found that substance abuse is one of the best

predictors of recidivism among offenders with schizophrenia as well as non-mentally disordered

offenders (Harris et al., 2015). I therefore examined whether there was a positive relationship

between the protective factor *resistance to antisocial peers* and a lack of substance abuse history

or substance use during warrant that may account for some of the association between resistance

to antisocial peers and nonrecidivism. Using crosstabulation analyses, I first explored whether

the protective factor *resistance to antisocial peers* was related to substance use history (prior to

the NCRMD verdict) or substance use at any point during the warrant. There was a positive

association (Pearson's R = .449, *p* = .000) between *resistance to antisocial peers* and a *lack of

substance abuse history*, χ^2 (1, *N* = 114) = 22.992, *p* = .000, with only 45.7% of individuals who

resisted antisocial peers (N = 51) having a substance misuse history, as compared to 100% of

individuals with select antisocial peers (N = 63) having a substance misuse history. Similarly,

there was a positive association (Pearson's R = .443, *p* = .000) between *resistance to antisocial

peers* and a *lack of substance use during warrant*, χ^2 (1, *N* = 113) = 22.178, *p* = .000, with only

35.3% of individuals who resisted antisocial peers using substances during their warrant, as

compared to 79.0% of individuals with select antisocial peers using substances during their

warrant. Interestingly, there was no relationship between *lack of substance abuse history* and violent nonrecidivism (χ^2 (1, $N=116$) = .888, $p = .346$), *lack of substance use during warrant* and violent nonrecidivism (χ^2 (1, $N=115$) = .319, $p = .572$), or *lack of substance abuse history* and general nonrecidivism (χ^2 (1, $N=116$) = .759, $p = .384$), which suggests that the protective effect of *resistance to antisocial peers* against recidivism is not accounted for by substance abuse variables. There was only a small association (Pearson's R = 0.186) between *lack of substance use* during warrant and general nonrecidivism (χ^2 (1, $N=115$) = 3.995, $p = .046$), with 44.6% of general nonrecidivists not using any substances during their warrant, compared 21.7% of general recidivists who used substances during their warrant.

   Cox regression survival analyses. Cox regression is a survival analysis that considers the association between predictor variables and the probability of a given event occurring (e.g., recidivism) in addition to how much time has elapsed before the event (Lila et al., 2019). I conducted Cox regression analysis to explore *resistance to antisocial peers* as a protective factor against recidivism while accounting for differences in follow-up time.

   For recidivists, I calculated the follow-up period (in months) by subtracting the date that individuals first received an unsupervised privilege from their date of recidivism. For nonrecidivists, I calculated the follow-up period by subtracting the date that individuals first received an unsupervised privilege from December 2015 (i.e., the date when conviction data were sourced). I only included cases with at least three months of follow-up time and excluded those with missing data for the protective factor of *resistance to antisocial peers* (N = 4). Of those remaining (N = 99) that were included in the Cox regression, the average follow-up time was 117 months (SD = 97) for general recidivism and 124 months (SD = 101) for violent recidivism. The maximum follow-up period was 473 months. Within this sample, 22.2% (N =

22) were general recidivists and 15.2% (N = 15) were violent recidivists. With respect to the protective factor, 46.5% (N = 46) displayed *resistance to antisocial peers* and 53.5% (N = 53) did not.

Using the follow-up periods for general and violent recidivism, I performed Cox regression survival analysis with *resistance to antisocial peers* as a predictor and general recidivism and violent recidivism as outcome variables. Table 3.6 presents the results of the two Cox regression models.

Table 3.6. Cox Regression Survival Analysis of Predictor *Resistance to Antisocial Peers* on Outcome Variables General and Violent Nonrecidivism

| | Regression coefficient | | | Odds ratio | | Model | |
Outcome	β	SE β	Wald	Exp(β)	95% CI	-2 Log Likelihood	Model χ^2 (*df*)
General recidivism model: Antisocial peers (resistance to vs gravitation towards)	1.685	.519	10.533***	5.394	1.951- 14.910	160.435	12.906 (1)
Violent recidivism model: Antisocial peers (resistance to vs gravitation towards)	1.796	.654	7.534**	6.023	1.671- 21.708	107.474	9.544 (1)

Note. N = 99. SE = standard error; CI = confidence interval. **p < .01; ***p < .001

The first model significantly predicted general recidivism, χ^2 (1, N = 99) = 12.906, p = 0.000. When accounting for follow-up time, *resistance to antisocial peers* remained significant as a predictor of general nonrecidivism. Individuals with this protective factor were nearly five and half times more likely to be nonrecidivists (for general offences) than individuals without it, a medium effect size. Similarly, the second model significantly predicted violent recidivism, χ^2 (1, N = 99) = 9.544, p = 0.002. When accounting for follow-up time, *resistance to antisocial peers* remained significant as a predictor of violent nonrecidivism. Individuals with this protective factor were six times more likely to be nonrecidivists (for violent offences) than individuals without it, a medium effect size. The results suggest that even when accounting for follow-up time, the protective effect of *resistance to antisocial peers* against general and violent recidivism

remains significant.

Discussion

  Protective factors for nonrecidivism. In this study, I examined whether theoretical

protective factors demonstrated predictive validity for general and violent nonrecidivism

amongst individuals found NCRMD as adolescents or emerging adults (i.e., 25 years or

younger). The results provided empirical support for one protective factor, *resistance to*

antisocial peers as being predictive of nonrecidivism. Results of multiple regression analysis

indicated that this protective factor accounted for 5.9% of the variance in general nonrecidivism

and 6.0% of the variance in violent nonrecidivism. Results of logistic regression analysis

demonstrated that individuals showing *resistance to antisocial peers* during their NCRMD

warrant were 3.9 times more likely to demonstrate general nonrecidivism, and 5.5 times more

likely to demonstrate violent nonrecidivism compared to their counterparts with select antisocial

peers. Results of Cox regression survival analysis indicated that even when accounting for

follow-up time, the protective effect of *resistance to antisocial peers* remains significant. The

results are consistent with longitudinal research involving general population adolescents that

has provided evidence for the protective effect of a lack of peer antisocial behavior (see

Andershed et al., 2016, Bernat et al., 2012, and Jolliffe et al., 2016) and the presence of prosocial

peers (see Fergusson et al., 2014) against later violence perpetration and offending.

  The results provide support for peer influence being a mixed risk-protective factor, that

is, a risk factor that increases the odds of recidivism when adolescents gravitate towards select

antisocial peers, and a protective factor that increases the odds of nonrecidivism for adolescents

displaying resistance towards antisocial peers. Although I focused on the protective end of the

peers factor, the results align with literature on risk factors amongst juvenile offenders, which

suggests that the best predictors of serious and violent offending from age 15-25 years are a lack of strong social ties, antisocial peers, and prior delinquent offenses at age 12-14 years (Loeber & Farrington, 1998). Similarly, Bonta and Andrews (2017) designated *procriminal associates* as one of the central eight risk/need factors of criminal behavior as it is empirically one of the strongest correlates of offending.

The importance of peers and its effect on adolescent behavior is also consistent with developmental models of juvenile delinquency. Most notably, Moffit's (1993) developmental taxonomy of adolescent antisocial behavior describes how the large increase in offending behavior during late-adolescence is attributable to adolescents' efforts to cope with a gap between their biological and social maturity and mimicry of the delinquent behavior exhibited by the much smaller proportion of individuals that exhibit more severe, early-onset antisocial behavior. Applied to NCRMD adolescents and emerging adults, who live with additional restrictions on their personal liberties while on warrant as compared to general population adolescents, these individuals may mimic the delinquent behaviors of antisocial peers by engaging in "[crimes] that satisfy wishes for adult privileges" (Moffit, 1993, p. 693). Future research could explore whether the protective end of the peers factor extends to NCRMD adults to the same extent that is does for NCRMD adolescents, or whether the effect is weaker.

Static versus dynamic and implications for treatment. As resistance to antisocial peers was rated based upon forensic professionals' reports of an individual's peer interactions during the time of the NCRMD warrant, it was, as scored, static in nature. Theoretically, however, it may be a factor that could be dynamic, that is, amenable to change through treatment or environmental change. Of note, all of the individuals in the study had exposure to some antisocial peers, in many cases over long durations within their living environments. What

differentiated individuals who displayed resistance to antisocial peers was their tendency to keep to themselves or engage with other prosocial peers while resisting the negative influences of the antisocial peers. This factor could be further explored and parsed apart to better understand its active components against recidivism (e.g., the presence of assertiveness skills). Because I was unable to examine changes in this predictor (e.g., an individual who initially gravitates towards antisocial peers and gradually makes more prosocial friends over time), I am limited in my ability to make assertions about the implications of this protective factor for treatment. Within the literature, the mechanism behind procriminal associate influence—that is, whether youth who would offend regardless of who their peers are—tend to select peers who are also likely to offend, or whether youth learn from antisocial peers and are reinforced for offending behavior— is also unknown (Bonta & Andrews, 2017).

The results of my study provide a theoretical foundation for researchers to explore if forensic professionals may be able to elicit change in this variable, and if so, what treatment or management strategies may be most effective (e.g., interpersonal skills training that teaches assertiveness against negative peer pressure; use of prosocial peer mentors; community-based treatment models to limit exposure to antisocial peers). Ethical considerations also arise around the controls that professionals could put in place to possibly minimize the influence of antisocial peers on NCRMD individuals. For example, it could potentially be beneficial to create separate living units for prosocial versus antisocial individuals, to reduce negative peer influences on prosocial individuals, but this may have a negative impact on antisocial individuals or preclude antisocial individuals from being positively influenced by prosocial peers.

Strengths and limitations. A major strength of this study is that it was based on population-level data for the province of Alberta, Canada. The results are based on 81% of the

entire NCRMD adolescent population in Alberta's history, and reflect individuals from more recent decades. To the extent that other jurisdictions are similar to Alberta in terms of the application of an NCRMD defence and the management of NCRMD accused, the results are likely to be generalizable to other individuals who become NCRMD during adolescence/early adulthood within Canada. The data included both male and female individuals and different ethnicities in proportions that are largely representative of Canada's diverse ethnic make-up. Another strength is the long follow-up periods for recidivism, ranging from 1 year—for individuals who were only found NCRMD in recent years and continue to remain on full warrant—to a maximum of 39 years. I also accounted for differences in follow-up periods for recidivism using Cox regression survival analyses. The results capture all official acts of recidivism that have occurred within secure psychiatric settings, in the community during conditional discharge, and after absolute discharge.

There are also several limitations due to the nature of the study. All of the theoretical protective factors were scored retrospectively based on file review, and initially selected based on their anticipated availability within the forensic files. This precluded the incorporation of many potential protective factors (e.g., those from de Vogel et al.'s (2015) SAPROF). I therefore caution readers to not prematurely disregard other theoretical strength-based predictors from further investigation. Many of the theoretical protective factors that I examined were dichotomous and lacked in specificity as I was limited by information that was consistently available across the files. For example, the strength-based predictor of *family visits* included all individuals who had at least one visit from a family member during their NCRMD warrant, but made no distinction around the total number, duration, or frequency of visits, or the quality of the attachments with any family relationship. If the theoretical protective factors could be measured

in a way that was more sensitive to individual differences (e.g., a well-validated scale of family attachment), or to changes over time, they would warrant further exploration.

The file information with which I was working also had a strong emphasis on psychopathology and risk-based behaviors (e.g., diagnoses and incidents of rule-breaking behaviour) rather than wellness and strengths (e.g., instances of cooperation or evidence of empathy). In some cases, the psychologist made inferences about the presence of a protective factor (e.g., compliance) based on file information conveying the lack of a corresponding risk factor (e.g., "No behavioral incidents this last review period"). The positive end of any given predictor may therefore not have been fully captured within the data set. All of the theoretical protective factors were also scored by a single psychologist, so interrater reliability could not be assessed, although this may have helped with consistency in coding. Given the small size of the Alberta NCRMD youth population, there was also limited statistical power. With respect to the independent variables, the number of individuals who went on to reoffend was small for both violent recidivism (N = 17) and general recidivism (N = 25). Additionally, many of the predictors were present in small numbers (e.g., female biological sex), subjecting my analyses to the possibility of Type II errors. When looking at the full AB NCRMD population that included all age groups, there was a protective trend against recidivism for having female biological sex and the presence of a mood or psychotic disorder (Richer et al., 2016). These trends, however, were not found in the youth data analysis, perhaps due to homogeneity in these variables for the youth sample or a lack of statistical power. I also acknowledge that, while significant, the protective factor of *resistance to antisocial peers* only accounted for 5.9-6.0% of variance in recidivism outcome. Compared to well-established risk factors such as antisociality (Harris et al., 2015), this is a relatively small amount. I anticipate that this protective factor is unlikely to be

clinically meaningful in adding to the predictive validity of risk factors alone; however, further research that specifically examines the incremental validity of *resistance to antisocial peers* with existing risk-based measures would be required to confirm this.

Summary

The results of my study provided empirical evidence that *resistance to antisocial peers* is an important protective factor for general and violent nonrecidivism for individuals found NCRMD as adolescents or emerging adults. Long-term, amongst adolescents who avoided antisocial peers, 90.4% demonstrated general nonrecidivism and 94.2% showed violent nonrecidivism. Conversely, of those with select antisocial peers, only 71.4% demonstrated general nonrecidivism and 79.4% showed violent nonrecidivism. Certainly, there is a need for replication of the results as this is the first study of its kind with NCRMD adolescents. Further exploration of other theoretical protective factors within forensic psychiatric populations is also warranted. Prospective longitudinal studies wherein researchers are able to administer well-validated tools that measure strength-based predictors with greater specificity would be ideal. For example, Neil et al.'s (2020) examination of the predictive validity of the SAPROF provided evidence that protective factors predicted the absence of inpatient violence over 12 months amongst male forensic hospital patients. Studies like this, that incorporate strength-based predictors of outcomes relevant to the health and well-being of patients and communities alike will prove useful in expanding professionals' knowledgebase around best practices in the management and treatment of forensic patients, including adolescents and emerging adults. From a pure risk-prediction perspective, researchers could also examine whether protective factors, such as *resistance to antisocial peers*, may add to the predictive validity of existing risk assessment tools. Within a field has focused predominantly on risk factors, ongoing empirical

exploration of protective factors and their potential role in treatment and risk assessment will allow for a more fair, balanced, and comprehensive evaluation of individuals (Rogers, 2000), which in turn may help forensic professionals to proactively reduce risk and promote positive outcomes for individuals and communities.

References: Chapter 3

Andershed, A. K., Gibson, C. L., & Andershed, H. (2016). The role of cumulative risk and protection for violent offending. *Journal of Criminal Justice, 45*, 78-84. https://doi.org/10.1016/j.jcrimjus.2016.02.006

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), S57-S66. https://doi.org/10.1016/j.amepre.2012.04.023

Bonta, J., & Andrews, A. D. (2017). *The psychology of criminal conduct* (6th ed.). New York, NY: Taylor & Francis.

Bonta, J., Rugge, T., & Dauvergne, M. (2003). *The reconviction rate of federal offenders 2003–02* (Solicitor General Canada). Retrieved from Public Safety Canada website: https://www.publicsafety.gc.ca/cnt/rsrcs/pblctns/rcnvctn-rt-fdrl/index-en.aspx

Borum R., Bartel P., Forth A. (2003). *Manual for the Structured Assessment of Violence Risk in Youth* (SAVRY). Odessa, FL: Psychological Assessment Resources.

Brumley, L. D., & Jaffee, S. R. (2016). Defining and distinguishing promotive and protective effects for childhood externalizing psychopathology: A systematic review. *Social Psychiatry and Psychiatric Epidemiology, 51*(6), 803-815. https://doi.org/10.1007/s00127-016-1228-1

Chen, H., Cohen, P., & Chen, S. (2010). How big is a big odds ratio? Interpreting the magnitudes of odds ratios in epidemiological studies. *Communications in Statistics—Simulation and Computation, 39*, 800-864. https://doi.org/10.1080/03610911003650383

Criminal Code (1985). C-46. PART II: Offences against public order treason and other offences against the Queen's authority and person. Ottawa: Statues and Regulations, Government of Canada.

de Vogel, V., de Ruiter, C., Bouman, Y., & de Vries Robbe, M. (2015). *SAPROF: Structured assessment of protective factors for violence risk* (2nd ed.). The Netherlands: Van der Hoeven Kliniek.

De Vries Robbe, M., Geers, M., Stapel, M., Hilterman, E., & de Vogel, V. (2015). SAPROF Youth Version: Guideline for the assessment of protective factors for violence risk in juveniles. The Netherlands: Van der Hoeven Kliniek.

Dubow, E. F., Huesmann, L. R., Boxer, P., & Smith, C. (2016). Childhood and adolescent risk and protective factors for violence in adulthood. *Journal of Criminal Justice, 45*, 26-31. http://dx.doi.org/10.1016/j.jcrimjus.2016.02.005

Fazel, S., Fimińska, Z., Cocks, C., & Coid, J. (2016). Patient outcomes following discharge from secure psychiatric hospitals: Systematic review and meta-analysis. *The British Journal of Psychiatry*, *208*(1), 17-25. https://doi.org/10.1192/bjp.bp.114.149997

Fergusson, D. M., Boden, J. M., & Horwood, L. J. (2014). Bullying in childhood, externalizing behaviors, and adult offending: Evidence from a 30-year study. *Journal of School Violence, 13*(1), 146-164. https://doi.org/10.1080/15388220.2013.840642

Gendreau, P., Grant, B. A., Leipciger, M., & Collins, S. (1979). Norms and recidivism rates for the MMPI and selected experimental scales on a Canadian delinquent sample. *Canadian Journal of Behavioural Science, 11*(1), 21-31. https://doi.org/10.1037/h0081569

Haag, A. M., Cheng, J., & Wirove, R. (2016). Describing the not criminally responsible population in Alberta's history: Socioeconomic, mental health, and criminological profiles. *Journal of Safety & Well-being, 1*(3). https://journalcswb.ca/index.php/cswb/article/view/24

Harris, G. T., Rice, M. E., Quinsey, V. L., & Cormier, C. A., (2015). *Violent offenders: Appraising and managing risk* (3rd ed.). Retrieved from http://dx.doi.org/10.1037/14572-002

Johnson, S. B., Blum, R. W., & Giedd, J. N. (2009). Adolescent maturity and the brain: The promise and pitfalls of neuroscience research in adolescent health policy. *Journal of Adolescent Health*, *45*(3), 216-221. doi:10.1016/j.jadohealth.2009.05.016

Jolliffe, D., Farrington, D. P., Loeber, R., & Pardini, D. (2016). Protective factors for violence: Results from the Pittsburgh Youth Study. *Journal of Criminal Justice, 45*, 32-40. https://doi.org/10.1016/j.jcrimjus.2016.02.007

Kaltiala-Heino, R., & Eronen, M. (2015). Ethical issues in child and adolescent forensic psychiatry: A review. *The Journal of Forensic Psychiatry & Psychology, 26*(6), 759-780. https://doi.org/10.1080/14789949.2015.1062995

Lila, M., Martín Fernández, M., Gracia Fuster, E., López Ossorio, J. J., & González, J. L. (2019). Identifying key predictors of recidivism among offenders attending a batterer intervention program: A survival analysis. *Psychosocial Intervention, 28*(3), 157-167.

https://doi.org/10.5093/pi2019a19

Loeber, R., & Farrington, D. P. (1998). Never too early, never too late: Risk factors and successful interventions for serious and violent juvenile offenders. *Studies on Crime & Crime Prevention, 7*(1), 7-30. http://www.ncjrs.gov/App/publications/abstract.aspx?ID=172920

Miller, R., Olin, J., Ball, E. M., Bennett, C., Beven, G. F., & Pitt, S. (2006). The validity of Colorado not criminally responsible findings. *The Journal of Psychiatry & Law, 34*, 37-49.

Moffitt, T. (1993). Adolescence-limited and life-course persistent antisocial behavior: A developmental taxonomy. *Psychological Review, 100*, 674–701. https://doi.org/10.1037/0033-295X.100.4.674

Neil, C., O'Rourke, S., Ferreira, N., & Flynn, L. (2020). Protective factors in violence risk assessment: Predictive validity of the SAPROF and HCR-20V3. *International Journal of Forensic Mental Health*, *19*(1), 84-102. https://doi.org/10.1080/14999013.2019.1643811

Patricny, N., Pei, J., & Haag, A. (2020). *Protective factors against adolescent offending: A review of longitudinal studies*. Manuscript submitted for publication.

Richer, K., Cheng, J., & Haag, A. M. (2018). Historical recidivism rates of Alberta's not criminally responsible population. *Journal of Community Safety & Well-Being, 3*(2), 59-64. http://dx.doi.org/10.35502/jcswb.50

Rogers, R. (2000). The uncritical acceptance of risk assessment in forensic practice. *Law and Human Behaviour, 24*, 595-605. https://doi.org/10.1023/A:1005575113507

Sroufe, L. A. (1997). Psychopathology as an outcome of development. *Development and Psychopathology, 9*, 251-268. https://doi.org/10.1017/S0954579497002046

Tabachnick, B. G., & Fidell, L. S. (2013). *Using Multivariate Statistics (6th Ed.)* Boston: Allyn & Bacon.

van der Laan, A. M., Veenstra, R., Bogaerts, S., Verhulst, F. C., & Ormel, J. (2010). Serious, minor, and non-delinquents in early adolescence: The impact of cumulative risk and promotive factors. The TRAILS study. *Journal of Abnormal Child Psychology, 38*(3), 339-351. https://doi.org/10.1007/s10802-009-9368-3

Appendix

Operational Definitions of Included Theoretical Protective Factors as Predictor Variables

Predictor	Categories
Biological sex	*Female biological sex (versus male biological sex)
Marital status	*Ever married or living together with a common-law over the lifetime (versus never married or common-law)
Pure homicide	*Index offence was homicide (includes manslaughter, first-degree, and second-degree murder) and has no criminal history prior to index offence(s) (versus index offence was something other than homicide, or index offence was homicide, but individual had a prior criminal history)
Model patient	*Described as a "model patient" by a forensic professional at any point during NCRMD warrant (versus never described as a "model patient")
Ethnicity	*Based on ethnicity documented on hospital file; categories include: White, Indigenous, African, Asian, East Indian, Hispanic, and Middle Eastern (each category versus all others)
School achievement	*Completed Grade 12 or an equivalent General Education Degree (GED) prior to NCRMD verdict or at any point during NCRMD warrant (versus did not complete Grade 12 or a GED)
Fixed address	*Having a fixed address (i.e., own apartment, living with family members, living in a group home) at the time of the index offence (versus being unhoused (e.g., living on the streets or at a temporary shelter))
Transition home	*Living in a transition home (e.g., group home or halfway house) or institution (e.g., secure hospital or institution) at time last of NCRMD warrant. For those who received absolute discharge, this was the location that the individual was discharged to. (versus living in the general community (e.g., own home or with family members or foster parents) at time last of NCRMD warrant)
Children	*Has biological children (regardless of whether they have parental custody or not) at any point during lifetime (versus no biological children)
Substance misuse history	*Absence of substance misuse history prior to index offence (with the exception of minor substance use or experimentation determined by health care professionals to be within the realm of normal adolescent behavior (e.g., cigarette use, having tried alcohol/cannabis on a few occasions with friends without issue) (versus history of substance misuse or substance use disorder prior to index offence as documented by health care professionals)
No substance use during warrant	*Refrained from all substance use throughout NCRMD warrant (with the exception of cigarettes); all urine toxicology results were negative for substances throughout the duration of the NCRMD warrant (versus used substances one or more times during warrant; all instances of substance use were confirmed by urine toxicology results or patient self-disclosure of substance use)

Resistance to antisocial peers	*Described by forensic professionals as keeping to themselves (may be due to lack of social skills), having mostly prosocial peers, not showing evidence of spending time selectively with antisocial peers, or showing evidence of resisting negative peer influences (e.g., declining substances offered by peers) during the NCRMD warrant (versus described as interacting selectively with antisocial peers (i.e., those who frequency disregard unit rules / misuse substances) or showing evidence of being easily influenced by negative peers (e.g., involvement with bringing contraband onto the unit for peers) during NCRMD warrant)
Pre-existing compliance	*From the time of NCRMD verdict until first review board hearing, demonstrated compliance with unit rules (i.e., no major behavioral issues such as aggression towards others) and their treatment (e.g., taking medications as prescribed and attending programming, even if requiring some cueing or encouragement due to low motivation); includes individuals who demonstrated some compliance issues within the context of a psychotic episode, but became compliant within this first reporting period once psychotic symptoms subsided (versus demonstrating noncompliance from the time of NCRMD verdict until first review board hearing (i.e., consistent refusal to take medications or attend programming, showing major behavioral issues such as aggression, and bringing contraband onto the unit)
Absent without Official Leave (AWOL)	*No documented instances of AWOL during NCRMD warrant (e.g., absconded during a community outing) (versus one or more instances of AWOL during NCRMD warrant)
Family visits	*One or more in-person visits from immediate or extended family members (includes adoptive/foster parents) at any time during NCRMD warrant (i.e., while in detention at hospital or when living in the community under community discharge); family members included biological, adoptive, and foster parents, grandparents, siblings, aunts, and uncles (versus no in-person family visits during NCRMD warrant)
Low impulsivity	*Low impulsivity as noted by forensic professionals, a "low" rating on SAVRY item #18 (risk-taking / impulsivity), or an "absent" rating on the HCR-20 v2 clinical item #4 (impulsivity) during NCRMD warrant (versus presence of impulsivity as noted by forensic professionals, a "moderate" or "high" rating on SAVRY item #18, or a "partial" or "present" rating on HCR-20 v2 clinical item #4 during NCRMD warrant)
Attention-Deficit/Hyperactivity Disorder (ADHD)	*No ADHD diagnosis given by a health care professional at any point during lifetime (versus presence of ADHD diagnosis at any point during lifetime)
Clinical and subclinical anxiety	*Presence of an anxiety disorder diagnosis (generalized anxiety disorder, social anxiety disorder, obsessive-compulsive disorder, or agoraphobia) at any point during lifetime; or notable anxiety symptoms documented by a mental health professional (e.g., separation anxiety features or panic attacks) at any point during lifetime; or a marked/significant elevation in anxiety on a standardized personality test (i.e., MMPI or PAI) at any point during the NCRMD warrant (versus no anxiety disorder diagnosis at any point during lifetime and no notable anxiety symptoms during NCRMD warrant)

Psychotic disorder	*Presence of a psychotic disorder diagnosis (schizophrenia, schizoaffective disorder, major depressive disorder or bipolar disorder with psychotic features, and psychotic disorder not-otherwise-specified) at any point during lifetime; excludes substance-induced psychotic disorders (versus no psychotic disorder diagnosis at any point during lifetime or has only a substance-induced psychotic disorder)
Bipolar disorder	*Presence of bipolar disorder diagnosis at any point during lifetime (versus no bipolar disorder diagnosis at any point during lifetime)
Absence of major depressive disorder (MDD)	*No MDD diagnosis or clinically significant depressive episodes at any point during lifetime. (versus the presence of MDD diagnosis or clinically significant depressive episode at any point during lifetime)
Absence of persistent depressive disorder (PDD)	*No PDD or dysthymia diagnosis at any point during lifetime (versus the presence of PDD or dysthymia diagnosis at any point during lifetime)
Absence of other mood disorder or other subclinical mood symptoms	*No mood disorder NOS, borderline personality disorder / borderline traits, explosive disorder, or substance-induced mood disorder diagnosis at any point during lifetime; nor other notable subclinical mood symptoms during NCRMD warrant (i.e., subclinical depressive symptoms documented by professionals, on personality measures (i.e., MMPI, BPI, and PAI), or depression screeners (GSMD, BDI)) (versus the presence of mood disorder NOS, borderline personality disorder / borderline traits, explosive disorder, or substance-induced mood disorder diagnosis at any point during lifetime, or other notable subclinical mood symptoms during warrant)
Full Scale Intelligence Quotient (FSIQ)	Based on the most recent valid FSIQ score from a standardized intelligence test (i.e., WAIS, WAIS-R, WAIS-III, and WAIS-IV) administered by a psychologist or psychometrist; when only the FSIQ range descriptor was available, the midpoint FSIQ within that range was used (e.g., 74.5 for overall "borderline range intelligence"); when individuals completed intelligence testing on more than one occasion, their most recent valid IQ score was used

*theoretical protective factor

Chapter 4. Resistance to Antisocial Peers in NCRMD Adolescents: Predictive and

Incremental Validity with the VRAG-R

Within the field of risk assessment, there has been a recent theoretical shift towards the inclusion of protective factors, in conjunction with fourth generation risk assessment approaches. However, there is a lack of empirical evidence surrounding this practice as few researchers have examined the predictive and incremental validity of protective factors over and above existing risk-based actuarial assessment approaches. Using a long-term retrospective design, I examined the predictive validity of the protective factor *resistance to antisocial peers* and the *Violence Risk Appraisal Guide—Revised* (VRAG-R) in 119 individuals who were found Not Criminally Responsible as adolescents. The results of Receiver Operating Characteristic (ROC) Curve classification and Area under the Curve (AUC) analysis indicated that *resistance to antisocial peers* has moderate predictive ability for general nonrecidivism (AUC = .647, 95% CI = .527-.767) and violent nonrecidivism (AUC = .654, 95% CI = .520-.788) in the long-term (maximum 39-year follow-up). Incorporating this protective factor into the VRAG-R, however, did not significantly increase the incremental validity for outcomes of violent or general recidivism. My secondary aim was to explore possible age differences in this protective factor across late adolescence (age 15-21 years) and emerging adulthood (age 22-25). Using bivariate logistic regression analyses, the results suggested that the protective effect of *resistance to antisocial peers* may differ by developmental period and type of recidivism outcome. For individuals found NCRMD during emerging adulthood, this factor was associated with an increased likelihood of violent nonrecidivism (*p* < .05) and approached significance (*p* = .07) for an increased likelihood of general nonrecidivism. For those found NCRMD during late adolescence, the factor was not associated with violent nonrecidivism (*p* = .45), although it showed a nonsignificant trend (*p* <

.10) for an increased likelihood of general nonrecidivism. I discuss implications for research and practice.

Introduction

    Risk assessment. Within the field of forensic psychology and forensic psychiatry, evaluating individuals who have previously offended for their likelihood of possible recidivism is referred to as risk assessment (Kocsis, 2011). The field of risk assessment has made notable progress in terms of clinicians' ability to accurately predict individuals' risk of violence and offending. From first generation risk assessment approaches (with poor predictive accuracy due to reliance on professional judgement by trained clinicians and subjective decision-making), to second generation actuarial prediction (which outperforms clinical judgment as it is based on static risk factors empirically related to risk), to third generation structured professional judgement approaches (that build on the second-generation approach by incorporating dynamic risk factors that can be targeted through treatment) (Bonta & Andrews, 2017), researchers have helped to establish risk assessment approaches and tools with empirical validity and relevance to clinical practice.

    Research pursuits of alternative strategies and theories to performing risk assessment must always occur in an ethically informed rational and empirical manner (Andrews et., 2006). Although there is clear evidence of the superiority of second and third generation approaches over the first-generation approach (Bonta & Andrews, 2017), there is ongoing debate around the advantages and limitations of second versus third-generation approaches (Nicholls et al., 2016; Coid et al., 2019). More recently, fourth-generation risk assessment has emerged. This approach emphasizes the link between assessment and case management across time from intake through closure (Andrews et al., 2006). It also acknowledges the role of the assessed individual's

personal strengths and considers factors that play a role in maximizing an individual's response to treatment (Bonta & Andrews, 2017). In line with fourth-generation approaches, the incorporation of strength-based factors that may proactively reduce risk allows for a more fair, balanced, and comprehensive evaluation of individuals (Rogers, 2000). Although there is a humanistic theoretical appeal for clinicians to use fourth-generation risk assessment approaches, little empirical evidence is available to support the practice of incorporating protective factors into risk assessment practice. For example, Neil et al. (2020) did not find incremental validity for the *Structured Assessment of Protective Factors* (de Vogel et al., 2015) using the *Historical Clinical Risk Management-20, Version 3* (Douglas et al., 2013) with male inpatients. It is also not apparent that the predictive validity of third or fourth generation assessments exceeds second-generation risk assessments (Andrews et al., 2006). There is, however, empirical support for the incremental predictive criterion validity of the reassessment of major criminogenic need factors (i.e., dynamic risk factors of procriminal attitudes, procriminal associates, antisocial personality pattern, family/marital, school/work, substance abuse, and leisure-recreation) as these factors may change over time (Andrews et al., 2006). The need remains for researchers to critically examine and evaluate elements of fourth-generation approaches, such as the inclusion of protective factors within risk assessment. In particular, knowledge on protective factors that are theoretically dynamic in nature may have clinical utility for both assessment and treatment.

 Protective factors. Strength-based variables that buffer individuals from problems in the face of risk and promote positive outcomes are called protective factors (Brumley & Jaffee, 2016). Protective factors may differ in strength and operation depending on how they are defined, what outcomes are measured, the context they exist within, and the population (Fergus & Zimmerman, 2005). In my recent literature review on protective factors against adolescent

offending (Patricny et al., 2020), I found 21 protective factors that were supported by two or more longitudinal studies. Each of the protective factors varied in their significance level and effect size across different subgroups of adolescents and different levels of risk and vulnerability (Patricny et al., 2020).

Developmental considerations. Adolescence and emerging adulthood is a time of significant cognitive, emotional, social, and behavioural development for individuals (Sroufe, 1997), wherein identity is being formed (Kaltiala-Heino & Eronen, 2015), priorities may shift, and individuals begin to explore and understand how they fit within the world they live (Steinberg & Morris, 2001). Moreover, many problems experienced by adolescents, such as substance use, unemployment, and delinquency, are transient in nature and resolve by the beginning of adulthood (Steinberg & Morris, 2001). Given this period of vast change, protective factors against problem behaviours tend to change in their strength across time for adolescents. They may also vary depending on the age at which predictors are examined and time at which outcomes are measured. For example, one longitudinal study of high-risk adolescents aged 10 to 18 years living in Seattle, USA, provided evidence that school rewards (i.e., perceived recognition for school involvement) during early adolescence (age 11 to 12 years) was protective against serious violence during middle (age 13 to 14 years) and late (age 15 to 18 years) adolescence, yet school rewards during middle adolescence was not protective against serious violence during late adolescence (Kim et al., 2016). At the same time, school bonding (e.g., looking forward to school) during middle adolescence was protective against serious violence during late adolescence (Kim et al., 2016). In another longitudinal study of Australian adolescents with high externalizing problems, high levels (top 10%) of supportive friendships at age 11 to 12 years was a protective factor, significantly reducing adolescents' risk of fighting at

age 17 to 18 years (Vassallo et al., 2016). However, high levels of supportive friendships at age 13 to 14 years was a risk factor, significantly increasing adolescents' risk of fighting at age 17 to 18 years and age 19 to 20 years (Vassallo et al., 2016). Similarly, in a comprehensive review of predictors of offending amongst serious and violent juvenile offenders, Loeber & Farrington (1998) concluded that the best predictors of serious delinquency varied by different developmental periods. Based on risk factors from age 6 to 11 years, the best predictors of serious delinquency at age 15 to 25 were: prior delinquency offence, substance use, male gender, low socioeconomic status, and having an antisocial parent (Loeber & Farrington, 1998). Based on risk factors from age 12 to 14 years, the best predictors were: lack of strong social ties, antisocial peers, and prior delinquent offences (Loeber & Farrington, 1998).

These studies provide support for the notion that age is an important variable to consider in researchers' quest to identify and understand protective factors for adolescents against recidivism. In other words, influential factors in one developmental period may not be as relevant in another developmental period, with some predictors being predictive only within a single developmental period, and others remaining predictive across different developmental periods (Kim et al., 2016). In the quest to understand protective factors researchers should aim to explore possible age-related variations in predictors.

Not Criminally Responsible. Within Canada, judges can offer a verdict of Not Criminally Responsible on Account of Mental Disorder (NCRMD) when individuals who committed an offence meet specific criteria for this designation. Under Section 16 of the Criminal Code of Canada, "No person is criminally responsible for an act committed or an omission made while suffering from a mental disorder that rendered the person incapable of appreciating the nature and quality of the act or omission or of knowing that it was wrong"

(Criminal Code, 1985). Rather than being criminally charged, individuals found NCRMD fall under the jurisdiction of a provincial or territorial review board for an indeterminate amount of time, until they are determined to no longer present a significant threat to public safety and can receive absolute discharge (see section 672.54 of the Criminal Code, 1985). Only a small group of accused individuals have the issue of mental illness brought forth to court and meet the criteria to receive an NCRMD verdict within Canada, with most estimates falling under 1% (Department of Justice, 2020). Even 1% may be an overestimated rate of NCRMD findings. Based on information from Statistic Canada (2020) the percentage of individuals found NCRMD in Alberta, Canada, relative to the number of persons convicted has ranged from only 0.02% to 0.06% from 2013 to 2017 (A. Haag, personal communication, June 19, 2020).

Protective factors within the NCRMD population.

Resistance to antisocial peers. During adolescence, individuals increase the amount of time they spend with their friends and decrease the amount of time they spend with their family (Larson & Richards, 1991). When among classmates or in romantic relationships, adolescents often act in ways that are incongruent with their true selves (Steinberg & Morris, 2001). Peer influence can be both positive (e.g., prosocial behaviour) or negative (e.g., substance use and delinquency) (Steinberg & Morris, 2001). In my recent retrospective study that explored theoretical protective factors for long-term nonrecidivism in NCRMD adolescents, *resistance to antisocial peers*—defined as resisting negative peer influences and having mostly prosocial peers or keeping to oneself—was found to be a significant protective factor for NCRMD adolescents during their warrant, increasing their rate of general nonrecidivism from 71.4% to 90.4%, and violent nonrecidivism from 79.4% to 94.2% in the long-term (Patricny et al., 2021).

Present study. Building upon the study of protective factors for nonrecidivism in

NCRMD adolescents (Patricny et al., 2021), I examine the predictive validity of the protective

factor *resistance to antisocial peers* for long-term general and violent nonrecidivism and its

incremental validity with the VRAG-R. I also explore developmental aspects of this factor that

pertain to age. I investigate the following research questions:

1) What is the predictive validity of *resistance to antisocial peers* for general nonrecidivism and

violent nonrecidivism with NCRMD adolescents?

2) Does the inclusion of *resistance to antisocial peers* with the VRAG-R add incremental

validity in terms of predicting general recidivism and violent recidivism?

3) From a developmental perspective, does *resistance to antisocial peers* act as a protective

factor for later general and violent nonrecidivism for individuals found NCRMD during late

adolescence, as well as individuals found NCRMD during emerging adulthood?

Method

> **Participants.** I included 119 individuals (89.1% male and 10.9% female) who had

received an NCRMD verdict at the age of 25 years or younger within the province of Alberta,

Canada. The sample represented 81% of entire adolescent population ever found NCRMD since

1941. Interested readers can refer to Patricny et al. (2021), Haag et al. (2016), and Richer et al.

(2018) for sociodemographic descriptive statistics and information regarding offences and

recidivism rates with the Alberta NCRMD population.

> **Measures.**

> ***Resistance to antisocial peers.*** Individuals with this protective factor had been described

by forensic professionals as keeping to themselves (may be due to lack of social skills), having

mostly prosocial peers, or showing evidence of resisting negative peer influences (e.g., declining

substances offered by peers) during their NCRMD warrant. Conversely, individuals without this

protective factor were described as interacting selectively with antisocial peers (i.e., those who frequently disregarded unit rules / misused substances) or showing evidence of being easily influenced by negative peers (e.g., involvement with bringing contraband onto the unit for peers). I was able to identify the absence versus presence of this protective factor for all but four individuals in the sample (i.e., 115 individuals or 96.6%). I collected data for this variable during March 2020 and April 2020 from all available forensic files stored securely at Alberta Hospital Edmonton.

VRAG-R. The *Violence Risk Appraisal Guide – Revised* (VRAG-R) is a well-validated actuarial tool for the assessment of the likelihood of violent or sexual reoffending in males (Harris et al., 2013). The tool contains twelve risk factors—antisociality, admission to corrections, failure on conditional release, elementary school maladjustment, conduct disorder score, nonviolent criminal history, age at index offense, violent criminal history, substance abuse, sex offending, lived with both parents until age 16 years, and marital status—each empirically associated with reoffending (Harris et al., 2015). Based on Nuffield's (1982) system, raters score items from a minimum of -6 to a maximum of +6 (range varies by item), with a one-point difference reflecting a 5% increment above (or below) the base rate of reoffending within the sample that the tool was constructed on (Harris et al., 2015). The sum of all items yields the total VRAG-R score, with higher scores reflecting a greater likelihood of violent recidivism. Raters use the total VRAG-R score to classify individuals into one of nine VRAG-R risk categories, each that has a unique proportion of violent recidivism (Harris et al., 2015). For example, an individual with a VRAG-R score of 15 would fall into VRAG-R category 7 (VRAG-R score of 12 to 17), and this categorization is associated with a 41% likelihood of reoffending after 5 years, or a 66% chance of reoffending after 12 years (Harris et al., 2015). The

VRAG-R has strong predictive validity, with a ROC area of .760 (95% CI = .734-.787) for dichotomous violent recidivism and .758 (95% CI = .73 -.784) for VRAG-R categories (Harris et al., 2015). Depending on the length of follow-up period, the accuracy of the VRAG-R ranges from a ROC area of .752 at 36-years follow-up to .784 at 20-years follow-up (Harris et al., 2015). The predictive accuracy is also strong for individuals under the age of 18 at the time of their index offence (AUC = .74) and for forensic patients (AUC = .80) (Serin & Lowenkamp, 2015).

The VRAG-R was scored retrospectively from comprehensive forensic file information for all but two individuals (N = 117 or 98.3%) in the sample (whose files were not scorable because they lacked information on violence risk factors). With respect to missing VRAG-R items for the 117 scorable files, one file lacked information for scoring item "marital status at time of index offence," two files lacked information for scoring item "lived with both biological parents to age 16," three files lacked information for scoring items "conduct disorder" and "antisociality," and four files lacked information for scoring items "elementary school maladjustment" and "history of alcohol or drug problems." For files with four or fewer missing items, scores were prorated according to the criteria set by Harris et al. (2015). The mean VRAG-R score was .32 (SD = 16.67; SE = 1.54) and ranged from -25 to 43. The skewness was .51 (SE = .22) and kurtosis of -.69 (SE = .44). As per *Levene's test*, equal variances in VRAG-R total score between the group of recidivists and nonrecidivists were assumed (F(1, 115) = .534, *p* = .466).

Age. The age variable was based on individuals' age in years at the time that they received an NCRMD verdict and began their warrant. I divided the sample of 119 individuals into two groups, age 15-21 (44.5%), and 22-25 (55.5%). The age cutoff of 21/22 was arbitrary

but allowed for the creation of two developmental groups—late adolescence and emerging adulthood—that were roughly equivalent in size. I conducted *Chi-Square Tests* to compare the dependent variables—general nonrecidivism and violent nonrecidivism—between the late adolescent and emerging adulthood group. There was no difference in general nonrecidivism (χ^2 (1, N = 119) = 2.014, *p* = .156) or violent nonrecidivism (χ^2 (1, N = 119) = 3.544, *p* = .060) between these two developmental groups.

    Recidivism. The dependent variables were general recidivism and violent recidivism, which I measured by recording recidivism, according to official charges, at any point during the NCRMD warrant or following absolute discharge. For each dependent variable, individuals were coded as if they had no general (or violent) recidivism or if they committed any general (or violent) offence following their NCRMD verdict. Recidivism information was available for 100% of the sample.

Procedure

    The researchers used IBM SPSS Statistics (version 26.0.0.0) to conduct all statistical analyses. I used Receiver Operating Characteristic (ROC) curve analyses to explore the predictive validity of the protective factor *resistance to antisocial peers* and the VRAG-R total score. This procedure provides AUC values, which range from 0 to 1, where a value of 1 reflects perfect discrimination between two groups and .5 is equivalent to a chance prediction (Neil et al., 2019). For outcomes with a base rate of 50%, an AUC value of .556 is considered a small effect, .639 is medium, and .714 is large (Rice & Harris, 2005). When base rates are lower than 50%, as was the case with the NCRMD adolescent sample, the associated point-biserial correlations (r_{pb}) that typically correspond to small, medium, and large effects (i.e., .10, .243, and .371) decrease (Salgado, 2018). Building upon Rice and Harris's effect size equivalency tables, Salgado (2018)

calculated that r_{pb} values of .060, .148, and .233 for outcomes with base rates of 10%, and .079, .196, and .304 for outcomes with base rates of 20%., correspond to small, medium, and large effect sizes, respectively. I used Salgado's (2018) conversion charts and guidelines to determine the effect sizes of the results.

Creation of modified VRAG-R total score. To create the modified VRAG-R Total score (mod-VRAG-R Total) that incorporates the protective effect of *resistance to antisocial peers*, I used Harris et al.'s (2015) method of assigning a one-point value to a predictor for each 5% increment change in the base rate of violent reoffending. The difference in the base rate of violent recidivism for individuals who gravitated towards select antisocial peers (19.6%) and the base rate of violent recidivism for the NCRMD youth sample (13.4%) was 6.2%, which I rounded down to 5%. This 5% difference corresponded to one increment of 5% change in recidivism, or a +1 value for individuals without the protective factor. The difference in the base rate of violent recidivism for individuals who displayed *resistance to antisocial peers* (5.8%) and the base rate of violent recidivism for the NCRMD youth sample (13.4%) was 7.6%, which I rounded up to 10%. This 10% difference corresponded to two increments of 5% change against recidivism, or a -2 value for individuals with this protective factor. I added the protective factor on to the VRAG-R as an additional item, effectively decreasing, or increasing, the VRAG-R Total score for individuals who displayed *resistance to antisocial peers*, or did not, respectively. For example, for an individual who had a VRAG-R Total score of -11, who displayed *resistance to antisocial peers* ("-2"), I calculated a mod-VRAG-R Total score of -13. If the same individual did not have this protective factor (i.e., "+1," displaying gravitation towards select antisocial peers), I calculated a mod-VRAG-R Total score of -10.

Results

Discriminant validity of *resistance to antisocial peers*. First, as a test of discriminant

validity, I analyzed the relationship between the protective factor of *resistance to antisocial*

peers and the VRAG-R total risk score. Using crosstabulation analysis, there was a negative

relationship between *resistance to antisocial peers* and the VRAG-R total risk score (Pearson's

R = -.378, SE = .077, *p* = .000). As the VRAG-R total risk score is a strong predictor of violent

recidivism (Harris et al., 2015), this negative association provides evidence of discriminant

validity for *resistance to antisocial peers* as a protective factor against recidivism. Using Harris

et al.'s (2015) VRAG-R Total score categories, I also examined the percentage of individuals

with the protective factor, *resistance to antisocial peers*, within each category (see Table 4.1).

Table 4.1. Individuals with and without Protective Factor *Resistance to Antisocial Peers* within Harris et al.'s (2015) Nine Violence Risk Appraisal Guide-Revised (VRAG-R) Score Categories.

VRAG-R category	VRAG-R Total score	% (N) with protective factor	% (N) without protective factor	Total (N)
1	≤ -24	100.0 (1)	0.0 (0)	1
2	-23 to -17	66.7 (14)	33.3 (7)	21
3	-16 to -11	35.7 (5)	64.3 (9)	14
4	-10 to -4	72.2 (13)	27.8 (5)	18
5	-3 to +3	50.0 (9)	50.0 (9)	18
6	4 to 11	22.2 (2)	77.8 (7)	9
7	12 to 17	41.7 (5)	58.3 (7)	12
8	18 to 26	8.3 (1)	91.7 (11)	12
9	≥ 27	11.1 (1)	88.9 (8)	9

Note. N = 114

As shown in Table 4.1, there is general trend for individuals within lower VRAG-R categories

(i.e., those with lower VRAG-R total scores) to display the protective factor *resistance to*

antisocial peers, and for individuals within higher VRAG-R categories (i.e., those with higher

VRAG-R total scores) to not display this protective factor.

Predictive accuracy of *resistance to antisocial peers* and the VRAG-R. Table 4.2

displays results of the ROC curve analyses. With respect to risk, the VRAG-R total score did not

predict general recidivism (AUC = .602, 95% CI = .474-.729) or violent recidivism (AUC =

.632, 95% CI = .495-.769). Typically, the VRAG-R has strong predictive ability for violent

recidivism with a large AUC value of 0.76 (Harris et al., 2015). Given that the VRAG-R was designed to predict violent recidivism, it is not surprising that my AUC value was nonsignificant for general recidivism. The nonsignificant results may also have been accounted for by the unique characteristics of the sample, including the adolescent age and NCRMD population, the inclusion of females, as well as reduced power due to the low base rate of violent recidivism (13.4%) and general recidivism (19.6%). On the protective end, *resistance to antisocial peers* showed some predictive ability for general nonrecidivism (AUC = .647, 95% CI = .527-.767) and violent nonrecidivism (AUC = .654, 95% CI = .520-.788), a moderate effect size. The modified VRAG-R, that combined the VRAG-R score with the protective effect of *resistance to antisocial peers* (or lack of), had moderate predictive ability for violent recidivism (AUC = .643, 95% CI = .506-.780), but it did not predict general recidivism (AUC = .615, 95% CI = .488-.741).

Table 4.2. Predictive Accuracy of *Resistance to Antisocial Peers*, the VRAG-R, and the Modified VRAG-R for General and Violent Recidivism and Nonrecidivism.

	Outcome							
	General recidivism		General nonrecidivism		Violent recidivism		Violent nonrecidivism	
Predictors	AUC	95% CI	AUC	95% CI	AUC	95% CI	AUC	95% CI
Resistance to antisocial peers			**.647**	**.527-.767**			**.654**	**.520-.788**
VRAG-R	.602	.474-.729			.632	.495-.769		
Mod-VRAG-R	.615	.488-.741			**.643**	**.506-.780**		

Note. N = 117. VRAG-R = *Violence Risk Appraisal Guide – Revised* total score; Mod-VRAG-R = VRAG-R total score combined with presence/absence of protective factor *resistance to antisocial peers* (-2 or +1); AUC = area under the curve (from Receiver Operating Characteristic (ROC) curve analysis; CI = confidence interval.

Using the mod-VRAG-R Total score and Harris et al.'s (2015) VRAG-R Total score categories, I also examined the percentage of individuals who demonstrated general recidivism and violent recidivism within each VRAG-R category (Table 4.3).

Table 4.3. Percentage of Cases Demonstrating General and Violent Recidivism as a Function of Harris et al.'s (2015) Nine VRAG-R Score Categories.

Type of recidivism

VRAG-R category	Mod-VRAG-R Total score	% (N) with general recidivism	% (N) with violent recidivism	Total (N)
1	≤ -24	20.0 (1)	0.0 (0)	5
2	-23 to -17	5.6 (1)	5.6 (1)	18
3	-16 to -11	12.5 (2)	12.5 (2)	16
4	-10 to -4	22.2 (4)	5.6 (1)	18
5	-3 to +3	28.6 (4)	21.4 (3)	14
6	4 to 11	7.1 (1)	7.1 (1)	14
7	12 to 17	33.2 (2)	33.3 (2)	6
8	18 to 26	38.5 (5)	30.8 (4)	13
9	≥ 27	20.0 (2)	10.0 (1)	10

Note. $N = 114$. Base rate of general recidivism was 19.6% with an average time to general recidivism of 79 months (SD = 57). Base rate of violent recidivism was 13.4% with an average time to violent recidivism of 90 months (SD = 62). VRAG-R = *Violence Risk Appraisal Guide – Revised* total score; Mod-VRAG-R = VRAG-R total score combined with absence/presence of protective factor *resistance to antisocial peers* (+1 or -2).

Consistent with the AUC value of .643 (95% CI = .506-.780), there was a general trend for

individuals within higher VRAG-R categories to have a higher proportion of violent recidivism,

as compared to individuals within lower VRAG-R categories. A notable exception is for

individuals whose mod-VRAG-R Total scores were 27 or higher. Upon further examination, of

the ten individuals with a Mod-VRAG-R Total score of 27 or higher, only three had received

absolute discharge (33.3%) and one was transferred out of province. The other six remained

under the supervision of the Alberta Review Board with conditions in place that reduced their

likelihood of reoffending (e.g., restrictions around substance use) or limited their opportunities to

reoffend (e.g., constant supervision during community visits). In contrast, of the 104 individuals

with a Mod-VRAG-R Total score of 26 or lower, 40 (38.5%) had received absolute discharge,

free of any supervision or conditions, providing them with increased opportunity to reoffend.

Thus, the unexpected lack of general and violent recidivism found within the highest VRAG-R

category may reflect risk being appropriately managed by forensic professions through ongoing

supervision and restrictions. As reported by Harris et al. (2015), 76% of individuals in category 9

of the VRAG-R are expected to demonstrate violent recidivism after 5 years, and 87% are

expected to demonstrate violent recidivism after 12 years.

Incremental validity of resistance to antisocial peers and the VRAG-R. The difference

in AUC values for the VRAG-R and the modified VRAG-R for general and violent recidivism are marginal, with a .013 increase in AUC value for general recidivism and a .011 increase for violent recidivism when using the modified VRAG-R over the original VRAG-R. Given the sample size of 114 individuals, use of the mod-VRAG-R Total score (i.e., the VRAG-R with the effect of *resistance to antisocial peers* included) over the original VRAG-R would meaningfully have corresponded to approximately one more individual in the sample being correctly identified as a recidivist. Although the incremental validity of *resistance to antisocial peers* to the VRAG-R is not statistically significant, the change is in the expected direction for both general and violent recidivism.

       Age-group analyses. To investigate the relationship between the protective factor *resistance to antisocial peers* and general and violent nonrecidivism, I ran separate crosstabulation analyses for the late adolescent group (age 15 to 21 years) and emerging adulthood group (age 22 to 25 years). For the late adolescent group, adolescents who displayed *resistance to antisocial peers* during their warrant were no more likely to demonstrate general nonrecidivism (χ^2_{Yates} $(1, N = 52) = 2.150$, $p = .143$) or violent nonrecidivism (χ^2_{Yates} $(1, N = 52) = .041$, $p = .839$) as compared to those without this protective factor. In contrast, for the emerging adulthood group, individuals who displayed *resistance to antisocial peers* during their warrant were more likely to demonstrate violent nonrecidivism (χ^2 $(1, N = 63) = 5.694$, $p = .017$) as compared to those without this protective factor. With respect to general nonrecidivism and this protective factor for emerging adults, the results approached significance (χ^2 $(1, N = 63) = 3.465$, $p = .063$). These results suggest that *resistance to antisocial peers* acts as a protective factor for nonrecidivism for those found NCRMD as emerging adults but not as late adolescents. Table 4.4 Shows the base rates for general and violent nonrecidivism for late adolescents ($N =$

52) and emerging adults ($N = 63$) with and without this protective factor.

Table 4.4. Recidivism Base Rates among Late Adolescent and Emerging Adult NCRMD Individuals in Alberta.

	Late adolescence			Emerging adulthood		
Outcome	Full sample % (n)	Resistance to antisocial peers % (n₁)	Select antisocial peers % (n₂)	Full sample % (n)	Resistance to antisocial peers % (n₃)	Select antisocial peers % (n₄)
General nonrecidivism	84.6 (44)	95.5 (21)	76.7 (23)	76.2 (48)	86.7 (26)	66.7 (22)
General recidivism	15.4 (8)	4.5 (1)	23.3 (7)	23.8 (15)	13.3 (4)	33.3 (11)
Violent nonrecidivism	92.3 (48)	4.5 (21)	90.0 (27)	81.0 (51)	93.3 (28)	69.7 (23)
Violent recidivism	7.7 (4)	95.5 (1)	10.0 (3)	19.0 (12)	6.7 (2)	30.3 (10)
Summary	(52)	(22)	(30)	(63)	(30)	(33)

I also used bivariate logistic regression to further assess the impact of *resistance to antisocial peers* on the likelihood that individuals would not go on to reoffend. I used the enter method with *resistance to antisocial peers* as a predictor and general nonrecidivism and violent nonrecidivism as the outcomes for each analysis. Table 4.5 and 4.6 show the results for the late adolescent group with general nonrecidivism, and violent nonrecidivism as the outcomes, respectively.

Table 4.5. Bivariate Logistic Regression of Predictor *Resistance to Antisocial Peers* on Outcome Variable General Nonrecidivism for Individuals found NCRMD during Late Adolescence.

	Regression coefficient			Odds ratio		Model		
Variable	β	SE β	Wald	Exp (β)	95% CI	-2 Log Likelihood	Model χ^2 (df)	$R^2_{CS} - R^2_N$
Constant	1.190	.432	7.594[**]	3.286				
Antisocial peers (resistance to vs gravitation towards)	1.855	1.111	2.788[†]	6.391	.725-56.381	40.732	3.916[*] (1)	.073-.126

Note. $N = 52$. SE = standard error; CI = confidence interval; R^2_{CS} = Cox & Snell; R^2_N = Nagelkerke. [†]$p < .10$; [*]$p < .05$; [**]$p < .01$

For the late adolescent group, the model was significant, χ^2 (1, N = 52) = 53.917, $p = 0.048$, and explained between 7.3% (Cox & Snell R square) and 12.6% (Nagelkerke R^2) of the variance in general nonrecidivism. The predictor *resistance to antisocial peers* approached significance ($p =$

.095), with individuals demonstrating this factor being roughly six times more likely to be general nonrecidivists than individuals who gravitated towards select antisocial peers.

Table 4.6. Bivariate Logistic Regression of Predictor Resistance to Antisocial Peers on Outcome Variable Violent Nonrecidivism for Individuals found NCRMD During Late Adolescence.

	Regression coefficient			Odds ratio		Model		
Variable	β	SE β	Wald	Exp (β)	95% CI	-2 Log Likelihood	Model χ^2 (df)	$R^2_{CS} - R^2_N$
Constant	2.197	.609	13.035***	9.000				
Antisocial peers (resistance to vs gravitation towards)	.847	1.191	.506	2.333	.226- 24.076	27.641	.563 (1)	.011-.026

Note. $N = 52$. SE = standard error; CI = confidence interval; R^2_{CS} = Cox & Snell; R^2_N = Nagelkerke. *** $p < .001$

With respect to the late adolescent group and violent nonrecidivism, the model was not significant, χ^2 (1, N = 52) = .563, $p = 0.453$.

Table 4.7 and 4.8 show the results for the emerging adulthood group with general nonrecidivism, and violent nonrecidivism as the outcomes, respectively.

Table 4.7. Bivariate Logistic Regression of Predictor *Resistance to Antisocial Peers* on Outcome Variable General Nonrecidivism for Individuals found NCRMD during Emerging Adulthood.

	Regression coefficient			Odds ratio		Model		
Variable	β	SE β	Wald	Exp (β)	95% CI	-2 Log Likelihood	Model χ^2 (df)	$R^2_{CS} - R^2_N$
Constant	.693	.369	3.523†	2.000				
Antisocial peers (resistance to vs gravitation towards)	1.179	.652	3.270†	3.250	.906- 11.660	65.570	3.588† (1)	.055-.083

Note. $N = 63$. SE = standard error; CI = confidence interval; R^2_{CS} = Cox & Snell; R^2_N = Nagelkerke. † $p < .10$

For the emerging adulthood group, the model approached significance, χ^2 (1, N = 63) = 3.588, $p = 0.058$, and explained between 5.5% (Cox & Snell R square) and 8.3% (Nagelkerke R^2) of the variance in general nonrecidivism (Table 4.7). The predictor *resistance towards antisocial peers* approached significance ($p = .071$), with individuals demonstrating this factor being approximately three times more likely to be general nonrecidivists than individuals who gravitated towards select antisocial peers. With respect to the emerging adulthood group and

violent nonrecidivism, the model was significant, $\chi^2\,(1,\,N=63)=6.170$, $p=0.013$, and

explained between 9.3% (Cox & Snell R square) and 15.0% (Nagelkerke R^2) of the variance in

violent nonrecidivism (Table 4.8). The predictor *resistance towards antisocial peers* was

significant ($p = .028$), with individuals who demonstrated this factor being approximately six

times more likely to be general nonrecidivists than individuals who gravitated towards select

antisocial peers.

Table 4.8. Bivariate Logistic Regression of Predictor *Resistance to Antisocial Peers* on Outcome Variable Violent Nonrecidivism for Individuals found NCRMD during Emerging Adulthood.

	Regression coefficient			Odds ratio			Model	
Variable	β	SE β	Wald	Exp (β)	95% CI	-2 Log Likelihood	Model χ^2 (df)	$R^2_{CS} - R^2_N$
Constant	.833	.379	4.835[*]	2.300				
Antisocial peers (resistance to vs gravitation towards)	1.806	.824	4.824[*]	6.087	1.210-30.613	55.181	6.170[*] (1)	.093-.150

Note. $N = 63$. SE = standard error; CI = confidence interval; R^2_{CS} = Cox & Snell; R^2_N = Nagelkerke. [*]$p < .05$

Taken together, these results suggest that the protective factor *resistance to antisocial*

peers may differ by developmental period and type of nonrecidivism outcome. For individuals

who were emerging adults (age 22 to 25 years) at the time of their NCRMD verdict, this factor

greatly increased their likelihood of violent nonrecidivism (OR = 6.1; CI = 1.2-30.0) and showed

a nonsignificant trend ($p = .071$) of increasing their likelihood of general nonrecidivism (OR =

3.3; CI = .9-11.7). In contrast, for those found NCRMD during late adolescence (age 15 to 21

years), *resistance to antisocial peers* was not protective against violent nonrecidivism. There was

a nonsignificant trend for this factor to increase the likelihood of general nonrecidivism for

individuals found NCRMD during late adolescence (OR = 6.4; CI = .7-56.4; $p = .095$), but this

result should be taken with some caution given the large confidence interval.

Discussion

Predictive validity of *resistance to antisocial peers* for recidivism. In this study, I

examined the predictive validity of the protective factor, *resistance to antisocial peers*, in predicting general nonrecidivism and violent nonrecidivism amongst the Alberta NCRMD adolescent and emerging adult population. The results provided evidence for this protective factor as being predictive of later general nonrecidivism and violent nonrecidivism, with AUC values of .647 (95% CI = .527-.767) and .654 (95% CI = .520-.788), a moderate effect size (Salgado, 2018). This finding is consistent with research on the central eight risk/need factors of criminal behaviour, with criminal history, procriminal attitudes, procriminal associates, and antisocial personality pattern being most predictive of recidivism (Bonta & Andrews, 2017). With respect to the risk/need factor of *procriminal associates* (Bonta & Andrews, 2017), my research provides evidence that prosocial association and resistance to the influence of antisocial peers within one's environment, is a protective strength for NCRMD adolescents. It further aligns with research findings on Canadian juvenile offenders suggesting that adolescent's peer associations are the most robust predictor of a life course offending trajectory, rather than an adolescent-limited offending trajectory, with individuals displaying a chronic pattern of offending into adulthood having more negative and unconstructive ties with their peers (Yessine & Bonta, 2012). As my study was the first to examine *resistance to antisocial peers* specifically in the NCRMD population, replication of results will be required, perhaps in other provincial or territorial jurisdictions. An exploration of whether this factor is also generalizable to adolescents within correctional settings, rather than forensic psychiatric settings, would also be warranted.

Incremental validity of resistance to antisocial peers for recidivism. I explored the incremental validity of *resistance to antisocial peers* in combination with the VRAG-R, by creating a mod-VRAG-R total score. Although the mod-VRAG-R showed some predictive ability for violent recidivism (AUC = 0.643, CI = 0.506-.780), it did not add significantly to the

incremental validity of the VRAG-R for violent or general recidivism. Adding this protective factor to the VRAG-R did, however, slightly improve the AUC value in the expected direction, but the change was not statistically significant. Because the stakes of correctly classifying recidivists versus nonrecidivists are high—both to potential victims in the community, as well as to the personal liberties of individuals found NCRMD—some may argue that the inclusion of this protective factor is arguably meaningful within the real world, for example, to a community member who may have been a victim of a misclassified individual's reoffending, or to an NCRMD individual who remains living in a secure forensic facility who would not have reoffended had he been released to the community.

Although not the focus of this study, I was surprised to find that the VRAG-R was not predictive of violent nonrecidivism or general nonrecidivism within the NCRMD adolescent population. Of note, the 13.4% base rate of violent recidivism (and 19.6% base rate of general recidivism) within the NCRMD adolescent sample is much lower than the base rate of violent recidivism of the sample on which the VRAG-R was developed (i.e., 5-year base rate of 32% and 12-year base rate of 51%) (Harris et al., 2015). As recommended by Rosseggar et al. (2014) following an investigation of offenders released in Switzerland, clinicians should use caution in practice around the probabilistic risk estimates of the VRAG, as differences in base rates of violent recidivism can lead to poor calibration validity and an overestimation of the risk of recidivism. This is problematic as individuals may receive unnecessary supervision or be mandated to costly treatment that is unwarranted (Rosseggar et al., 2014). From a legal perspective, a review board should consider "the need to protect the public from dangerous persons, the mental condition of the accused, the reintegration of the accused into society and the other needs of the accused" (section 672.52 of the Canadian Criminal Code, 1985). Moreover,

dangerousness should not be presumed, rather, there must be evidence of significant risk for a review board to order continued detention or conditional supervision for an individual (section 672.54 of the Canadian Criminal Code, 1985). In other words, there is a mandate for NCRMD individuals to be absolutely discharged once there is no longer significant evidence of ongoing risk. It is the responsibility of forensic professionals to ensure that they utilize risk assessment measures and make probabilistic risk estimates with consideration of calibration validity for unique forensic populations.

Developmental considerations. Lastly, I explored whether the protective factor *resistance to antisocial peers* applied uniquely to individuals found NCRMD during late adolescence (15-21 years) and emerging adulthood (22-25 years). The results suggested that this factor predicted violent nonrecidivism for those found NCRMD as emerging adults but did not predict violent or general nonrecidivism for those found NCRMD during late adolescence. These findings were unexpected. Research has demonstrated that adolescents are most easily influenced by their peers during early to middle adolescence (age 13-16 years) as compared to those in younger (12 years and less) or older age groups (17 years and older) (Brown, 1990). I therefore hypothesized that *resistance to antisocial peers* would be a more robust protective factor in the younger group (age 15-21 years) than in the older group (age 22-25 years), but this was not the case. One possible explanation is that individuals who were found NCRMD during late adolescence offended earlier in life as compared to those who were found NCRMD during emerging adulthood. The NCRMD population is unique and is comprised of individuals with a wide a range of risk levels. Given that age of first offence is a risk factor for recidivism of young offenders—with those whose first offence occurs at a younger age being more likely to reoffend that those who first offence occurs at an older age (Putniņš, 2005),—individuals in the late

adolescent group may have had higher preexisting risk levels than those in the emerging adulthood group. Moreover, because of judicial leniency towards younger offenders, judicial processing biases may also exist wherein those who are convicted at younger ages tend to have more serious offences than older offenders (Putniņš, 2005). It may be that individuals in the late adolescent group were more likely to be those characterized by Moffit's (1993) life course-persistent offending trajectory rather than an adolescent-limited offending trajectory, as compared to those in the emerging adulthood group. Future research that examines the protective effect of *resistance to antisocial peers* in different age groups could explore possible interactions with existing risk levels to better understand how this protective factor operates across time. Of note, I also measured *resistance to antisocial peers* in a static manner as an overall estimate across time, from the time of an individual's NCRMD verdict until his or her last contact with the review board. I was unable to assess this variable within the distinct late adolescent and emerging adulthood periods or measure any change.

Strengths and limitations. This research has several notable strengths. It builds on a previous exploration of protective factors in NCRMD adolescents (Patricny et al., 2021) by considering the combined utility of an empirically supported protective factor, *resistance to antisocial peers*, and the VRAG-R, a well-validated actuarial risk assessment tool. It was also based on population-level data, with results that reflect 81% of the entire NCRMD adolescent population in Alberta's history. Additionally, the presence versus absence of the protective factor *resistance to antisocial peers* was made by an independent researcher, which reduced possible biases that can occur with multiple raters.

There were several limitations that are inherent to the retrospective file review nature of the study. All independent and dependent variables were scored from available file information.

Due to insufficient file information and inaccessibility of files, not all NCRMD individuals could be included. The outcome measures, general and violent recidivism, were also based on official charges, therefore exclude possible criminal behaviour that may have gone undetected or unreported. Of note, the study data included females, unlike the original data for the VRAG, which makes comparisons between the two difficult. The small size of the NCRMD adolescent and emerging adult population also limited the statistical power for analyses with different age cohorts, possibly lending itself towards a type II error. I therefore commented on trends which approached statistical significance. Moreover, my age cutoff of 21/22 between the two groups was arbitrary. Researchers who explore the protective effect of *resistance to antisocial peers* with larger samples of adolescents involved in the general criminal justice system may have greater opportunity to conduct analyses with more statistical power to better detect possible age-related variations in protective factors. Lastly, I encourage researchers to conduct prospective research for the purpose of capturing a greater range of theoretical protective factors and measuring possible change in protective factors across different timepoints.

Summary

The results of this study provided additional evidence to my earlier study (Patricny et al., 2021) that *resistance to antisocial peers* is an important protective factor, with a medium effect size for later general and violent nonrecidivism. Based on its negative association with the VRAG-R, I provided evidence of discriminant validity for this protective factor. The results did not provide statistically significant evidence for the incremental validity of this factor in combination with the VRAG-R. Preliminary results of the age-related analyses suggested that the protective effect of this factor may differ by age cohort and type of recidivism outcome, being protective against recidivism for those found NCRMD during emerging adulthood, but not for

those found NCRMD during late adolescence. However, I caution readers about these findings due to limited statistical power and possible differences in risk-levels between the two age cohorts. Although it goes beyond the scope of the study, I suggest that future researchers consider possible interactions between risk and protective factors when examining possible differences across age groups. Researchers could also build on my research by exploring whether *resistance to antisocial peers* and choice of friends is a dynamic variable, and if changes in this variable across time may lead to a reduction in later recidivism. For example, researchers could prospectively explore whether adolescents who cut ties with antisocial peers and develop prosocial peer relationships reduce their likelihood of reoffending. Any attempt to measure change in this protective factor would require careful operational definition. Such research with consideration of change scores could help to inform clinicians on how to address the criminogenic needs of adolescent offenders through the development of protective factors that reduce risk over time.

References: Chapter 4

Andrews, D. A., Bonta, J., & Wormith, J. S. (2006). The recent past and near future of risk and/or need assessment. *Crime & Delinquency, 52*(1). https://doi-org.login.ezproxy.library.ualberta.ca/10.1177/0011128705281756

Bonta, J., & Andrews, A. D. (2017). *The psychology of criminal conduct* (6th ed.). New York, NY: Taylor & Francis.

Brown, B. B., (1990). Peer groups and peer cultures. In S. S. Feldman & G. R. Elliot (Eds.), *At threshold: The developing adolescent* (pp. 171-196). Cambridge, MA: Harvard University Press.

Brumley, L. D., & Jaffee, S. R. (2016). Defining and distinguishing promotive and protective effects for childhood externalizing psychopathology: A systematic review. *Social Psychiatry and Psychiatric Epidemiology, 51*(6), 803-815.

Coid, J., Yang, M., Ullrich, S., Zhang, T., Sizmur, S., Roberts, C., Farrington, D., & Rogers, R. D. (2009). Gender differences in structured risk assessment: Comparison of the accuracy of five instruments. *Journal of Consulting and Clinical Psychology, 77*(2), 337–348.

Criminal Code (1985). C-46. PART II: Offences against public order treason and other offences against the Queen's authority and person. Ottawa: Statues and Regulations, Government of Canada.

Department of Justice. (August, 2020). The review board systems in Canada: An overview of results from the mentally disordered accused data collection study. https://www.justice.gc.ca/eng/rp-pr/csj-sjc/jsp-sjp/rr06_1/p1.html

de Vogel, V., de Ruiter, C., Bouman, Y., & de Vries Robbe, M. (2015). *SAPROF: Structured assessment of protective factors for violence risk* (2nd ed.). The Netherlands: Van der Hoeven Kliniek.

Douglas, K. S., Hart, S. D., Webster, C. D., & Belfrage, H. (2013). *HCR-20V3: Assessing risk of violence – User guide.* Burnaby, Canada: Mental Health, Law, and Policy Institute, Simon Fraser University.

Fergus, S., & Zimmerman, M. A. (2005). Adolescent resilience: A framework for understanding healthy development in the face of risk. *Annual Review of Public Health, 26*, 399-419.

Haag, A. M., Cheng, J., & Wirove, R. (2016). Describing the not criminally responsible population in Alberta's history: Socioeconomic, mental health, and criminological

profiles. *Journal of Safety & Well-being, 1*(3).
https://journalcswb.ca/index.php/cswb/article/view/24

Harris, G. T., Rice, M., & Quinsey, V. (2016). Violence Risk Appraisal Guide - Revised, 2013.
http://hdl.handle.net/10864/12053

Harris, G. T., Rice, M. E., Quinsey, V. L., & Cormier, C. A., (2015). *Violent offenders:
Appraising and managing risk* (3rd ed.). http://dx.doi.org/10.1037/14572-002

Kaltiala-Heino, R., & Eronen, M. (2015). Ethical issues in child and adolescent forensic
psychiatry: A review. *The Journal of Forensic Psychiatry & Psychology, 26*(6), 759-780.
https://doi.org/10.1080/14789949.2015.1062995

Kim, B. E., Gilman, A. B., Hill, K. G., & Hawkins, J. D. (2016). Examining protective factors
against violence among high-risk youth: Findings from the Seattle Social Development
Project. *Journal of Criminal Justice, 45*, 19-25.
https://doi.org/10.1016/j.jcrimjus.2016.02.015

Kocsis, R. N. (2011). Book review: Mills, J., Kroner, D., & Morgan, R. (2010). Clinician's guide
to violence risk assessment. New York, NY: Guilford. *International Journal of Offender
Therapy and Comparative Criminology, 55*(4), 665-666. https://doi-
org.login.ezproxy.library.ualberta.ca/10.1177/0306624X11398034

Larson, R., & Richards, M. H. (1991). Daily companionship in late childhood and early
adolescence: Changing developmental contexts. *Child development, 62*(2), 284-300.
https://doi.org/10.1111/j.1467-8624.1991.tb01531.x

Loeber, R., & Farrington, D. P. (1998). Never too early, never too late: Risk factors and
successful interventions for serious and violent juvenile offenders. *Studies on Crime &
Crime Prevention, 7*(1), 7-30.

Moffitt, T. (1993). Adolescence-limited and life-course persistent antisocial behavior: A
developmental taxonomy. *Psychological Review, 100*, 674–701.
https://doi.org/10.1037/0033-295X.100.4.674

Neil, C., O'Rourke, S., Ferreira, N., & Flynn, L. (2020). Protective factors in violence risk
assessment: Predictive validity of the SAPROF and HCR-20V3. *International Journal of
Forensic Mental Health*, *19*(1), 84-102. https://doi.org/10.1080/14999013.2019.1643811

Nicholls, T. L., Petersen, K. L., & Pritchard, M. M. (2016). Comparing preferences for actuarial
versus structured professional judgment violence risk assessment measures across five

continents: To what extent is practice keeping pace with science. In J. P. Singh, S. Bjorkly, & S. Fazel (Eds.), *International Perspectives on Violence Risk Assessment*, pp. 127-149. doi:10.1093/acprof:oso/9780199386291.003.0008

Nuffield, J. (1982). Parole decision-making in Canada: Research toward decision guidelines. Ottawa: Research Division Canada. https://www.ncjrs.gov/App/Publications/abstract.aspx?ID=126179

Patricny, N., Pei, J., & Haag, A. (2020). *Protective factors against adolescent offending: A review of longitudinal studies*. Manuscript submitted for publication.

Patricny, N., Haag, A., & Pei, J. (2021). *Protective factors for nonrecidivism in Not Criminally Responsible Adolescents*. Manuscript submitted for publication.

Putniņš, A. L. (2005). Assessing recidivism risk among young offenders. *Australian & New Zealand Journal of Criminology, 38*(3), 324-339. https://doi.org/10.1375/acri.38.3.324

Rice, M. E., & Harris, G. T. (2005). Comparing effect sizes in follow-up studies: ROC area, Cohen's *d*, and *r*. *Law and Human Behavior, 29*(5), 615-620. https://link.springer.com/article/10.1007/s10979-005-6832-7

Richer, K., Cheng, J., & Haag, A. M. (2018). Historical recidivism rates of Alberta's not criminally responsible population. *Journal of Community Safety & Well-Being, 3*(2), 59-64. http://dx.doi.org/10.35502/jcswb.50

Rogers, R. (2000). The uncritical acceptance of risk assessment in forensic practice. *Law and Human Behaviour, 24*, 595-605.

Rossegger, A., Endrass, J., Gerth, J., & Singh, J. P. (2014). Replicating the violence risk appraisal guide: A total forensic cohort study. *PLoS One, 9*(3), e91845. https://europepmc.org/article/med/24632561

Salgado, J. F. (2018). Transforming the area under the normal curve (AUC) into Cohen's *d*, Pearson's r_{pb}, odds-ratio, and natural log odds-ratio: Two conversion tables. *European Journal of Psychology Applied to Legal Context, 10*(1), 35-47. http://hdl.handle.net/10347/22159

Serin, R. C., & Lowenkamp, C. T. (2015). Selecting and using risk and need assessments. *National Drug Court Institute, 10*(1), 1-23.

Sroufe, L. A. (1997). Psychopathology as an outcome of development. *Development and Psychopathology, 9*(2), 251-268. https://pubmed.ncbi.nlm.nih.gov/9201444/

Steinberg, L., & Morris, A. S. (2001). Adolescent development. *Annual Review of Psychology, 52*(1), 83-110. https://doi.org/10.1146/annurev.psych.52.1.83

Vassallo, S., Edwards, B., & Forrest, W. (2016). Childhood behavior problems and fighting in early adulthood: What factors are protective? *Journal of Criminal Justice, 45*, 85-93. http://dx.doi.org/10.1016/j.jcrimjus.2016.02.010

Yessine, A. K., & Bonta, J. (2012). The offending trajectories of youth probationers from early adolescence to middle adulthood: Relation to dual taxonomies. Research report: 2012-4. Ottawa: National Crime Prevention Centre, Public Safety Canada. https://www.publicsafety.gc.ca/cnt/rsrcs/pblctns/2012-04-typ/2012-04-typ-eng.pdf

Chapter 5. Conclusion

Broadly, protective factors are "the internal and external capacities and personal priorities that enhance individuals' well-being and reduce the likelihood that they will harm others or themselves" (Ward, 2016, p. 26). The overarching goal of the studies contained within my dissertation was to explore and identify protective factors associated with reduced risk of reoffending for young persons. I opted to use a quantitative approach, with the intention of examining the predictive validity of various theoretical protective factors for individuals who were found NCRMD by the court during adolescence or emerging adulthood. Adolescents found NCRMD are a particularly vulnerable group of individuals with severe mental health disorders. While being in an important stage of development, they live with restrictions on their personal liberties that are adjudicated by their review boards. Understanding protective factors as they apply to unique populations, such as NCRMD adolescents, is crucial, as it may enable clinicians to provide more focused and efficient treatment (de Vries Robbe et al., 2015). Further, understanding protective factors may help to decrease the probability of reoffending (Heffernan & Ward, 2017), ultimately contributing to safer communities.

Research on protective factors within the field of forensic psychology is somewhat equivocal. On the one hand, there has been a growing interest in protective factors during the past few decades (e.g., de Ruiter & Nicholls, 2011; Miller, 2006). With the recent emergence of fourth-generation risk assessment approaches that acknowledge the role of individuals' personal strengths and consider factors that play a role in maximizing individuals' response to treatment (Bonta & Andrews, 2017), some researchers (see de Vogel et al., 2015; Douglas & Hart, 2009) have begun to advocate for the inclusion of protective factors to allow for a more fair, balanced, and comprehensive evaluation of individuals (Rogers, 2000). Researchers such as Farrington

(2016) and Loeber (2012) have been major contributors to the developing body of research on protective factors against criminality. At the same time, little empirical evidence has been found to support the use of protective factors over and above the well-established research on risk factors (Harris et al., 2015).

As an analogy, consider the longstanding nature versus nurture debate (see Stiles, 2011). Proponents from both sides initially compartmentalized individuals' developmental influences as originating either internally, within individuals' and their genetic makeup, or externally, from their environmental life experiences (see Stiles, 2011). However, there is now overwhelming evidence that it is the interaction of nature (i.e., genetic factors) and nurture (i.e., environmental factors) over time that guides behavioural development throughout childhood and likely across the lifespan (Stiles, 2011). With adolescents' internal traits and their external environment having bidirectional influence on each other over time, various developmental outcomes can emerge for adolescents (Bronfenbrenner & Ceci, 1994). A greater understanding of the complex behaviour of individuals arises through the consideration of both nature and nature. With respect to the development of criminality, there is a similar parallel with risk and protective factors. Both can overlap in the way that they are conceptualized, and some researchers (e.g., Fergusson et al., 2017) have found that risk and protective factors interact over time to alter the likelihood of criminality. Just as nature and nurture are interconnected and difficult to parse apart in understanding human behaviour, so are risk and protective factors. That is, they may overlap and interact across time to yield offending behaviour, or, alternatively, a lack thereof.

In this dissertation, I pull conceptual ideas from the developmental psychopathology and positive psychology literature in order to better understand protective factors and how they may apply to adolescents and nonrecidivism. The purpose of this dissertation was to explore whether

protective factors for nonrecidivism exist for individuals found NCRMD during adolescence or emerging adulthood. In order to address this aim, I completed three inter-related, yet independent papers. The results of the papers that comprise this dissertation reveal several interesting findings about protective factors with respect to populations they apply to, the size of their association with nonrecidivism, and their utility in complementing existing risk-based approaches.

Protective Factors against Adolescent Offending

In the first paper, in which I reviewed existing longitudinal studies of protective factors against offending more broadly within various adolescent populations, I demonstrated that a wide variety of protective factors exist. There is empirical evidence to support various protective factors for general population adolescents, those who are disadvantaged because of their low socioeconomic status, and those who could be considered high-risk due to preexisting risk factors such as drug use or aggression. Adolescents exist within different environmental systems that are contained within each other (Ecological systems theory, 2018), and protective factors may emerge at any system level. For example, I included studies that reported protective factors at the individual level of the adolescent (e.g., gender and personality factors), within adolescents' closest contacts (e.g., family and peer factors), at the community level (e.g., school environment and neighbourhood variable), and more broadly at the larger society-level (e.g., socioeconomic status) that is outside of adolescents' control (Ecological systems theory, 2018).

In examining the outcome of reduced risk for offending, most protective factors, in isolation, had weak associations with later offending across time. This is not surprising considering the large variety of factors that may influence adolescents and their development across time (Steinberg & Morris, 2001). When looking at the cumulative protective effect of multiple protective factors, the protective effect against later offending has been found to be

more robust across time (Kim et al., 2016; Jennings et al., 2016) by buffering against various risk factors (Stoddard et al., 2012; Dubow et al., 2016). Taken together, in their search for protective factors, researchers would be wise to continue exploring a wide range of theoretical protective factors, at multiple levels, and consider cumulative protective effects against offending for various adolescent populations.

Protective Factors for Nonrecidivism in NCRMD Adolescents

In the second paper, in which I explored various theoretical protective factors specifically within Alberta's NCRMD adolescent population, I provided empirical evidence for *resistance to antisocial peers* as a protective factor against long term general recidivism and violent recidivism. This is a novel finding that is based on the statistically significant results of multivariate analyses conducted on a relatively small sample size. More importantly, the protective factor of *resistance to antisocial peers* is arguably clinically significant, that is, clinically important and meaningful in terms of its impact or effect in the real world of clinical practice (Ranganathan et al., 2015). NCRMD individuals demonstrating *resistance to antisocial peers* during their NCRMD warrant were 3.9 times more likely to demonstrate long-term nonrecidivism for general offences, and 5.6 times more likely to demonstrate long-term nonrecidivism for violent offences, as compared to those without this protective factor. This is equivalent to a medium effect size.

If replicable, this finding would be relevant to forensic professionals' assessments and decision-making around NCRMD individuals' community reintegration at review board hearings. Currently, professionals' use of protective factors within review board hearings is limited (Collins et al., 2019), partly due the paucity of research on them. This is unfortunate as consideration of protective factors during review board hearings has the potential to provide

professionals with a more balanced view of individual' and their risk of recidivism, to improve NCRMD individuals' experiences of review board hearings, and to possibly guide clinicians' treatment planning through the augmentation of protective factors in NCRMD individuals when they are lacking (Collins et al., 2019). The identification of the protective factor *resistance to antisocial peers* in the NCRMD adolescent population brings researchers and clinicians one step closer towards potentially utilizing a more comprehensive and balanced assessment and treatment approach with this vulnerable population. For example, professionals could expand their assessment beyond the identification of *procriminal associates* as a central risk factor for offending (Bonta & Andrews, 2017) by further considering the presence of *resistance to antisocial peers* as a protective factor against offending, regardless of the absence (or presence of) procriminal associates.

Resistance to Antisocial Peers in NCRMD Adolescents: Predictive and Incremental Validity

In the third paper, in which I explored the incremental validity of the protective factor *resistance to antisocial peers* with the VRAG-R, I found negative results for the incorporation of this protective factor into the VRAG-R. That is, the protective effect of *resistance to antisocial peers* did not add any predictive value beyond the VRAG-R alone in terms of long-term recidivism outcomes. To some extent, NCRMD individuals without this protective factor were demonstrating aspects of antisociality (e.g., breaking the hospital unit rules by bringing in contraband or using illicit substances against their conditions). It is possible that negative covariance between *resistance to antisocial peers* and the VRAG-R (which includes an item of antisociality) may partly account for why there was no significant increment in the prediction of nonrecidivism when considered together. In other words, perhaps antisociality represents, to some extent, the negative end of the protective factor *resistance to antisocial peers*.

Despite not finding evidence to support the incremental validity of *resistance to antisocial peers* with the VRAG-R, I encourage other researchers to continue with their pursuit of examining the incremental validity of protective factors with existing risk-based tools, particularly as novel protective factors may emerge with unique populations. My negative finding represents the combination of only one protective factor (measured in a static way during individuals' NCRMD warrant) together with a specific risk-based actuarial tool. Other protective factors, particularly if measured in a dynamic manner, may provide incremental validity with the VRAG-R or other assessment tools. For example, a recent study found evidence of incremental validity for dynamic strengths—that is, positive behaviours, attitudes, skills, and supports as measured by the *Youth Assessment and Screening Instrument* (YASI) (Orbis Partners, 2000) and the *Service Planning Instrument* (SPIn) (Orbis Partners, 2003)—in increasing the predictive accuracy over and above dynamic criminogenic needs for five different samples of justice-involved youth in Canada and the United States (Brown et al., 2020). The strengths of individuals with low- and moderate-need levels buffered their predicted probability of recidivism, suggesting that there is "clear evidence that strengths do matter in the context of risk assessment" (Brown et al., 2020, p. 1446). Thus, researchers are warranted in further empirical exploration of the incorporation of strengths (i.e., protective or promotive factors) into criminal justice assessment tools (Brown et al., 2020).

Contributions and Implications

In this dissertation, I have summarized existing research on protective factors against criminality for various adolescent populations. I have also contributed to a greater understanding of protective factors against reoffending for adolescents found NCRMD. Specifically, I identified *resistance to antisocial peers* as an important protective factor by providing empirical evidence that this factor is associated with a reduced likelihood of long-term reoffending within

the Alberta NCRMD population. This research supports the notion that it is important for researchers and clinicians to at least consider protective factors—rather than focus selectively on risk factors—when searching for predictors of long-term reoffending that may be relevant to risk assessment and decisions around community reintegration. By utilizing such a strength-based approach, researchers and clinicians may be able to shift towards taking a more comprehensive and balanced approach in understanding and working with the NCRMD population that extends upon current risk-focused forensic practice.

With respect to the clinical implications of my research, I am limited in my ability to make assertations about how *resistance to antisocial peers* may pertain to treatment to promote nonrecidivism. Although there was a clinically significant association between the presence of this protective factor (measured in a static way during the NCRMD warrant) and later general and violent nonrecidivism, due to the study design, I cannot infer that there was a causal influence of *resistance to antisocial peers* on later nonrecidivism. Given this, it remains unclear whether treatment aimed at increasing adolescents' *resistance to antisocial peers* would result in greater nonrecidivism. I encourage further research to be conducted to investigate the role that this protective factor may have in treatment specifically, with a focus on developing interventions that may be able to elicit change in this variable and determining if any such change leads to increased nonrecidivism.

With respect to research implications, the results of this dissertation point towards the need for further exploration of protective factors with various forensic populations. Although the focus of this research was specifically on NCRMD adolescents, researchers would be warranted in their search for protective factors with other populations, for example, amongst individuals within juvenile and adult correctional institutions and for those living within the community

(e.g., receiving community sanctions or on probation). Of note, the focus of this dissertation was specifically on protective factors as they pertain to nonrecidivism. Other researchers may wish to explore other possible outcomes that many may consider to be of importance, for example, mental health, quality of life, educational attainment, or employment status. While the criminal justice system focuses heavily on public safety (measured by reconvictions), there may be an ethical responsibility for researchers to also consider outcomes that are in the interest of vulnerable groups within the criminal justice system.

Further to this, it would be helpful for researchers to conduct more longitudinal studies with consideration of both risk and protective factors; this would allow for a better understanding of potential mediating and moderating effects. Such research is time and resource intensive but has been completed successfully by researchers such as Farrington et al. (2016) and Kim et al. (2016). Ultimately, researchers seeking to better understand adolescent offending are tasked with understanding the factors that contribute to increased risk, as well as reduced risk, and how these may interact over time. The results of my dissertation provide a starting place for researchers to further examine the protective factor of *resistance to antisocial peers*, and how it may interact with other risk factors to reduce the likelihood of later reoffending.

Future direction. In practice, clinicians and policymakers could move closer towards a strength-based approach in the prevention of risk by more fully embracing protective factors. This may entail shifting away from a sole focus on responding to and managing risk towards proactively considering early prevention of risk. Perhaps it would be beneficial for society to preemptively invest in resources for children and youth that may augment their protective factors against later offending (e.g., prosocial peer mentorship programs and recreational opportunities, childcare subsidies, school resources, financial support for low-income families, mental health

and addiction supports). Theoretically, a preventative focus on protective factors may encourage adolescents to follow a positive developmental trajectory with a reduced likelihood of criminality. With the current focus on risk within the criminal justice system, which tends to involve more punitive measures (e.g., incarceration), there has been little focus on preventative initiatives. I hope that as further research on protective factors emerges, the potential utility of taking a preventative, strength-based approach towards addressing adolescent delinquency and offending may become more apparent.

References: Chapter 5

Bonta, J., & Andrews, A. D. (2017). *The psychology of criminal conduct* (6th ed.). New York, NY: Taylor & Francis.

Bronfenbrenner, U., & Ceci, S. J. (1994). Nature-nurture reconceptualized in developmental perspective: A bioecological model. *Psychological review, 10*1(4), 568.

Brown, S. L., Robinson, D., Wanamaker, K. A., & Wagstaff, M. (2020). Strengths matter: Evidence from five separate cohorts of justice-involved youth and adults across North America. *Criminal Justice and Behavior, 47*(11), 1428-1447. https://doi.org/10.1177/0093854820931549

Collins, C., Martin, K., & Marshall, L. (2019). Do review tribunals consider protective factors in their decisions about patients found not criminally responsible? *The Journal of Forensic Psychiatry & Psychology, 30*(5), 894-907. https://doi.org/10.1080/14789949.2019.1650097

de Ruiter, C., & Nicholls, T. L. (2011). Protective factors in forensic mental health: A new frontier. *International Journal of Forensic Mental Health, 10*(3), 160-170. https://doi.org/10.1080/14999013.2011.600602

de Vogel, V., de Ruiter, C., Bouman, Y., & de Vries Robbe, M. (2015). *SAPROF: Structured assessment of protective factors for violence risk* (2nd ed.). The Netherlands: Van der Hoeven Kliniek.

De Vries Robbe, M., Geers, M., Stapel, M., Hilterman, E., & de Vogel, V. (2015). SAPROF Youth Version: Guideline for the assessment of protective factors for violence risk in juveniles. The Netherlands: Van der Hoeven Kliniek.

Douglas, K. S., & Hart, S. D. (2009). Preface. In V. de Vogel, C. de Ruiter, Y. Bouman, & M. de Vries Robbe (Eds.), *SAPROF: Guidelines for the assessment of protective factors for violence risk* (2nd ed.). The Netherlands: Van der Hoeven Kliniek.

Dubow, E. F., Huesmann, L. R., Boxer, P., & Smith, C. (2016). Childhood and adolescent risk and protective factors for violence in adulthood. *Journal of Criminal Justice, 45*, 26-31. http://dx.doi.org/10.1016/j.jcrimjus.2016.02.005

Ecological systems theory. (2018). *Salem Press Encyclopedia of Science*. Retrieved from http://login.ezproxy.library.ualberta.ca/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=ers&AN=113931287&site=eds-live&scope=site

Farrington, D. P., Ttofi, M. M., & Piquero, A. R. (2016). Risk, promotive, and protective factors in youth offending: Results from the Cambridge study in delinquent development. *Journal of Criminal Justice, 45*, 63-70. Retrieved from: https://doi.org/10.1016/j.jcrimjus.2016.02.014

Fergusson, D. M., Boden, J. M., & Horwood, L. J. (2014). Bullying in childhood, externalizing behaviors, and adult offending: Evidence from a 30-year study. *Journal of School Violence, 13*(1), 146-164. https://doi.org/10.1080/15388220.2013.840642

Harris, G. T., Rice, M. E., Quinsey, V. L., & Cormier, C. A., (2015). *Violent offenders: Appraising and managing risk* (3rd ed.). Retrieved from http://dx.doi.org/10.1037/14572-002

Heffernan, R., & Ward, T. (2017). A comprehensive theory of dynamic risk and protective factors. *Aggression and Violent behavior, 37*, 129-141. http://dx.doi.org/10.1016/j.avb.2017.10.003

Jennings, W. G., Gonzalez, J. R., Piquero, A. R., Bird, H., Canino, G., & Maldonado-Molina, M. (2016). The nature and relevance of risk and protective factors for violence among Hispanic children and adolescents: Results from the Boricua Youth Study. *Journal of Criminal Justice, 45*, 41-47. https://doi.org/10.1016/j.jcrimjus.2016.02.009

Kim, B. E., Gilman, A. B., Hill, K. G., & Hawkins, J. D. (2016). Examining protective factors against violence among high-risk youth: Findings from the Seattle Social Development Project. *Journal of Criminal Justice, 45*, 19-25. https://doi.org/10.1016/j.jcrimjus.2016.02.015

Loeber, R., & Farrington, D. P. (2012). Advancing knowledge about direct protective factors that may reduce youth violence. *American Journal of Preventive Medicine, 43*(1), 2. http://www.ncjrs.gov/App/publications/abstract.aspx?ID=266582

Miller, H. A. (2006). A dynamic assessment of offender risk, needs, and strengths in a sample of general offenders. *Behavioral Sciences and the Law, 24*, 767–782. https://doi.org/10.1002/bsl.728

Orbis Partners. (2000). *Youth Assessment Screening Inventory (YASI).*

Orbis Partners. (2003). *Service Planning Instrument (SPIn).* Re-entry Tool.

Ranganathan, P., Pramesh, C. S., & Buyse, M. (2015). Common pitfalls in statistical analysis: Clinical versus statistical significance. *Perspectives in Clinical Research, 6*(3), 169-170.

10.4103/2229-3485.159943

Rogers, R. (2000). The uncritical acceptance of risk assessment in forensic practice. *Law and Human Behaviour, 24*, 595-605.

Steinberg, L., & Morris, A. S. (2001). Adolescent development. *Annual review of psychology, 52*(1), 83-110. https://doi.org/10.1146/annurev.psych.52.1.83

Stiles, J. (2011). Brain development and the nature versus nurture debate. In O. Braddick, J. Atkinson, & G. Innocenti (Eds.), *Progress in brain research* (Vol. 189, pp. 3-22). Elsevier. https://doi.org/10.1016/B978-0-444-53884-0.00015-4

Stoddard, S. A., Zimmerman, M. A., & Bauermeister, J. A. (2012). A longitudinal analysis of cumulative risks, cumulative promotive factors, and adolescent violent behavior. *Journal of Research on Adolescence, 22*(3), 542-555. https://doi.org/10.1111/j.1532-7795.2012.00786.x

Ward, T. (2017). Prediction and agency: The role of protective factors in correctional rehabilitation and desistance. *Aggression and Violent Behavior, 32*, 19-28. https://doi.org/10.1016/j.avb.2016.11.012

Comprehensive Reference List

Allen, J. P., Weissberg, R. P., & Hawkins, J. A. (1989). The relation between values and social competence in early adolescence. *Developmental Psychology, 25*(3), 458. http://dx.doi.org/10.1037/0012-1649.25.3.458

American Psychiatric Association [APA] (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: American Psychiatric Publishing

Andershed, A. K., Gibson, C. L., & Andershed, H. (2016). The role of cumulative risk and protection for violent offending. *Journal of Criminal Justice, 45*, 78-84. https://doi.org/10.1016/j.jcrimjus.2016.02.006

Andrews, D. A., Bonta, J., & Wormith, J. S. (2006). The recent past and near future of risk and/or need assessment. *Crime & Delinquency, 52*(1). https://doi-org.login.ezproxy.library.ualberta.ca/10.1177/0011128705281756

Barnes, J. C., & Jacobs, B. A. (2013). Genetic risk for violent behavior and environmental exposure to disadvantage and violent crime: The case for gene–environment interaction. *Journal of Interpersonal Violence, 28*(1), 92-120. https://doi.org/10.1177/0886260512448847

Barnes, J. C., Liu, H., Motz, R. T., Tanksley, P. T., Kail, R., Beckley, A. L., Belsky, D. W., Domingue, B. W., Moffitt, T. E., Pratt, T. C., & Wertz, J. (2019). The propensity for aggressive behavior and lifetime incarceration risk: A test for gene-environment interaction (G× E) using whole-genome data. *Aggression and Violent Behavior, 49*, 101307. https://doi.org/10.1016/j.avb.2019.07.002

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), S57-S66. https://doi.org/10.1016/j.amepre.2012.04.023

Bonta, J., & Andrews, A. D. (2017). *The psychology of criminal conduct* (6th ed.). New York, NY: Taylor & Francis.

Bonta, J., Rugge, T., & Dauvergne, M. (2003). *The reconviction rate of federal offenders 2003–02* (Solicitor General Canada). Retrieved from Public Safety Canada website: https://www.publicsafety.gc.ca/cnt/rsrcs/pblctns/rcnvctn-rt-fdrl/index-en.aspx

Borum R., Bartel P., Forth A. (2003). *Manual for the Structured Assessment of Violence Risk in*

Youth (SAVRY). Odessa, FL: Psychological Assessment Resources.

Bronfenbrenner, U., & Ceci, S. J. (1994). Nature-nurture reconceptualized in developmental perspective: A bioecological model. *Psychological review, 10*1(4), 568.

Brown, B. B., (1990). Peer groups and peer cultures. In S. S. Feldman & G. R. Elliot (Eds.), *At threshold: The developing adolescent* (pp. 171-196). Cambridge, MA: Harvard University Press.

Brown, S. L., Robinson, D., Wanamaker, K. A., & Wagstaff, M. (2020). Strengths matter: Evidence from five separate cohorts of justice-involved youth and adults across North America. *Criminal Justice and Behavior, 47*(11), 1428-1447. https://doi.org/10.1177/0093854820931549

Brown, J., & Singh, J. P. (2014). Forensic risk assessment: A beginner's guide. *Archives of Forensic Psychology, 1*(1), 49-59.

Brumley, L. D., & Jaffee, S. R. (2016). Defining and distinguishing promotive and protective effects for childhood externalizing psychopathology: A systematic review. *Social Psychiatry and Psychiatric Epidemiology, 51*(6), 803-815. https://doi.org/10.1007/s00127-016-1228-1

Chen, H., Cohen, P., & Chen, S. (2010). How big is a big odds ratio? Interpreting the magnitudes of odds ratios in epidemiological studies. *Communications in Statistics—Simulation and Computation, 39*, 800-864. https://doi.org/10.1080/03610911003650383

Cicchetti, D., & Toth, S. L. (2009). The past achievements and future promises of developmental psychopathology: The coming of age of a discipline. *Journal of Child Psychology and Psychiatry, 50*(1-2), 16-25. https://www.ncbi.nlm.nih.gov/pubmed/19175810

Coid, J., Yang, M., Ullrich, S., Zhang, T., Sizmur, S., Roberts, C., Farrington, D., & Rogers, R. D. (2009). Gender differences in structured risk assessment: Comparison of the accuracy of five instruments. *Journal of Consulting and Clinical Psychology, 77*(2), 337–348.

Colins, O., Vermeiren, R., Vahl, P., Markus, M., Broekaert, E., & Doreleijers, T. (2011). Psychiatric disorder in detained male adolescents as risk factor for serious recidivism. *The Canadian Journal of Psychiatry, 56*(1), 44-50. https://doi.org/10.1177/070674371105600108

Collins, C., Martin, K., & Marshall, L. (2019). Do review tribunals consider protective factors in their decisions about patients found not criminally responsible? *The Journal of Forensic*

Psychiatry & Psychology, 30(5), 894-907.
https://doi.org/10.1080/14789949.2019.1650097

Cowen, E. L., Pederson, A., Babigian, H., Isso, L. D., & Trost, M. A. (1973). Long-term follow-up of early detected vulnerable children. *Journal of Consulting and Clinical Psychology, 41*(3), 438. https://doi.org/10.1037/h0035373

Criminal Code (1985). C-46. PART II: Offences against public order treason and other offences against the Queen's authority and person. Ottawa: Statues and Regulations, Government of Canada.

Department of Justice Canada. (2013). *The Youth Criminal Justice Act: Summary and background*. Retrieved from the Government of Canada website: https://www.justice.gc.ca/eng/cj-jp/yj-jj/tools-outils/back-hist.html

Department of Justice. (August, 2020). The review board systems in Canada: An overview of results from the mentally disordered accused data collection study. https://www.justice.gc.ca/eng/rp-pr/csj-sjc/jsp-sjp/rr06_1/p1.html

de Ruiter, C., & Nicholls, T. L. (2011). Protective factors in forensic mental health: A new frontier. *The International Journal of Forensic Mental Health, 10*(3), 160–170. https://doi.org/10.1080/14999013.2011.600602

de Vogel, V., de Ruiter, C., Bouman, Y., & de Vries Robbe, M. (2015). *SAPROF: Structured assessment of protective factors for violence risk* (2nd ed.). The Netherlands: Van der Hoeven Kliniek.

De Vries Robbe, M., Geers, M., Stapel, M., Hilterman, E., & de Vogel, V. (2015). SAPROF Youth Version: Guideline for the assessment of protective factors for violence risk in juveniles. The Netherlands: Van der Hoeven Kliniek.

De Vries Robbe, M., Vogel, V. D., & Douglas, K. S. (2013). Risk factors and protective factors: A two-sided dynamic approach to violence risk assessment. *Journal of Forensic Psychiatry & Psychology, 24*(4), 440-457. https://doi.org/10.1080/14789949.2013.818162

Douglas, K. S., & Hart, S. D. (2009). Preface. In V. de Vogel, C. de Ruiter, Y. Bouman, & M. de Vries Robbe (Eds.), *SAPROF: Guidelines for the assessment of protective factors for violence risk* (2nd ed.). The Netherlands: Van der Hoeven Kliniek.

Douglas, K. S., Hart, S. D., Webster, C. D., & Belfrage, H. (2013). *HCR-20V3: Assessing risk of*

violence – User guide. Burnaby, Canada: Mental Health, Law, and Policy Institute, Simon Fraser University.

Dubow, E. F., Huesmann, L. R., Boxer, P., & Smith, C. (2016). Childhood and adolescent risk and protective factors for violence in adulthood. *Journal of Criminal Justice, 45*, 26-31. http://dx.doi.org/10.1016/j.jcrimjus.2016.02.005

Ecological systems theory. (2018). *Salem Press Encyclopedia of Science*. Retrieved from http://login.ezproxy.library.ualberta.ca/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=ers&AN=113931287&site=eds-live&scope=site

Ernestus, S. M., & Prelow, H. M. (2015). Patterns of risk and resilience in African American and Latino youth. *Journal of Community Psychology, 43*(8), 954-972. https://doi.org/10.1002/jcop.21725

Farrington, D. P., Ttofi, M. M., & Piquero, A. R. (2016). Risk, promotive, and protective factors in youth offending: Results from the Cambridge study in delinquent development. *Journal of Criminal Justice, 45*, 63-70. https://doi.org/10.1016/j.jcrimjus.2016.02.014

Fazel, S., Fimińska, Z., Cocks, C., & Coid, J. (2016). Patient outcomes following discharge from secure psychiatric hospitals: Systematic review and meta-analysis. *The British Journal of Psychiatry*, *208*(1), 17-25. https://doi.org/10.1192/bjp.bp.114.149997

Fergus, S., & Zimmerman, M. A. (2005). Adolescent resilience: A framework for understanding healthy development in the face of risk. *Annual Review of Public Health, 26*, 399-419. https://doi.org/10.1146/annurev.publhealth.26.021304.144357

Fergusson, D. M., Boden, J. M., & Horwood, L. J. (2014). Bullying in childhood, externalizing behaviors, and adult offending: Evidence from a 30-year study. *Journal of School Violence, 13*(1), 146-164. https://doi.org/10.1080/15388220.2013.840642

Fergusson, D. M., Vitaro, F., Wanner, B., & Brendgen, M. (2007). Protective and compensatory factors mitigating the influence of deviant friends on delinquent behaviours during early adolescence. *Journal of Adolescence, 30*(1), 33-50. https://doi.org/10.1016/j.adolescence.2005.05.007

Fitzpatrick, K. M. (1997). Fighting among America's youth: A risk and protective factors approach. *Journal of Health and Social behavior, 38*(2), 131. https://www.jstor.org/stable/2955421

Fontaine, N. M., Brendgen, M., Vitaro, F., & Tremblay, R. E. (2016). Compensatory and

protective factors against violent delinquency in late adolescence: Results from the Montreal longitudinal and experimental study. *Journal of Criminal Justice, 45*, 54-62. http://dx.doi.org/10.1016/j.jcrimjus.2016.02.013

Fougere, A. & Daffern, M. (2011). Resilience in young offenders. *International Journal of Forensic Mental Health, 10*(3), 244-253. https://doi.org/10.1080/14999013.2011.598602

Funk, S. J. (1999). Risk assessment for juveniles on probation: A focus on gender. *Criminal Justice and Behavior, 26*(1), 44-68. https://doi.org/10.1177/0093854899026001003

Gendreau, P., Grant, B. A., Leipciger, M., & Collins, S. (1979). Norms and recidivism rates for the MMPI and selected experimental scales on a Canadian delinquent sample. *Canadian Journal of Behavioural Science, 11*(1), 21-31. https://doi.org/10.1037/h0081569

Greven, C. U., Merwood, A., van der Meer, J. M., Haworth, C. M., Rommelse, N., & Buitelaar, J. K. (2016). The opposite end of the attention deficit hyperactivity disorder continuum: genetic and environmental aetiologies of extremely low ADHD traits. *Journal of Child Psychology and Psychiatry, 57*(4), 523-531. https://doi.org/10.1111/jcpp.12475

Haag, A. M., Cheng, J., & Wirove, R. (2016). Describing the not criminally responsible population in Alberta's history: Socioeconomic, mental health, and criminological profiles. *Journal of Safety & Well-being, 1*(3). https://journalcswb.ca/index.php/cswb/article/view/24

Hammen, C. (2009). Adolescent depression: Stressful interpersonal contexts and risk for recurrence. *Current Directions in Psychological Science, 18*(4), 200-204. https://doi.org/10.1111/j.1467-8721.2009.01636.x

Harris, G. T., Rice, M., & Quinsey, V. (2016). Violence Risk Appraisal Guide - Revised, 2013. http://hdl.handle.net/10864/12053

Harris, G. T., Rice, M. E., Quinsey, V. L., & Cormier, C. A., (2015). *Violent offenders: Appraising and managing risk* (3rd ed.). Retrieved from http://dx.doi.org/10.1037/14572-002

Hart, S. (2008). Preventing violence: The role of risk assessment and management. In A. C. Baldry & F. W. Winkel (Eds.), *Intimate partner violence prevention and intervention* (pp. 7-18). Hauppage, NY: Nova Science.

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. https://doi.org/10.1177/0306624X08326910

Heffernan, R., & Ward, T. (2017). A comprehensive theory of dynamic risk and protective factors. *Aggression and Violent behavior, 37*, 129-141. http://dx.doi.org/10.1016/j.avb.2017.10.003

Hemphill, S. A., Heerde, J. A., & Scholes-Balog, K. E. (2016). Risk factors and risk-based protective factors for violent offending: A study of young Victorians. *Journal of Criminal Justice, 45*, 94-100. https://doi.org/10.1016/j.jcrimjus.2016.02.012

Herrenkohl, T. I., Hill, K. G., Chung, I. J., Guo, J., Abbott, R. D., & Hawkins, J. D. (2003). Protective factors against serious violent behavior in adolescence: A prospective study of aggressive children. *Social Work Research, 27*(3), 179-191. https://doi.org/10.1093/swr/27.3.179

Herrenkohl, T. I., Lee, J., & Hawkins, J. D. (2012). Risk versus direct protective factors and youth violence: Seattle Social Development Project. *American Journal of Preventive Medicine, 43*(2), S41-S56. https://doi.org/10.1016/j.amepre.2012.04.030

Herrenkohl, T. I., Tajima, E. A., Whitney, S. D., & Huang, B. (2005). Protection against antisocial behavior in children exposed to physically abusive discipline. *Journal of Adolescent Health, 36*(6), 457-465. https://doi.org/10.1016/j.jadohealth.2003.09.025

Jain, S., & Cohen, A. K. (2013). Behavioral adaptation among youth exposed to community violence: A longitudinal multidisciplinary study of family, peer and neighborhood-level protective factors. *Prevention Science, 14*(6), 606-617. https://doi.org/10.1007/s11121-012-0344-8

Jennings, W. G., Gonzalez, J. R., Piquero, A. R., Bird, H., Canino, G., & Maldonado-Molina, M. (2016). The nature and relevance of risk and protective factors for violence among Hispanic children and adolescents: Results from the Boricua Youth Study. *Journal of Criminal Justice, 45*, 41-47. https://doi.org/10.1016/j.jcrimjus.2016.02.009

Jennings, W. G., Higgins, G. E., Tewksbury, R., Gover, A. R., & Piquero, A. R. (2010). A longitudinal assessment of the victim-offender overlap. *Journal of Interpersonal Violence, 25*(12), 2147-2174. https://doi.org/10.1177/0886260509354888

Jessor, R., & Turbin, M. S. (2014). Parsing protection and risk for problem behavior versus pro-social behavior among US and Chinese adolescents. *Journal of Youth and Adolescence,*

43(7), 1037-1051. https://doi.org/10.1007/s10964-014-0130-y

Johnson, S. R. L., Blum, R. W., & Cheng, T. L. (2014). Future orientation: A construct with implications for adolescent health and wellbeing. *International Journal of Adolescent Medicine and Health, 26*(4), 459-468. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4827712/

Jolliffe, D., Farrington, D. P., Loeber, R., & Pardini, D. (2016). Protective factors for violence: Results from the Pittsburgh Youth Study. *Journal of Criminal Justice, 45*, 32-40. https://doi.org/10.1016/j.jcrimjus.2016.02.007

Kaltiala-Heino, R., & Eronen, M. (2015). Ethical issues in child and adolescent forensic psychiatry: A review. *The Journal of Forensic Psychiatry & Psychology, 26*(6), 759-780. https://doi.org/10.1080/14789949.2015.1062995

Kendler, K. S., Gardner, C. O., & Prescott, C. A. (2002). Toward a comprehensive developmental model for major depression in women. *American Journal of Psychiatry, 159*(7), 1133-1145. https://doi.org/10.1176/appi.ajp.159.7.1133

Kim, B. E., Gilman, A. B., Hill, K. G., & Hawkins, J. D. (2016). Examining protective factors against violence among high-risk youth: Findings from the Seattle Social Development Project. *Journal of Criminal Justice, 45*, 19-25. https://doi.org/10.1016/j.jcrimjus.2016.02.015

Kocsis, R. N. (2011). Book review: Mills, J., Kroner, D., & Morgan, R. (2010). Clinician's guide to violence risk assessment. New York, NY: Guilford. *International Journal of Offender Therapy and Comparative Criminology, 55*(4), 665-666. https://doi-org.login.ezproxy.library.ualberta.ca/10.1177/0306624X11398034

Kurlychek, M. C., Krohn, M. D., Dong, B., Hall, G. P., & Lizotte, A. J. (2012). Protection from risk: Exploration of when and how neighborhood-level factors can reduce violent youth outcomes. *Youth Violence and Juvenile Justice, 10*(1), 83-106. https://doi.org/10.1177/1541204011422088

Larson, R., & Richards, M. H. (1991). Daily companionship in late childhood and early adolescence: Changing developmental contexts. *Child development, 62*(2), 284-300. https://doi.org/10.1111/j.1467-8624.1991.tb01531.x

Leach, C. L., & Powell, M. B. (2020). Forensic risk assessment interviews with youth: How do we elicit the most reliable and complete information? *Psychiatry, Psychology and La*w, 27(3), 1-13. https://doi.org/10.1080/13218719.2020.1734982

Li, X., Stanton, B., Pack, R., Harris, C., Cottrell, L., & Burns, J. (2002). Risk and protective factors associated with gang involvement among urban African American adolescents. *Youth & Society, 34*(2), 172-194. https://doi.org/10.1177/004411802237862

Lila, M., Martín Fernández, M., Gracia Fuster, E., López Ossorio, J. J., & González, J. L. (2019). Identifying key predictors of recidivism among offenders attending a batterer intervention program: A survival analysis. *Psychosocial Intervention, 28*(3), 157-167. https://doi.org/10.5093/pi2019a19

Loeber, R., & Farrington, D. P. (1998). Never too early, never too late: Risk factors and successful interventions for serious and violent juvenile offenders. *Studies on Crime & Crime Prevention*, 7(1), 7-30. http://www.ncjrs.gov/App/publications/abstract.aspx?ID=172920

Loeber, R., & Farrington, D. P. (2012). Advancing knowledge about direct protective factors that may reduce youth violence. *American Journal of Preventive Medicine, 43*(1), 2. http://www.ncjrs.gov/App/publications/abstract.aspx?ID=266582

Loeber, R., Farrington, D.P., Stouthamer-Loeber, M., & White, H.R. (2008). *Violence and serious theft: Development and prediction from childhood to adulthood*. New York: Routledge.

Loehlin, J. C., Neiderhiser, J. M., & Reiss, D. (2005). Genetic and environmental components of adolescent adjustment and parental behavior: A multivariate analysis. *Child development, 76*(5), 1104-1115. https://doi.org/10.1111/j.1467-8624.2005.00900.x

Maldonado-Molina, M. M., Reingle, J. M., Tobler, A. L., Jennings, W. G., & Komro, K. A. (2010). Trajectories of physical aggression among Hispanic urban adolescents and young adults: An application of latent trajectory modeling from ages 12 to 18. *American Journal of Criminal Justice, 35*(3), 121-133. https://doi.org/10.1007/s12103-010-9074-2

Miller, H. A. (2006). A dynamic assessment of offender risk, needs, and strengths in a sample of general offenders. *Behavioral Sciences and the Law, 24*, 767–782. https://doi.org/10.1002/bsl.728

Miller, R., Olin, J., Ball, E. M., Bennett, C., Beven, G. F., & Pitt, S. (2006). The validity of

Colorado not criminally responsible findings. *The Journal of Psychiatry & Law, 34*, 37-49.

Moffitt, T. (1993). Adolescence-limited and life-course persistent antisocial behavior: A developmental taxonomy. *Psychological Review, 100*, 674–701. https://doi.org/10.1037/0033-295X.100.4.674

Murphy, D. A., Brecht, M. L., Huang, D., & Herbeck, D. M. (2011). Trajectories of delinquency from age 14 to 23 in the National Longitudinal Survey of Youth sample. *International Journal of Adolescence and Youth, 17*(1), 47-62. http://dx.doi.org/10.1080/02673843.2011.649401

Neil, C., O'Rourke, S., Ferreira, N., & Flynn, L. (2020). Protective factors in violence risk assessment: Predictive validity of the SAPROF and HCR-20V3. *International Journal of Forensic Mental Health*, *19*(1), 84-102. https://doi.org/10.1080/14999013.2019.1643811

Nicholls, T. L., Petersen, K. L., & Pritchard, M. M. (2016). Comparing preferences for actuarial versus structured professional judgment violence risk assessment measures across five continents: To what extent is practice keeping pace with science. In J. P. Singh, S. Bjorkly, & S. Fazel (Eds.), *International Perspectives on Violence Risk Assessment*, pp. 127-149. doi:10.1093/acprof:oso/9780199386291.003.0008

Nuffield, J. (1982). Parole decision-making in Canada: Research toward decision guidelines. Ottawa: Research Division Canada. https://www.ncjrs.gov/App/Publications/abstract.aspx?ID=126179

Orbis Partners. (2000). *Youth Assessment Screening Inventory (YASI).*

Orbis Partners. (2003). *Service Planning Instrument (SPIn).* Re-entry Tool.

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. https://doi.org/10.1016/j.amepre.2012.04.024

Park, S., Morash, M., & Stevens, T. (2010). Gender differences in predictors of assaultive behavior in late adolescence. *Youth Violence and Juvenile Justice, 8*(4), 314-331. https://doi.org/10.1177/1541204009361173

Patricny, N., Pei, J., & Haag, A. (2020). *Protective factors against adolescent offending: A review of longitudinal studies*. Manuscript submitted for publication.

Patricny, N., Haag, A., & Pei, J. (2021). *Protective factors for nonrecidivism in Not Criminally*

Responsible Adolescents. Manuscript submitted for publication.

Patton, J. D. (2012). The moderating effects of risk, protection and desistance on violence in female adolescents. *Child and Adolescent Social Work Journal, 29*(3), 185-202. https://doi.org/10.1007/s10560-012-0255-3

Putniņš, A. L. (2005). Assessing recidivism risk among young offenders. *Australian & New Zealand Journal of Criminology, 38*(3), 324-339. https://doi.org/10.1375/acri.38.3.324

Ranganathan, P., Pramesh, C. S., & Buyse, M. (2015). Common pitfalls in statistical analysis: Clinical versus statistical significance. *Perspectives in Clinical Research, 6*(3), 169-170. 10.4103/2229-3485.159943

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. http://dx.doi.org/10.1016/j.jadohealth.2012.08.006

Reingle, J. M., Jennings, W. G., & Maldonado-Molina, M. M. (2012). Risk and protective factors for trajectories of violent delinquency among a nationally representative sample of early adolescents. *Youth Violence and Juvenile Justice, 10*(3), 261-277. https://doi.org/10.1177/1541204011431589

Rice, M. E., & Harris, G. T. (2005). Comparing effect sizes in follow-up studies: ROC area, Cohen's *d*, and *r. Law and Human Behavior, 29*(5), 615-620. https://link.springer.com/article/10.1007/s10979-005-6832-7

Richer, K., Cheng, J., & Haag, A. M. (2018). Historical recidivism rates of Alberta's not criminally responsible population. *Journal of Community Safety & Well-Being, 3*(2), 59-64. http://dx.doi.org/10.35502/jcswb.50

Rogers, R. (2000). The uncritical acceptance of risk assessment in forensic practice. *Law and Human Behaviour, 24*, 595-605. https://doi.org/10.1023/A:1005575113507

Rossegger, A., Endrass, J., Gerth, J., & Singh, J. P. (2014). Replicating the violence risk appraisal guide: A total forensic cohort study. *PLoS One, 9*(3), e91845. https://europepmc.org/article/med/24632561

Rutter, M., & Sroufe, L. A. (2000). Developmental psychopathology: Concepts and challenges. *Development and psychopathology, 12*(3), 265-296. https://pubmed.ncbi.nlm.nih.gov/11014739/

Salekin, R. T., & Lochman, J. E. (2008). Child and adolescent psychopathy: The search for protective factors. *Criminal Justice and Behavior*, *35*(2), 159-172. https://doi.org/10.1177/0093854807311330

Salgado, J. F. (2018). Transforming the area under the normal curve (AUC) into Cohen's *d*, Pearson's r_{pb}, odds-ratio, and natural log odds-ratio: Two conversion tables. *European Journal of Psychology Applied to Legal Context, 10*(1), 35-47. http://hdl.handle.net/10347/22159

Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. In *Flow and the Foundations of Positive Psychology.* Springer, Dordrecht. https://doi.org/10.1007/978-94-017-9088-8_18

Serin, R. C., & Lowenkamp, C. T. (2015). Selecting and using risk and need assessments. *National Drug Court Institute, 10*(1), 1-23.

Shetgiri, R., Boots, D. P., Lin, H., & Cheng, T. L. (2016). Predictors of weapon-related behaviors among African American, Latino, and white youth. *The Journal of Pediatrics*, 171, 277-282. https://doi.org/10.1016/j.jpeds.2015.12.008

Smokowski, P. R., Mann, E. A., Reynolds, A. J., & Fraser, M. W. (2004). Childhood risk and protective factors and late adolescent adjustment in inner city minority youth. *Children and Youth Services Review, 26*(1), 63-91. https://doi.org/10.1016/j.childyouth.2003.11.003

Sprott, J. B., Jenkins, J. M., & Doob, A. N. (2005). The importance of school: Protecting at-risk youth from early offending. *Youth Violence and Juvenile Justice, 3*(1), 59-77. https://doi.org/10.1177/1541204004270943

Sroufe, L. A. (1997). Psychopathology as an outcome of development. *Development and Psychopathology, 9*, 251-268. https://doi.org/10.1017/S0954579497002046

Steinberg, L., & Morris, A. S. (2001). Adolescent development. *Annual Review of Psychology, 52*(1), 83-110. https://doi.org/10.1146/annurev.psych.52.1.83

Stiles, J. (2011). Brain development and the nature versus nurture debate. In O. Braddick, J. Atkinson, & G. Innocenti (Eds.), *Progress in brain research* (Vol. 189, pp. 3-22). Elsevier. https://doi.org/10.1016/B978-0-444-53884-0.00015-4

Stoddard, S. A., Zimmerman, M. A., & Bauermeister, J. A. (2012). A longitudinal analysis of cumulative risks, cumulative promotive factors, and adolescent violent behavior. *Journal*

of Research on Adolescence, 22(3), 542-555. https://doi.org/10.1111/j.1532-7795.2012.00786.x

Tabachnick, B. G., & Fidell, L. S. (2013). *Using Multivariate Statistics (6th Ed.)* Boston: Allyn & Bacon.

Tuvblad, C., Grann, M., & Lichtenstein, P. (2006). Heritability for adolescent antisocial behavior differs with socioeconomic status: gene–environment interaction. *Journal of Child Psychology and Psychiatry, 47*(7), 734-743. https://doi.org/10.1111/j.1469-7610.2005.01552.x

van der Laan, A. M., Veenstra, R., Bogaerts, S., Verhulst, F. C., & Ormel, J. (2010). Serious, minor, and non-delinquents in early adolescence: The impact of cumulative risk and promotive factors. The TRAILS study. *Journal of Abnormal Child Psychology, 38*(3), 339-351. https://doi.org/10.1007/s10802-009-9368-3

Vassallo, S., Edwards, B., & Forrest, W. (2016). Childhood behavior problems and fighting in early adulthood: What factors are protective? *Journal of Criminal Justice, 45*, 85-93. http://dx.doi.org/10.1016/j.jcrimjus.2016.02.010

Vassallo, S., Edwards, B., Renda, J., & Olsson, C. A. (2014). Bullying in early adolescence and antisocial behavior and depression six years later: What are the protective factors? *Journal of School Violence, 13*(1), 100-124. https://doi.org/10.1080/15388220.2013.840643

Ward, T. (2017). Prediction and agency: The role of protective factors in correctional rehabilitation and desistance. *Aggression and Violent Behavior, 32*, 19-28. https://doi.org/10.1016/j.avb.2016.11.012

Werner, E. E. (1989). High-risk children in young adulthood: A longitudinal study from birth to 32 years. *American Journal of Orthopsychiatry, 59*(1), 72-81. https://doi.org/10.1111/j.1939-0025.1989.tb01636.x

Werner, E. E. (1996). Vulnerable but invincible: High risk children from birth to adulthood. *European Child & Adolescent Psychiatry, 5*, 47-51. https://doi.org/10.1007/BF00538544

Whitbeck, L. B., & Hoyt, D. R. (1999). Nowhere to grow: Homeless and runaway adolescents and their families. New York: Aldine De Gruyter

Wilson, D. B., Bouffard, L. A., & MacKenzie, D. L. (2005). A quantitative review of structured, group-oriented, cognitive-behavioral programs for offenders. *Criminal Justice and*

Behavior, 32(2), 172-204. https://doi.org/10.1177/0093854804272889

Wilson, J. J., Rojas, N., Haapanen, R., Duxbury, E., & Steiner, H. (2001). Substance abuse and criminal recidivism: A prospective study of adolescents. *Child Psychiatry and Human Development, 31*(4), 297-312. https://link.springer.com/article/10.1023/A:1010234422719

Wolff, J., Frazier, E., Davis, S., Freed, R. D., Esposito-Smythers, C., Liu, R., & Spirito, A. (2017). Depression and suicidality. In C. A. Flessner, & J. C. Piacentini (Eds.), *Clinical handbook of psychological disorders in children and adolescents: A step-by-step manual* (pp. 55-93). New York, NY: The Guildford Press.

Worling, J. R., & Langton, C. M. (2015). A prospective investigation of factors that predict desistance from recidivism for adolescents who have sexually offended. *Sexual Abuse, 27*(1), 127-142. https://doi.org/10.1177/1079063214549260

Yessine, A. K., & Bonta, J. (2012). The offending trajectories of youth probationers from early adolescence to middle adulthood: Relation to dual taxonomies. Research report: 2012-4. Ottawa: National Crime Prevention Centre, Public Safety Canada. https://www.publicsafety.gc.ca/cnt/rsrcs/pblctns/2012-04-typ/2012-04-typ-eng.pdf

Youth Criminal Justice Act, S.C. 2002, c. 1.