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Notice 2

I certify that I have made all reasonable efforts to secure copyright permissions for third-party content included in this thesis and have not knowingly added copyright content to my work without the owner's permission.

ERRATA

p. iv para 2, 5th line: ‘was’ for ‘were’

p. 81 para 2, 4th line: ‘.66’ for ‘.64’

p. 81 para 2, 6th line: ‘.64’ for ‘.62’

p. 87 para 2, 7th line: ‘Wilson, Stearne, Gray, & Saggers, 2010’ for ‘Stearne, Gray, Saggers, 2010’

p. 209 1st line: ‘Loeber’ for ‘Lober’

p. 223 10th line: ‘Schwalbe’ for ‘Schwab’

ADDENDA

Page 121: Add reference:

Vignaendra, S., & Fitzgerald, J. (2006). *Reoffending among young people cautioned by police or who participated in a youth justice conference* (Crime and Justice Bulletin, No. 103). Sydney: NSW Bureau of Crime Statistics and Research.

Page: 122: Add reference:

Wilson, M., Stearne, A., Gray, D., & Saggers, S. (2010). *The harmful use of alcohol amongst Indigenous Australians*. Retrieved from: www.healthinfonet.ecu.edu.au/alcoholuse_review

Page 174: Add at end of paragraph 1:

Further dimensional analyses of the YLS/CMI and PCL:YV instruments are recommended, particularly across gender and ethnicity. An examination of the subcomponents of both instruments would help determine items of salience and the degree of content overlap within multi-ethnic Australian youth justice settings. Future directions for research could also include factor analyses comprising composite instrument scores to help ascertain latent constructs.

Page 174: Add at end of paragraph 2:

The author recognizes that empirically derived risk factors must be considered within a broader social context and that it is important to continue to strive to understand the causal mechanisms relating to youth violence, rather than prediction alone. Such information would help underscore the varying motives and explanations behind multi-ethnic juvenile offending pathways.

Page 176: Add at end of paragraph 2:

It is recommended that future research should investigate the potential role of protective factors in offender management and treatment strategies. The research in this thesis revealed that the absence or presence of protective factors can have a direct impact on an offender’s level of risk. Further empirical exploration of their role in explaining desistance from antisocial behavior is suggested.

Longitudinal studies with large samples of young offenders would improve the knowledge base on protective factors and provide valuable information for prevention programs. In addition, it would be important to identify which protective factors induce criminal desistance across different age groups. The growing protective factor literature base emphasizes protective factors as treatment targets in addition to their incorporation into broader violence risk management plans.

Page 176: Add as new paragraph from line 18:

As discussed in the limitations, the SAVRY instrument domains were negatively correlated with age. It is suggested that future research evaluating risk instruments should consider samples stratified by age. This would determine potential differences in predictive accuracy, and different significant risk factors, across age ranges within the adolescent spectrum.

Assessing the Utility and Validity of Adolescent Violence Risk Approaches in an Australian Young Offender Population

Stephane M. Shepherd

A thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy in Forensic Psychology

Centre for Forensic Behavioural Science

School of Psychology and Psychiatry

Monash University

2013

ABSTRACT

Assessing the Utility and Validity of Adolescent Violence Risk Assessment Approaches in an Australian Young Offender Population

Stephane M. Shepherd

2013

There is a paucity of literature examining the predictive accuracy of widely used juvenile violence risk assessment instruments in an Australian youth justice context. Additionally, less is known about the ability of such instruments to extend across gender and ethnic minority groups within Australian young offender populations. Demonstrating the efficacy of youth risk measures enables the identification of high risk offenders, subsequently guiding rehabilitation and intervention strategies. The study investigated the predictive validity and cross cultural applicability of three violence risk inventories developed in Canada in a sample of 213 young male and female offenders in custody in Victoria, Australia.

The Structured Assessment of Violence Risk in Youth (SAVRY), the Youth Level of Service/Case Management Inventory (YLS/CMI) and the Psychopathy Checklist: Youth Version (PCL: YV) were employed to ascertain the level of risk of the participants. Recidivistic offenses were recorded for up to 18 months for participants who were released from custody during the study. The validity of the risk instruments were determined by the association between risk level, total scores and domain scores, and instances of general and violent recidivism. For the overall sample and for male participants, all three instruments

moderately predicted both violent and general re-offense. Across ethnic subgroups, the SAVRY ably predicted re-offense for English Speaking Background participants, though demonstrated no utility for the Culturally and Linguistically Diverse (CALD) group. Furthermore, the SAVRY was able to establish validity across particular domains for female and Indigenous (IND) participants, though a number of the findings did not achieve statistical significance due to their lower overall representation in Australian custodial settings. SAVRY item scores were also investigated for their individual interaction with the re-offense outcome and their comparative prevalence across gender and ethnicity.

The results of the studies indicate that the SAVRY is a useful instrument in identifying salient risk factors for violence in an Australian young offender population. Second, the SAVRY, YLS/CMI and the PCL: YV are capable of predicting general and violent recidivism with moderate accuracy for a typical adolescent custodial sample in Victoria, Australia. Third, the SAVRY instrument demonstrated encouraging utility for female and Indigenous participants though further research is required in Australian conditions with larger samples to determine generalizability. Lastly, the SAVRY was unable to predict re-offense for the multi-ethnic CALD category. Limitations of the findings and implications for future research are discussed.

Papers Published During Candidature

Shepherd, S. M., Luebbers, S., & Dolan, M. (2013). Gender and Ethnicity in Juvenile Risk Assessment. *Criminal Justice and Behavior, 40*, 388-409. doi: 10.1177/0093854812456776

Shepherd, S. M., Luebbers, S., & Dolan, M. (2013). Identifying Gender Differences across Risk Factors for Violence in an Australian Youth Offender Population. *Sage Open, 3*. doi: 10.1177/2158244013492082

General Declaration

In accordance with Monash University Doctorate Regulation 17 Doctor of Philosophy and Research Master's regulations the following declarations are made:

The thesis of Stephane M. Shepherd "*Assessing the Utility and Validity of Adolescent Violence Risk Approaches in an Australian Young Offender Population*", contains no material which has been accepted for the award of any other degree or diploma in any university or other institution and affirms that to the best of the candidate's knowledge the thesis contains no material previously published or written by another person, except where due reference is made in the text of the thesis.

This thesis includes two original papers published in peer reviewed journals and two unpublished publications. The ideas, development and writing up of all the papers in the thesis were the principal responsibility of myself, the candidate, working within the Monash School of Psychology and Psychiatry under the supervision of Professor James Ogloff and Dr. Stefan Luebbers. The inclusion of co-authors reflects the fact that the work came from active collaboration between researchers and acknowledges input into team-based research

My contributions to the work, completed in consultation with my supervisors and co-authors, involved the following:

Design of the study, review of the literature, obtaining approval from relevant ethics committees, recruitment of participants, collection of data from participants and databases, data entry, data analysis, writing of articles, and writing of each of the thesis chapters.

The extent of my contribution to each publication is reported below.

Thesis chapter	Publication title	Publication status	Nature and extent of candidate's contribution
1	Gender and Ethnicity in Juvenile Risk Assessment	Published	80%
3	Identifying Gender Differences Across Risk Factors for Violence in an Australian Youth Offender Population	Published	80%
4	The utility of the SAVRY across ethnicity in Australian young offenders	In Press	65%
5	The validity of violence risk assessment instruments in Australian young offenders	Submitted	65%

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Signed Date

Acknowledgements

First and foremost I would like to thank my Supervisors Dr. Stefan Luebbers and Professor James Ogloff.

I doubt I would have survived the doctoral journey with my sanity intact if it wasn't for the edifying instruction, availability and technical support from Dr. Luebbers. Professor Ogloff additionally provided outstanding supervision and guidance. His unrivalled knowledge and expertise in the field was a motivating reminder that I was in the best hands possible. Both supervisors were instrumental in facilitating productivity to the best of my capabilities as well as leading me through some particularly challenging periods throughout the candidature.

I would also like to thank Monash University staff and students from the School of Psychology and Psychiatry and the Centre for Forensic Behavioural Science. In particular Professor Nellie Georgiou-Karistianis who provided much needed support and advice during a particularly stressful period. Secondly, my colleague, project research assistant, and friend Cieran Harries who accompanied me through numerous custodial clinical interviews in a short space of time. A special mention to colleagues Dr. Troy McEwan, Dr. Michael Daffern, Dr. Rachael Fullam, Dr. Murray Ferguson, Margaret Garnsey, Fiona Addicott, Ben Spivak, Maree Stanford, Dr. Stewart Thomas and long-time friend Dr. Lauren Burns.

I would like to express gratitude to my parents and sister who have always provided unwavering support throughout my academic endeavours. Lastly, to my beautiful and extraordinarily patient wife, Nasseema who endured my fluctuating study hours, low fiscal contribution and capriciousness the last three years. Also to my baby daughter Heloïse who

ensured that I had insufficient sleep the previous six months, though has been a profound inspiration.

This thesis is dedicated to my cousin Bradley Rouillon who lost his battle with cancer in 2011. Rest in peace.

Preface

The author is a PhD student at the Centre for Forensic Behavioural Science within the School of Psychology and Psychiatry, at the University of Monash, Australia. He has a particular interest in the field of Criminology and related disciplines forensic psychology and clinical psychology. He completed his Bachelor's Degree in Criminology from Monash University in 2005. He later obtained his Masters in Communications (Journalism) also from Monash University (2008) writing his dissertation on media representations of extreme youth violence. After working briefly in community corrections as a field supervisor he began his PhD in Forensic Psychology at the Centre for Forensic Behavioural Science, Monash University in 2010. He has a specific interest in the areas of youth violence and criminal trajectories, interventions and case management strategies for at-risk adolescents, and Indigenous Mental Health. He is trained in, and has utilized in clinical settings, the standardised risk instruments, the SAVRY, the YLS/CMI and the PCL: YV. He is a member of the Australian and New Zealand Society of Criminology.

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Introduction and Theoretical Perspective

"...And let him who would lash the offender look unto the spirit of the offended.

And if any of you would punish in the name of righteousness and lay the axe unto the evil tree, let him see to its roots;

And verily he will find the roots of the good and the bad, the fruitful and the fruitless, all entwined together in the silent heart of the earth.

And you judges who would be just,

What judgment pronounce you upon him who though honest in the flesh yet is a thief in spirit?

What penalty lay you upon him who slays in the flesh yet is himself slain in the spirit?

And how prosecute you him who in action is a deceiver and an oppressor,

Yet who also is aggrieved and outraged?

And how shall you punish those whose remorse is already greater than their misdeeds?

Is not remorse the justice which is administered by that very law which you would fain serve?

Yet you cannot lay remorse upon the innocent nor lift it from the heart of the guilty.

Unbidden shall it call in the night, that men may wake and gaze upon themselves.

And you who would understand justice, how shall you unless you look upon all deeds in the fullness of light?

Only then shall you know that the erect and the fallen are but one man standing in twilight between the night of his pigmy-self and the day of his god-self,

And that the corner-stone of the temple is not higher than the lowest stone in its foundation."

Khalil Gibran, *The Prophet*, On Crime and Punishment (Gibran, 1995)

Almustfa, the protagonist, prophet and raconteur from Khalil Gibran's prose 'The Prophet' laments society's condemnation and lack of compassion for its criminals and sinners. According to the Prophet, we should not reduce the offender to an animal, treat as subordinate, nor judge or discriminate, but contemplate his disadvantaged position in society and seek to understand the origins of his delinquency. Ultimately it is a reflection of society by how we treat our most vulnerable and we are obliged as a collective to take responsibility.

Violence, and in particular youth violence is a widespread concern often resulting in significant economic and social costs (Dolan & Bailey, 2004). Youth antisocial behavior and

aggression is often sensationalized in the Western media engendering public indignation and generating calls for punitive measures. It is asserted that patterns of severe lifetime criminality often initiate with the engagement of violence at an early age (Lynch, Buckman, & Krenske, 2003). Such individuals disproportionately incur financial and emotional costs on the rest of society. As contemporary rates of youth violence have maintained higher levels across Western nations (Australian Institute of Criminology [AIC], 2010; Povey, Mulchandani, Hand, & Panesar, 2010; Puzzanchera, 2009b), efforts to curb adolescent offending beyond retributive methods are increasingly required. Seeking to improve the identification and characterisation of the younger at-risk members of society improves our ability to direct treatment interventions and address specific needs, potentially offsetting chronic criminal pathways. As the excerpt from Khalil Gibran infers, the handling of offenders should be preferably carried out holistically and free of parochialism. By understanding the nature of violent behavior in Australian adolescents we reach an enlightened position on how to confront the issue of youth violence equitably, systematically and as a community.

Introduction

0.1 Thesis outline

This thesis reports on the nature of Australian youth violence and the assessment of the utility and validity of structured professional judgement approaches to violence risk assessment across gender and ethnicity in an Australian custodial young offender context. It comprises six chapters, including two articles that have been published in peer-reviewed scientific journals, one article that has been accepted for publication and is in press, and another article that has been submitted and is presently under review.

Chapter 1 is a published review of the literature encompassing a broad commentary on the extant validation research of widely used youth violence risk assessment instruments, in particular the SAVRY, the YLS/CMI and the PCL:YV. The review summarises the findings of the research regarding inventory predictive validity extending across international jurisdictions. The paper is stratified into two sections which address previous findings regarding the applicability of youth risk instruments firstly to gender and then across ethnicity. Additionally, both segments include a synopsis of extant risk factor literature for females and ethnic minority groups and how these distinctive factors and patterns may impact and inform youth violence risk assessment.

Chapter 2 describes the methodology utilized in the study. This chapter encompasses the research design employed and protocols followed throughout the duration of the project. Procedures discussed include the site rationale and identification, the eligibility criteria, ethical considerations and demographics of the participants, a summary of the Risk Assessment measures utilized, a description of the clinical procedures conducted for data

extraction and collection, information regarding the access to official criminal and mental health databases and a discussion on data management and the statistical methods employed.

Chapter 3 reports the first study of the thesis. This study is a preliminary paper investigating the prevalence of salient risk factors for violence in a detained Australian young offender population with a focus on potential gender differences. The findings discuss the implications for risk management and intervention initiatives. The chapter begins with a preamble, followed by the article that has been published.

Chapter 4 reports the second study of the thesis. The study investigated the presence and severity of risk factors for violence across ethnicity using the SAVRY. Second, the study examined the predictive validity of the SAVRY instrument for general and violent recidivism for the entire sample and across three Australian ethnic subgroups. Similarly, the chapter begins with a preamble followed by article that has been accepted for publication.

Chapter 5 reports the third and final study of the thesis. The study examined the predictive ability of three youth violence risk assessment instruments, the SAVRY, the YLS/CMI and the PCL:YV for violent and general recidivism across an Australian young offender population. Correlations and Logistic Regression analysis were also conducted to ascertain relationships between individual SAVRY domains and items and re-offense outcomes. The ability of the instruments to generalize across gender was also explored. Again a preamble precedes the submitted article.

Chapter 6 comprises an overall discussion of the three studies conducted in the thesis. Findings are surveyed and integrated within the broader themes and contexts of the literature. Clinical, social and political implications of the results are considered within a contemporary framework.

Chapter 7 is a summary of the project and response to the introduction.

The appendix includes materials that were used to conduct the research project. These include consent forms, ethics approvals, explanatory statements and an outline of the violence risk instruments utilized in the study.

0.2 Research aims

The overall objective of the research undertaken in the thesis was to characterise the nature of violent youth offending and determine the utility of Structured Professional Judgement (SPJ) violence risk assessments in an Australian young offender population. The study employed three main research aims which are described below:

0.2.1 Research Aim One

The first research aim was to ascertain differences in risk factors for violence across gender in a typical Australian young offender cohort. This investigation involved the identification and severity of cogent risk factors for violence using the items on the SAVRY instrument. Chi-squared and ANOVA analysis was conducted to determine which risk items were commensurate or divergent across gender. This investigation adds to the gender specific literature base that proffers female offenders' antisocial patterns contrast in their origin and trajectory to male offenders. Differences in risk factors for violence across gender have implications for risk assessment and subsequent treatment programs which may require gender focused strategies.

0.2.2 Research Aim Two

To achieve the second aim, the thesis examined differences in risk factors for violence across three Australian ethnic subgroups in detention (ESB, English Speaking Background; CALD, Culturally and Linguistically Diverse; IND, Indigenous). Similarly to the first research aim, exploring the differences in risk factors for violence across Australian ethnic groups may have implications for future intervention and case management strategies aimed at reducing prospective violence. Additionally, members of diverse ethnic subgroups may present with divergent criminal trajectories given the problematic integration experiences of the CALD group and the historical discrimination endured by Indigenous Australians. Second, the predictive validity of the SAVRY was examined across the three ethnic categories to ascertain the instruments ability to generalize to an Australian ethnically diverse population. It is important that risk instruments that were initially constructed in other regions are empirically evaluated in varying conditions before they are utilized across broader settings. This study is the first to test the efficacy of the SAVRY in Australian conditions.

0.2.3 Research Aim Three

The third aim consisted of investigating the predictive validity of three widely used youth violence risk inventories, the SAVRY, the YLS/CMI and the PCL:YV in a custodial sample of young Australian offenders. The study is the first to investigate the comparable predictive accuracy of the three tools in the prediction of general and violent recidivism for Australian young offenders. The findings also consider the ability of the tools to accurately predict violent re-offense across gender. The study adds to the validation literature for the three instruments including the paucity of validation studies assessing gender. Similarly to the second research aim, testing the efficacy of the instruments in an Australia context provides

information on the applicability and generalizability of instruments developed in North America to unique samples from dissimilar jurisdictions. Findings on the suitability of risk instruments for young male and female Australian offenders has implications for clinical risk assessment and the use of standardised instruments as an aide when evaluating risk.

1.0 Chapter One: Adolescent Violence Risk Assessment: A Question of Gender and Ethnicity

1.1 Preamble to Paper 1

This chapter comprises a published literature review. It is a summary of the literature on the predictive validity of current youth violence risk instruments, in particular the SAVRY, YLS/CMI and the PCL: YV. The paper considered pertinent international risk literature with a focus on specific risk factors for violence across gender and ethnicity. Additionally the paper reviewed the limited extant instrument validity research for young females and young offenders from minority backgrounds. The paper identifies the need for further testing of the youth inventories in mixed cohorts and underscores the paucity of juvenile assessment literature in Australia.

This literature review paper has been published in *Criminal Justice and Behavior*, a peer-reviewed journal and the official publication of the International Association for Correctional and Forensic Psychology (IACFP). The journal includes theoretical perspectives and research on crime prevention, intervention and treatment strategies within the criminology, penology and the clinical psychology disciplines. The impact factor of the journal is 1.708 (Sage Journals, 2013a). Co-authors of the paper are Professor Mairead Dolan, a former Professor of Forensic Psychiatry at Monash University, and Dr. Stefan Luebbers, a forensic psychologist at the Monash Psychology Centre, Monash University, and lecturer at Monash University.

1.2 Declaration for Thesis Chapter 1, Paper 1

Monash University

Declaration by candidate

In the case of Chapter 1, the nature and extent of my contribution to the work was the following:

Nature of contribution	Extent of contribution (%)
Extraction, review and analysis of the literature. Write-up.	80%

The following co-authors contributed to the work. Co-authors who are students at Monash University must also indicate the extent of their contribution in percentage terms:

Name	Nature of contribution	Extent of contribution (%) for student co-authors only
Dr. Stefan Luebbers	Write up.	15%
Prof. Mairead Dolan	Write up.	5%

Candidate's Signature		Date

Declaration by co-authors

The undersigned hereby certify that:

(1) the above declaration correctly reflects the nature and extent of the candidate's contribution to this work, and the nature of the contribution of each of the co-authors.
(2) they meet the criteria for authorship in that they have participated in the conception, execution, or interpretation, of at least that part of the publication in their field of expertise;
(3) they take public responsibility for their part of the publication, except for the responsible author who accepts overall responsibility for the publication;
(4) there are no other authors of the publication according to these criteria;

(5) potential conflicts of interest have been disclosed to (a) granting bodies, (b) the editor or publisher of journals or other publications, and (c) the head of the responsible academic unit; and
(6) the original data are stored at the following location(s) and will be held for at least five years from the date indicated below:

Location(s)	All data are stored at Centre for Forensic Behavioural Science, Monash University.

Signature 1	[redacted]	**Date**
Signature 2		

GENDER AND ETHNICITY IN JUVENILE RISK ASSESSMENT

STEPHANE M. SHEPHERD
STEFAN LUEBBERS
MAIREAD DOLAN
Monash University

Systematized risk assessment and management in juveniles is still in its infancy, and the bulk of the validation literature focuses on males as they account for a significant proportion of crime. In recent years there has been growing recognition that female arrest rates and convictions are steadily increasing and that there is a need to ensure that risk assessment tools that have been validated with males are appropriate for females, who may have different criminal trajectories. The applicability of violence risk assessment tools for ethnically diverse populations has not been extensively examined, but the limited literature suggests that there may be differences in scores for risk and protective factors across ethnic groups. To address this subject, a review of the literature on the predictive validity of current juvenile risk assessment tools was performed. This summary produced equivocal findings and a requirement for further investigation comprising cohorts with greater diversity.

Keywords: risk assessment; juvenile offenders; gender; ethnicity

Relevant literature concerning juvenile risk assessment and juvenile risk factors for violence was compiled through searching medical and social science databases (PsycINFO, Ovid MEDLINE). Similarly, literature pertaining to gender and ethnic offending patterns and mental health was obtained. Specific information on the Australian and American context was accessed through relevant government websites, including the Australian Institute of Criminology and U.S. Office of Juvenile Justice and Delinquency Prevention. An exhaustive search of academic databases was also performed to collect all discussions and analyses on the three risk assessment tools discussed at large in this article: the Structured Assessment of Violence Risk in Youth (SAVRY), the Youth Level of Service/Case Management Inventory (YLS/CMI), and the Psychopathy Checklist: Youth Version (PCL:YV). Studies were considered pertaining to their relevance to juvenile risk prediction.

Interest in juvenile risk assessment and management is growing rapidly, largely because of the rising rates of juvenile offending and detention around the globe. In Australia there were significant increases in assault and robbery and a rise in detention rates between 2004 and 2010 (Australian Institute of Criminology [AIC], 2010; Australian Institute of Health and Welfare [AIHW], 2008). In addition, a nationwide increase of 48% for juvenile assault was recorded between 1997 and 2007 (AIHW, 2008). Although there are limited data on juvenile recidivism in Australia, research suggests reconviction rates of at least 50% nationally (Australian Bureau of Statistics [ABS], 2009; Chen, Matruglio, Weatherburn, & Hua, 2005). Similarly, juvenile apprehension rates for violent crimes in the United States

AUTHORS' NOTE: *This research was supported in part by a grant from the Australian Research Council (DP1095697).* *Correspondence concerning this article should be addressed to Stephane Shepherd, Centre for Forensic Behavioural Science, Monash University, 505 Hoddle Street, Clifton Hill VIC 3068, Australia; e-mail:* [redacted]

CRIMINAL JUSTICE AND BEHAVIOR, Vol. 40, No. 4, April 2013, 388-408.
DOI: 10.1177/0093854812456776

increased between 2004 and 2006 after 10 years of decline, and property arrests increased between 2006 and 2008 (Puzzanchera, 2009b). Robbery arrests also increased 43% between 2002 and 2008, before a decline in most offense categories occurred in 2009 (Puzzanchera & Adams, 2011). Furthermore, the United Kingdom, juveniles accounted for one third of all theft-related offenses in 2009 (Povey, Mulchandani, Hand, & Panesar, 2010). Given longitudinal studies frequently suggest links between early delinquency and future antisocial behavior (Chen et al., 2005; Lynch, Buckman, & Krenske, 2003), early prediction and intervention is clear. Risk assessment measures are increasingly in use to assess future violence and recidivism in youths to develop suitable risk management plans and interventions.

The current article is an overview of the available literature on three prominent juvenile risk assessment measures (SAVRY, YLS/CMI, PCL:YV) and their ability to accurately predict recidivism among females and different ethnic groups. A discussion of recent criminal trends and specific risk factors highlights the need for future research and implications for risk prediction and management.

Risk assessment has evolved considerably since the era of Baxstrom and dichotomous calculations of dangerousness (Steadman & Cocozza, 1974). After the ambiguity of clinical judgment and the inability of actuarial assessment to account for idiosyncrasies, the third generation of risk assessment has attempted to provide evaluators with a more comprehensive aide (Douglas, Cox, & Webster, 1999; Litwack, Kirschner, & Wack, 1993; Mulvey & Iselin, 2008; Young, Moline, Farrell, & Bierie, 2006). Structured professional judgment (SPJ) proposes combining scientific knowledge and flexibility and promotes transparency to enhance the overall prediction process. In recent times risk assessment has extended further into comprehensive case management plans to assist in addressing responsivity and special needs for intervention (C. Thompson & Stewart, 2006). The Historical, Clinical, Risk Management–20 (HCR-20; Webster, Douglas, Eaves, & Hart, 1997) and the Level of Service Inventory–Revised (LSI-R; D. A. Andrews & Bonta, 1995) are widely used adult risk assessment tools that have been validated for use in institutional and community settings (Douglas, Ogloff, Nicholls, & Grant, 1999; Nicholls, Ogloff, & Douglas, 2004; Coid et al., 2009; Flores, Lowenkamp, Holsinger, & Latessa, 2006; Lowenkamp, Holsinger, & Latessa, 2001; Smith, Cullen, & Latessa, 2009). The adult versions have since spawned the juvenile adaptations, the SAVRY (Borum, Bartel, & Forth, 2003) and the EARL-20B/G (Early Assessment Risk List for Boys/Girls; Augimeri, Koegl, Webster, & Levene, 2001), which are both based on the HCR-20, and the YLS/CMI (Hoge & Andrews, 2006), which was derived from the LSI-R.

The SAVRY (see the appendix) is a violence-prediction instrument designed for 12- to 18-year-olds and includes 24 risk items within three subscales (Borum et al., 2003). These include Historical items, which address violent and nonviolent offending, self-harm, and early environmental factors; Social/Contextual items, which cover relationships, social support, anxiety, and trauma; and Individual items, which encompass attitudes and clinical personality factors (Borum et al., 2003). The SAVRY also contains six Protective Factor items that identify prosocial behaviors and attitudes that could potentially mitigate future offending (Borum et al., 2003). The EARL-20B (see the appendix) comprises 20 items designed to assess violence potential in children younger than 12 (Augimeri et al., 2001). Items are divided between Family items determining parenting style and caregiver support and Child items covering abuse or neglect and developmental difficulties such as

hyperactivity, attitudes, and academic performance (Augimeri et al., 2001). A female-specific version of the EARL-20B, titled the EARL-21G (see the appendix), has been developed to accommodate the unique etiology of female aggression and antisocial behavior (Levene et al., 2001).

The YLS/CMI (see the appendix) is a general risk management inventory that encompasses a dichotomously rated checklist and a case management plan addressing responsivity (Hoge & Andrews, 2006). It includes eight domains covering Offence History, Family Circumstances, Education/Employment, Peer Relationships, Substance Use/Abuse, Leisure/Recreation, Personality/Behavior, and Attitude/Orientation (Hoge & Andrews, 2006, 2010). An updated version, the YLS/CMI 2.0, has recently been released and incorporates a larger construction sample and additional recommendations for gender differences when formulating case management strategies.

These SPJ instruments include total scores attained by calculating scores on the various items and a risk rating determined by the evaluator after considering all the information.

The PCL-R, originally developed to assess psychopathic personality traits and behaviors, has also been found to predict violence and recidivism (Dolan & Doyle, 2000; Douglas, Ogloff, et al., 1999; Hare, 2003). A youth derivative, the PCL:YV (see the appendix; Forth, Kosson, & Hare, 2003) was developed for use with adolescents aged 12 to 18. Like its adult version, the PCL:YV has four subsections: Factor 1 (Interpersonal), tapping manipulative and deceiving behavior, Factor 2 (Affective), covering empathy and remorse, Factor 3 (Behavioral), addressing lifestyle and stimulus,and Factor 4 (Antisocial), including criminal behavior and anger (Forth et al., 2003). Diagnostic cutoff scores are tentatively used because of the negative connotations of the disorder when evaluating youths.

As these juvenile risk instruments were derived from three prominent adult risk assessment instruments, they are the focus of this article. Given they were also developed using the empirical data from specific groups of North American males, their present ability to generalize to female and minority groups is discussed.

FEMALE CRIMINAL TRENDS AND RISK FACTORS

Previous research has found female juvenile offending to be relatively minor and less systemic compared to that of their male counterparts; however, recent figures from Australia, Europe and the USA report increases in young female contact with law enforcement agencies. Arrests in the United States for young female assault rose 17% in 2008, whereas the young male rate remained the same (Puzzanchera, 2009a). Detention of young female offenders in the United States also increased by 98% between 1991 and 2003. Considerable rises in the overall female prison population in the United Kingdom occurred between 1997 and 2009, when it rose from 2,672 to 4,266 (Ministry of Justice, 2009), a growth rate 3 times that of males. In Holland, registered criminal acts committed by girls between 1998 and 2003 increased by 48% (Eggen et al., 2005). Similarly, in Australia, Victorian police statistics from 2008 indicate that female robberies were up 16% whereas young male robberies dropped simultaneously (Victoria Police, 2010). Explanations for these rates have included recent changes in the policing and monitoring of minor incidents and intimate settings, common domains of female transgression (Steffensmeier, Schwartz, Zhong, & Ackerman, 2005).

Given the significant international increases in female apprehension and detention for violent offenses, there is clearly a need for clinicians and correctional staff to be aware of appropriate measures of violence risk in females.

Much of the early offending literature suggested that males and females generally possess similar risk factors for offending behavior (D. A. Andrews & Bonta, 2006; Fergusson & Horwood, 2002; Moffitt, Caspi, Rutter, & Silva, 2001), leading to the notion that current methods of assessment are valid for both genders (Schwalbe, 2008; Simourd & Andrews, 1994; Smith et al., 2009; Strand & Belfrage, 2001; Webster, 1999). However, a growing body of research on female delinquency suggests there are important gender-specific predictors. A number of studies have noted that factors such as victimization and abuse, depression, self-esteem issues, mental illness, substance abuse, truancy, sexual promiscuity, and interaction problems with partners and parents feature prominently in female offenders of all ages (Belknap & Holsinger, 2006; Benda, 2005; Blanchette, 2004; Blanchette & Brown, 2006; Cauffman, Lexcen, Goldweber, Shulman, & Grisso, 2007; Chesney-Lind, 1997; Chesney-Lind et al., 2008; Chesney-Lind & Sheldon, 1998; Daigle, Cullen, & Wright, 2007; Farrington & Painter, 2004; Gavazzi, Yarcheck, & Chesney-Lind, 2006; Kempf-Leonard & Johansson, 2007; Loucks & Zamble, 2000; Odgers, Repucci, & Moretti, 2005; Reisig, Holtfreter, & Morash, 2006; Simpson, Yahner, & Dugan, 2008; Van Voorhis & Presser, 2001; Van Voorhis, Wright, Salisbury, & Bauman, 2010; Widom, 1989). Although a causal relationship between early victimization or abuse and subsequent offending behavior has not been definitely established, much of the literature in female offenders highlights the disproportionately higher (compared to those of males) rates of trauma and abuse in the backgrounds of female offenders, particularly those who are incarcerated (Teplin, Abram, McClelland, Dulcan, & Mericle, 2002). Rates of physical and sexual abuse experienced by female offenders have varied from 35% to 90%, often double those of their noncriminal counterparts and 3 times the rates of male offenders (Belknap & Holsinger, 2006; Bloom, Owen, & Covington, 2002; Bureau of Justice Statistics, 1999; Chesney-Lind & Sheldon, 1998; Funk, 1999; Holsinger & Holsinger, 2005; Odgers et al., 2005; Simpson, Castro, & Dugan, 2008). Percentages of mental disorder among females in the American justice system are as high as 75% (National Institute of Mental Health, 2002), and comparisons between male and female offenders have found females to have higher levels of mental illness, in particular schizophrenia, depression, and drug dependence (Coid et al., 2009; Timmons-Mitchell et al., 1997). In contrast, a meta-analysis on the prevalence of Anti-Social Personality Disorder and Psychopathy in women found rates were generally lower in women compared to men (Dolan & Vollm, 2009).

Research on youths has indicated that early abuse may manifest dissimilar psychological effects across gender (Bloom et al., 2002). Traumatic exposure and elevated rates of posttraumatic stress disorder (PTSD) have been discovered among juvenile offenders and associated with a variety of future disorders and antisocial behavior (Ford, Elhai, Connor, & Freuh, 2010; Krischer & Sevecke, 2008; Messina & Grella, 2006; Wasserman & McReynolds, 2011). Delinquent girls have been found to meet PTSD criteria more often than delinquent boys and have reported higher levels of forced sexual abuse, whereas boys are more likely to report higher levels of assaultive violence (Wasserman & McReynolds, 2011). Additionally, adolescents who experience multiple forms of victimization have been found to be at higher risk for psychiatric disorders, substance abuse, and PTSD and are more likely to be female (Ford et al., 2010). It is important to note that trauma experienced

by both genders involved in corrections is often underreported, particularly among males (Messina, Grella, Burdon, & Prendergast, 2007; Silberman, 2010).

Psychopathy has been found to be a risk factor for both general and violent offending behavior in males (Dolan & Doyle, 2000) and offending in women (Dolan & Vollm, 2009). However, it has been suggested that there are different gender patterns within the psychopathy construct (Bolt, Hare, Vitale, & Newman, 2004; Forouzan & Cooke, 2005; Nicholls & Petrila, 2005). Mean psychopathy scores in female offenders have been found to be lower than in males across a number of domains (Forth, Brown, Hart, & Hare, 1996; Nicholls et al., 2004; Salekin, Rogers, & Sewell, 1997; Strand & Belfrage, 2001). Gender differences have also been found when analyzing individual items on psychopathy measures. Female psychopathic traits have been found to be highest on items concerning poor behavioral control, deceit, and impulsivity, whereas males are found to score significantly higher on antisocial domains (Hamburger, Lilienfeld, & Hogben, 1996; Strand & Belfrage, 2005). These differences may develop from definitions of antisocial behavior on PCL instruments, reflecting male antisocial behavioral patterns (Mulder, Wells, Joyce, & Bushnell, 1994; Odgers & Moretti, 2002; Silverthorn & Frick, 1999). For example, manipulation is considered to manifest more as promiscuity and flirtation among females compared to conning behavior among men (Forouzan & Cooke, 2005; Grann, 2000). Given these findings, research on gender-specific criminal pathways suggests that these different manifestations can affect the predictive validity of risk assessment measures.

GENDER AND RISK ASSESSMENT

Developing literature has examined the validity of adult risk assessment measures: the LSI-R, HCR-20 and PCL-R. Studies using the HCR-20 have found predictive validity for females across institutional and community settings (Nicholls et al., 2004; Douglas et al., 1999; Coid et al., 2009). Strand and Belfrage (2001) found similarities on Total scores but differences on individual items across gender in Swedish forensic patients. In Contrast, de Vogel & de Ruiter (2005) and Schaap, Lammers, & de Vogel (2009) found the HCR-20 was unable to predict violent outcomes in female forensic patients. The testing of the PCL-R among female samples has been scarce and generally found total scores to be lower than those of males (Dolan & Vollm, 2009; Nicholls, Ogloff, Brink, & Spidel, 2005; Salekin, Rogers, Ustad & Sewell, 1998). A review and meta-analysis have found the PCL-R to generalize to females although further research was suggested (Nicholls et al., 2005; Leistico, Salekin, DeCoster, & Rogers, 2008). In Contrast, some studies have found the PCL-R to have poor validity in predicting violence female outcomes (Schaap et al., 2009; de Vogel & de Ruiter, 2005, Salekin et al., 1998; Salekin et al., 1997). However, factor research has demonstrated Factor 1 (Affective) of the PCL-R to be more predictive of female offending (Caulfield, 2010; Richards, Casey, & Lucente, 2003; Salekin et al., 1998). Research on the LSI-R has demonstrated prediction for reincarceration in samples of female offenders (Flores et al., 2006; Lowenkamp et al., 2001) and for recidivism of female offenders in Canada (Bonta, Pang, & Wallace-Capretta, 1995; Folsom & Atkinson, 2007). Other results showed the LSI-R was able to predict recidivism for women who offended similarly to males but unable to predict recidivism through gendered pathways (Reisig et al., 2006). A meta-analysis combining 14,737 female respondents found the

LSI-R to predict recidivism at levels statistically comparable to those of men (Smith et al., 2009). The ability of adult risk assessment tools to accurately predict female recidivism appears equivocal and ongoing research is required.

As juvenile risk assessment is a relatively new phenomenon, few studies have tested validity across gender with adequately large female samples. A search of studies featuring the SAVRY, YLS/CMI, and PCL:YV SPJ tools found approximately 50 with mixed-gender samples. However, many had samples too small to consider representative or did not report analyses on females separately.

Several SAVRY studies have shown validity for recidivism (Catchpole & Gretton, 2003; Gammelgard, Weizmann-Henelius, & Kaltiala-Heino, 2008; Gretton & Abramowitz, 2002; Hilterman, 2007; McGowan, Horn, & Mellott, 2011; Olver, Stockdale, & Wormith, 2009; Rieger, Stadtland, Freisleder, & Nedopil, 2006; Welsh, Schmidt, McKinnon, Chattha, & Meyers, 2008), although the results appeared to be illustrative of the high percentage of males in the sample. The available studies (including meta-analyses) separately rating the validity of the SAVRY for girls found several that predicted general or violent recidivism (Gammelgard et al., 2008; Meyers & Schmidt, 2008; Penney, Lee, & Moretti, 2010; Singh, Grann, & Fazel, 2011; Lodewijks, de Ruiter, & Doreleijers, 2008; Schmidt, Campbell, & Houlding, 2011). Gammelgard, Weizmann-Henelius, Koivisto, Eronen, and Kaltiala-Heino (2012) found the SAVRY to predict violent institutional recidivism equally between girls and boys. However, violent outcomes for girls were associated with self-destructive behaviors, as opposed to boys whose violence correlated more with antisocial behaviors (Gammelgard et al., 2012).

Support for the predictive ability of the YLS/CMI was found in predominantly male, mixed samples for general and violent recidivism (Catchpole & Gretton, 2003; Gossner & Wormith, 2007; Ilacqua, Coulson, Lombardo, & Nutbrown, 1999; Luong, 2007; McKinnon, 2004; Olver et al., 2009; Rector, Wormith, & Banka, 2007; Rowe, 2002; A. P. Thompson & Pope, 2005; Upperton & Thompson, 2007; Van de Ven, 2004; Vieira, Skilling, & Peterson-Badali, 2009; Welsh et al., 2008). Studies with separate female analyses or comparisons with males have shown mixed support. Stockdale (2008), Olver et al. (2009), Onifade, Smith Nyandoro, Davidson, and Campbell (2010), Flores, Travis, and Latessa (2003), Jung and Rawana (1999), and Olver, Stockdale, and Wong (2012) all found moderate to strong validity for the YLS/CMI to predict female recidivism, whereas Schmidt et al. (2011), Marshall, Egan, English, and Jones (2006), Onifade et al. (2008), and Bechtel, Lowenkamp, and Latessa (2007) found the YLS/CMI to be superior in predicting male recidivism. A meta-analysis by Schwalbe (2008) found effect sizes between males and females over a number of YLS/CMI studies to be similar, suggesting equal validity. A study over five data sets that included LS/CMI and YLS/CMI samples also found gender neutrality with strong recidivism predictions for both sexes (D. A. Andrews et al., 2012). Similarly, a large Australian study with a sizable female cohort found recidivism rates comparable to those of males despite the fact that item differences were discovered between genders (A. P. Thompson & McGrath, 2011).

The PCL:YV was found to predict general or violent recidivism in samples combining girls and boys (Welsh et al., 2008; Catchpole & Gretton, 2003; Salekin, 2008; Stockdale, 2008; Auslander, 1998; Brandt, Kennedy, Patrick, & Curtin, 1997; Mckinnon, 2004; Rieger et al., 2008; Rogers, Johansen, Chang, & Salekin, 1997; Stafford & Cornell, 2003). Support however was found for females in studies with separate analyses (Rowe, 2002; Olver et al.,

2012). Conversely, poor validity or lower predictability than men was demonstrated in others (Vincent, Odgers, McCormick, & Corrado, 2008; Marshall et al., 2006; Schmidt, Hoge, & Gomes, 2005; Campbell, 2004; Schmidt, McKinnon, Chattha, & Brownlee, 2006; Odgers et al., 2005; Ponder 1998; Schmidt et al., 2011). A meta-analysis of five PCL-related studies from Edens, Campbell, and Weir (2006) found limited predictive validity for adolescent girls. Other research has found associations between early traumatic experiences and the PCL:YV Total Score for adolescent boys but not for girls, suggesting possible gender differences between early trauma and psychopathy pathways (Krischer & Sevecke, 2008). The research is scant on the EARL-20B/21G instruments outside of validation studies. Enebrink, Langstrom, and Gumpert (2006) found the EARL-20B to be strongly related to aggression and disruptive behavior in a Swedish sample of young boys.

The extant literature indicates further research is required with larger female samples to determine validity and reliability across gender. Further research on risk assessment for children younger than 12 and follow-up analysis on the EARL instruments is also essential as children in this age group are at a critical part of development.

ETHNICITY: CRIMINAL TRENDS AND RISK FACTORS

Research on minority populations in Western countries often depicts situations of overrepresentation in criminal statistics, discrimination, and disorganized communities (Bhui, 1999; Collins & Reid, 2009; Stanley, Tomison, & Pocock, 2003).

The literature suggests there may be discernible variation between the criminal pathways and experiences of Indigenous youth when compared with the general population. In Australia, Indigenous juveniles are approximately 23 times more likely than non-Indigenous juveniles to be incarcerated (Livingston, Stewart, Allard, & Ogilvie, 2008). Indigenous people are 2.3% of the Australian population (ABS, 2006) yet composed 59% of juveniles in detention nationwide in Australia in 2007, an increase of 7% from 2005 (AIC, 2010). Studies on Australian Indigenous delinquents have found expressions of resistance, cultural despair, and traumatization as added rationale for offending (Lincoln, Lynch, O'Connor, & Ogilvie, 1997; Stanley et al., 2003). The disintegration of Aboriginal society and their separation from their land have inflicted pain, anger, and depression that have been passed on down through generations (Wundersitz, 2010). Coupled with alcoholism, poverty, and child abuse, these factors contribute heavily to Aboriginal offending and initiate early onset offending trajectories for Aboriginal juveniles (Wundersitz, 2010). So it is conceivable that Indigenous offenders may experience separate risk factors indicative of their history and cultural experiences. An investigation of the Wisconsin Risk Instrument, which was developed to assist and predict offending behavior of parolees and probationers in Wisconsin and used widely in North America (Baird, 1981; Glaser, 1987), found that high scores on particular items did not predict recidivism among Aboriginal offenders, thus challenging its reliability in the west Australian context (Dawson, 1999).

Similar factors are shared by Canadian Indigenous youth, who are 8 times more likely to be imprisoned than non-Indigenous youth (Landry & Sinha, 2008; Latimer & Foss, 2005). Research indicates that custodial pathways between Australian and Canadian Indigenous youth share commonalities. Both groups are more likely to have chronic criminal histories and to be processed via remand and police custody compared to non-Indigenous

offenders (Barrett, 2006; Chen et al., 2005; Livingston et al., 2008; Lynch et al., 2003). In New Zealand, the Indigenous Maori constitute 14% of the general population yet compose 50% of the prison population (Department of Corrections, 2007).

Data on Australian immigrant criminality have indicated that other ethnic groups—in particular Lebanese, Turkish, Vietnamese, and New Zealanders—are overrepresented in crime statistics relative to their overall population (Baur, 2006; Mukherjee, 1999; NSW Parliament Legislative Council Standing Committee on Social Issues, 1995). These various groups are often labeled under the combined heading CALD (culturally and linguistically diverse), a term now commonly used in Australian policy and research discourse to refer to all of Australia's ethnic groups other than the English-speaking Anglo-Saxon majority and Indigenous Australians (Sawrikar & Katz, 1999). An Australian study comparing ethnicity in a sample of incarcerated juvenile offenders revealed greater similarities between Indigenous and English Speaking Background (ESB) participants regarding drug-related offenses and commonalties in social disadvantage (Kenny & Lennings, 2007). Conversely, the CALD group experienced less social disadvantage and participants were more likely to commit violent offenses such as homicide and aggravated sexual assault (Kenny & Lennings, 2007). Although literature on the criminal pathways of CALD populations in Australia is sparse, extant research describes the detachment from society from not belonging, which potentially diminishes allegiance to the country and fosters antisocial attitudes (Collins & Reid, 2009; Noble & Poynting, 2010; Tyson & Hubert, 2003; Wundersitz, 2010). Other literature on criminal justice issues in CALD communities has identified a lack of awareness of the law as a key problem that could be associated with difficulties with police and perceptions of racism. These issues are viewed as possible explanations for CALD underreporting as victims of crime (Bartels, 2011). These findings have created further interest in the generalizability of risk assessment instruments to diverse populations.

In the United States, Black and Hispanic youths are heavily overrepresented in criminal statistics (Harrison & Beck, 2006; Office of Juvenile Justice and Delinquency Prevention, 2009; Puzzanchera, 2009a, 2009b). In 2009 Black youths composed 16% of the juvenile population but were responsible for 51% of arrests for violent crimes (Puzzanchera & Adams, 2011). Criminal data also describe the disproportionate number of Hispanic and American Indian youths in Custody (C. Andrews, 2003; Puzzanchera, 2009a, 2009b). Ethnic disparities found in American juvenile criminal statistics raise concerns about the presence and influence of disproportionate minority contact (DMC). Explanations for minority overrepresentation often include racially biased crime policies and processing such as profiling, institutional racism, and historical patterns of racial inequality that find minorities in heavily policed low socioeconomic communities (Bishop & Frazier, 1988; Bridges & Steen, 1998; Piquero, 2008). Kaufman, Rebellon, Thaxton, and Agnew (2008) applied general strain theory to explain disproportionate minority confinement among African Americans. They contend African Americans are more likely than Whites to experience discrimination and community and economic strain and disruption, resulting in poor coping, ineffective parenting, and criminal behavior (Kaufman et al., 2008). These theories often exist in tandem with differential involvement, which pertains to ethnic differences in rates and types of offending (Bishop, 2005; Huizinga et al., 2007). Research on mental health symptoms between ethnicities has yet to demonstrate substantial disparities that may influence DMC (Desai, Chapman, Falzer, & Borum, 2012; Vincent, Grisso, Terry, & Banks, 2008). Literature on

psychopathy and ethnicity, although scarce, has found psychopathy to be a construct that can be generalized across different ethnic groups, although there may be ethnic variations in the way particular traits manifest (Cooke, Kosson, & Michie, 2001; McCoy & Edens, 2006; Skeem, Edens, Camp, & Colwell, 2004). In summarizing, research on the delinquent pathways and mental health outcomes of minority groups requires further analysis including its potential impact on risk assessment.

ETHNICITY AND RISK ASSESSMENT

There have been few studies, adult or juvenile that compare ethnic differences in risk prediction. Like females, ethnic minority participants often represent a small fraction of the research sample, rarely receiving separate scrutiny. Holsinger, Lowenkamp, & Latessa (2003) discovered ethnic differences on total risk scores using the LSI-R. A metal-analysis that included the HCR-20, LSI-R and PCL-R found predictive accuracy is usually higher in samples with more Caucasian participants (Singh et al., 2011). In contrast, other studies have found both the HCR-20 (Snowden, Gray, & Taylor, 2010) and PCL-R (Skeem et al., 2004) to generalize to Black offenders. A number of studies have shown support for the SAVRY, YLS-CMI and PCL:YV with small percentages of ethnic minorities included in samples.

However only a limited number of studies have included larger samples of minorities in their analyses. Vincent, Chapman, & Cook (2011) found support for violent recidivism prediction with the SAVRY in a sample including African Americans and Hispanics. Meyers & Schmidt (2008) also found moderate support for the SAVRY in a sample that comprised Native Canadians. Two studies also discovered that African American youths were more likely compared to Whites to be rated as low risk on the SAVRY (Chapman, Desai, Falzer, & Borum, 2006; Vincent et al., 2011). The presence of strong protective factors appeared to mitigate higher scores for African American youths (Chapman et al., 2006).

Research on the YLS/CMI has spawned a number of investigations that featured mix race cohorts. Validity has been found for general or violent recidivism in samples that included Native Canadians (Gossner & Wormith, 2007; Jung & Rawana, 1999; Luong, 2007; McKinnon, 2004; Olver et al., 2012; Rector et al., 2007; Stockdale, 2008) and African Americans (Flores et al., 2003; Onifade et al., 2010). Rennie and Dolan (2010) found predictive power for recidivism with the YLS/CMI risk classification in a U.K. cohort that contained a small percentage of ethnic minorities. A. P. Thompson and McGrath (2011) found the YLS/CMI-AA (Australian Adaption) was able to predict recidivism across three ethnic categories. Although validity was found for Indigenous, Australian (ESB), and Australian ethnic (CALD) groups, the Indigenous group consistently had higher scores on a number of domains compared to the other ethnic groups (A. P. Thompson & McGrath, 2011). Additional studies on the YLS/CMI featuring minorities found either no validity or validity scarcely greater than chance (Bechtel et al., 2007; Livsey, 2005; Marczyk, Heilbrun, Lander, & DeMatteo, 2003).

The PCL:YV has shown results predicting recidivism in diverse ethnic samples. Schmidt et al. (2005), Stockdale (2008), McKinnon (2004), and Stockdale Olver & Wong (2010), found validity for the PCL:YV's ability to predict recidivism in a sample including Native

Canadians; however, effects were lower for general and nonviolent recidivism. Auslander (1998), Rogers et al. (1997), Hicks, Rogers, and Cashel (2000), and Brandt (1993) found support for violent recidivism, and Dodds (2000), O'Neill, Lidz, and Heilbrun (2003), and Leistico and Salekin (2003) for general recidivism in samples with African American majorities. In addition, Kosson, Cyterski, Steuerwald, Neumann, and Walker-Matthews (2002) found predictive validity for the number of charges, violent and nonviolent, in an African American majority probation sample. Martin (2003) and Skeem and Cauffman (2003) found the PCL:YV score able to predict violent infractions in a juvenile facility cohort featuring numerous Black and Latino participants. Conversely, Edens and Cahill (2007), Marczyk et al. (2003), Odgers et al. (2005) found the PCL:YV was unable to predict future offending in samples that featured ethnically diverse cohorts. A meta-analysis from Edens et al. (2006) concluded psychopathy was a weaker prediction of violent recidivism in samples of mixed ethnicity. Furthermore, Ponder (1998) and Shelton (1999) found small effects for ethnicity in mixed race samples when testing for total misconduct and aggression. The outcomes of these mostly preliminary studies are encouraging yet inconclusive, requiring further research with larger samples of minority participants.

CONCLUSION

As youth violence is a growing international concern, characterizing the nature of juvenile offending patterns in different populations is essential. Further work on criminal trajectories can delineate cultural differences, providing key information for risk management strategies. This may have implications for SPJ tools that were empirically formulated on North American cohorts of White males.

The literature on juvenile risk assessment that includes significant cohorts of females or non-White participants, however, is scant. The authors believe a summary at this point in time can adeptly describe the current situation and suggest further validation and reliability evaluations with specific reference to gender, ethnicity, and preteens. With the emerging body of research on gender-specific offending patterns and mental health manifestations, efforts must be made to consider these findings with an emphasis on compatibility with current risk assessment measures. It is critical that measures used to assess risk have been formulated and empirically tested on populations comparable to the cohort being evaluated.

We must acknowledge that newly developed risk evaluation methods will experience expected inconsistent findings because of their recent introduction to the field. Such instruments have already demonstrated encouraging results when overseeing cohorts similar to those of the tools construction sample. The test is whether the validity extends to diverse groups after further extensive analyses have been conducted.

APPENDIX

Structured Assessment of Violence Risk in Youth (SAVRY; Borum, Bartel, & Forth, 2003)

Historical Risk Factors
1. History of Violence
2. History of Non-Violent Offending
3. Early Initiation of Violence
4. Past Supervision/Intervention Failures
5. History of Self-Harm or Suicide Attempts
6. Exposure to Violence in the Home
7. Childhood History of Maltreatment
8. Parental/Caregiver Criminality
9. Early Caregiver Disruption
10. Poor School Achievement
Social/Contextual Risk Factors
11. Peer Delinquency
12. Peer Rejection
13. Stress and Poor Coping
14. Poor Parental Management
15. Lack of Personal/Social Support
16. Community Disorganization
Individual/Clinical Risk Factors
17. Negative Attitudes
18. Risk Taking/Impulsivity
19. Substance Use Difficulties
20. Anger Management Problems
21. Low Empathy/Remorse
22. Attention Deficit/Hyperactivity Difficulties
23. Low Interest/Commitment to School
Protective Factors
P1. Prosocial Involvement
P2. Strong Social Support
P3. Strong Attachments and Bonds
P4. Positive Attitude Towards Intervention and Authority
P5. Strong Commitment to School
P6. Resilient Personality Traits

Early Assessment Risk List for Boys (EARL-20B; Augimeri, Koegl, Webster, & Levene, 2001)

Family Items
F1. Household Circumstances
F2. Caregiver Continuity
F3. Supports
F4. Stressors
F5. Parenting Style
F6. Antisocial Values and Conduct
Child Items
C1. Developmental Problems
C2. Onset of Behavioral Difficulties
C3. Abuse/Neglect/Trauma

(continued)

APPENDIX (continued)

Child Items
C4. HIA(Hyperactivity/Impulsivity/Attention Deficits
C5. Likeability
C6. Peer Socialization
C7. Academic Performance
C8. Neighbourhood
C9. Authority Contact
C10. Antisocial Attitudes
C11. Antisocial Behavior
C12. Coping Ability

Responsivity Items
R1. Family Responsivity
R2. Child Responsivity

Note. The EARL-21G (Levene et al., 2001) has two additional items, caregiver–daughter relationship and sexual development, and omits the contact with authority item.

Youth Level of Service/Case Management Inventory (YLS/CMI; Hoge & Andrews, 2006)

Part 1: Assessment of Risks and Needs

1. Prior and Current Offenses/Dispositions
a. Three or more prior convictions
b. Two or more failures to comply
c. Prior probation
d. Prior custody
e. Three or more current convictions

2. Family Circumstances/Parenting
a. Inadequate Supervision
b. Difficulty in controlling behavior
c. Inappropriate discipline
d. Inconsistent Parenting
e. Poor relations (father–youth)
f. Poor relations (mother–youth)

3. Education/Employment
a. Disruptive classroom behavior
b. Disruptive behavior on school property
c. Low achievement
d. Problems with peers
e. Problems with teachers
f. Truancy
g. Unemployed/not seeking employment

4. Peer Relations
a. Some delinquent acquaintances
b. Some delinquent friends
c. No/few positive acquaintances
d. No/few positive friends

(continued)

APPENDIX (continued)

5. Substance Abuse
a. Occasional drug use
b. Chronic drug use
c. Chronic alcohol use
d. Substance abuse interferes with life
e. Substance use linked to offense(s)
6. Leisure/Recreation
a. Limited organized activities
b. Could make better use of time
c. No personal interests
7. Personality/Behavior
a. Inflated self-esteem
b. Physically aggressive
c. Tantrums
d. Short attention span
e. Poor frustration tolerance
f. Inadequate guilt feelings
g. Verbally aggressive, impudent
8. Attitudes/Orientation
a. Antisocial/procriminal attitudes
b. Not seeking help
c. Actively rejecting help
d. Defies authority
e. Callous, little concern for others

Hare Psychopathy Checklist: Youth Version (PCL:YV; Forth, Kosson, & Hare, 2003)

Factor 1: Interpersonal
Impression management
Grandiose sense of worth
Pathological lying
Manipulation for personal gain
Factor 2: Affective
Lack of remorse
Shallow affect
Callous/lack of empathy
Failure to accept responsibility
Factor 3: Behavioral
Stimulation seeking
Parasitic orientation
Lacks goals
Impulsivity
Irresponsibility
Factor 4: Antisocial
Poor anger control
Early behavior problems
Serious criminal behavior
Serious violations of conditional release
Criminal versatility

Note. Additional PCL:YV items include impersonal sexual behavior and unstable interpersonal relationships.

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2.0 Chapter Two: Methodology

This chapter outlines the research design and protocol employed in the study. It describes the basis for participant eligibility, site identification and the instruments utilized for data extraction. Additionally, information concerning the retrieval and analysis of the data sets accessed is provided including details on the accompanying ethical requirements and processes. Lastly it concludes with a synopsis of the procedure executed during the study and how it addressed the aims of the research.

2.1 Design

The study employed a prospective longitudinal cohort design consisting of 215 young offenders who were present in Victorian detention centres between July 2011 and June 2012. A prospective design enables the researcher to observe future outcomes of interest which is preferred for risk assessment research as it involves the forecasting of future behavior. Participant re-offense was monitored for up to 18 months after initial baseline contact.

2.2 Site Identification

Participants were recruited from the Victorian Youth Justice Centres; Parkville Youth Justice Precinct (PYJP) and Malmsbury Youth Justice Centre (MYJC). PYJP accommodates young men and young women aged 10 to 17 years who have been remanded or sentenced by a Victorian Court, and young women 18 to 20 years who have been sentenced by a Victorian Court. MYJC accommodates young men aged 18 to 20 years who have been sentenced by a Victorian Court. The youth justice centres were selected on the basis of being the only centres in Victoria to hold remanded and sentenced adolescent offenders. The centres combined

provide a capacity of approximately 240 beds. The inclusion of 18-20 year olds in the youth sample was grounded on the state of Victoria's 'Dual Track' system (Section 32 of the Victorian *Sentencing Act 1991* - Youth Justice and Disability Forensic Unit Department of Human Services, 2013) which differentiates young offenders within this age group as subject to either adult or youth criminal justice systems. This system is intended for a subset of young adult offenders who are particularly impressionable, immature or likely to be susceptible to undesirable influences in adult prison, and display amenability to treatment and rehabilitation (See Luebbers & Ogloff, 2010).

2.2.1 Jurisdictional Information

The State of Victoria is situated in the South-East region of Australia and has a population of approximately 5.5 million people (Population Bulletin, 2012). Due to the State's rehabilitative focus for juvenile justice, youth detention and community supervision rates are regularly lower than other States and Territories in Australia (Australian Institute of Health and Welfare [AIHW], 2013; Sentencing Advisory Council [SAC], 2012). This is characterised by the Dual Track legislation as mentioned above and other schemes such as the Youth Justice Mental Health Initiative that aims to provide treatment for youth justice clients with mental health service needs (Department of Health Victoria, 2011).

2.3 Participants

A total of 215 participants agreed to take part in the study. Two young people were excluded due to incomplete file data. The final total sample comprised 213 young people. Participants were eligible to participate if they were English speaking and able to comprehend the participatory explanation form. Detainees were not approached if Justice Centre staff deemed them to be of unstable mood or likely to exhibit extreme aggressive behavior if interviewed.

2.3.1 Demographics

The mean age of the sample was 16.84 (*SD* = 1.83), with the age distribution ranging from 12 to 21 years. Participants aged 18-21 were included in the cohort given their developmental suitability according to the jurisdiction's Dual Track legislation. The majority were male (175 males, 38 females) reflecting the proportion of young male offenders in custody Australia wide which is approximately 90% (AIHW, 2012c). The distribution across ethnic background was as follows: English Speaking Background (ESB) 48%, Culturally and Linguistically Diverse (CALD) 32%, Indigenous (IND) 20%. ESB comprised participants who self-identified as White Anglo-Saxon or Caucasian. The CALD category included participants who self-identified as belonging to an ethnic minority group or possessing a non-English speaking heritage. Participants self-identifying as CALD in the study were from diverse cultural background including Lebanese, Sudanese, Maori, Pacific Islander and Vietnamese. The IND group included participants who self-identified as Australian Aboriginal or Torres Strait Islander. The terminology is often used in Australian political and social dialogue, and social scientists have regularly employed the use of these ethnic categories when conducting research (Kenny & Lennings, 2007; Sawrikar, & Katz, 1999).

2.4 Risk Assessment Measures

This section outlines the inventories employed in the study. The inventories were selected based on developing research and validation studies which found the assessments to accurately predict future violence and recidivism in youth offender populations across Europe and North America. All measures utilized recommend a structured or semi-structured interview with the participant. An explanation of each inventory and its psychometric properties are discussed.

2.4.1 Structured Assessment of Violence Risk in Youth (SAVRY)

The SAVRY is a Structured Professional Judgment instrument designed to predict violent behavior in young people aged 12-18 years (Borum, Bartel, & Forth, 2003). It comprises 24 risk items divided into 3 subscales assessing Historical, Socio/Contextual and Individual domains, shown in Table 2. Historical Risk Factors include static items focusing on prior behaviors and experiences. The Social/Contextual domain considers dynamic factors relating to peer relationships and community influences whilst the Individual domain assesses psychological patterns and behaviors (Borum et al., 2003).

Each SAVRY risk factor is coded on a three point scale (Low, Medium, High) which represents the presence and severity of the risk item. The levels can be converted to the numerical values of (0 - Low, 1 - Medium, 2 - High) and then summed to generate a "Savry Risk Total" for research (not clinical) purposes. As there are no assigned cut-off scores, a professional arbitration called the 'SAVRY Risk Rating' is proposed after considering all SAVRY factors. The instrument also contains 6 additional 'Protective Factors' which have been shown to lower the risk of recidivism (Lodewijks, de Ruiter, & Doreleijers, 2010; Rennie & Dolan, 2010b).

The SAVRY, has been shown to predict violent youth recidivism across community and institutional settings in North America (Catchpole & Gretton, 2003; McGowan, Horn, & Mellott, 2011; Meyers & Schmidt, 2008; Schmidt, Campbell, & Houlding, 2011; Welsh, Schmidt, McKinnon, Chattha, & Meyers, 2008) and Europe (Dolan & Rennie, 2008; Lodewijks, Doreleijers, & de Ruiter, 2008a; Lodewijks, Doreleijers, de Ruiter, & Borum, 2008b). Additional SAVRY investigations discovered commensurate predictive accuracy for the instrument across gender (Lodewijks, de Ruiter, & Doreleijers, 2008c; Meyers & Schmidt, 2008; Penney, Lee, & Moretti, 2010) and North American minority groups (Meyers

& Schmidt, 2008; Vincent, Chapman, & Cook, 2011). Furthermore, other investigations have found the SAVRY to assist and advance correctional decision making among institutional and parole staff (Vincent, Guy, Gershenson, & McCabe, 2012a; Vincent, Paiva-Salisbury, Cook, Guy, & Perrault, 2012b). Through the use of Receiver Operator Characteristic (ROC) techniques to ascertain validity, the bulk of the studies described above attained Area under the Curve values of between .70 and .85, representing strong predictive accuracy (Douglas, Cox, & Webster, 1999). SAVRY research has also demonstrated high reliability across raters, regularly reaching Intraclass Correlation Coefficient (ICC) values of between .81 and .96 for the SAVRY Total Score. (Catchpole and Gretton, 2003; Dolan & Rennie, 2008; Meyers and Schmidt, 2008; Welsh et al., 2008; Lodewijks, et al., 2008a). Meta-analyses featuring the SAVRY have shown the instrument to exhibit moderate to strong predictive accuracy for general and violent recidivism (Olver, Stockdale, & Wormith, 2009; Singh, Grann, & Fazel, 2011). In particular, Singh et al. (2011) found the SAVRY to have the highest rate of predictability amongst nine regularly used juvenile and adult risk instruments (Singh et al., 2011).

Table 1.

SAVRY – Structured Assessment of Violence Risk in Youth

Historical Risk Factors	**Individual/Clinical Risk Factors**
History of violence	Negative attitudes
History of non-violent offending	Risk taking/impulsivity
Early initiation of violence	Substance use difficulties
Past supervision/intervention failures	Anger management problems
History of self-harm or suicide attempts	Low empathy/remorse
Exposure to violence in the home	Attention deficit/hyperactivity difficulties
Childhood history of maltreatment	Low interest/commitment to school
Parental/caregiver criminality	
Early caregiver disruption	**Protective Factors**
Poor school achievement	
	Prosocial involvement
	Strong social support
Socio/Contextual Risk Factors	Strong attachments and bonds
	Positive attitude towards intervention and authority
Peer delinquency	Strong commitment to school
Peer rejection	Resilient personality traits
Stress and poor coping	
Poor Parental Management	
Lack of personal/social support	
Community disorganization	

2.4.2 Youth Level of Service/Case Management Inventory (YLS/CMI)

The YLS/CMI is a risk/needs assessment and case management tool for young offenders aged 12-17 years that encompasses a dichotomously rated checklist and a case management plan addressing responsivity (Hoge & Andrews, 2006). It is derived from the original adult risk assessment measure the Level of Service Inventory Revised (LSI-R, Andrews, & Bonta, 1995). It includes 42 risk items over 8 domains covering Offense history, Family Circumstances, Education/Employment, Peer Relationships, Substance Use/Abuse,

Leisure/Recreation, Personality/Behavior and Attitude/Orientation (Hoge & Andrews, 2006). Total scores and risk levels are calculated overall and for each subsection.

The YLS/CMI has been shown to be a moderate predictor of general recidivism for young offenders in North America (Catchpole & Gretton, 2003; Jung & Rawana, 1999; Olver, Stockdale, & Wong, 2012; Onifade et al., 2010; Schmidt et al., 2011; Schmidt et al., 2005) and the United Kingdom (Marshall, Egan, English, & Jones, 2006; Rennie & Dolan, 2010a). Although a number of investigations have generated modest AUC index's between 0.5 and .65 for the prediction of general re-offense, (Bechtel, Lowenkamp, & Latessa, 2007; Catchpole & Gretton ,2003; Onifade et al., 2008; Onifade, Smith Nyandora, Daidson, & Campbell, 2010; Schmidt, Hoge, & Gomes, 2005; Welsh et al., 2008) other studies have demonstrated stronger predictive accuracy achieving AUC scores of over .70 (Marshall et al., 2006; Olver et al., 2012; Schmidt, et al., 2011). Similarly, other research has found the YLS/CMI score to demonstrate moderate effect sizes with recidivistic outcome (Olver et al., 2009; Schwalbe, 2008). An Australian adaptation of the tool, entitled the YLS/CMI-AA (Youth Level of Service/Case Management Inventory – Australian Adaptation, Hoge & Andrews, 1995) has shown moderate validity for general recidivism in preliminary investigations involving Australian young offenders serving community orders (Thompson & McGrath, 2011; Thompson & Pope, 2005; Thompson & Putnins, 2003). Additionally, YLS/CMI tools have also demonstrated validity across gender and minority groups (Jung & Rawana, 1999; Olver et al., 2012; Schwalbe, 2008; Stockdale 2008). Concerning rater consistency, the YLS/CMI has previously yielded ICC values of .80 and above (Catchpole & Gretton, 2003; Marczyk, Heilbrun, Lander, & DeMatteo, 2003).

Table 2. ***YLS/CMI – Youth Level of Service/Case Management Inventory***	
Prior and Current Offenses/Dispositions	**Substance Abuse**
Three or more prior convictions	Occasional drug use
Two or more failures to comply	Chronic drug use
Prior probation	Chronic alcohol use
Prior custody	Substance abuse interferes with life
Three or more current convictions	Substance abuse linked to offense(s)
Family Circumstances/Parenting	**Leisure/Recreation**
Inadequate supervision	Limited organized activities
Difficulty in controlling behavior	Could make better use of time
Inappropriate discipline	No personal interests
Inconsistent parenting	
Poor relations (father – youth)	**Personality/Behavior**
Poor relations (mother – youth)	
	Inflated self-esteem
Education/Employment	Physically aggressive
	Tantrums
Disruptive classroom behavior	Short attention span
Disruptive behavior on school property	Poor frustration tolerance
Low achievement	Inadequate guilt feelings
Problems with peers	Verbally aggressive, impudent
Problems with teachers	
Truancy	**Attitudes/Orientation**
Unemployed/not seeking employment	
	Antisocial/procriminal attitudes
Peer Relations	Not seeking help
	Actively rejecting help
Some delinquent acquaintances	Defies authority
Some delinquent friends	Callous, little concern for others
No/few positive acquaintances	
No/few positive friends	

2.4.3 Psychopathy Checklist – Youth Version (PCL: YV)

A youth derivate of the adult tool the Psychopathy Checklist – Revised (PCL-R, Hare, 2003), the PCL: YV was developed to assess psychopathic personality traits and behaviors in adolescents aged 12-18 (Forth, Kosson, Hare, 2003). The inventory has also been found to accurately forecast violent recidivism (Catchpole & Gretton, 2003; Gretton, Hare, & Catchpole, 2004; Schmidt et al., 2011; Stockdale, Olver, & Wong, 2010; Vincent, Odgers, McCormick, & Corrado, 2008; Welsh et al., 2008) and other antisocial behaviours (Das, de Ruiter, & Doreleijers, 2008; Dolan & Rennie, 2006; Kosson, Cyterski, Neumann, Steuerwald, & Walker-Matthews, 2002; Murrie, Cornell, Kaplan, McConville, & Levy-Elkon, 2004; Schmidt, Chattha, Brownlee, & Mckinnon, 2006) across youth custodial and community settings. There has been mixed support for the inventory's efficacy across gender and ethnically heterogeneous samples (Edens & Cahill, 2007; Edens, Campbell, & Weir, 2006; Krischer & Sevecke, 2008; McCoy & Edens, 2006; Stockdale et al., 2010; Vincent et al., 2008).

Resembling the adult version, the PCL: YV comprises four subsections. Factor 1 (Interpersonal), tapping manipulative and deceiving behavior, Factor 2 (Affective) covering empathy and remorse, Factor 3 (Behavioral) addressing lifestyle and stimulus, and Factor 4 (Antisocial) criminal behavior and anger (Forth et al., 2003). Each item is determined on a three point scale (0,1,2) based on how accurately the item matches the personality and behavior of the interviewee. Diagnostic cut-off scores are mostly used for research purposes only due to the negative connotations surrounding the disorder.

Table 3 ***PCL:YV – Psychopathy Checklist: Youth Version***	
Factor 1: Interpersonal	**Factor 3: Behavioral**
Impression management	Stimulation seeking
Grandiose sense of self-worth	Parasitic orientation
Pathological lying	Lacks goals
Manipulation for personal gain	Impulsivity
	Irresponsibility
Factor 2: Affective	
	Factor 4: Antisocial
Lack of remorse	
Shallow affect	Poor anger control
Callous/lack of empathy	Early behavior problems
Failure to accept responsibility	Serious criminal behavior
	Serious violations of conditional release
	Criminal versatility

2.5 Databases

In addition to information extracted from clinical interviews and risk assessment measures, data was obtained from two official databases, the Victoria Police Law Enforcement Assistance Program (LEAP) and the Department of Human Services Client Relationship Information System for Service Providers (CRISSP).

2.5.1 Law Enforcement Assistance Program (LEAP)

The LEAP database contains details of contacts individuals in Victoria have with police as children and adults. This includes all crimes brought to the notice of police including family incidents and missing persons. It includes particulars on the locations, vehicles and persons involved. It also includes all contacts the police have with people as victims or witnesses. The database is online and updated daily. It is used by various areas of the Victoria Police to

produce crime statistics and conduct data analysis. Over 5000 individual statutory and common law offenses are recorded on LEAP and are grouped into 27 broad offense categories. Participants consented to Victoria Police releasing their criminal histories from the LEAP database to researchers, which were de-identified once data matching was complete. Criminal histories included a comprehensive list of police charges up until mid-December, 2012 for each participant.

2.5.2 Client Relationship Information System for Service Providers (CRISSP)

CRISSP is a Department of Human Services (DHS) database and client information and case management system that provides electronic information records for Placement and Support Services, Disability Services and Youth Justice and Early Childhood Intervention Services. The Youth Justice database contains client demographics, case notes and Current/Active Court Order information. Participants consented to DHS releasing their client files from the CRISSP database to researchers.

2.6 Ethical Considerations

Prior to the commencement of data collection, ethics approval was obtained from Monash University Human Research Ethics Committee (MUHREC); Department of Human Services Victoria – Children Youth and Families Division; Department of Human Services Victoria – Human Research Ethics Committee; Victoria Police Research Coordinating Committee (VPRCC); and the Victoria Police Human Research Ethics Committee (VPHREC) (See Appendix 3). The following subsections describe matters pertaining to data collection for this study and the necessary steps undertaken to ensure conformity to ethical standards.

2.6.1 Informed Consent

Participants who had been identified by youth justice workers as being appropriate for inclusion in the study were approached and asked if they would be interested in hearing about the study. If they approved, they were invited to have the study explained to them and given the opportunity to ask questions. If a detainee was unable to speak English they were excluded from the study. If they agreed to participate they were then asked to review a Plain Language Statement which outlined the study and contained information regarding the requirements of the participant (See Appendix 2).

When obtaining informed consent, care was taken to explain clearly to the participant what was involved, and allowed them the opportunity to ask any questions in relation to the study and their involvement. It was explained that they were free to withdraw at any time up until the completion of the interview and that their care and treatment within Youth Justice would not be affected in any way. Participants who had reading difficulties had the Plain Language Statement and Consent Form dictated to them by the researcher. If a detainee was unable to understand the nature of the project or give informed consent, they were not invited to take part in the study. Competence was determined by assessing the participant's ability to comprehend, recall and paraphrase the information related to the project.

After the participant had agreed to be interviewed and the researcher was satisfied with their level of aptitude, the participant was then required to sign the Consent Form (See Appendix 1). During the course of an interview, if a participant became upset, or the researcher felt they were unable to continue, the interview was stopped immediately and the participant was referred to youth justice staff. Participants were permitted to retain the Plain Language Statement which had a contact number and email address for the researchers if the participant had any further questions pertaining to the study. The Plain Language Statement

also included a phone number and email address for VPRCC which could be contacted by the participant if they had a complaint surrounding the data collection procedure.

2.6.2 Use and Disclosure of Information

As the data comprised personal and sensitive information individual scores and records were not published or any other uniquely identifying information. Only aggregate information was published. Each participant was given an individual identification code and all questionnaires and response sheets were labelled with that code. Subjects' names did not appear anywhere on the research material. Lists of names, personal contact details and corresponding identification codes were stored separately from the rest of the research data. Information on paper was stored in a locked filing cabinet at the Monash University Centre for Forensic Behavioural Science. All information contained in a database was stored on a password protected computer, and the file will itself was password protected, at the Monash University Centre for Forensic Behavioural Science. Only those individuals involved with the study had access to the data.

2.7 Procedure

Participants were interviewed individually in private rooms allocated by youth justice custodial centre staff. An allocated staff member was stationed outside the room at all times. The structured interview administered for all participants is presented in Appendix 4. The duration of each interview was approximately 90 minutes. Longer interviews were occasionally required for participants who needed frequent assistance with particular questions or requested short recesses. Participants who decided not to continue with the interview after commencement were offered the opportunity to resume their interview at a

later date. If they declined, the interview was then terminated and the participant was not included in the study. At the conclusion of the interview, the designated youth staff member was alerted and the participant was transferred back to their unit. Participants were given a $30 gift voucher for their contribution provided they completed the entire interview. If an interview was satisfactorily completed, the voucher was given to a youth worker by the researcher, who then transferred the gift card to the participant's personal belongings to be received on their release from custody.

3.0 Chapter Three: Gender Differences across Risk Factors for Violence

3.1 Preamble to Paper 2

The previous paper reviewed the growing body of literature underlining gender-specific risk factors for violence and the dearth of research delineating gendered criminal trajectories. To address these issues, the third chapter comprises the second paper and first study of the thesis which investigates the differences in salient risk factors for violence across young male and female offenders in custody. The prevalence and chronicity of risk markers were identified using the items on the SAVRY risk instrument. A comparison of risk item predominance across gender was conducted. Moreover the paper provides a broader insight into the nature of juvenile violence in Australia.

This paper has been published in *Sage Open*, an interdisciplinary open access peer-reviewed journal reporting research from the behavioral and social sciences (Sage Journals, 2013b). The impact factor of this newly initiated journal has yet to be determined. Co-authors of the paper are Professor Mairead Dolan, a former Professor of Forensic Psychiatry at Monash University, and Dr. Stefan Luebbers, a forensic psychologist at the Clinical Psychology Centre, Monash University, and research fellow at Monash University.

3.2 Declaration for Thesis Chapter 3, Paper 2

Monash University

Declaration by candidate

In the case of Chapter 3, the nature and extent of my contribution to the work was the following:

Nature of contribution	**Extent of contribution (%)**
Study Design, data collection, analysis, write-up.	80%

The following co-authors contributed to the work. Co-authors who are students at Monash University must also indicate the extent of their contribution in percentage terms:

Name	**Nature of contribution**	**Extent of contribution (%) for student co-authors only**
Dr. Stefan Luebbers	Study design, data collection, analysis, write-up.	15%
Prof. Mairead Dolan	Study design, write-up.	5%

Candidate's Signature		**Date**

Declaration by co-authors

The undersigned hereby certify that:

(7) the above declaration correctly reflects the nature and extent of the candidate's contribution to this work, and the nature of the contribution of each of the co-authors.
(8) they meet the criteria for authorship in that they have participated in the conception, execution, or interpretation, of at least that part of the publication in their field of expertise;
(9) they take public responsibility for their part of the publication, except for the responsible author who accepts overall responsibility for the publication;

(10) there are no other authors of the publication according to these criteria;
(11) potential conflicts of interest have been disclosed to (a) granting bodies, (b) the editor or publisher of journals or other publications, and (c) the head of the responsible academic unit; and
(12) the original data are stored at the following location(s) and will be held for at least five years from the date indicated below:

Location(s)	All data are stored at Centre for Forensic Behavioural Science, Monash University.

Signature 1	[redacted]	**Date**
Signature 2		

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Identifying Gender Differences in an Australian Youth Offender Population

Stephane M. Shepherd[1], Stefan Luebbers[1,2] and Mairead Dolan[1,2]

Abstract

The study examined gender differences in risk factors for violence in a sample of 213 male and female youths held in Youth Justice Centres in Victoria, Australia. Although violence risk factors are considered to be commensurate across gender, a growing body of international literature is categorizing gender-specific criminal trajectories. The study aimed to investigate this concept in an Australian juvenile context. Through the use of a widely validated youth violence risk assessment inventory, the prevalence of salient risk items was compared across gender. Young female offenders were found to present with higher levels of family dysfunction, peer rejection and self-injurious behavior reflecting international female offending pathways literature.

Keywords

gender, risk assessment, juvenile, violence, recidivism

Introduction

Youth offending rates are at least double those in adulthood and those who offend as youths are more likely to experience problematic criminal life trajectories (Australian Institute of Criminology [AIC], 2009; Chen, Matruglio, Weatherburn, & Hua, 2005; Richards, 2011). Longitudinal studies suggest that environmental and individual factors contribute to the initiation and maintenance of delinquent behaviors (Aisenberg & Herrenkohl, 2008; Farrington, 1995; Farrington & Loeber, 2000; C. A. Smith & Thornberry, 1995; Valois, MacDonald, Bretous, Fischer, & Drane, 2002). Thus, identifying key risk factors that are important for predicting recidivism and developing risk management and treatment strategies in youths is critical.

A body of research indicates that core risk factors for violence are commensurate across gender (Hare, 1991; Hubbard & Pratt, 2002; Moffitt, Caspi, Rutter, & Silva, 2001; Webster, 1999). However, proponents of gender-specific risk/needs literature propose that pertinent unique experiences play an important role in the development of female criminal trajectories (Blanchette & Brown, 2006; Bloom, Owen, & Covington, 2002; Chesney-Lind, 1997; Daly, 1992, 1994; Funk, 1999; Van Voorhis, Salisbury, Wright, & Bauman, 2008; Van Voorhis, Wright, Salisbury, & Bauman, 2010). Feminist theories of female criminality comprise contexts of familial and domestic abuse, characterized by victimization and dysfunctional relationships (Blum, Ireland, & Blum, 2003; Gavazzi, Yarcheck, & Chesney-Lind, 2006; Hubbard & Pratt, 2002; McCabe, Lansing, Garland, & Hough, 2002; Van Voorhis et al., 2010). The ensuing traumas are connected to truancy, substance abuse, economically motivated delinquency, mental illness, self-injurious behavior, prostitution, and further victimization (Chesney-Lind, 1997; Gavazzi et al., 2006; ; Logan & Blackburn, 2009; Loxley & Adams, 2009; Teplin, Abram, & McClelland, 1996; Timmons-Mitchell et al., 1997; Vincent, Grisso, Terry, & Banks, 2008; Wasserman & McReynolds, 2011). Reports indicate the high rates of mental illness among female offenders compared with their nonoffending female counterparts and male offenders (Australian Institute of Health and Welfare [AIHW], 2012a; Butler & Allnutt, 2003; Cauffman, Lexcen, Goldweber, Shulman, & Grisso, 2007; Loxley & Adams, 2009; Vincent et al., 2008). Female offenders are also more likely to report abusive histories and attempt suicide compared with male offenders (Gavazzi et al., 2006; Johnson, 2004; Kenny & Nelson, 2008). Furthermore, illicit drug use among female offenders is also found to be consistently higher than male offenders and linked to poorer outcomes (Forsythe & Adams, 2009; Loxley & Adams, 2009; McReynolds, Schwalbe, & Wasserman, 2010). Moreover, there is evidence that the base rate of psychopathy in females is much lower than in males (Cale & Lilienfeld, 2002; Nicholls, Ogloff, Brink, & Spidel, 2005; Weizmann-Henelius, Viemaro, & Eronen, 2004) and

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there are gender differences across items (Bolt, Hare, Vitale, & Newman, 2004; Forouzan & Cooke, 2005; Strand & Belfrage, 2005). Feminist writers argue that current risk assessment instruments may overlook such pathways that could ultimately result in misclassifying female offenders (Brennan, 1998; Reisig, Holtfreter, & Morash, 2006; Taylor & Blanchette, 2009). The omission of crucial gender-specific factors for delinquency could also have repercussions for treatment strategies that require an understanding of the etiological issues that prompt female criminality.

There is a paucity of research exploring gender differences on adolescent risk inventories. Given that current official data indicate that young female contact with justice systems appear to be increasing in Australia (AIC, 2011; Holmes, 2010; Victoria Police, 2010), the United States (Puzzanchera & Adams, 2011; Puzzanchera, Adams, & Hockenberry, 2012), Canada (Kong & AuCoin, 2008), and the United Kingdom (Ministry of Justice [MOJ], 2009), there is a need to examine the utility of youth inventories across gender to ensure the relevant dynamics are identified for treatment targets and interventions.

The Structured Assessment of Violence Risk in Youth (SAVRY, see appendix), a violence risk assessment inventory has been shown to predict violent recidivism for young females across custodial settings (Gammelgård, Koivisto, Eronen, & Kaltiala-Heino, 2008; Lodewijks, de Ruiter, & Doreleijers, 2008; Meyers & Schmidt, 2008; Penney, Lee, & Moretti, 2010; Schmidt, Campbell, & Houlding, 2011). In this study, the risk item scores of the SAVRY, which cover Historical, Social/Contextual, and Individual/Clinical factors, will be equated and paralleled across gender.

We anticipate comparable SAVRY total scores between male and female offenders though predict potential differences on domain and individual item scores pertaining to familial and social relationships, mental health, self-harm, and substance abuse in accordance with the literature on gender-specific risk factors for violence.

Method

Participants

A total of 215 male and female youth were recruited from the Youth Justice Centres in Victoria, Australia: Parkville Youth Justice Precinct (PYJP) and Malmsbury Youth Justice Centre (MYJC). PYJP accommodates young men and women aged 10 to 17 years who have been remanded or sentenced by a Victorian court, and young women 18 to 20 years who have been sentenced by a Victorian Court. MYJC accommodates young men aged 18 to 20 years who have been sentenced by a Victorian Court. Two young people were excluded due to incomplete SAVRY data. The final total sample comprised 213 people (175 males, 38 females). This proportion of participants across gender is representative of Australian youth offender facilities where females consist on average 10% of prisoners (Richards & Lyneham, 2010). The mean age of the sample was 16.84 ($SD = 1.83$). Female offenders did not significantly differ on age ($M = 16.39$, $SD = 1.93$) compared with males ($M = 16.94$, $SD = 1.80$; $U = 2{,}770.50$, $z = -1.636$, $p = .102$). The index offenses of participants were Assault (36%), Robbery (17%), Burglary/Theft (17%), and Property Damage (7%). For males, the top three index offenses comprised Assault (37%), Robbery (16%), and Burglary/Theft (12%). For females, the top three were Burglary/Theft (38%), Assault (23%), and Robbery (23%). Approximately half the sample had previously been sentenced to custodial or community orders (48%) with male offenders having a similar number of total previous orders ($M = 4.85$, $SD = 4.13$) compared with female offenders ($M = 3.30$, $SD = 2.75$; $U = 239.00$, $z = -1.038$, $p = .299$). The ethnic breakdown of the sample included English-speaking background (48%), culturally and linguistically diverse (32%), and indigenous (20%). English-speaking background participants represented the Anglo-Saxon/Caucasian majority. Culturally and linguistically diverse participants included minorities from non-English-speaking backgrounds (e.g., Lebanese, Pacific Islander, and African). The indigenous ethnic group included participants with Australian Aboriginal and Torres Strait Islander heritage.

Measures

The SAVRY is a risk inventory that adopts a Structured Professional Judgment (SPJ) paradigm. It was designed to predict violent behavior in youths 12 to 18 years old (Borum, Bartel, & Forth, 2003) and comprises 24 risk markers divided into three subscales assessing Historical, Social/Contextual, and Individual domains (see appendix). The Historical domain includes static items focusing on prior behaviors and experiences. The Social/Contextual domain considers dynamic factors relating to peer relationships and community influences while the Individual domain assesses psychological patterns and behaviors (Borum et al., 2003). The subscales are summed to generate a total risk score. As there are no assigned cutoff scores, a professional arbitration called the "SAVRY risk rating" is proposed after considering all SAVRY factors. The instrument also contains six additional *protective factors* that have been shown to mitigate the risk of recidivism (Lodewijks, de Ruiter, & Doreleijers, 2010; Rennie & Dolan, 2010).

Interrater reliability was measured for 28 (13%; 17 females, 11 males) cases assessed independently by two trained raters. The intraclass correlations (ICCs; single measure) suggested very high concordance—SAVRY total score: ICC = .97 ($\alpha = .98$), SAVRY risk rating: ICC = .97 ($\alpha = .99$), Historical domain: ICC = .96 ($\alpha = .98$), Social/Contextual domain: ICC = .90 ($\alpha = .95$), Individual/Clinical domain: ICC = .94 ($\alpha = .97$), and Protective Factors domain: ICC = .96 ($\alpha = .98$)—supporting the reliability of the SAVRY in the present sample.

Table 1. Mean and Standard Deviation of SAVRY Domain Scores by Gender.

	Male	Female	Overall		
SAVRY domains	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*U*	*r*
Historical domain	10.34 (4.09)	11.84 (4.08)	10.61 (4.12)	$U = 2{,}646.00$, $p = .048$*	.14
Social/Contextual domain	6.71 (2.88)	7.76 (2.82)	6.90 (2.89)	$U = 2{,}627.00$, $p = .042$*	.14
Individual/Clinical domain	9.13 (3.89)	9.21 (4.59)	9.15 (4.01)	$U = 3{,}254.00$, $p = .836$	
Protective Factors domain	1.82 (1.90)	1.42 (1.61)	1.75 (1.85)	$U = 2{,}994.50$, $p = .323$	
SAVRY total score	26.19 (9.47)	28.82 (10.05)	26.66 (9.60)	$U = 2{,}812.50$, $p = .136$	

Note. SAVRY domains and total score verified using a Mann–Whitney *U* test. SAVRY = Structured Assessment of Violence Risk in Youth (Borum, Bartel, & Forth, 2003).
*$p < .05$.

Procedures

The study was approved by the Victorian Department of Human Services and the Monash University Human Research Ethics Committee. Written informed consent was obtained from all participants. Consent for participants under 18 years of age fell within the "mature minor" concept as described in local Victorian legislation where mental competency is determined by the ability of an underage participant to understand or appreciate points pertaining to their partaking in and the nature of the study.

Participants were interviewed individually in a private room allocated by youth justice custodial centre staff. SAVRY coding was completed using information from interviews and youth justice file material and was conducted by master-level researchers who had completed a SAVRY training course.

Data Handling and Analysis

Data were analyzed using SPSS Version 18. Due to unequal sample sizes, group differences in mean scores on the SAVRY domains were examined using a Mann–Whitney *U* test. Chi-square analysis was used to examine group differences on individual SAVRY items. Item scores were dichotomized. A risk rating of "high" denoted higher risk and a rating of "medium/low" combined represented lower risk. Chapman, Desai, Falzer, and Borum (2006) had previously employed a dichotomy of "high/medium" and "low" risk. In this study, we employed a "high" separation as we believe it enabled a clearer identification of participants who strongly presented as high risk on a particular factor.

Results

Gender Differences in SAVRY Domain Scores and Overall Risk Rating

Table 1 shows the means, standard deviations, and *U*-test scores for male and female clients. Overall, approximately 50% of the sample was rated as high risk on the SAVRY risk rating. Both groups had high proportions of their respective totals in the high-risk rating category as shown in Figure 1. The female group had a marginally higher SAVRY total score than the males but this did not reach significance. Females had significantly higher mean scores compared with males on the Historical and Social/Contextual domains.

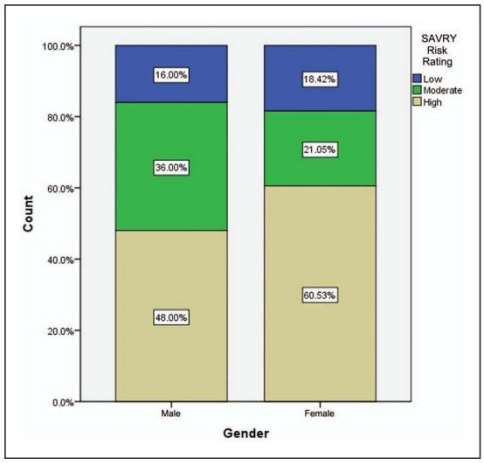

Figure 1. SAVRY risk rating.
Note. SAVRY = Structured Assessment of Violence Risk in Youth.

Gender Differences on SAVRY Individual Items

Table 2 shows the proportions across gender who received a high score on individual SAVRY items. Both genders had large proportions of high ratings on items "History of violence," "History of nonviolent offending," "Peer delinquency," "Substance abuse difficulties," and "Anger management problems." Comparing genders, female youth were significantly more likely than male youth to score highly on items "History of self-harm/suicide attempts,"

Table 2. Proportions of SAVRY Items Rated High Risk by Gender.

SAVRY items	Male	Female	χ^2	Significance	Φ
SAVRY risk rating	48.0	60.5	1.960	.162	
History of violence	76.6	71.1	0.515	.473	
History of nonviolent offending	85.1	86.8	0.072	.788	
Early initiation of violence	37.1	36.8	0.001	.972	
Past supervision/intervention failures	43.4	44.7	0.022	.883	
History of self-harm/suicide attempts	9.1	23.7	6.373	.012*	.17
Exposure to violence in the home	21.7	39.5	5.268	.022*	.16
Childhood history of maltreatment	29.7	42.1	2.206	.138	
Parental/caregiver criminality	20.6	23.7	0.182	.670	
Early caregiver disruption	34.3	65.8	12.921	.000***	.25
Poor school achievement	58.3	71.1	2.131	.144	
Peer delinquency	69.7	65.8	0.225	.635	
Peer rejection	18.9	42.1	9.527	.002**	.21
Stress and poor coping	44.0	55.3	1.594	.207	
Poor parental management	49.7	71.1	5.715	.017*	.16
Lack of personal/social support	31.4	34.2	0.111	.739	
Community disorganization	33.1	50	3.844	.050	
Negative attitudes	40.0	34.2	0.440	.507	
Risk taking/impulsivity	53.7	47.4	0.504	.478	
Substance abuse difficulties	76.6	84.2	1.059	.303	
Anger management problems	58.9	60.5	0.036	.850	
Low empathy/remorse	21.7	18.4	0.203	.652	
Attention deficit/hyperactivity difficulties	26.3	31.6	0.441	.506	
Poor compliance	27.4	31.6	0.266	.606	
Low interest/commitment to school	37.7	42.1	0.254	.614	
Prosocial involvement	40.0	13.2	9.860	.002**	.22
Strong social support	24.0	18.4	0.549	.459	
Strong attachments and bonds	37.1	28.9	0.914	.339	
Positive attitude toward intervention and authority	29.1	31.6	0.089	.766	
Strong commitment to school	18.3	15.8	0.133	.716	
Resilient personality traits	33.1	34.2	0.016	.899	

Note. SAVRY = Structured Assessment of Violence Risk in Youth.
*$p < .05$. **$p < .01$. ***$p < .001$.

"Exposure to violence in the home," "Early caregiver disruption," "Peer rejection," and "Poor parental management."

Looking at protective factors, both genders had low percentages of their cohorts reporting the presence of items "Strong social support" and "Strong commitment to school." Male youth were significantly more likely than female youth to report "prosocial involvement."

Discussion

This study examined gender differences in risk markers of violent offending using the SAVRY in a sample of Australian youth offenders in custody. Male and female youths had similar SAVRY total scores and high portions of their respective samples receiving a high-risk rating. However, there are a number of significant differences across gender at the domain and item levels.

The mean overall SAVRY score ($M = 26.66$) of this sample was higher than previous North American and European studies, which have ranged between 18 and 24 (Dolan & Rennie, 2008; Lodewijks et al., 2008; Schmidt et al., 2011; Spice, Viljoen, Gretton, & Roesch, 2010; Vincent, Chapman, & Cook, 2011; Welsh, Schmidt, McKinnon, Chattha, & Meyers, 2008). It is possible that the comparatively high-risk scores in our sample reflect jurisdictional differences in youth diversionary policies, as only the most severe cases receive a custodial sentence in Victoria, Australia (Sentencing Advisory Council [SAC], 2012). Similarly, female criminal misconduct in Australia and particularly Victoria is more likely to result in community-based penalties compared with males (AIHW, 2012b; SAC, 2012). Therefore, the females in our custodial sample may represent more high-risk female offenders than would be found in other jurisdictions and may mask gender differences in our sample. This may account for

the higher female SAVRY total scores ($M = 28.82$) found in the present study compared with total scores for institutionalized female youth found by Gammelgård et al. (2008) and Lodewijks et al. (2008) at 18 and 19, respectively.

Our study found no significant difference between female and male youth on SAVRY total scores or summary risk ratings. The findings were similar to other SAVRY studies comparing gender (Lodewijks et al., 2008; Penney et al., 2010; Schmidt et al., 2011; Welsh et al., 2008). Furthermore, studies using the Youth Level of Service/Case Management Inventory (YLS/CMI), a general adolescent risk instrument designed to address criminogenic needs (Hoge & Andrews, 2006), have found comparable total scores across gender (Jung & Rawana, 1999; Luong, 2007; Olver, Stockdale, & Wong, 2012; Schmidt et al., 2011; Schmidt, Hoge, & Gomes, 2005; Welsh et al., 2008). Conversely, male offenders have presented with significantly higher total scores and risk ratings compared with females on the SAVRY (Gammelgård et al., 2008; Gammelgård, Weizmann-Henelius, Koivisto, Eronen, & Kaltiala-Heino, 2012) and the YLS/CMI (Onifade et al., 2008). In addition, an Australian study by Thompson and McGrath (2011), albeit in another jurisdiction, found female youth involved with the New South Wales (NSW) juvenile justice system had significantly higher general recidivism risk scores compared with their male counterparts. The inconsistencies between genders on total risk scores may reflect the differences in correctional samples that originate from jurisdictional variations in justice guidelines. Alternatively, these inconsistencies raise questions about the utility of total risk scores when considering gender differences in propensity for violence and the need to consider domain or specific factors.

Domains

Few studies have addressed differences in domain scores across gender. This study found significant gender differences on the Historical and Social/Contextual domains of the SAVRY where females presented with higher mean scores than males. This suggests that the adverse life experiences and the current criminogenic social circumstances of the females in this sample were more severe than their male counterparts. Previous studies exploring gender differences across SAVRY domains have produced inconsistent findings. Two studies found no significant gender differences across domains (Gammelgård et al., 2008; Meyers & Schmidt, 2008), conversely one study found males had significantly higher scores than females on the Individual/Contextual domain (Penney et al., 2010). Studies looking at gender differences in the YLS/CMI domains have also had inconsistent findings with some reporting no gender differences (Jung & Rawana, 1999; Schmidt et al., 2005), though others report gender differences in at least one domain (Olver et al., 2012; Schmidt et al., 2011; Thompson & McGrath, 2011).

Looking at protective factors, the domain mean totals of the present study were in line with previous SAVRY studies (Dolan & Rennie, 2008; Lodewijks et al., 2008; Schmidt et al., 2011) and no significant domain differences were discovered across gender. The quantity of protective factors displayed appears similar across gender, though there were discrepancies in individual factor occurrence. As the literature on gender differences across domain totals is meager and inconsistent, an examination of gender differentiation on the individual items contributing to the domain scores is of more benefit.

Individual Items

At the individual item level, both genders had over half their respective cohorts receiving a high-risk rating on a number of items. Although a history of violent and nonviolent offending was common (>70%) in males and females, rates did not significantly differ. Previous SAVRY research has found strong correlations between the Historical domain, which contains these items, and future violent recidivism for male and female youth in custody (Dolan & Rennie, 2008; Gammelgård et al., 2008; Penney et al., 2010). In addition, studies on the YLS/CMI suggest that the "Criminal history" item predicts future recidivism across gender. Previous offending is known to be a significant predictor of future recidivism (Farrington, 1995; Farrington & Loeber, 2000; Lynch, Buckman, & Krenske, 2003; Moffitt, 1993) and appears to be a consistent risk marker across the genders. The lack of gender differences in rates of prior offending in this study may reflect data suggesting that adolescent female offending is increasing more steadily than male offending. Research suggests that increases in rates of female violence are more the result of net-widening risk management policy shifts resulting in a greater number of females being processed as offenders rather than cogent changes in female behavior (Carrington, 2006; Deakin & Spencer, 2003; Steffensmeier, Schwartz, Zhong, & Ackerman, 2005). Nonetheless, in a severe sample of chronic male and female youth offenders, it is likely that both groups would share similar problematic criminal histories.

The item "Peer delinquency" was similarly prevalent (>65%) in our cohort. This is consistent with research showing that youth gang membership is often a precursor to antisocial behavior (Battin, Hill, Abbott, Catalano, & Hawkins, 1998; Thornberry, 1998) and reports that delinquent females are frequently involved in illegal gang activity (Moore & Hagedorn, 2001). While similar levels of peer delinquency are observed, the role and influence these relationships have on offending may differ across the genders. In particular, research describes the specific influence antisocial male partners and acquaintances can have on females with respect to offending behavior (Chesney-Lind, Morash, & Stevens, 2008; Foster, Hagan, & Brooks-Gunn, 2004; Heilbrun et al.,

2008; Robertson & Murachver, 2007; Schaffner, 2006; Stattin & Magnusson, 1990), suggesting that peer delinquency may represent a greater risk marker for females compared with males.

Gender differences were noted with females receiving higher risk ratings than males on items reflecting problematic family and peer group relationships. This is consistent with reports that a high proportion of imprisoned females lack stable and supportive families (Chesney-Lind et al., 2008; Gavazzi et al., 2006; Hubbard & Pratt, 2002; McCabe et al., 2002; Van Voorhis et al., 2010). Moreover, family factors tapping caregiver–child interaction and connectedness have been found to be a better predictor of female offending than for males (Blum et al., 2003; Farrington & Painter, 2004; Funk, 1999). Previous studies using the YLS/CMI have found that females are significantly more likely to score higher than males on the "Family" domain that addresses inadequate supervision and poor relationships with parents (Olver et al., 2012; Schmidt et al., 2011, Thompson & McGrath, 2011). As inadequate parental supervision and communication is linked with future delinquency (Capaldi & Patterson, 1996; Gavazzi et al., 2006; Loeber & Stouthamer-Loeber, 1986), family-based interventions such as multisystemic therapy may be of particular value in reducing offending behavior in females (Henggeler, Melton, & Smith, 1992; Schaeffer & Borduin, 2005), who are thought to be more adversely affected than males when family and social bonds are disrupted (Cernkovich & Giordano, 1987; Funk, 1999; Gilligan, 1982; Van Voorhis et al., 2010).

In the present study, females had significantly higher rates of peer rejection than males. Negative developmental experiences with peers have been identified as risk factors for future delinquency (Hubbard & Pratt, 2002; Kupersmidt, Coie, & Dodge, 1990; Moffitt et al., 2001). Gender-specific literature suggests that female pathways to crime often originate from abusive, chaotic, lawless homes and relationships (Blum et al., 2003; Daly, 1992, 1994; Hoyt & Scherer, 1998; Owen & Bloom, 1995; Simpson, Yahner, & Dugan, 2008). The relatively high female SAVRY total scores from our sample are likely to reflect the presence of these "pathway" items.

Witnessing violence in the home is a risk factor for future violence and aggression, particularly as youths model their behavior on the interactions and responses of their caregivers (Elliott, 1994; Herrera & McCloskey, 2001). In this study, females were significantly more likely than males to have had exposure to violence at home. Indeed, our female sample frequently reported periods of homelessness and domestic abuse from older and often delinquent partners suggesting that they are leaving dysfunctional families and entering into disharmonious relationships with partners.

Furthermore, females were significantly more likely than males to have a history of self-harm or suicide attempts. The latter finding is consistent with previous research (Indig et al., 2010; Miller, 1994; Veysey & Hamilton, 2007) and in earlier SAVRY studies (Gammelgård et al., 2008; Lodewijks et al., 2008; Penney et al., 2010). Female prisoners are reported to have suffered high rates of physical and sexual trauma (Chesney-Lind et al., 2008; Forsythe & Adams, 2009; Indig et al., 2010; Johnson, 2004; Rettinger & Andrews, 2010; Siegel & Williams, 2003; Wasserman & McReynolds, 2011), which may in turn contribute to subsequent psychiatric symptomatology (Belknap & Holsinger, 2006; Teplin, Abram, McClelland, Dulcan, & Mericle, 2002; Timmons-Mitchell et al., 1997; Tye & Mullen, 2006; Vincent et al., 2008). Self-injury in female offenders tends to be associated with high rates of psychopathology as well as an increased risk for violent recidivism (Vollm & Dolan, 2009) making this a significant treatment target for female offenders.

Substance abuse rates were high in the cohort with more than three quarters of males and females receiving a high-risk rating for this item, indicating chronic drug and alcohol use. Although there were no gender differences in rates of substance abuse, our data are consistent with other studies noting a high prevalence of substance use among youth offenders (Prichard & Payne, 2005; Sedlak & McPherson, 2010; Wei, Makkai, & McGregor, 2003). Previous studies have found higher rates of problematic substance use among female offenders (Coid et al., 2009; Forsythe & Adams, 2009; Gately, Fleming, Morris, & McGregor, 2012; Indig et al., 2010; Loxley & Adams, 2009). Female offenders have been found significantly more likely than males to score higher on the "Substance Abuse" domain using the YLS/CMI (Olver et al., 2012; Thompson & McGrath, 2011) and its adult version, the Level of Service Inventory–Revised (LSI-R; Heilbrun et al., 2008). Furthermore, Andrews et al. (2012) found the substance abuse item on the LSI-R to be a stronger predictor of recidivism for female offenders. As drug and alcohol abuse are key situational factors that inhibit rational responses and intensify violent behavior (Farrington & Loeber, 2000; Hoaken & Stewart, 2003; Morgan & McAtamney, 2009), substance abuse needs to be a key treatment target in offense reduction programs for both genders.

In this study, the prevalence of protective factors was low in both genders and this may have contributed to our high total scores given that protective factors appear to mitigate violent reoffending (Lodewijks et al., 2010; Rennie & Dolan, 2010). There were no striking gender differences on each item other than females having significantly lower levels of prosocial involvement compared with males. This finding contrasts with that of Gammelgård et al. (2012) who found higher rates of prosocial involvement among females. The findings appear to suggest that deviant social peers may have a greater influence on offending behavior in Australian female offenders and that the development of more prosocial bonds will be critical in reducing offending behavior.

Limitations

Some limitations to the study are worth noting. The female youth cohort in this study may not truly represent the majority of female offenders outside of Victoria, particularly due to the jurisdictional policy of detaining youth as a last resort, resulting in only the most severe female youths ending up in custody. Conversely, the results may generalize to the high-risk end of young female offenders. Second, the female sample size was small and comparatively lower than the male cohort. The disparity is a reflection of the predominance of male criminality and low proportion of females in the juvenile and adult justice systems in Australia. While nonparametric analyses were conducted to account for the discrepant sample sizes, this did reduce the power of resultant analyses and the size of effects that could be detected. As such, there could potentially be further differences between males and females that went undetected. Conversely, the effects that were observed in this study are likely to be larger in the population than were observed. Nevertheless, the size of the female sample was similar to previous SAVRY studies comparing gender (Lodewijks et al., 2008; Meyers & Schmidt, 2008; Schmidt et al., 2011). Last, the predictive validity of the SAVRY instrument was not conducted. The theme of the article was to identify how the prevalence and severity of risk items may differ between male and female young offenders in a particularly violent sample. As the SAVRY instrument encompasses a concert of pertinent antecedents to youth violence, it was selected primarily as a checklist for gender comparison.

Conclusion

The study contributes to extant literature on risk factors for youth violence risk, though undertaken in a unique Australian youth justice context. Gender differences on SAVRY domains and individual items were discovered. Factors including family dysfunction/breakdown, peer rejection, and self-harming behavior were found to be overrepresented among female offenders. The findings reflect the literature on gendered pathways to offending and in particular highlight cogent female-specific risk factors that may manifest through experiences of abuse and associated trauma. The findings add to the growing base of gender-specific research highlighting a common array of risk factors shared by young and adult female offenders. Multifaceted gender responsive treatment programs focusing on connectivity and emotional guidance, empowerment, repairing relationships, and specific services providing support for trauma, abuse, child care, employment opportunities, and drug dependency could provide unique holistic support in addressing key needs. Further research is required to determine the validity of the SAVRY and other widely used youth violence risk prediction instruments across gender in Australian young offender populations.

Appendix

Structured Assessment of Violence Risk in Youth (SAVRY; Borum, Bartel, & Forth, 2003).

Historical factors	*Social/contextual risk factors*
History of violence	Peer delinquency
History of nonviolent offending	Peer rejection
Early initiation of violence	Stress and poor coping
Past supervision or intervention failures	Poor parental management
History of self-harm or suicide attempts	Lack of personal or social support
Exposure to violence in the home	Community disorganization
Childhood history of maltreatment	*Individual/clinical risk factors*
Parental or caregiver criminality	Negative attitudes
Early caregiver disruption	Risk taking/impulsivity
Poor school achievement	Substance use difficulties
Protective factors	Low empathy/remorse
Prosocial involvement	Attention deficit/hyperactivity difficulties
Strong social support	Poor compliance
Strong attachment and bonds	Low interest/commitment to school
Positive attitude toward intervention and authority	
Strong commitment to school	
Resilient personality traits	

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Author Biographies

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4.0 Chapter Four: Risk Assessment Approaches across Ethnicity

4.1 Preamble to Paper 3

Similar to the previous paper, this study aimed to delineate and compare the prevalence in risk factors for violence in Australian youth in detention. However for this paper, the frequency of pertinent risk items for violence was explored across three ethnic subgroups, English Speaking Background (ESB), Culturally and Linguistically Diverse (CALD) and Indigenous (IND). The findings supplement the paucity of literature examining criminal trajectories across ethnic groups in Australia. Results from this study and the previous study in combination provide an overall characterisation of risk factors for violence for a typical Australian youth custodial sample. The study also investigated the ability of the SAVRY to predict general and violent recidivism accurately for the three ethnic subgroups. This is the first study testing the validity of the SAVRY instrument in Australian conditions. Findings are relevant for determining the applicability of the youth instrument in different regions and for those from diverse cultural backgrounds.

This paper was submitted and accepted for publication by the journal *Psychology, Public Policy and Law*, a peer-reviewed quarterly publication disseminating scholarly research on the interaction and influence of psychology on political and legal issues. The current impact factor of the journal is 1.933 (American Psychological Association, 2013). Co-authors of the paper are Professor Mairead Dolan, a former Professor of Forensic Psychiatry at Monash University, and Dr. Stefan Luebbers, a forensic psychologist at the Clinical Psychology Centre, Monash University, and research fellow at Monash University. Dr. Murray Ferguson, a Clinical Psychologist and Research Fellow affiliated with Monash University, and Professor James Ogloff, Director of the Centre for Forensic Behavioural Science, Monash University, Victoria.

4.2 Declaration for Thesis Chapter 4, Paper 3

Monash University

Declaration by candidate

In the case of Chapter 4, the nature and extent of my contribution to the work was the following:

Nature of contribution	**Extent of contribution (%)**
Study Design, data collection, analysis, write-up.	65%

The following co-authors contributed to the work. Co-authors who are students at Monash University must also indicate the extent of their contribution in percentage terms:

Name	**Nature of contribution**	**Extent of contribution (%) for student co-authors only**
Prof. James Ogloff	Study design, analysis, write-up.	15%
Dr. Stefan Luebbers	Study design, data collection, analysis, write-up	10%
Dr. Murray Ferguson	Data collection, write-up.	5%
Prof. Mairead Dolan	Study design, write-up.	5%

Candidate's Signature		**Date**

Declaration by co-authors

The undersigned hereby certify that:

(13) the above declaration correctly reflects the nature and extent of the candidate's contribution to this work, and the nature of the contribution of each of the co-authors.
(14) they meet the criteria for authorship in that they have participated in the conception, execution, or interpretation, of at least that part of the publication in their field of expertise;
(15) they take public responsibility for their part of the publication, except for the responsible author who accepts overall responsibility for the publication;
(16) there are no other authors of the publication according to these criteria;
(17) potential conflicts of interest have been disclosed to (a) granting bodies, (b) the editor or publisher of journals or other publications, and (c) the head of the responsible academic unit; and
(18) the original data are stored at the following location(s) and will be held for at least five years from the date indicated below:

Location(s)	All data are stored at Centre for Forensic Behavioural Science, Monash University.

Signature 1	[redacted]	**Date**
Signature 2		
Signature 3		
Signature 4		

4.3 Confirmation of acceptance for publication for Paper 3

Dear Dr. Shepherd:

Thank you for submitting your revised manuscript, Manuscript 2013-0167 : The utility of the SAVRY across ethnicity in Australian young offenders, to Psychology, Public Policy, and Law. I have read the revision closely myself and I am satisfied that you have addressed the concerns expressed by reviewers of the original submission. I am thus delighted to accept this interesting paper for publication in its present form. Congratulations! Please complete and submit the documents (at the link below) at your earliest convenience.

I am glad you considered Psychology, Public Policy, and Law as a venue for publication of your research and look forward to seeing your paper in print. I also hope you'll continue to submit other examples of your work to the journal.

Sincerely yours

The utility of the SAVRY across ethnicity in Australian young offenders

Stephane M. Shepherd, Stefan Luebbers, Murray Ferguson,

James R. P. Ogloff, & Mairead Dolan

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Abstract

This research identified the presence and severity of salient risk factors for violence and assessed the predictive validity of the *Structured Assessment of Violent Risk in Youth* (SAVRY) for an Australian young male offender cohort held in detention. As the bulk of previous research has focused on European and North American Caucasian youth, comparisons were made between participants from Australian ethnic subgroups: English Speaking Background (ESB), Culturally and Linguistically Diverse (CALD), and Indigenous and Torres Strait Islanders (IND). The study found the instrument to moderately predict general and violent recidivism across the larger cohort and the SAVRY Risk Rating was able to differentiate between times to re-offense. However, the predictive validity differed significantly across ethnic subgroups with moderate to strong predictive accuracy for the ESB group, poor predictive accuracy for the CALD group, and only particular SAVRY scores attained significant accuracy for the IND group. Findings on subgroup risk factors were considered in light of contemporary understandings of the unique experiences and trajectories of minority youth. Future investigation is necessary to differentiate and characterize the risk factors and offending patterns of the ethnicities within the CALD classification.

Key Words: Youth Violence, Risk Assessment, Recidivism, Ethnicity, Juvenile Offending.

Introduction

Over the past two decades there has been a growth in the development of standardized adolescent violence risk assessment instruments. Given the reported problematic rates of youth violence and antisocial behavior in Australia, New Zealand, the USA and the UK, risk assessment and prediction is vital in identifying and addressing early factors that may contribute to future offending. In light of these of these concerns, empirical research addressing the critical factors that underlie adolescent antisocial behavior has facilitated the advancement of youth violence risk assessment instruments.

The development of empirically validated risk assessment has followed research underlining the inaccuracy of traditional clinical approaches (Grove & Meehl, 1996; Webster, Douglas, Eaves, & Hart, 1997a; Monahan & Steadman, 1994). Subsequently, actuarial risk assessment tools were developed, comprising an empirically driven algorithmic process combining statistically appropriate factors of risk. Though based largely on static risk factors, actuarial tools have often shown greater predictive accuracy compared to unstructured clinical methods (Quinsey, Harris, Rice, & Cormier, 2006). This second generation of risk assessment culminated in instruments such as the Violence Risk Appraisal Guide (VRAG, Harris, Rice, & Quinsey, 1993), the Sex Offender Risk Assessment Guide (SORAG, Quinsey, Rice, Harris, & Cormier, 2006) and the Static-99 (Hanson & Thornton, 2000).

A subsequent approach, Structured Professional Judgement (SPJ), embodies a so-called third generation of risk assessment where the clinician ascertains a patient's risk for violence thorough the consideration of static and dynamic risk factors that are likely to contribute to future violence. Furthermore, SPJ tools commonly include a clinical override opportunity to alter the risk level of the patient if deemed necessary (Conroy & Murray, 2007; Borum, Bartel, & Forth, 2003; Douglas, Cox, & Webster, 1999). The Historical,

Clinical, Risk Management-20 (HCR-20, Webster, Douglas, Eaves, & Hart, 1997b), an SPJ violence risk assessment measure for adults, has demonstrated utility in the prediction of violent recidivism (Douglas, Ogloff, Nicholls, & Grant, 1999; Gray, Taylor, & Snowden, 2008) and other adverse clinical outcomes (Dolan & Blattner, 2010; Dolan & Khawaja, 2004).

There has been relatively less research regarding the predictive validity of measures for use with adolescents. The Structured Assessment of Violence Risk in Youth (SAVRY, Borum et al., 2006) is a violence specific risk inventory designed to ascertain an adolescent's level of violence risk. Several studies have demonstrated the utility of the SAVRY across correctional (Catchpole & Gretton, 2003; Dolan & Rennie, 2008; Lodewijks et al., 2008a; Lodewijks et al., 2008b; Meyers & Schmidt, 2008; Penney et al., 2010; Schmidt, Campbell, & Houlding, 2011; Singh et al., 2011; Spice et al., 2010; Vincent et al., 2011; Welsh et al., 2008), treatment (Gammelgard et al., 2008; Lodewijks et al., 2008c; Viljoen et al., 2008) and community settings (McGowan et al., 2011). The SAVRY was also found to have the highest rate of predictability in a meta-analysis of nine commonly used adult risk instruments (Singh et al., 2011).

To date, few studies exist that examine the predictive validity of violence risk measures for youth. Fewer studies address the predictive accuracy of risk assessment tools across ethnic minority groups (Gutierrez, Wilson, Rugge, & Bonta, 2013; Hsu, Caputi, & Byrne, 2010; Mooney, 2010; Olver et al., 2012; Olver et al., 2009; Smallbone & Rallings, 2013; Singh et al., 2011; Thompson & McGrath, 2011; Watkins, 2011; Welsh et al., 2008) as the majority of participants in the studies have been Caucasian youth. In US study, Vincent, Chapman, and Cook (2011) found that the SAVRY could accurately predict violent recidivism across ethnic groups; however, they also found that total SAVRY scores were lower for African-Americans than their Caucasian counterparts. Similar findings were

reported by Chapman, Desai, Falzer, and Borum (2006), but they also noted that African Americans had higher scores on a number of the protective factors compared to Caucasians. Meyers and Schmidt (2008) found SAVRY total scores predicted violent recidivism for Caucasians and Native Canadians, but the latter group had higher mean total scores.

Some studies in mixed ethnic samples report sound predictive accuracy for the SAVRY overall, but they did not examine differences in predictive accuracy between ethnic groups (Lodewijks et al., 2008c; Welsh et al., 2008). Criminal data indicate the overrepresentation of ethnic minorities particularly African Americans, Hispanic Americans and Indigenous groups across North America (Landry & Sinha, 2008; Latimer & Foss, 2005; Puzzanchera, 2009a, 2009b). Additionally, black juvenile offenders have been found to have the highest reoffending rates of all groups in the United Kingdom (Ministry of Justice [MoJ], 2012). In Australia and New Zealand, data suggests Indigenous groups and Torres Strait Islanders (Australian Aboriginal & New Zealand Maori) are overrepresented in arrest and detention rates (Allard, 2010; Nadesu, 2007; Poletti & Brignell, 2012; Richards, 2011a). Indigenous Australian youths are 18 times more likely than non-Indigenous youths to be in detention (Australian Institute of Health and Welfare [AIHW], 2012b). Literature suggests a combination of discriminatory legal practices, low socio-economic status, marginalisation and the consequences of colonisation are precursors to the problematic risk factors and negative experiences that contribute to high rates of offending among Australia's Indigenous population (Lincoln, Lynch, O'Connor, & Ogilvie, 1997; Stanley, Tomison, & Pocock, 2003; Wundersitz, 2010). Other ethnic minority groups in Australia share similar difficulties concerning assimilation, criminal over-representation, disenfranchisement and racism (Bartels, 2011; Baur, 2006; Collins & Reid, 2009; Noble & Poynting, 2010).

Research on the unique experiences and criminal trajectories of minority groups pose questions regarding the ability of risk instruments to generalize to these diverse groups given

that they are based on risk factors identified from on Caucasian offenders. A review of the literature indicates that Australian ethnic groups endure distinctive historical and assimilation experiences that may result in varying SAVRY scores. Therefore, an inability to identify the correct risk factors for offending has repercussions for treatment and case management decisions. Specific problematic factors unique to particular ethnic groups may require more precise and culturally sensitive approaches.

This paper examined the prevalence of risk factors for violence using the items on the SAVRY instrument across three ethnic groupings in an Australian youth offender population (English speaking background, culturally and linguistically diverse, and Aboriginal). A preliminary analysis of the dispersion of risk factors across ethnic groups could identify salient differences between subgroups on risk domains and individual items thus providing a meaningful summary of potential targets for treatment and intervention. The paper also tested the cross cultural validity of the SAVRY. This is also the first study to validate the SAVRY in an Australian youth justice context.

Method

Participants

A total of 177 male participants were recruited from the Victorian Youth Justice Centres; Parkville Youth Justice Precinct (PYJP) and Malmsbury Youth Justice Centre (MYJC). PYJP accommodates young men and young women aged 10 to 17 years who have been remanded or sentenced by a Victorian court, and young women aged 18 to 20 years who

have been sentenced by a Victorian Court. MYJC accommodates young men aged 18 to 20 years who have been sentenced by a Victorian Court.

Victoria is a state in the South-East of Australia with a population of 5.5 million (Population Bulletin, 2012). Victoria commonly has lower detention rates (0.12 per 1000) compared to other Australian states and territories due to an emphasis on diversionary policies (AIHW, 2012a; Sentencing Advisory Council [SAC], 2012).

The inclusion of 18-20 year olds in the youth sample was predicated on Victoria's 'dual track' policy that differentiates offenders in this age group as subject to either adult or adolescent criminal justice systems. This system is reserved for a subset of young adult offenders who are particularly impressionable, immature or likely to be subject to undesirable influences in adult prison, and who have reasonable prospects for rehabilitation (see Luebbers & Ogloff, 2011).

Demographics

Two young people were excluded due to inadequate collateral information to complete SAVRY coding. The final total sample comprised 175 young people. The distribution of the cultural background, age, and number of previous dispositions of the sample is shown in Table 1. Cultural categories were divided between those who self-identified as English Speaking Background (ESB), Culturally and Linguistically Diverse (CALD) or Indigenous groups and Torres Strait Islanders (IND). CALD groups in an Australian context comprise minorities from a range of non-English speaking backgrounds (Mukherjee, 1999; Sawrikar & Katz, 1999). The CALD group in this study included participants of African, Asian, Middle Eastern and Pacific Islander/Maori descent. The

Indigenous group were significantly younger (M = 16.28 years, SD = 1.75) than the ESB group (M = 16.96 years, SD = 1.68) and the CALD group (M = 17.25 years, SD = 1.93); $F(2,172) = 3.121$, $p < .05$). Participants who were between 18 and 20 years of age comprised 33.7% of the total sample. Of the young adult subset, 47.5% were ESB, 44.1% were CALD and 8.5% were IND.

All participants had a history of violence and 97% of the sample had previously received a charge for a violent offense. The principal Index offenses of the cohort included Assault 48%, Theft 14.9%, Property Damage 6.9%, Breach a legal order 4.7%, Weapons Offenses 3.4%, and Homicide 2.9%. No significant index offense distribution variances were detected across ethnic groups. Approximately 70% of the sample had previously been sentenced to custodial or community dispositions. While Indigenous youth exhibited a higher mean number of total previous orders compared to ESB and CALD groups respectively this difference was not statistically significant.

Measures

The Structured Assessment of Violence Risk in Youth (SAVRY) is a Structured Professional Judgment instrument designed to predict violent behavior in young people aged 12-18 years (Borum et al., 2006). It comprises 24 risk items separated across three subscales assessing Historical, Socio/Contextual and Individual domains. Historical Risk Factors include static items focusing on prior behaviors and experiences. The Social/Contextual domain considers dynamic factors concerning peer relationships and community influences whilst the Individual domain assesses psychological patterns and behaviors (Borum et al., 2006). For research (not clinical) purposes, a variable called "SAVRY Risk Total" is sometimes used to represent the contribution of the instrument, where the subscales are summed to generate a

total risk score. The SAVRY Risk Total is calculated by transposing item ratings of Low, Moderate, and High to numerical values of 0, 1, and 2, respectively, and summing the values. As there are no assigned cut-off scores, a professional arbitration called the 'SAVRY Risk Rating' is proposed after considering all SAVRY factors. To "quantify" the risk judgments for research purposes, the Summary Risk Ratings (of Low, Moderate, and High) may be similarly transposed to the numeral values of 0, 1, and 2. The instrument also contains 6 additional Protective Factors which have been shown to be related to a lower risk of recidivism (Lodewijks, de Ruiter, & Doreleijers, 2010; Rennie & Dolan, 2010a). Protective factor items can be scored as 0 (Absent) or 1 (Present) and summed into a total Protective factor score.

Ethics

The study was approved by the Victorian Department of Human Services and the Monash University Human Research Ethics Committee. Written informed consent was obtained from all participants. Consent for participants under 18 years of age fell within the 'mature minor' concept as described in local Victorian legislation where mental competency is determined by the ability of an underage participant to understand or appreciate points pertaining to their partaking in, and the nature of the study.

Procedure

Participants were interviewed individually in a private room within the youth justice centres. The duration of each interview was approximately 90 minutes. SAVRY coding was completed using information from the clinical interviews and Client Relationship Information System for Service Providers (CRISSP) data extracted from the Victorian Department of Human Services database. Interviews and SAVRY coding were conducted by Monash University clinician-researchers who had completed a SAVRY training course.

Inter-rater Reliability

Inter-rater reliability was measured for 11 (6.3%) SAVRY cases assessed independently. The Intra-class Correlations (single measure) suggested very high concordance, [SAVRY Total Score: ICC = 1.00 (α = 1.00), SAVRY Summary Risk Rating: ICC = 1.00 (α = 1.00), Historical Domain: ICC = .97 (α = .99), Socio/Contextual Domain: ICC = .96 (α = .98), Individual/Clinical Domain: ICC = .96 (α = .98), Protective Factors Domain: ICC = .99 (α = 1.00)], supporting the reliability of the SAVRY in the present sample.

Recidivism

Follow-up data were collected for up to 18 months and all participants had follow-up data for at least 6 months. The minimum follow-up time period was deemed sufficient given that 54% of the sample reoffended within 90 days of assessment. Participants consented to Victoria Police releasing their de-identified criminal histories from the Victorian Police Law Enforcement Assistance Program (LEAP) database, to researchers. General Recidivism was defined as any future incident that resulted in a Police charge (excluding technical breaches of orders and parole) and similarly, Violent Recidivism was defined as any personal injury transgression that led to a police charge. A violent crime is generally described as acts intended to cause or threaten to cause physical harm to a victim (Borum et al., 2006; Bricknell, 2008). This categorization commonly comprises crimes such as Homicide, Assault, Robbery and Sexual Assault (Bricknell, 2008). Analyses were based on the date of the offense that resulted in a charge rather than the date the charge was laid.

Data handling and analysis

Data were analysed using IBM SPSS Statistics version 19. Group differences in mean scores on the SAVRY domains were examined using analysis of variance (ANOVA). Chi squared analyses were used to examine group differences on individual SAVRY items. Item scores were dichotomized. A risk rating of 'high' (or a score of 2) denoted high risk and a rating of 'medium/low' (a score of either 0 or 1) represented lower risk. Chapman et al. (2006) had previously employed a dichotomy of 'high/medium' and 'low' risk. In the study we employed a 'high' separation as we believe it enabled a clearer identification of participants who strongly presented as high risk on a particular factor. This separation also seemed appropriate given the large proportion of clients presenting as high risk. Predictive validity of the SAVRY for general and violent recidivism was assessed using Receiver Operating Characteristic [ROC] analysis. ROC analysis provides an Area Under the Curve (AUC) value by charting sensitivity against specificity. The score determines the probability that a randomly selected recidivist would score higher than a randomly selected non-recidivist. Kaplan-Meier survival analyses were conducted to show the time elapsed until re-offense (official record of police charges).

Results

Item and Domain Analyses

The mean and standard deviation of Total and Domain Scores for the SAVRY across ethnic subgroups are presented in Table 2. Results showed that both the Indigenous and ESB groups had significantly higher Total and Historical Domain scores compared to the CALD

group. Overall, the Indigenous group had the highest mean scores for the SAVRY total score, Historical Domain and Socio/Contextual Domain, while the ESB group had the highest mean Individual/Clinical Domain score of the three groups. There were no significant differences for protective factor scores across groups.

Age correlated negatively with all SAVRY domains except for the Protective Factor domain where age demonstrated a significant positive correlation (r = .316, p < .001). As the IND group had a significantly lower mean age compared to the ESB and CALD groups in the study, age was selected as a covariate in an ANCOVA. After covarying age, the significant group differences remained (Wilks' λ=0.84, $F(2,171) = 2.987$, p <.01, η^2 = .082). Follow-up univariate analysis found differences between groups on the Total score ($F(2,171) = 4.210$, p < .05, η^2 = .047) and Historical Domain ($F(2,171) = 6.748$, p < .01, η^2 = .073). Post hoc (LSD) analysis demonstrated that both the ESB and IND groups still had significantly higher mean Total and Historical scores compared to the CALD group. The results suggest that age did not significantly confound SAVRY score dissemination across ethnicity.

Figure 1 displays the proportion of SAVRY risk scores across ethnic groups. Overall, 48% of the total sample was rated as high risk. The IND group were significantly more likely to rate as high risk compared to the CALD group $\chi^2(1) = 6.248$, p < .05, but was not significantly different from the ESB group.

Group differences across SAVRY items

Table 3 displays chi-square analyses of SAVRY items across the ethnic groups and the percentage of those in each category that received a rating of 2 (High) for that particular item. Items that were disproportionately rated as high risk across all groups were 'History of

violence', 'History of nonviolent offending', 'Peer delinquency', 'Substance abuse difficulties', and 'Anger management problems'.

Post-hoc pairwise analyses were conducted to ascertain group differences on SAVRY items that reached omnibus significance. Bonferroni correction was applied and the adjusted significance was evaluated at $p < .02$. ESB participants were significantly more likely than CALD participants to score high on the items 'Past supervision or intervention failure' ($\chi^2(1) = 8.671$, $p = .003$, $\Phi = .25$), 'Parental or caregiver criminality' ($\chi^2(1) = 9.751$, $p = .002$, $\Phi = .26$), 'Poor school achievement' ($\chi^2(1) = 5.706$, $p = .017$, $\Phi = .20$), 'Substance use' ($\chi^2(1) = 7.327$, $p = .007$, $\Phi = .23$), 'Attention deficit hyperactivity difficulties' ($\chi^2(1) = 5.681$, $p < .017$, $\Phi = .20$) and 'Low interest of commitment to school' ($\chi^2(1) = 5.769$, $p = .016$, $\Phi = .20$).

IND participants were found to be significantly more likely to score high risk than ESB participants ($\chi^2(1) = 8.891$, $p = .003$, $\Phi = .28$) and CALD participants ($\chi^2(1) = 28.880$, $p < .001$, $\Phi = .56$) for the item, 'Parental or caregiver criminality'. On the item 'Substance Abuse', the IND group were significantly more likely to rate higher than the CALD group ($\chi^2(1) = 8.632$, $p = .003$, $\Phi = .31$).

CALD participants were found to be more likely to rate highly on the item 'Low Empathy/Remorse' ($\chi^2(1) = 5.040$, $p = .025$, $\Phi = .23$) though non-significant, compared to the IND group. CALD participants were also more likely than the IND group to present with the protective factor 'Strong social support' ($\chi^2(1) = 10.293$, $p = .001$, $\Phi = .34$) and more likely than the IND group to demonstrate 'Pro-social involvement' ($\chi^2(1) = 9.819$, $p = .002$, $\Phi = .19$).

Outcome and time to event across SAVRY Risk Rating categories and ethnic groups

The outcome sample was reduced to 139 participants as 17 participants had not been released from custody during the follow up period, 21 did not provide consent to access their police records and two were not released and also did not provide consent to access their police records. During the follow up period, 104 (74.8%) of the total sample was charged by police for any new offense and 82 (59.0%) for a new violent offense. Indigenous participants reoffended (GR: 86.2%, VR: 69.0%) at higher rates than ESB (GR: 72.5%, 58.0%) and CALD (GR: 70.7%, 53.7%) participants. The leading re-offense categories for the total sample included: Theft offenses 34.6%, Assault 27.9%, Property Damage 11.5%, and Drug Offenses 6.7%. There were no significant differences in the proportion of general or violent reoffending across the ethnic groupings.

Kaplan-Meier survival analysis was conducted to ascertain the mean number of days from release to the time of re-offense. Survival curves by SAVRY risk category are presented in Figures 2 and 3. For participants rated as high risk, 85.1% generally reoffended, with 70.3% reoffending violently. In contrast, of participants given a low risk rating, 47.6% reoffended generally and 38.1% reoffended violently. Log-rank tests revealed statistically different mean survival times between risk rating groups for general recidivism ($\chi^2(2) = 7.268$, $p = .03$) and violent recidivism ($\chi^2(2) = 6.898$, $p = .03$). The High risk group statistically differed from the Low risk group for both general recidivism ($\chi^2(1) = 7.473$, $p = .01$) and violent recidivism ($\chi^2(1) = 5.907$, $p = 0.02$).

Survival curves across ethnic groups are presented in Figures 4 and 5. A significant difference was found between mean survival times through a log-rank test for general recidivism ($\chi^2(2) = 6.073$, $p = .04$). Further log-rank analysis found significant mean survival

differences between the IND group and the CALD group for both general recidivism ($\chi^2(1) = 6.925$, $p = .008$) and violent recidivism ($\chi^2(1) = 5.252$, $p = .02$).

Prediction of recidivism with the SAVRY – Total Sample

ROC analyses were conducted to evaluate the predictive validity of the SAVRY for the overall sample. Results indicated that Total Score significantly predicted future general re-offense (SAVRY TS: AUC = .70 [.60-.79], $p < .001$) and violent re-offense (SAVRY TS: AUC = .64 [.55-.74], $p < .01$) at a moderate level. The SAVRY Summary Risk Rating also moderately predicted general (SAVRY RR: AUC = .68 [.57-.78], $p < .01$) and violent recidivism (SAVRY RR: AUC = .62 [.53-.72], $p < .01$) at a level significantly above chance.

Prediction of recidivism across ethnic subgroups – SAVRY Domains

ROC analyses were conducted to determine the predictive validity of the SAVRY Total and Domain scores for general and violent recidivism across ethnic subgroups (See Table 4). The ESB group received significant moderate to strong AUC values for the bulk of the domain scores (AUC .62 - .80) except for the Individual Domain score which was found to be non-significant for violent recidivism. In Contrast, AUC values calculated for the CALD group were no greater than chance. The IND group produced the highest range of AUC values for the SAVRY Total and Domain scores (AUC .67 - .91). The Socio/Contextual (AUC = .86, $p < .05$), Individual (AUC = .84, $p < .05$) and Protector Factor Domains (AUC = .91, $p < .05$) were all significantly strong predictors of general recidivism for the IND group. Additionally, the SAVRY Total Score (AUC = .76, $p < .05$), Summary Risk Rating (AUC =

.74, $p < .05$) and Historical Domains (AUC = .77, $p < .05$) were significantly moderate to strong predictors of violent recidivism.

Further ROC analyses were performed to compare AUC values for the SAVRY across the ethnicity for general and violent re-offense (See Table 4). The SAVRY produced moderate to strong predictive accuracy for the ESB group. Again for the CALD grouping, the instrument was able to predict any form of recidivism. Although AUC values were moderate for the IND group, only the SAVRY Total Score was able to significantly predict violent recidivism.

Discussion

This study examined scores on the SAVRY violence risk instrument on a high risk sample of young people detained in Victorian youth justice custodial centres. The research identified the comparative presence of risk factors and overall risk ratings for future violence across ethnicity. Second, the study examined the comparative validity of the SAVRY in predicting general and violent recidivism. The predictive validity of the SAVRY Total and Domain scores were individually assessed in their relation to both forms of recidivism across ethnic subgroups.

SAVRY Item Analysis and Predictive Validity

Total Sample

The cohort mean score on the SAVRY total was higher (*M* = 26.19) than previous international studies in the field, which have generally ranged between 19 and 24 (Dolan & Rennie, 2008; Lodewijks et al., 2008c; Schmidt et al., 2011; Spice, Viljoen, Gretton, & Roesch, 2010; Vincent et al., 2011; Welsh et al., 2008). This was expected due to the high-risk nature of our participants of whom 97% had been previously charged for a violent offense and had an average of approximately four previous correctional orders. The current sample was likely to be more severe due to the emphasis on diversionary policies in Victoria where predominantly higher risk youth are sentenced or remanded to youth justice custodial centres (Sentencing Advisory Council [SAC], 2012).

Consistent with official data of high rates of Indigenous detention (ABS, 2011; Taylor, 2007), we found an overrepresentation of indigenous offenders in this custodial sample given that only 0.6% of the Victorian population is of IND background (ABS, 2006). CALD youth were also overrepresented in the sample, reflecting Australian literature indicating particular ethnic groups such as Lebanese, Vietnamese and New Zealand (Maori/Pacific Islander origin) – are over-represented in crime statistics proportional to their overall population (Baur, 2006; Mukherjee, 1999; NSW Parliament Legislative Council Standing Committee on Social Issues, 2005).

The recidivism rates for the entire cohort were high with 74.8% charged with a general re-offense and 60.3% charged for a violent re-offense within the follow up period . These percentages are high in comparison to official reports which have previously found

that approximately 50% of youth justice clients re-offend (ABS, 2009; Department of Human Services Victoria, 2001). However, the re-offending rate for our cohort is commensurate with re-offending estimates from previous Australian studies (Chen, Matruglio, & Weatherburn, 2005; Roberts, 2005). Higher re-offense rates are common among incarcerated samples (Lennings, 2008; Petrosino, Turpin-Petrosino & Guckenburg, 2010) and reflect the high risk nature of the participants in our study. Furthermore, the adolescent age group of 10-17 years includes the peak age for offending and commonly achieves the highest rates of re-offense (ABS, 2007; Richards, 2011b).

The study provided evidence for the utility of the SAVRY in predicting general and violent recidivism. The overall Total Score was able to moderately forecast both forms of re-offense reflecting previous validation literature (Catchpole & Gretton, 2003; Dolan & Rennie, 2008; Gammelgard et al., 2008; Lodewijks et al., 2008b; Meyers & Schmidt, 2008). The SAVRY Summary Risk Rating was found to be associated with both forms of recidivism and time at risk. Participants who received a low Risk Rating were less likely to reoffend and exhibited the highest mean survival time. Conversely High Risk offenders had higher re-offense rates and their times at risk were significantly lower than Low Risk offenders for both general and violent recidivism. Previous SAVRY research has demonstrated survival separation between the Low-Medium-High risk categories (Meyers & Schmidt, 2008; Schmidt et al., 2011; Vincent et al., 2011). Higher SAVRY Summary Risk Ratings have also been associated with increased aggressive and rule breaking behavior (Gammelgard, Koivisto, Eronen, & Kaltiala-Heino, 2010).

As can be expected from a severe youth custodial sample, a number of SAVRY items were disproportionately rated as high. The factors that generated the most high risk ratings for the total sample included ‘History of violence’, ‘History of non-violent offending’, ‘Peer Delinquency’, ‘Substance use difficulties’ and ‘Anger management

problems'. All these particular items have been well documented as salient risk markers for future antisocial behavior among youth (Farrington, 1989, 1991; Farrington & Loeber, 2000; Loeber & Hay, 1997; Valois, MacDonald, Bretous, Fischer, & Wanzer, 2002).

Indigenous Group

In this cohort, the IND group had the highest mean SAVRY Total Scores among the three ethnic sub-groups. The IND group also had a significantly higher percentage of their group receiving a high risk rating, compared to ESB and CALD groups. Although this is the first study to consider youth risk violence assessment instruments in Australia, our findings reflected previous studies utilizing the Australian adaptation of the Youth Level of Service/Case Management Inventory (YLS/CMI-AA), which found total scores for Indigenous Australians to be significantly higher than scores from Non-Indigenous groups (Frize et al., 2008; Thompson & McGrath, 2011). Higher scores for Indigenous compared to Non-Indigenous groups have also been found in North American studies testing the SAVRY (Meyers & Schmidt, 2008) and the Youth Level of Service/Case Management Inventory MI (Olver et al., 2012). Additionally, adult Australian Indigenous offenders have exhibited higher total and domain scores compared to Australian non-Indigenous offenders using the Level of Services Inventory - Revised (Hsu et al., 2010).

At the SAVRY domain level, the IND group had significantly higher mean totals on the Historical and Social/Contextual domains compared to ESB and CALD groups. Meyers and Schmidt (2008) found Native Canadian youth also had significantly higher mean scores on these domains compared to Caucasian youth using the SAVRY. The Historical and Social/Contextual domains tap into violence history, social support and early environmental experiences which are problematic areas for many Indigenous Australians (Department of

Health and Ageing, 1995; Stanley et al., 2003, Select Committee on Regional and Remote Indigenous Communities, 2010; Wundersitz, 2010). These findings reflect literature describing Indigenous marginalisation and high occurrences of poverty and unemployment. (Lincoln et al., 1997; Stanley et al., 2003; Urquhart, 2009; Wundersitz, 2010;)

At the item level, IND youths were significantly more likely than ESB youths to have a childhood history of maltreatment. Child neglect and abuse have been established as salient risk factors for future delinquency (Salmelainen, 1996) and reports have highlighted disproportionate rates among Indigenous youth compared to the general population (Stanley et al., 2003). Statistics indicate that Indigenous children are more often taken into statutory protection for reasons of abuse and neglect compared to Non-Indigenous children (Australian Institute of Health and Welfare [AIHW], 2003; Stanley et al., 2003). Research proposes historical trauma, socio-economic disadvantage, entrenched poverty, racism and dysfunctional community environments as precursors to situations that facilitate Indigenous family violence (Blagg, 1999; Stanley et al., 2003). The IND group were also more likely to have a criminal caregiver or parent compared to the ESB group. This finding is consistent with data denoting that Indigenous people are 14 times more likely than non-Indigenous people to be imprisoned and comprise 25% of the Australian prison population despite representing only 2.3% of the overall Australian population (ABS, 2006, Allard, 2010). Heavy Indigenous custodial and apprehension rates date back to the dispossession and criminalization of Indigenous culture during the colonial era (Cunneen & White, 2007; Jones, Masters, Griffiths, & Moulday, 2002).

IND youth were significantly more likely to have a lower interest in school compared to the CALD group, and subsequently were more likely to have lower achievement rates than CALD youth. Similar findings were noted by Thomson & McGrath (2011) who also found greater problems in the Education/Employment domain on the YLS/CMI-AA in IND

compared to CALD youth. Previous research indicates that twice as many IND youth leave school before completing year 8 compared to CALD youth (Kenny & Lennings, 2007) and that young IND offenders have the lowest employment rate compared to young CALD and ESB offenders (Kenny, Nelson, Schreiner, Irving, & Butler, 2008). Similar themes were identified by Hsu et al. (2010) who found adult Indigenous offenders exhibited problematic risk factors associated with constructive leisure time, employment, peer group influence and education. Given that academic failure and unemployment are risk factors for future delinquent behavior (Farrington, 1989) a concerted effort should be made to engage IND youth in particular educational programs while involved with statutory agencies as this may be the first opportunity to address their academic needs.

IND youth also rated significantly higher than CALD youth on the substance abuse item. The latter finding fits with the Australian YLS/CMI-AA study (Thompson & McGrath, 2011) and with international studies comparing Native Americans to Non-Native Americans on the LSI-R (Holsinger et al., 2003) and Indigenous versus Non-Indigenous Canadian youth on the YLS/CMI (Olver et al., 2012). Research points to *alcohol misuse* as a concern for many Indigenous Australians, the origin of which, potentially stems from exposure to traumatic events (Nadew, 2012; Stearne, Gray, & Saggers, 2010). Additionally, data indicates greater proportions of the Indigenous population engage in illicit drug use compared to the general population (Catto & Thomson, 2008). Similar findings have been noted among Indigenous Canadian youth offenders involved with the criminal justice system (Yessine & Bonta, 2009). Substance abuse is clearly a treatment target that needs to be addressed in concert with other salient interrelated risk factors that trigger antisocial trajectories among Indigenous youth.

Social policies encompassing community level programs may be necessary to address broader environmental concerns for Indigenous youth who are more likely to experience

greater social perils and disadvantages. The implementation of early intervention strategies to engage Indigenous youth in school programs and encourage pro-social involvement could be of further consideration. Programs and initiatives may also require an individualised approach that handles critical risk factors within a relevant cultural frame.

A greater percentage of IND participants reoffended in the study both generally and violently compared to ESB and CALD participants. These occurrences reflect Australian criminal data highlighting higher reconviction rates among Indigenous youth and adult offenders compared to Non-Indigenous offenders (AIHW, 2012b; Chen et al., 2005; Snowball, 2008; Vignaendra & Fitzgerald, 2006). Additionally, the IND group had the shortest mean survival time across the ethnic subgroups for both general and violent re-offense reflecting previous literature (Thompson & McGrath, 2009). IND participants in our study had the highest average of previous orders compared to the other groups which is in accordance with risk factor literature suggesting offense history as a strong marker of future recidivism. Again, IND participants were significantly younger than ESB and CALD participants, consistent with research underlining the link between early offending initiation and future re-offense (Lynch et al., 2003). Data indicates that younger adolescents between the ages of 10-14 have the highest re-offense rates within the adolescent classification (ABS, 2009) and that Indigenous offenders are more likely than Non-Indigenous offenders to be younger at first police contact (AIHW, 2012b).

Concerning predictive validity, the IND group was likely compromised due to the lower sample size as indicated by expansive confidence intervals. Although moderate to strong AUC values were obtained for all SAVRY Domains, many were non-significant. However, the SAVRY managed to significantly predict violent recidivism, with the Total Score and Historical Domain, and general recidivism with the SAVRY Summary Risk Rating, Socio/Contextual and Individual Domains. These findings highlight the importance of

dynamic factors among IND offenders and their contribution to re-offense. Though the presence of historical risk factors are an evident concern for the IND group, the widespread occurrence of socio-economic difficulties for many Australian Indigenous people indicates that dynamic factors may be more appropriate in evaluating short term risk. Contemporary correctional programs designed to address circumstantial risk factors for IND offenders in a cultural context have revealed promising initial results (Australian National Council on Drugs, 2013; Richards, Rosevear, & Gilbert, 2011). A continued community guided focus on developing engagement in accessible educational and vocational programs may be more likely to alleviate situational concerns that prompt delinquent habits. This is reflected by the strength of the Protective Factor Domain to effectively predict the mitigation of general recidivism for the IND group (AUC = .91).

The SAVRY results are in line with other Australian studies that found risk inventories to be commensurately valid across Indigenous and non-Indigenous groups (Hsu et al., 2010; Smallbone & Rallings, 2013; Thompson & McGrath, 2011; Watkins, 2011). The findings were encouraging for the SAVRY given the uncertainty surrounding the instrument's generalizing to Indigenous groups who encompass unique risk histories and anti-social trajectories.

Culturally and Linguistically Diverse Group

In this study, the CALD group had the lowest mean SAVRY Total and Domain scores of the three ethnic categories. This was particularly notable for the Historical, Socio/Contextual domain and overall Total Score where they had significantly lower scores compared to the ESB and IND groups. Similar Total scores were reached by Thompson & McGrath (2011) using the YLS/CMI-AA in Australian youth. In a UK study, Dolan &

Rennie (2008) found no significant mean differences between white and non-white youths on the SAVRY Total score. Representing unique minority cultures in the USA, African American and Hispanic-American offenders have also been found to have lower overall SAVRY Total scores compared to white Americans (Chapman et al., 2006; Vincent et al., 2011).

The CALD group's comparatively lower scores on the Historical Domain may reflect lower levels of social disadvantage and family breakdown compared to ESB and IND youths, a finding noted by Kenny and Lennings (2007). CALD participants were found to be significantly more likely than IND participants to score high on the item 'Low Empathy/Remorse'. This finding could relate to previous research showing that CALD youth are more likely than the other two ethnic groups, to commit more serious crimes such as sexual assault and homicide (Kenny & Lennings, 2007). As low empathy/remorse (which may reflect psychopathic traits) is a significant risk factor for sexual assault (Abbey, 2005; Rice, Chapman, Harris, & Coutts, 1994) and violent offending (Joliffe & Farrington, 2003) and is generally a poor prognostic factor in the recidivism literature (Hare, 2003), there are currently few effective interventions that focus on empathy deficits in offenders.

CALD youth were also found to exhibit comparatively higher scores on the Protective Domain. Similar findings were noted in Thompson and McGrath's (2011) study looking at the Education and Leisure/Recreational items on the YLS/CMI-AA study in CALD, ESB and IND Australian offenders. North American studies have also noted that African American youth offenders have higher rates of protective factors than white American youth offenders (Chapman et al., 2006, Vincent et al., 2011) which counter suggestions that minority groups have few positive social influences. In addition, the CALD youth were significantly older than the other groups reflecting previous research proposing that youths with more protective

factors tend to be older on first contact with the criminal justice system and also less prolific (Rennie & Dolan, 2010a).

It has been suggested that the lower scores on assessment measures in CALD compared to ESB and IND groups may reflect minimization of problems secondary to mistrust of authorities in recent Australian migrants (Collins & Reid, 2009; Kenny & Lennings , 2007; Sawrikar & Katz, 1999; White, 2009). Further research is required to delineate these particular findings and their impact on risk assessment.

SAVRY scores were unable to predict any category of recidivism for the CALD group. This was unanticipated given that over two-thirds of the CALD group re-offended. Only the protective factor domains reached low predictive accuracy though these values were non-significant. The results are in contrast to Thompson & McGrath, 2011 who found the YLS/CMI-AA to moderately predict recidivism for the Ethnic (CALD) group. Furthermore, other literature has demonstrated the ability of the SAVRY and its adult equivalent, to extend to Black and Hispanic offenders (see Shepherd, Luebbers, & Dolan, 2013). The inability of the SAVRY to predict recidivism for the CALD group in our study could be explained by the extreme heterogeneity of the grouping. Unlike the more homogeneous groupings of African-Americans and Hispanic-Americans, CALD comprised participants from a number of diverse ethnicities (Pacific Islander, Middle Eastern, Vietnamese, and Sudanese). Each subgroup had vastly differing histories, cultures and contexts concerning their migration to Australia. Emigration experiences and potential associated traumas differed extensively, particularly across economic migrants, asylum seekers and refugees, which were all represented within the CALD cohort. With little uniformity among the CALD group other than the shared experience of re-settlement in Australia, establishing collective offending patterns may have proven problematic for clinician raters in the study, potentially affecting risk calculation and subsequent prediction. The identification of unique risk factors for the CALD offender

population as demonstrated in the first part of the study requires further examination as an isolated cohort. The outcomes could inform treatment programs for at-risk minority youth. Additionally, the use of harm minimization during clinical and judicial interviews and the reluctance of CALD offenders to discuss family and peer group dynamics (Bartels, 2011), is a challenge that potentially affects the calculation of risk. Therefore caution is advised for the future use of the CALD grouping in risk prediction research until the characteristics of its membership are further explored.

English Speaking Background Group

The ESB group had higher mean scores on the SAVRY than comparable international studies reflecting the greater proportion of high-risk youth in our sample. In terms of overall SAVRY scores they tended to fall between the IND and the CALD group scores, a finding that is consistent with Thompson and McGrath's (2011) findings with the YLS/CMI-AA. The results also mirror reports from US studies that Caucasian youth have higher SAVRY total scores than those of African and Hispanic origin (Chapman et al., 2006; Vincent et al., 2011). The lower scores for the ESB group compared to the IND group is also consistent with Frize et al. (2008) using the YLS/CMI-AA, Olver et al. (2012) using the YLS/CMI and Meyers & Schmidt (2008) using the SAVRY.

ESB participants had significantly higher scores than CALD participants on the Historical and Individual/Clinical Domain as well as the SAVRY Total Score. Individual item analysis discovered that the ESB group were significantly more likely than the CALD group to present with the items 'Past supervision or intervention failure, 'Parental or caregiver criminality', 'Poor school achievement', 'Risk taking or impulsivity', 'Substance use', 'Attention deficit/hyperactivity difficulties' and 'Low interest or commitment to

school'. These differences across risk factors reflect the risk factor literature by Kenny & Lennings (2007) who found a significantly higher percentage of ESB youth had a history with the juvenile justice system, a history of parental imprisonment and a history of substance abuse compared to CALD youth. Additionally, Kenny & Lennings (2007) found greater commonalities between the risk factors of ESB and IND youth offenders, particularly motivations for crime. The SAVRY Total Score, Summary Risk Rating, and Domain Scores demonstrated strong predictive accuracy for general recidivism for the ESB group. Validity was slightly lower in the prediction of violent recidivism, though still moderately accurate. As the ESB group comprised predominantly white, Caucasian participants, it was expected that the group was more likely to produce stronger results given that the SAVRY was developed using a comparable ethnographic construction sample. The findings reflect previous risk assessment literature which indicates that participants who closely resemble an inventories foundational sample are more likely to attain greater predictive accuracy (Bloom, Owen, & Covington, 2003; Holsinger, Lowenkamp, & Latessa, 2006).

Limitations

The results may not generalize to jurisdictions outside of Victoria given the region's policy of detaining mostly chronic and severe offending young people. Conversely, the results may generalize to higher risk youth. Secondly, the sample size of the Indigenous group was comparatively lower than the ESB and CALD groups. This is not unusual given that Indigenous people comprise less than 1% of Victoria's population. Essentially, the size of the Indigenous cohort highlighted the overrepresentation of Indigenous youths in the Victorian Justice system. Moreover, the sample was found to be sufficient for appropriate statistical power to be achieved for detecting medium to large effect sizes (Cohen, 1992). The

sizes of the CALD and IND groups in this study were similar to a previous SAVRY study comparing ethnic groups (Meyers & Schmidt, 2008).

The broader age range of the cohort is in contrast to other risk assessment studies including youth offenders which often include youths between 10-17 years of age. Due to the jurisdictional 'dual track' policy as previously discussed, the study included older youth offenders who were processed through the juvenile justice system. The study primarily focused on risk factors associated with ethnicity, though the stratification of age groups and delineating the age-ethnicity interaction may be a direction for further research.

Conclusions and Implications

The study adds to the paucity of literature examining ethnic group differences on adolescent risk assessment inventories. Significant differences were observed across ethnic groupings on a number of domains and at an item level. These differences offer insight into key risk factors for violence and potential treatment targets that need to be addressed in these groups. Additionally, the findings provide guidance for prospective case management plans and strategies which may need to tailor interventions to address the specific needs of Indigenous and perhaps CALD youth offenders.

Second, the current study is the first to explore the applicability of the SAVRY risk instrument in Australia. The findings suggest the SAVRY Total and Domain Scores are valid predictors of general and violent recidivism for young English Speaking Background Australian offenders. The SAVRY also displayed encouraging utility for young Australian Indigenous offenders though further research is necessary. Additionally, the SAVRY was not found to be predicatively valid for young offenders from culturally and linguistically diverse

backgrounds. This is doubtless due to the heterogeneous nature of the CALD group. Much larger samples are required in future studies to establish the predictive validity of the SAVRY for specific ethnic groups. We therefore recommend caution in using the SAVRY in CALD populations without careful consideration of the cultural issues that might affect the predictive validity of the SAVRY.

List of Tables and Figures

Table 1.

Sample Demographics

	Total Sample	ESB	CALD	IND
Number (*N*)	175	84	59	32
N (%)	100%	48%	34%	18%
Age *M*(*SD*)	16.94 (1.80)	16.96 (1.68)	17.25 (1.93)	16.28 (1.75)
Previous Youth Justice Orders: *M*(*SD*)	3.98 (4.15)	3.84 (3.60)	3.37 (4.14)	5.35 (5.32)

Table 2.
SAVRY Domain Mean Scores Across Ethnicity

	Total	ESB	CALD	INDIGENOUS	F
Historical domain *M* (*SD*)	10.34 (4.09)	10.73 (4.18)[a]	8.85 (3.40)[b]	12.06 (4.22)[a]	F(2,172) = 7.700**
Social/Contextual domain	6.71 (2.88)	6.68 (2.86)	6.24 (2.85)	7.66 (2.85)	F(2,172) = 2.578
Individual/Clinical domain	9.13 (3.90)	9.76 (3.67)[a]	8.12 (4.03)[b]	9.34 (3.93)	F(2,172) = 3.228*
Protective Factors	1.82 (1.90)	1.70 (1.93)	2.25 (1.94)	1.31 (1.62)	F(2,172) = 2.905
SAVRY total score	26.19 (9.47)	27.14 (9.32)[a]	23.20 (9.00)[b]	29.19 (9.61)[a]	F(2,172) = 5.203**

SAVRY = Structured Assessment of Violence Risk in Youth (Borum et al., 2003). SAVRY domains and total score across ethnicity compared using ANOVA and Tukey HSD post hoc analysis.

Note: Means with different subscripts differ significantly within rows.

$^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Table 3.

SAVRY Individual Items - Mean Scores and High Risk Distribution Across Ethnic Groups

	Item (*M*)	Total - High Risk (%)	ESB - High Risk (%)	CALD – High Risk (%)	IND – High Risk (%)	χ^2	*p*	Φ
History of violence	1.69	76.6	73.5	78.3	81.3	.932	.627	
History of nonviolent offending	1.83	85.1	88.0	78.3	90.6	3.477	.176	
Early initiation of violence	1.03	37.1	38.6	28.3	50.0	4.331	.115	
Past supervision or intervention failure	1.11	43.4	53.0	28.3	46.9	8.822	.012*	.23
History of self-harm or suicide attempts	.29	9.1	9.6	8.3	9.4	.074	.964	
Exposure to violence in the home	.60	21.7	24.1	16.7	25.0	1.380	.502	
Childhood history of maltreatment	.90	29.7	25.3	26.7	46.9	5.553	.062	
Parental or caregiver criminality	.63	20.6	21.7	3.3	50.0	27.936	.000***	.40
Early caregiver disruption	.87	34.3	37.3	28.3	37.5	1.436	.488	
Poor school achievement	1.39	58.3	65.1	45.0	65.6	6.632	.036*	.20
Peer delinquency	1.64	69.7	63.9	70.0	84.4	4.609	.100	
Peer rejection	.73	18.9	13.3	25.0	21.9	3.374	.185	
Stress and poor coping	1.13	44.0	50.6	33.3	46.9	4.346	.114	
Poor parental management	1.31	49.7	51.8	40.0	62.5	4.503	.105	
Lack of personal or social support	.89	31.4	32.5	25.0	40.6	2.453	.293	
Community disorganization	1.01	33.1	30.1	35.0	37.5	.710	.701	
Negative attitudes	1.11	40.0	42.2	40.0	34.4	.585	.747	
Risk taking or impulsivity	1.37	53.7	61.4	40.0	59.4	6.947	.031*	.20
Substance use difficulties	1.65	76.6	81.9	61.7	90.6	12.280	.002**	.27
Anger management problems	1.43	58.9	61.4	56.7	56.3	.438	.803	
Low empathy or remorse	.90	21.7	20.5	30.0	9.4	5.363	.068	
Attention deficit hyperactivity difficulties	.74	26.3	32.5	15.0	31.3	6.021	.049*	.19
Poor compliance	.90	27.4	28.9	25.0	28.1	.278	.870	
Low interest or commitment to school	1.02	37.7	44.6	25	43.8	6.290	.043*	.19
Prosocial involvement	.40	40.0	39.3	52.5	18.8	9.906	.007**	.24
Strong social support	.24	24.0	21.4	37.3	6.3	11.543	.003**	.26
Strong attachments and bonds	.37	37.1	33.3	44.1	34.4	1.839	.399	
Positive attitude toward intervention and authority	.29	29.1	29.8	32.2	21.9	1.102	.576	
Strong commitment to school	.18	18.3	15.5	27.1	9.4	5.225	.073	
Resilient personality traits	.33	33.1	31.0	32.2	40.6	1.014	.602	
Overall SAVRY RATING		48.0	48.2	40.0	62.5	4.235	.120	

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

Table 4.

Area Under the Curve (AUC) values and Confidence Intervals (95%) for SAVRY Total and Domain Scores for General and Violent Recidivism across Ethnic Subgroups.

	ESB		CALD		IND	
	AUC (SE)	95% CI	AUC (SE)	95% CI	AUC (SE)	95% CI
General Recidivism						
Total Score	0.78 (.06)***	.67 - .89	0.49 (.11)	.28 - .70	0.81 (.11)	.59 – 1.00
Risk Rating	0.76 (.07)**	.62 - .89	0.50 (.10)	.30 - .70	0.74 (.14)	.46 - 1.00
Historical Domain	0.74 (.06)**	.61 - .86	0.52 (.11)	.31 - .73	0.73 (.12)	.49 - .97
Socio/Contextual Domain	0.76 (.06)**	.63 - .89	0.49 (.11)	.26 - .71	0.86 (.09)*	.68 - 1.00
Individual Domain	0.73 (.07)**	.59 - .87	0.49 (.11)	.29 - .70	0.84 (.10)*	.64 - 1.00
Protective Factor Domain	0.80 (.06)***	.68 - .92	0.57 (.10)	.38 - .77	0.91 (.09)*	.74 - 1.00
Violent Recidivism						
Total Score	0.68 (.07)*	.55 - .81	0.47 (.09)	.52 - .80	0.76 (.09)*	.58 - .94
Risk Rating	0.66 (.07)*	.55 - .81	0.48 (.09)	.30 - .66	0.74 (.09)*	.52 - .95
Historical Domain	0.67 (.07)*	.54 - .80	0.47 (.09)	.29 - .65	0.77 (.09)*	.59 - .95
Socio/Contextual Domain	0.66 (.07)*	.52 - .80	0.46 (.10)	.28 - .65	0.73 (.11)	.51 - .94
Individual Domain	0.62 (.07)	.48 - .76	0.49 (.09)	.31 - .67	0.73 (.10)	.52 - .93
Protective Factor Domain	0.77 (.06)***	.65 - .90	0.57 (.09)	.39 - .75	0.67 (.11)	.45 - .89

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

Figure 1

SAVRY Risk Level Dispersal (Low Medium High) across Ethnicity (%)

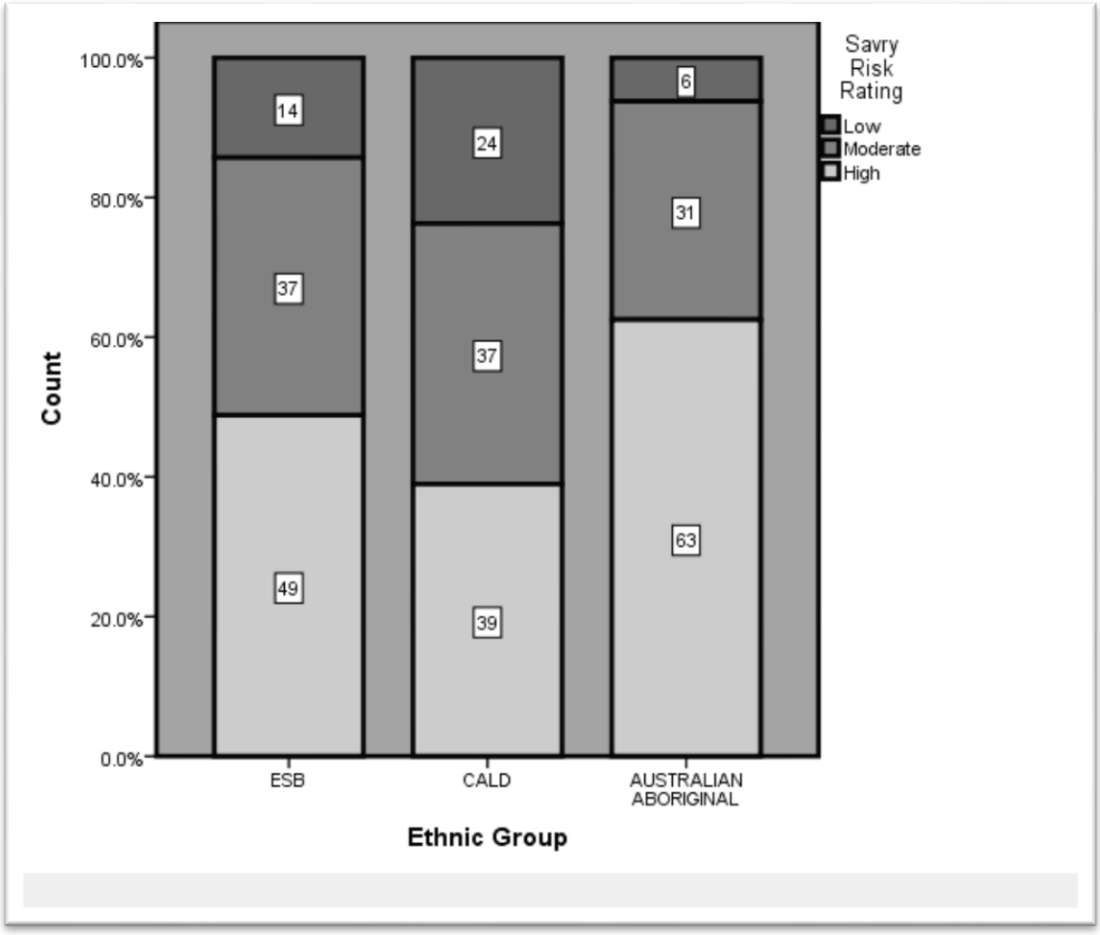


Figure 2.

Survival Curve for General Offending – SAVRY Risk Categories

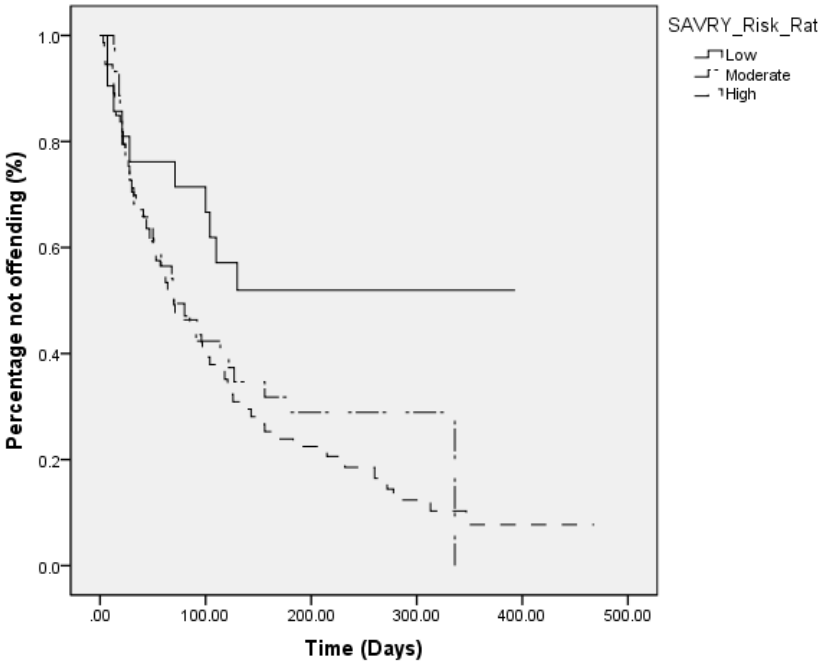


Figure 3.

Survival Curve for Violent Offending – SAVRY Risk Categories

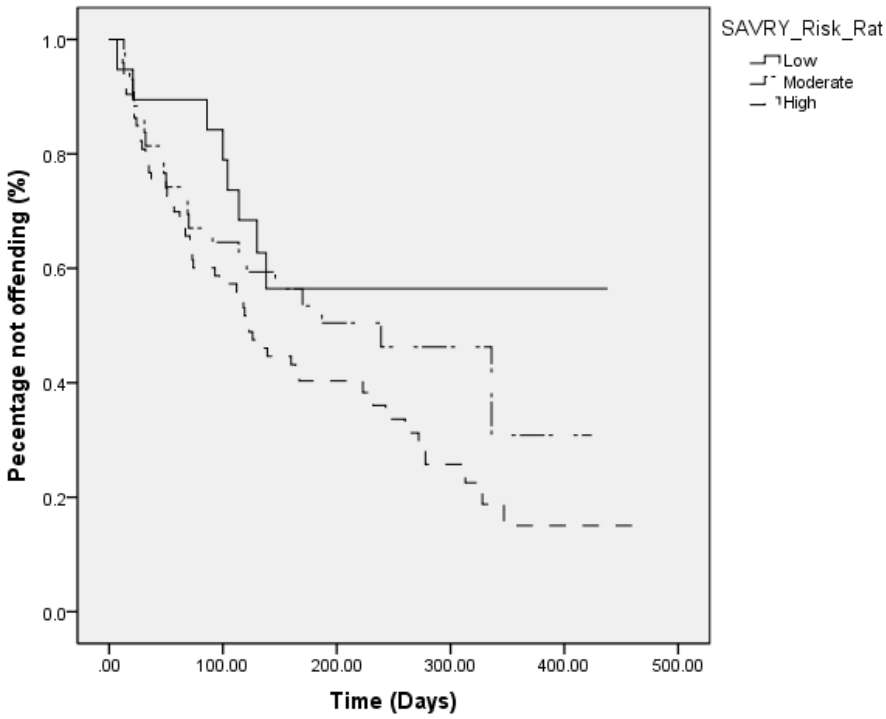


Figure 4.

Survival Curve for General Offending – Ethnicity

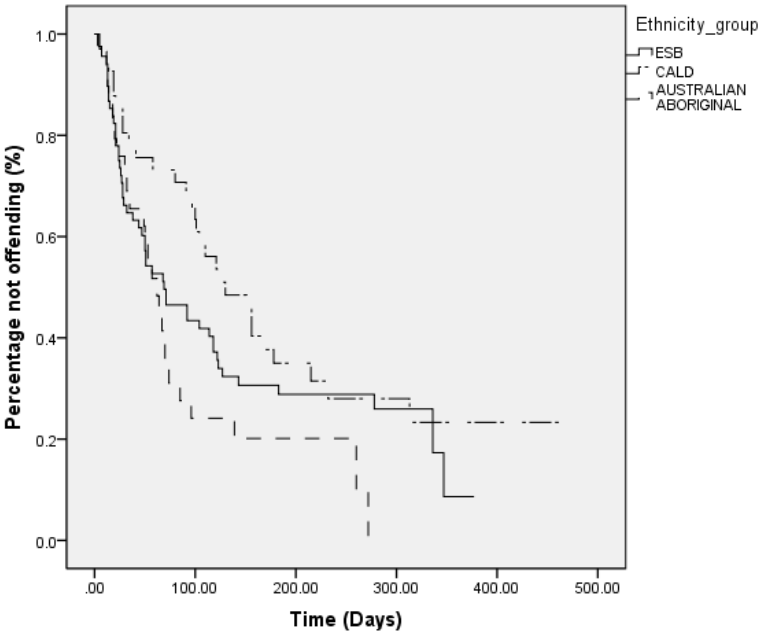
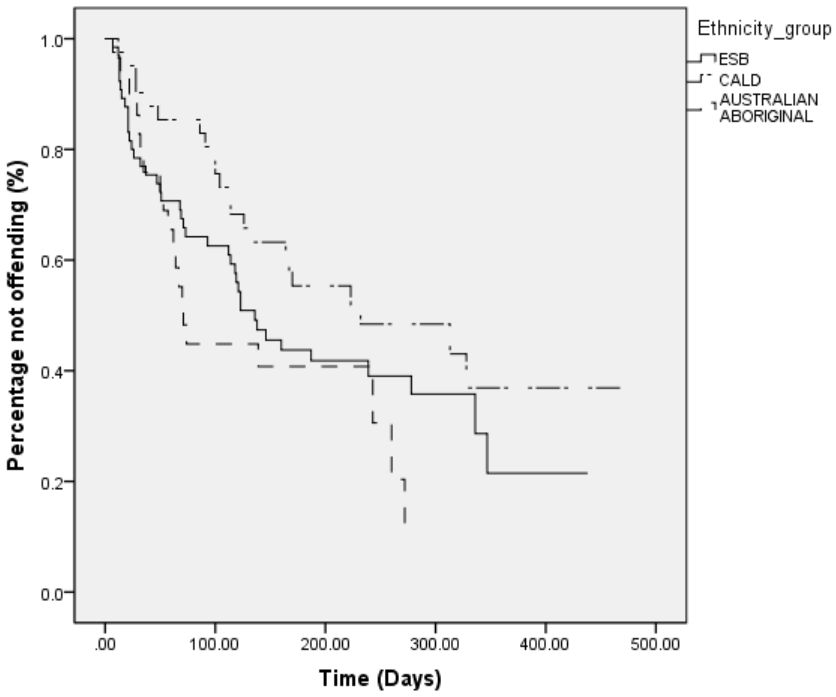


Figure 5.

Survival Curve for Violent Offending – Ethnicity



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5.0 Chapter Five: The Utility of Violence Risk Assessment Instruments for Young Australian offenders

5.1 Preamble to Paper 4

The final paper investigated the comparative validity of three North-American youth violence risk assessment inventories, the SAVRY, the YLS/CMI and the PCL: YV for a representative Australian young offender sample. This is the first study to assess all three instruments in the Australian criminal justice setting. The paper adds to the literature on the predictive validity of these instruments and their applicability to different jurisdictions. Additionally the paper assesses the generalization of the measures to young Australian female offenders. Third, the study identified a number of salient risk factors that exhibited strong relationships with recidivism for the overall sample.

This paper has been submitted to *Assessment*, a journal encompassing research on clinical and applied psychological assessment. The journal has a current impact factor of 2.014 (Sage, 2013b). Co-authors of the paper are Professor Mairead Dolan, a former Professor of Forensic Psychiatry at Monash University, Dr. Stefan Luebbers, a forensic psychologist at the Clinical Psychology Centre, Monash University, and lecturer at Monash University, Dr. Rachael Fullam, Research Fellow at Monash University, and Professor James Ogloff, Director of the Centre for Forensic Behavioural Science, Monash University, Victoria.

5.2 Declaration for Thesis Chapter 5, Paper 4

Monash University

Declaration by candidate

In the case of Chapter 5, the nature and extent of my contribution to the work was the following:

Nature of contribution	**Extent of contribution (%)**
Study Design, data collection, analysis, write-up.	75%

The following co-authors contributed to the work. Co-authors who are students at Monash University must also indicate the extent of their contribution in percentage terms:

Name	**Nature of contribution**	**Extent of contribution (%) for student co-authors only**
Dr. Stefan Luebbers	Study design, data collection, analysis, write-up.	10%
Prof. James Ogloff	Analysis, write-up	10%
Dr. Rachael Fullam	Analysis, write-up	10%
Prof. Mairead Dolan	Write-up.	5%

Candidate's Signature		**Date**

Declaration by co-authors

The undersigned hereby certify that:

(19) the above declaration correctly reflects the nature and extent of the candidate's contribution to this work, and the nature of the contribution of each of the co-authors.
(20) they meet the criteria for authorship in that they have participated in the conception, execution, or interpretation, of at least that part of the publication in their field of expertise;
(21) they take public responsibility for their part of the publication, except for the responsible author who accepts overall responsibility for the publication;
(22) there are no other authors of the publication according to these criteria;

(23) potential conflicts of interest have been disclosed to (a) granting bodies, (b) the editor or publisher of journals or other publications, and (c) the head of the responsible academic unit; and

(24) the original data are stored at the following location(s) and will be held for at least five years from the date indicated below:

Location(s)	All data are stored at Centre for Forensic Behavioural Science, Monash University.

Signature 1	[redacted]	**Date**
Signature 2		
Signature 3		
Signature 4		

5.3 Confirmation of Submission of Paper 4

04-Jul-2013

Dear Mr. Shepherd:

Your manuscript entitled "The validity of violence risk assessment instruments in Australian young offenders" has been successfully submitted online and is presently being given full consideration for publication in the Assessment.

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Assessment Editorial Office

The validity of violence risk assessment instruments in Australian young offenders

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Abstract

Validation literature on the predictive ability of North American youth violence risk assessment inventories is developing across international settings. Yet no information on the utility of the Structured Assessment of Violence Risk in Youth [SAVRY] and the Psychopathy Checklist: Youth Version [PCL: YV] exists and little research has been conducted on the Youth Level of Service/ Case Management Inventory [YLS/CMI] across Australian young offender populations. The current study investigated the validity of the risk instruments on 213 young people in detention in Victoria, Australia. Findings indicated moderate to strong predictive accuracy for re-offense outcomes across the three inventories for the Total sample and for males. The SAVRY was also able to identify the strength of Protective Factors in the mitigation of re-offense for young female offenders. The inventories appear to be suitable prediction aides in the Australian youth justice context though further research is required to ascertain their applicability to Australian young female offenders.

Key Words

Youth Violence, Risk Assessment, Gender, Violence Risk Instruments, Juvenile Offending, Recidivism

Introduction

Contemporary reports on youth offending in Australia indicate that increasing rates of violence are of concern. Though a large portion of youth offending encompasses property and public order offenses, rises in assault and robbery by Australian young people have been increasingly documented in the last decade (Australian Institute of Criminology [AIC], 2009, 2010; Australian Institute of Health and Welfare [AIHW], 2008; Holmes, 2010; Victoria Police, 2008, 2010). In line with international data, the Australian juvenile age group has the highest offending rates of any age bracket (AIC, 2012; Richards, 2011). Furthermore, juvenile cohorts in a number of Australian studies have been found to have recidivism rates of over 50% (Australian Bureau of Statistics [ABS], 2009; Chen, Matruglio, Weatherburn, & Hua., 2005). The Indigenous population of Australia is disproportionately represented in the Australian criminal justice system at all levels. Particularly Indigenous youth whose rates of detention are 18 times that of non-Indigenous youth (AIHW, 2012a). Moreover, data from New South Wales has similarly demonstrated the over-representation of specific ethnic minority immigrant groups in arrest and detention rates (Baur, 2006). Considering gender, males have traditionally committed the bulk of offending and represent the majority in custody (AIHW, 2012b), though recent trends have suggested increases in female contact with justice systems in Australia and internationally (Holmes, 2010; Puzzanchera 2009; Victoria Police, 2010).

A wide literature base has explored a combination of critical risk factors comprising familial, social and environmental spheres that are held to increase the likelihood of antisocial behavior (Farrington, 1991; Farrington and Loeber, 2000; Loeber and Hay, 1997; Valois, MacDonald, Bretous, Fischer, & Drane., 2002). Though such determinants are believed to widely generalize, there is a paucity of research characterizing the transferability of risk factors for violence in an Australian youth offender context. Moreover it is important to gain an understanding of how these particular items interact with future re-offending. Early recognition of critical antecedent influences can inform intervention and treatment initiatives to offset prospective criminal trajectories. Given that extant research underscores the link between early

introduction to violence and future antisocial behavior (Chen et al., 2005; Lynch, Buckman, & Krenske., 2003) it is necessary to comprehend the offending patterns of Australian youth.

The advancement of psychometric risk assessment instruments has facilitated a standardized approach in identifying salient risk factors for violence. Encompassing actuarial to hybrid structured assessment models, risk inventories were designed to improve clinical judgment in the forecasting of future violence (Andrews, Bonta, & Wormith., 2006; Borum, 2000; Douglas, Ogloff, Nicholls, & Grant., 1999; Doyle and Dolan, 2002). Later approaches include mechanisms to support case management plans and treatment strategies (Andrews, Bonta, & Wormith., 2004). The efficacy of North-American adult violence risk inventories the HCR-20 (Webster, Douglas, Eaves, & Hart., 1997) and the LSI:R (Andrews and Bonta, 1995) spawned the construction of youth versions culminating in the SAVRY and the YLS/CMI. The SAVRY, a violence specific inventory (Borum, Bartel, & Forth., 2003) has been found to predict violent recidivism in a plethora of international studies (North America, Catchpole and Gretton, 2003; Meyers and Schmidt, 2008; Schmidt, Campbell, & Houlding., 2011; Welsh, Schmidt, McKinnon, Chattha, & Meyers., 2008; Europe, Lodewijks, de Ruiter, & Doreleijers., 2008a; Lodewijks, Doreleijers, de Ruiter, & Borum., 2008b; Singh, Grann, & Fazel., 2011). Using Receiver Operator Characteristic (ROC) analyses to determine validity, the above studies attained Area Under the Curve values between .74 and .85 demonstrating high predictive accuracy (Douglas, Cox, & Webster, 1999). Prior SAVRY research has also established strong reliability among raters, regularly achieving Intraclass Correlation Coefficient (ICC) values between .81 and .96 for SAVRY Total Scores (Catchpole and Gretton, 2003; Dolan & Rennie, 2008; Meyers and Schmidt, 2008; Welsh et al., 2008; Lodewijks, et al., 2008a). Furthermore, other investigations have found the SAVRY to assist and advance correctional decision making among institutional and parole staff (Vincent et al., 2012a, 2012b). The YLS/CMI, a general risk instrument designed to address criminogenic needs (Hoge and Andrews, 2006) has also shown predictive validity across a variety of adolescent justice settings (Bechtel, Lowenkamp, & Latessa., 2007; Catchpole and Gretton, 2003; Jung and Rawana, 1999; Marshall, Egan,

English, & Jones., 2006; Olver, Stockdale, & Wong., 2012; Onifade, Smith Nyandoro, Davidson, & Campbell., 2008; Rennie and Dolan, 2010; Schmidt, Hoge, & Gomes., 2005; Welsh et al. 2008). Similarly, risk assessment literature has documented the ability of the PCL-R (Hare, 2003), an adult inventory designed to identify psychopathic traits, as demonstrating efficacy in the prediction of violence (Singh and Fazel, 2010; Leistico, Salekin, deCoster, & Rogers., 2008; Grann, Langstrom, Tengstrom, & Kullgren., 1999; Salekin, Rogers, & Sewell., 1996: Douglas et al., 1999). Likewise, the youth version the PCL:YV (Forth, Kosson, & Hare., 2003) has been found to be an adequate predictor of violent recidivism in a number juvenile cohorts (Dolan & Rennie, 2006; Edens, Campbell, & Weir., 2006; Gretton, Hare, & Catchpole., 2004; Marshall et al., 2006; Olver, Stockdale, & Wormith., 2009; Schmidt et al., 2011; Stockdale, Olver, & Wong., 2010; Welsh et al., 2008).

Previous Australian research has found the LSI-R and its youth derivative the YLS/CMI to demonstrate modest to strong predictive validity in large ethnically diverse samples from New South Wales (Hsu, Caputi, & Byrne., 2009; Thompson, and McGrath, 2011; Watkins, 2011). Presently, there have been no attempts to validate the SAVRY or the PCL: YV in an Australian youth offender context. Additionally no Australian study has performed a comparative validation analysis of the three major adolescent risk inventories, the SAVRY, the YLS/CMI and the PCL: YV. The study aims to examine the application of these north-American developed youth inventories to a typical Australian youth custodial sample and determine how useful they are in predicting general and violent recidivism. Findings will provide formative insight on violence risk prediction and antisocial trajectories in a unique Australian context.

Method

Participants

A cohort of 215 participants was recruited from Victorian Youth Justice Centres; Parkville Youth Justice Precinct (PYJP) and Malmsbury Youth Justice Centre (MYJC). PYJP

accommodates young men and women aged 10-17 years who have been remanded or sentenced by a Victorian court, and young women aged 18-20 who have been sentenced by a Victorian Court. MYJC accommodates young men aged 18-20 years who have been sentenced by a Victorian court. The inclusion of 18-20 year olds in the youth sample was predicated on Victoria's 'dual track' policy that differentiates offenders within this age group as subject to either adult or youth criminal justice systems. This system is reserved for a subset of young adult offenders who are particularly impressionable, immature or likely to be subject to undesirable influences in adult prison, and who have reasonable prospects for rehabilitation. Additionally, the state of Victoria regularly has lower detention rates compared to other Australian states and territories due to an emphasis on diversionary policies (AIHW, 2012c; Sentencing Advisory Council [SAC], 2012). The final sample comprised 213 young people (175 males, 38 females) due to the exclusion of two participants for having incomplete assessments. The gender distribution of the sample was representative of Australian youth offender populations of which young females comprise approximately 10% of detained youth (AIHW, 2012c). The mean age of the sample was 16.84 (*SD* = 1.83, 12-21). No significant difference was observed between mean ages across gender ($U = 2770.50$, $z = -1.636$, $p = .102$). The main index offenses of the participants included Assault 49%, Burglary/Theft 16% and Property Damage 6%. Sixty-Eight percent of the sample had served a previous community or custodial sentence and 87% had been previously charged for a violent offense. The cultural distribution of the sample comprised English Speaking Background (ESB, 48%), Culturally and Linguistically Diverse (CALD, 32%) and Indigenous (IND, 20%). English speaking background participants included primarily the White, Caucasian majority. Participants who identified as CALD represented minority groups from non-English speaking backgrounds (e.g., Vietnamese, Sudanese, Pacific Islander, Maori, and Lebanese). The Indigenous group comprised participants who self-identified as having Australian Aboriginal or Torres Strait Islander heritage.

Measures

The SAVRY is a Structured Professional Judgment inventory designed to predict violent antisocial behavior in young people aged between 13 and 18 (Borum et al., 2003). It comprises 24 risk items distributed among three domains; Historical, Socio/Contextual and Individual. The Historical domain includes static items such as prior behaviors and early developmental experiences. The Socio/Contextual domain covers dynamic factors addressing peer relationships and community influences. The Individual domain focuses on psychological attitudes and conduct. Each SAVRY item is rated on a trichotomous scale that is tallied to generate a total risk score. As there are no cut-off scores, a professional adjudication called the SAVRY Risk Rating, is proposed to indicate overall level of risk. The instrument also contains six Protective Factors items. Protective Factors which encompass pro-social behaviors have been shown to mitigate the likelihood of future violence (Lodewijks, de Ruiter, & Doreleijers., 2010; Rennie and Dolan, 2010).

The Youth Level of Service/Case Management Inventory (YLS/CMI, Hoge and Andrews, 2006) is a general risk/needs inventory for juvenile offenders aged 12-18 years, comprising 42 dichotomously rated items across eight domains. Domains include Offense History, Family Circumstances, Education/Employment, Peer Relationships, Substance Use/Abuse, Leisure/Recreation, Personality/Behavior, and Attitude/Orientation. Scores from these domains are used to identify criminogenic need and inform case management initiatives. Additionally scores are summed to give a total score and corresponding overall risk rating.

The Psychopathy Checklist: Youth Version (PCL: YV, Forth et al., 2003) is an inventory designed to identify psychopathic traits and behaviors in adolescents 12-18 years. Twenty items are dispersed across four factors: Interpersonal, Affective, Behavioral and Antisocial. The interpersonal and Affective domains cover key interactive and emotional responses whereas the Behavioral and Antisocial domains address lifestyle characteristics and

conduct. The items are scores on a three point ordinal scare based on interview and file information.

Ethics

This study was approved by the Victorian Department of Human Services and the Monash University Human Research Ethics Committee. Written informed consent was obtained from all participants. Consent for participants under 18 years of age fell within the 'mature minor' concept as described in local Victorian legislation where mental competency is determined by the ability of an underage participant to understand or appreciate points pertaining to their partaking in, and the nature of the study (See Luebbers and Ogloff, 2011).

Procedure

Participants were interviewed individually in a private room allocated by youth justice custodial centre staff. The duration of each interview was approximately 90 minutes. SAVRY, YLS/CMI and PCL:YV coding was completed using information from the clinical interviews and Client Relationship Information System for Service Providers (CRISSP) data extracted from the Victorian Department of Human Services database. Interviews and risk instrument coding were conducted by Monash University researchers who had completed SAVRY, YLS/CMI and PCL: YV training courses.

Inter-rater reliability for the SAVRY was measured for 28 (13%) cases that were assessed independently by two raters. The Intraclass Correlations (ICC, single measure) showed a very high concordance between raters supporting the reliability of the sample [SAVRY Total Score: ICC = .97 (α = .98), SAVRY Risk Rating: ICC = .97 (α = .99), Historical Domain: ICC = .96 (α = .98), Socio/Contextual Domain: ICC = .90 (α = .95), Individual/Clinical Domain: ICC = .94 (α = .97), Protective Factor Domain: ICC = .96 (α = .98)].

For the PCL:YV and YLS/CMI, 18 cases (8%) were measured. Again, ICC scores indicated strong reliability between raters [PCL:YV Total Score: ICC = .97 (α = .98), YLS/CMI Total Score: ICC = .97 (α = .98).

Recidivism

Follow-up data was collected for up to 18 months. All participants had follow-up for a minimum of 6 months. The minimum follow-up time period was sufficient given that 59% of the sample had reoffended within 100 days of release. Participants consented to Victoria Police releasing their de-identified criminal histories from the Victorian Police Law Enforcement Assistance Program (LEAP) database, to researchers. General recidivism was defined as any future incident that resulted in a police charge and accordingly, violent recidivism was defined as any violent transgression that led to a charge. A violent crime is generally described as acts intended to cause or threaten to cause physical harm to a victim (Borum et al., 2003; Bricknell, 2008). This categorization commonly comprises crimes such as Homicide, Assault, Robbery and Sexual Assault (Bricknell, 2008). Data analysis was based on the date of the offense that resulted in the charge. Technical breaches of orders and parole were excluded from the analysis.

Data handling and analysis

Data were analyzed using IBM SPSS Statistics Version 19. Due to discrepant sample sizes, mean scores on instrument domains were examined using Mann-Whitney *U*-tests.

Predictive validity of the risk assessment instruments for general and violent recidivism was assessed using Receiver Operating Characteristic (ROC) analysis. ROC analysis provides an Area under the Curve (AUC) value by charting sensitivity against specificity. The score

determines the probability that a randomly selected recidivist would score higher on a risk instrument than a randomly selected non recidivist.

Point Bi-serial correlations were utilized to establish relationships between instrument scores and general and violent recidivism. Logistic Regression analysis was then conducted to determine the strength of influence that cogent SAVRY items had on re-offending outcomes.

Results

Descriptive Statistics

Table 1 describes the mean and standard deviation of the PCL-R, YLS/CMI and SAVRY Total scores, Domain scores and the recidivism rates for the total sample and across gender. Non-parametric statistical tests were conducted to compare scores across gender. The mean SAVRY Total Score for the entire sample was 26.7 (*SD* = 9.6) indicating a relatively high risk sample. Additionally, approximately 50% of the sample was adjudged high risk on the SAVRY Risk Rating. While males and females did not differ significantly on SAVRY Total scores, female participants had significantly higher scores than male participants on the SAVRY Historical (*U* = 2646.0, $p < .05$) and Socio/Contextual Domains (*U* = 2627.0, $p < .05$)**.** Total scores for the YLS/CMI were comparatively high, (*M* = 25.5, *SD* = 7.9) and 54% of the sample were delegated a 'High Risk' rating. For the PCL: YV, the mean Total Score was 18.3 (*SD* = .69)**.** Differences across gender were not significantly different for the YLS/CMI and PCL:YV Total Scores.

Table 1 also indicates the proportion of the cohort that generally and violently re-offended during the follow-up period. The proportions are based on a revised sample of 173. Forty participants were excluded for having no outcome data as they had either not been released from custody or did not consent to Victoria Police releasing their LEAP records. Over 77% of the overall sample was charged for a general re-offense during the follow up period and

61.3% were charged with a violent re-offense. Higher proportions of the female cohort generally and violently re-offended compared to male participants (GR: $\chi^2(1) = 2.816$, $p = .09$; VR: $\chi^2(1) = 1.548$, $p = .10$) though non-significant. The leading re-offense categories for the total sample included: Theft 35%, Assault 28% and Property Damage 12%.

Construct Validity

The results of ROC analysis and Pearson's point-biserial correlations are displayed in Table 2. ROC analyses were used to determine the predictive ability of the risk instruments and correlations were conducted to ascertain relationships between instrument scores and recidivism outcome. Total Scores for the three instruments were able to reasonably predict General Recidivism (SAVRY TS: AUC = .71, $p < .001$; YLS/CMI TS: AUC = .71, $p < .001$; PCL:YV TS: AUC = .66, $p < .01$) and Violent Recidivism (SAVRY TS: AUC = .66, $p < .001$; YLS/CMI TS: AUC = .66, $p < .01$; PCL:YV TS: AUC = .64, $p < .01$). The ability of instrument total and domain scores to predict general recidivism exceeded their ability to predict violent recidivism across the entire sample. Both the SAVRY and YLS/CMI Total Scores showed greater predictive accuracy for recidivism than the PCL:YV Total Score. The SAVRY and YLS/CMI Total Scores also demonstrated moderate positive correlations with both re-offense outcomes. The SAVRY Risk Rating was able to demonstrate moderate predictive accuracy for the total sample (GR: AUC = .69, $p < .001$; VR: AUC = .65, $p < .01$). Predictive accuracy of the SAVRY domains was robust for both forms of recidivism. In particular, the Protective Factor Domain produced the strongest AUC value for the non-prediction of re-offense. The Protective Factor Domain also provided a strong negative correlation with the outcome.

For males, the YLS/CMI produced the strongest predictive accuracy for General Recidivism (AUC = .72, $p < .001$), marginally higher than the SAVRY Total Score (AUC = .70, $p < .001$). The PCL:YV Total Score, though less effective, was still able to moderately predict General Recidivism for males (AUC = .66, $p < .01$). Predictive accuracy for Total

Scores was commensurate across instruments for Violent Recidivism and lower than their predictive accuracy for General Recidivism. For females, AUC values were higher than for males across all SAVRY Domains and the PCL:YV Total Score. Large confidence intervals were observed for the female group and no AUC statistic reached significance except for the Protective Factor Domain which demonstrated strong values (AUC = .87, $p < .05$, $r_{pb} = -.52$) for General Recidivism and the Socio/Contextual Domain which demonstrated strong predictive accuracy for Violent Recidivism (AUC = .73, $p < .05$, $r_{pb} = .35$). Significant correlations were also found between the SAVRY Risk Rating and both forms of re-offense (GR: $r_{pb} = .37$; VR: $r_{pb} = .35$), and the Socio/Contextual Domain and General Re-offense ($r_{pb} = .34$) for the female sample.

All SAVRY items were added into a stepwise binary logistic regression model to determine the strongest combination of predictors from the SAVRY that accounted for general and violent recidivism. The sequence of variables that comprised the best forecasting model is displayed in Table 3. For General Recidivism, Poor Parental Management (Wald Statistic = 7.131, $p < .01$, Exp(B) = 2.069), Peer Delinquency (Wald Statistic = 7.408, $p < .01$, Exp(B) = 2.398) and Parental/Caregiver Criminality (Wald Statistic = 6.124, $p < .05$, Exp(B) = 2.524) were the best predictive model, while for Violent Recidivism, Poor Parental Management (Wald Statistic = 10.470, $p < .001$, Exp(B) = 2.202), Peer Delinquency (Wald Statistic = 5.332, $p < .05$, Exp(B) = 2.003) and Past Supervision/Intervention Failure (Wald Statistic = 4.823, $p < .05$, Exp(B) = 1.562) provided the strongest model. The Poor Parental Management item was the most significant predictor of both General (Wald Statistic = 17.537, $p < .001$, Exp(B) = 2.889) and Violent Recidivism (Wald Statistic = 17.044, $p < .001$, Exp (B) = 2.586) at the first step of the model and remained significant when the other items were added to the model.

Discussion

In this study, the applicability of widely used North American adolescent violence risk instruments was ascertained for an Australian detained youth offender sample of 213 participants including Males (*N* = 175) and Females (*N* = 38). Satisfactory predictive accuracy was established for the SAVRY, YLS/CMI and the PCL:YV for the total sample and the male contingent across the three instrument total scores and the SAVRY domain scores. For females, AUC values indicated strong predictive accuracy across inventories though the results were found to be no greater than chance. Additionally, SAVRY Domain analysis found significant gender differences across SAVRY domains.

Instrument Scores

The mean SAVRY Total score of the cohort (*M* = 26.7, *SD* = 9.6) was comparatively higher than previous SAVRY research (Bartel and Forth, 2000; Lodewijks et al., 2008c; Schmidt et al., 2011; Welsh et al., 2008). Similarly the mean YLS/CMI Total score was substantially higher than scores from other YLS/CMI studies (Jung and Rawana, 1999; Onifade et al., 2008; Onifade et al., 2010; Schmidt et al., 2011; Welsh et al., 2008;) including an Australian study using the YLS/CMI Australian Adaptation (Thompson and McGrath, 2011). However participants from these studies were largely under community supervision and were likely to be less severe than the current sample. Conversely, the mean PCL:YV Total score from our sample was in line with previous literature (Kosson, Cyterski, Steuerwald, Neumann, & Walker-Matthews., 2002; Murrie and Cornell, 2002; Stockdale et al., 2010; Vincent, Odgers, McCormick, & Corrado., 2008; Welsh et al., 2008). The higher overall scores from the present study are likely due to the nature of the cohort which comprised only incarcerated participants. Almost all the offenders (97%) in the study had previously been charged with a violent offense and approximately 50% presented as High Risk as determined by both the SAVRY and YLS/CMI Risk Ratings. The severity of the sample is likely influenced by Victorian sentencing

policy which facilitates diversionary outcomes for young people. Therefore only the youth deemed as a higher risk are typically allocated a custodial sentence (SAC, 2012). Previous studies that comprised violent participants in custody shared similar mean total scores to those in our cohort (Dolan and Rennie, 2008: Olver et al., 2012; Rennie and Dolan, 2010).

Total Scores for the three youth instruments were commensurate across gender reflecting previous SAVRY (Penny, Lee, & Moretti., 2010; Schmidt et al., 2011; Welsh et al., 2008) YLS/CMI (Jung and Rawana, 1999; Olver et al., 2011; Schmidt et al., 2005) and PCL:YV (Schmidt et al., 2011; Stockdale et al., 2010; Vincent et al., 2008; Welsh et al., 2008;) literature. Conversely, male offenders have been found to have significantly higher total scores on the SAVRY and YLS/CMI in other studies (Gammelgard, Weitzman-Henelius, & Kaltiala-Heino., 2008, Gammegard, Weitzman-Henelius, Koivisto, Eronen, & Kaltiala-Heino., 2012; Onifade et al., 2008). Moreover Thompson and McGrath (2011) found female offenders to have significantly higher YLS/CMI-AA Total and several Domain scores than male offenders in an Australian sample. Similarly, the present study identified significant differences across gender at the SAVRY Historical and Socio/Contextual level. These outcomes underscore the unique criminal trajectories of female offenders. Gender specific pathways literature has acknowledged the detrimental effects of early familial and peer breakdown and associated traumas that manifest adverse and delinquent outcomes for young girls (Blum, Ireland, & Blum., 2003; Garvazzi, Yarcheck, & Chesney-Lind., 2006; Hubbard and Pratt, 2002: McCabe, Lansing, Garland, & Hough., 2002; Van Voorhis, Wight, Salisbury, & Bauman., 2010). In Australia, female offending is more likely to result in community sanctions compared to males (SAC, 2012; AIHW, 2012d). Thus our female cohort who presented with comparatively higher SAVRY and YLS/CMI scores to previous research, represent a disproportionately higher risk sample. Their presentation of high scores across the SAVRY Total and Domains, indicate a greater likelihood of problematic histories of abuse, substance use and family disorganization.

Predictive Validity

The re-offense rate of the cohort was comparatively greater than previous Australian reports which have generally found that approximately 50% of youth justice clients re-offend (ABS, 2009; Department of Human Services Victoria, 2001). However the high rates were consistent with recidivism markers found in other Australian studies (Chen et al., 2005; Roberts, 2005). Additionally, greater re-offense rates are more likely in samples in detention (Lennings, 2008; Petrosino, Turpin-Petrosino, & Guckenburg., 2010) reflecting the high risk nature of the participants in our study. Of the three instruments investigated, the SAVRY and YLS/CMI equally demonstrated the greater predictive efficacy (AUC = .71, $p < .001$) for the total cohort for General Recidivism. The predictive validity of the PCL:YV was comparatively lower though still moderately accurate (AUC = .66, $p < .01$). The results reflected previous studies indicating a relationship between the instruments and re-offense outcomes (Catchpole and Gretton, 2003; Dolan and Rennie, 2008; Schmidt et al., 2005; Schmidt et al., 2011; Welsh et al., 2008). Although some studies have shown the SAVRY to outperform the YLS/CMI (Schmidt et al., 2011; Welsh et al., 2008) the effects found in this study are reasonable given that the YLS/CMI was designed to forecast general re-offense. Point bi-serial correlations reinforced the validity of the SAVRY (GR: $r_{pb} = .33$, $p < .01$; VR: $r_{pb} = .30$, $p < .01$) and YLS/CMI (GR: $r_{pb} = .33$, $p < .01$; VR: $r_{pb} = .29$, $p < .01$) Total Scores producing moderately positive relationships with both forms of recidivism. For violent recidivism, the predictive accuracy of the instruments was inferior though still aptly predicting violent re-offense. It is also likely that a portion of re-offenders were incapacitated after an initial general re-offense thus preventing further opportunity for a future violent re-offense in the community. Several prior studies discovered higher base rates of general recidivism among their cohorts compared to violent recidivism, perhaps due to the broader offense category of general recidivism (Catchpole & Gretton, 2003; Stockdale et al., 2010). Both the SAVRY (AUC = .66, $p < .001$) and YLS/CMI (AUC = .66, $p < .01$) produced moderate AUC scores for violent recidivism, while the PCL: YV AUC value was marginally lower (AUC = .64, $p < .01$). Though higher AUC scores were

anticipated for the SAVRY in the prediction of violent re-offense given that it was specifically constructed to predict violence, previous comparative literature has found that both the YLS/CMI and PCL:YV have been able to predict violent recidivism at comparable levels to the SAVRY (Olver et al., 2009). Principally, the findings indicate that all three instruments exhibited an adequate capability to predict both general and violent recidivism for a typical Australian youth offender cohort.

The predictive ability of SAVRY domains showed strong relationships between AUC scores and re-offense. In particular the Socio/Contextual risk factor domain had a strong influence on general recidivistic outcomes (AUC = .71 $p < .001$, $r_{pb} = .32$ $p < .01$) reflecting research demonstrating the effect environmental dynamic factors have on shaping adolescent behavior (Farrington and Loeber, 2000; Loeber and Hay, 1997; Shepherd, Luebbers, & Dolan., 2013). This was bolstered by dynamic items 'Peer Delinquency' and 'Poor Parental Management' displaying significant influence in the logistic regression model for recidivism. The Protective Factor domain demonstrated a strong negative effect on recidivism indicating a robust relationship between the greater presence of protective items and the mitigation of future offense. (AUC = .76, $p < .001$, $r_{pb} = -.45$ $p < .01$). This encouraging result underscores the importance of developing research delineating adolescent resilience and desistance from crime. The SAVRY Risk Rating demonstrated moderate predictive accuracy for recidivism which is in line with extant SAVRY validation literature (Dolan and Rennie, 2008; Penney et al., 2010;).

The risk inventories displayed moderate to strong predictive accuracy for recidivism across gender, though few values reached statistical significance for the female sample. Though consistent with previous research, the SAVRY Total Score and Risk Rating demonstrated predictive accuracy for both forms of re-offense for males (Catchpole and Gretton, 2008; Lodewijks et al., 2008b). The YLS/CMI Total Score performed similarly well for males though the PCL: YV showed marginally lower accuracy for General recidivism. For the female cohort, strong AUC scores were obtained across SAVRY Total Scores and Domains. These results were similar to other international SAVRY studies assessing female participants (Gammelgard

et al., 2008; Meyers and Schmidt, 2008; Penney et al., 2010) though only the Protective Factor domain for general recidivism and the Socio/Contextual Domain for violent recidivism reached significance. The comparatively low female sample size in the study is likely to have contributed to findings that did not reach statistical significance. Conversely the strong AUC values are substantive given that significant moderately strong correlations were obtained for the SAVRY Risk Rating for both forms of recidivism and the SAVRY Socio/Contextual Domain for general recidivism for the female group. The statistically significant high AUC value and correlation co-efficient for the Protective Factor Domain for general recidivism, underscores the strength of the relationship between this domain and non-recidivism for females. Similarly the Socio/Contextual Domain which reached significance for violent recidivism indicates that the items in this domain which encompass family and social dynamics are salient when addressing young female delinquency as reflected by gender pathways literature. Both the YLS/CMI and PCL:YV produced findings with probabilities no greater than chance though the PCL:YV Total Score calculated a strong AUC value of 0.78 for general recidivism, outperforming the YLS/CMI. The predictive accuracy of the YLS/CMI was similar to previous research including an Australian study which reached a similar AUC value for recidivism, though significant (Thompson and McGrath, 2011). Earlier research has produced varying results investigating the PCL:YV with female adolescent cohorts (Edens et al., 2006) including assertions that the manifestation of the psychopathic construct differs across gender (Bolt, Hare, Vitale, & Neumann., 2004; Forouzan and Cooke, 2005). However, the results suggest stronger predictive accuracy for the female cohort than the male cohort using the PCL: YV though findings should be interpreted with caution due to the lower number of female participants.

Item Contribution to Re-offense

Binary Logistic Regression analysis identified a model comprising three cogent predictor items from the SAVRY instrument that significantly characterized general and violent recidivism for the overall sample. Two items, 'Peer Delinquency' and 'Poor Parental Management' were strong predictors of both re-offense outcomes. Together with 'Parental/Caregiver Criminality' the third predictor for general recidivism, these problematic family and social circumstances are widely considered to be influential in the development of youth criminality (Farrington, 1993; Hawkins et al., 1998). 'Past Supervision/Intervention Failure', the third strongest predictor of Violent recidivism, is consistent with extant literature identifying previous indiscretions and contact with the justice system as key elements for future re-offense (Hua et al., 2006; Lynch et al., 2003).

Conclusion

Limitations and Implications

Findings for the study support the use of the SAVRY, YLS/CMI and PCL: YV instruments in the prediction of general and violent recidivism for a typical Australian youth offender detention sample. Further research is required to ascertain the instruments' applicability to females. Though conclusions concerning validation for female youth offenders were compromised given the sample size, the occurrence of strong effects for particular domains was encouraging. The sample size is also reflection of the exceptionally low number of young female offenders in custody in Victoria. Similar cohort quantities were employed in prior SAVRY research on young females in detention (Lodewijks et al., 2008a; Meyers & Schmidt, 2008). It should be noted that the female sample represented a higher risk group due to regional policies that detain only severe female youth, though standards should largely extend to other Australian jurisdictions.

The study underscored the utility of the risk instruments in guiding clinical assessment which aids case management planning through targeting known risk factors for violence. In the study,

key risk items on the SAVRY tapping dynamic social and environmental spheres were determined as having strong relationships with re-offense outcomes. In particular, Protective Factor items encompassing positive behaviors and influences were discovered to robustly mitigate both forms of recidivism for males and females. Additional inquiry into the characterization of protective factors across gender for desisting young offenders is recommended. Furthermore, the study demonstrated that environmental factors including peer delinquency and parental management were fundamentally associated with recidivistic outcome. The findings signaled the ability of the SAVRY to identify specific treatment targets, in addition to emphasizing the impact domestic and social factors have on future re-offense. The three adolescent risk instruments are still relatively novel and given that the study was the first to examine comparable validity in Australian correctional conditions, a larger body of regional evidence is advocated. In particular, replication and incremental validity investigations are suggested for future violence risk research with Australian young offender sample.

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Tables

Table 1. Risk instrument mean scores and recidivism outcome (%) for total sample and across gender

	Total (*N* = 213)		Male (*N* = 175)		Female (*N* = 38)	
	M (*SD*)	%	*M* (*SD*)	%	*M* (*SD*)	%
SAVRY Total Score	26.7 (9.6)		26.2 (9.5)		28.8 (10.0)	
SAVRY Historical	10.6 (4.1)		10.3 (4.1)[a]		11.8 (4.1)[b]	
SAVRY Socio/Contextual	6.9 (2.9)		6.7 (2.9)[a]		7.8 (2.8)[b]	
SAVRY Individual	9.2 (4.0)		9.1 (3.9)		9.2 (4.6)	
SAVRY Protective	1.8 (1.9)		1.8 (1.9)		1.4 (1.6)	
YLS/CMI Total Score	25.5 (7.9)		25.2 (8.1)		26.8 (7.1)	
PCL: YV Total Score	18.3 (6.9)		18.5 (6.8)		17.5 (7.1)	
General Recidivism (*N*=173)		77.5		74.8		88.2
Violent Recidivism (*N*=173)		61.3		59.0		70.6

Note: a) SAVRY = Structured Assessment of Violence Risk in Youth (Borum, et al., 2003); b) Revised Sample of 173 includes 139 Male, 34 Female; c) Scores with different subscripts differ significantly within rows.

Table 2. Correlations and Area Under the Curve values of Instrument Scores for Recidivism Outcomes.

Group and Inventory	General Recidivism			Violent Recidivism		
	r	AUC (*SE*)	CI 95%	*r*	AUC (*SE*)	CI 95%
Total						
SAVRY Total Score	.33**	.71 (.05)***	.62 - .80	.30**	.66 (.04)***	.58 - .75
SAVRY Risk Rating	.32**	.69 (.05)***	.59 - .79	.28**	.65 (.04)**	.56 - .73
SAVRY Historical	.28**	.69 (.05)***	.59 - .78	.29**	.66 (.04)***	.58 - .74
SAVRY Socio/Contextual	.32**	.71 (.05)***	.60 - .81	.27**	.65 (.04)**	.56 - .74
SAVRY Individual	.26**	.67 (.05)**	.57 - .76	.21**	.62 (.04)**	.53 - .70
SAVRY Protective Factor	-.45**	.76 (.04)***	.68 - .85	-.37**	.71 (.04)***	.63 - .79
YLS/CMI Total Score	.33**	.71 (.05)***	.62 - .81	.29**	.66 (.04)**	.57 - .74
PCL:YV Total Score	.24**	.66 (.05)**	.55 - .76	.25**	.64 (.04)**	.55 - .72
Male						
SAVRY Total Score	.32**	.70 (.05)***	.60 - .79	.29**	.66 (.05)**	.57 - .75
SAVRY Risk Rating	.30**	.68 (.05)**	.57 - .78	.25**	.64 (.05)**	.54 - .73
SAVRY Historical	.28**	.67 (.05)**	.57 - .77	.30**	.66 (.05)**	.57 - .75
SAVRY Socio/Contextual	.30**	.69 (.06)**	.58 - .80	.23**	.63 (.05)*	.53 - .72
SAVRY Individual	.26**	.66 (.06)**	.55 - .77	.21**	.62 (.05)*	.53 - .71
SAVRY Protective Factor	-.43**	.75 (.05)***	.65 - .84	-.37**	.71 (.05)***	.62 - .79
YLS/CMI Total Score	.34**	.72 (.05)***	.62 - .82	.29**	.65 (.05)**	.56 - .75
PCL:YV Total Score	.24**	.66 (.06)**	.55 - .76	.27**	.66 (.05)**	.57 - .75
Female						
SAVRY Total Score	.34	.77 (.19)	.40 – 1.00	.29	.65 (.12)	.42 - .89
SAVRY Risk Rating	.37*	.76 (.14)	.49 – 1.00	.35*	.69 (.11)	.48 - .90
SAVRY Historical	.25	.71 (.19)	.33 – 1.00	.20	.62 (.12)	.39 - .84
SAVRY Socio/Contextual	.34*	.75 (.18)	.40 – 1.00	.38*	.73 (.10)*	.54 - .92
SAVRY Individual	.31	.76 (.14)	.50 – 1.00	.23	.64 (.12)	.41 - .87
SAVRY Protective Factor	-.52**	.87 (.09)*	.69 – 1.00	-.34	.70 (.10)	.50 - .90
YLS/CMI Total Score	.22	.65 (.16)	.32 - .97	.31	.64 (.12)	.41 - .87
PCL:YV Total Score	.31	.78 (.16)	.46 – 1.00	.23	.63 (.12)	.40 - .86

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

Table 3. Logistic Regression Model - The contribution of SAVRY items in predicting General and Violent Recidivism (*N* = 173)

	B	*SE*	Wald	*p*	Exp (B)
General Recidivism					
Item 8: Parental/Caregiver Criminality	.926	.374	6.124	.013	2.524
Item 11: Peer Delinquency	.875	.321	7.408	.006	2.398
Item 14: Poor Parental Management	.727	.272	7.131	.008	2.069
Violent Recidivism					
Item 4: Past Supervision Intervention Failure	.446	.203	4.823	.028	1.562
Item 11: Peer Delinquency	.695	.301	5.332	.021	2.003
Item 14: Poor Parental Management	.789	.244	10.470	.001	2.202

6.0 Chapter Six: Integrated Discussion

6.1 Overview of Main Findings

The aim of the studies conducted in the thesis was to understand the nature and characteristics of youth violence in an Australian context through the application of violence risk assessment measures. The overarching objective was to investigate the efficacy of North American developed juvenile risk assessment inventories in an Australian young offender population. By assessing the utility and validity of structured approaches to violent risk assessment, we were able to determine the prevalence of salient risk factors for violence across a typical adolescent Australian custodial cohort and their collaborative influence on future recidivism. The second key objective was to determine if the risk prediction methods were able to generalize to young Australian female and ethnic minority offenders. This was assessed through the comparative occurrence of instrument risk items and subsequent predictive ability for re-offense across subgroups.

The findings from the three studies in the thesis establish the adequate capability of the SAVRY, the YLS/CMI and the PCL: YV to estimate general and violent recidivism for a representative group of young Australian offenders in custody. Across gender the three instruments and SAVRY Domains exhibited moderate accuracy for young males though for females only the SAVRY Socio/Contextual and Protective Factor Domains significantly predicted any form of re-offense. Strong correlations between instrument scores and recidivistic outcome were obtained for both males and females, though again for females only the SAVRY Risk Rating, SAVRY Socio/Contextual and Protective Domains achieved acceptable significance. Additionally the SAVRY was able to primarily identify gender differences across SAVRY items. Young female offenders were more likely to present with higher levels of family dysfunction, peer rejection and self-injurious behavior. The capacity of the SAVRY to identify risk factors for violence and furthermore predict recidivism commensurately across unique Australian ethnic subgroups was also explored. The results showed the SAVRY Total

Score, Risk Rating and its Domains to predict both forms of recidivism for the ESB group. In contrast, the SAVRY did not predict any type of recidivism for the heterogeneous CALD grouping. For Indigenous participants, the SAVRY demonstrated strong predictive validity across a number of Domains, though several values were unable to reach acceptable levels of significance.

Overall the SAVRY Risk Rating was able to suitably discriminate between level of risk and time to re-offend. Additionally SAVRY risk items Parental/Caregiver Criminality, Peer Delinquency, Poor Parental Management and Past Supervision/Intervention Failure, proved to be the strongest concert of predictor items explaining future re-offense for the entire young offender cohort.

The interpretations of the main findings are discussed systemically. This is followed by a consideration of the clinical, social and political implications of the overall study's outcomes. Finally limitations and directions for further research are addressed.

6.2 Exegesis of Results

6.2.1 Gender

The SAVRY instrument provided baseline scores enabling a breakdown of the key risk factors for violence for young females and young males in the cohort. Total SAVRY scores were comparatively higher than previous SAVRY literature (Bartel & Forth, 2000; Lodewijks et al., 2008a; Schmidt et al., 2011; Welsh et al., 2008) reflecting the high-risk nature of the sample. More than half of the overall sample received a High-Risk Rating, including 60.5% of the female cohort. The severity of the sample is likely to be a manifestation of the therapeutic focus of Victoria's youth justice rehabilitation policy (See Luebbers & Ogloff, 2010). Given that young offenders and in particular young females, are frequently diverted to community based alternatives, only the more problematic young people are delegated custodial sentences (SAC, 2012). Subsequently a large proportion of the sample across gender presented with a concert of risk items listed on the SAVRY. The high prevalence of prior violence and substance abuse in

the sample demonstrates the violent nature of the participants and is consistent with risk factor literature suggesting that previous violence is a strong indicator of future violence (Farrington, 1991; Loeber & Hay, 1997).

Extant research identifies the pervasiveness of drug use among delinquent youth, in particular young female offenders who have been found to have higher rates of substance abuse compared to young male offenders (Forsythe & Adams, 2009; Lennings, Kenny, & Nelson, 2006; Loxley & Adams, 2009; Prichard and Payne, 2005). Moreover, high rates of drug related violence found among participants is consistent with established links between substance abuse and youth aggression (Farrington & Loeber, 2000; Hoaken & Stewart, 2003; Morgan & McAtamney, 2009). Gender disparities across Socio/Contextual Domain and item scores were noteworthy and observed in previous risk assessment literature (Penney et al., 2010). In particular items tapping the breakdown of family/peer group structures and bonds were commonplace among female participants. This is consistent with gender-specific risk literature which emphasises the importance of positive family interaction and security for young females (Chesney-Lind, Morash, & Stevens, 2008; Funk, 1999; Gilligan, 1982; Van Voorhis, Wright, Salisbury, & Bauman. 2010). Large numbers of imprisoned females have purportedly endured unsupportive, abusive families and domestic relationships (Gavazzi, Yarcheck, Chesney-Lind, 2006; Hubbard & Pratt, 2002; McCabe, Lansing, Garland, & Hough, 2002).

Feminist literature advances gender-unique female trajectories which initiate with dysfunctional households leading to truancy, economically motivated crime, a deviant social circle, further victimization and substance abuse (Daly 1992, 1994; Owen, 1998). Furthermore, reports declare the higher rates of previous trauma and mental illness presented by female offenders compared to male offenders (AIHW, 2011; Teplin, Abram, McLelland, Dulcan, & Mericle, 2002; Timmons-Mitchell et al., 1997; Wasserman & McReynolds, 2011). The association of psychopathology and self-injury among female offenders has been observed (Dolan & Vollm, 2009) and was demonstrated by the significantly higher proportion of female participants who presented with prior suicide attempts and self-harming behavior. This

overrepresentation is consistent with former risk-factor investigations (Gammelgard et al., 2008; Penney et al., 2010). The paucity of female participants in the study presenting with the Protective Factor 'Pro-social Involvement' is similarly indicative of the estrangement induced antisocial lifestyle proposed by gender-specific pathway theories.

In line with the earlier violent characterisation of the sample, over 77.5% of the cohort generally re-offended and 61.3% violently re-offended. A greater proportion of female participants re-offended both generally and violently. For females the three juvenile violence risk assessment inventories, the SAVRY, the YLS/CMI and the PCL: YV offered moderate to strong AUC values, yet were unable to reach acceptable statistical significance. This was anticipated due to the disproportionate number of females in custody, though strong associations were identified between the SAVRY Socio/Contextual Domain and recidivistic outcome. The Socio/Contextual Domain produced a significantly strong AUC value for both forms of re-offense and equally demonstrated moderate positive correlations. The findings affirm that the high prevalence and heavy weighting of social factors for young female offenders are accordingly associated with future recidivism. Additionally, the lack of Protective Factors for females was highly significant of future offense.

A strong negative correlation was identified between a stronger Protective Domain and re-offense. These outcomes suggest the influence of dynamic and circumstantial factors in prompting future delinquency, particularly aspects surrounding negative peer group impact and associated maladaptive behaviors. Extant research on dynamic risk factors and risk 'state' underline the necessity to address this sphere due to the proximate impact on future delinquency, as opposed to historical and static items that remain fixed (Douglas & Skeem, 2005; Dowden & Andrews, 2000; Thornton, 2002; Ulrich & Coid, 2011). For male participants, the instruments performed suitably predicting both general and violent recidivism. AUC values were in line with previous risk assessment studies (Meyers & Schmidt, 2008; Schmidt et al., 2011). Also correlations between inventory scores and outcome were generally moderate. Similarly to female participants, the SAVRY Protective Domain generated a significantly

strong AUC value for males, again underscoring the importance of mitigating factors in offsetting future recidivism. Previous research has demonstrated the alleviating impact of resilience, positive relationships and school and community involvement on future delinquency (Farrington, Loeber, Jollife, & Pardini, 2008; Hart, O'Toole, Price-Sharps, & Shaffer, 2007; Jessor, Van Den Bos, Venderryn, Costa, & Turbin, 1995; Ullrich & Coid, 2011). The effect of Protective Factors for females in the study was stronger than previous SAVRY research (Schmidt et al., 2011).

6.2.2 Ethnicity

No previous literature had examined the facility of the SAVRY Domains and Risk items to illustrate a young offender sample in an Australian environment. The lion's share of risk assessment research has centred on White/Caucasian participants who, moreover, were predominantly the empirical subjects observed in risk instrument construction. The frequency and acuteness of the SAVRY properties were comparatively investigated across three Australian Ethnic sub-categories; ESB, CALD and Indigenous. Findings indicated significant ethnic differences across SAVRY Total, Domain and Individual Item scores. Both Indigenous and ESB participants presented with higher than average SAVRY scores which were significantly greater than CALD participant scores on the Historical Domain and SAVRY Total. The Indigenous group had the highest mean Total Score of the three ethnic groups.

Previous Australian research observed Indigenous young offenders to present with significantly higher YLS/CMI-AA Total Scores than young non-Indigenous offenders (Thompson & McGrath, 2012; Frize, Kenny, & Lennings, 2008). This is a likely consequence of the contemporary disadvantaged position of many Indigenous people stemming from the adverse effects of colonization and dispossession of the land. The elevated scores on items associated with previous criminality, negative surroundings and maladaptive behaviors, conceivably reflect historical and generational distress, and disconnection. Indigenous

participants obtained the highest mean scores on the Historical Domain reflecting a plethora of research describing situations of dysfunction, discrimination and abject poverty faced by many young Indigenous people (House of Representatives Standing Committee on Aboriginal and Torres Strait Islander Affairs, 2011; Wundersitz, 2010). For example, IND participants were significantly more likely to have had a criminal parent or caregiver, a result reflected by official statistics (Kenny, Nelson, Schreiner, Lennings, & Butler, 2008). The over-representation of Indigenous people in Australian prisons is well documented (Livingston, Stewart, Allard, & Ogilvie, 2008; Richards, 2011a). Indigenous participants were also significantly less likely to present with protective factors tapping pro-social involvement and social support. Given early exposure to deleterious surroundings, Indigenous offenders are more likely to be processed through the criminal justice system at a younger age, a customary risk factor for future criminality (AIHW, 2012b; Lynch, et al., 2003). In the study, Indigenous participants were significantly more likely than CALD participants to have received prior supervision orders and to breach them.

Previous evidence also suggests Indigenous offenders are less likely to receive diversions at premature stages during their criminal pathways (Allard et al., 2010). Expectedly the Indigenous group had the highest proportion (63%) of their cohort receiving a High Risk Rating. Consistent with Australian research from New South Wales, both the Indigenous and ESB groups displayed a comparable level of risk factor occurrence (Kenny & Lennings, 2007). Both groups displayed higher levels of substance abuse, poor school achievement, risk taking and hyperactivity compared to the CALD group. Substance and alcohol abuse is particularly problematic among Indigenous offenders and reports denote higher rates of abuse among Indigenous people compared to the mainstream population (Catto & Thompson, 2008; Wundersitz, 2010)

The lower presence of risk factors among the CALD group is an area that requires further examination. CALD offenders, spawning from a number of divergent ethnic origins could display unique risk factors for violence owing to demanding emigration experiences, in

addition to assimilation difficulties and discrimination in Australia. Future studies need to investigate the potential risk factors associated with refugee and asylum seeker status, many of which have suffered post-traumatic stress from experiencing widespread violence, displacement and family separation (Kaplan, 2009; Office of Multicultural Interests, 2009). Research has asserted the potential for cognitive deficiency in young migrants who have experienced such traumas (Fraine & McDade, 2009; Kaplan, 2009). Other literature illustrates attitudes of judicial mistrust within the CALD community, and a reluctance to openly disclose family and community grievances to authorities (Bartels, 2011; Kenny & Lennings, 2007). Enquiries are necessary to ascertain if convictions of privacy, cultural or otherwise, extend to clinical interviews which may be viewed as intrusive. The withholding of information in these circumstances may have repercussions for accurate risk prediction.

Gang violence among some CALD groups of youth is largely dramatized in the media and has been described as a reaction of a minority within a minority who struggle with alienation, a bombardment of Western Values, police profiling and racism (Collins, 2005; Collins, Noble, Poynting, & Tabar, 2000; White, Perrone, Guerra, & Lampugnani, 1999). Nonetheless, in this study 78.3% of CALD participants had a history of violence. A previous study from NSW investigating Cultural Group Differences discovered young CALD offenders to be more likely to commit serious offenses such as aggravated and sexual assault (Kenny & Lennings, 2007). Additionally, a higher percentage of CALD participants showed a lack of remorse or lacked empathy compared to ESB and IND offenders in our study. Criminal patterns and antecedent life experiences of the ethnicities that comprise the CALD group require further delineation, particularly as a recent Australian jurisdictional report revealed that over 20% of prison inmates were born outside of Australia (Corben, 2010).

The predictive validity of the SAVRY across ethnicity produced contrasting findings. The instrument was able to accurately forecast general and violent recidivism for ESB participants at a moderate to strong level in line with other research (Meyers & Schmidt, 2008). AUC values which ranged from .66 to .80 across domains demonstrate the SAVRY's utility for

young ESB offenders in an Australian custodial setting. Given that the SAVRY was developed on an ethnically similar cohort, validity was anticipated. Partial predictive validity was obtained for the Indigenous group. Though receiving strong AUC values for each domain, some did not reach acceptable significance levels. Nonetheless, the SAVRY Total Score was able to accurately predict violent recidivism for IND participants, likewise the SAVRY Risk Rating and Historical Domain. Furthermore, the Socio/Contextual, Individual and Protective Factor Domains were all able to predict general recidivism for Indigenous participants. The findings are particularly salient given the comparatively smaller sample size. They also supplement the high SAVRY scores received by Indigenous participants indicating that the cumulative effect of risk items increases the likelihood of a higher risk rating and subsequent future recidivism. The high rate of recidivism in the Indigenous cohort is consistent with contemporary reports documenting the disproportionate number of Indigenous offenders who are recidivists (Chen et al., 2005; Snowball, 2008; Snowball & Weatherburn, 2006; Vignaendra & Fitzgerald, 2006). Indigenous offenders had the shortest mean survival time to re-offense after release, of the three groups. The equally elevated prevalence of risk factors across SAVRY domains for Indigenous participants, and the subsequent validity of those domains to predict recidivism, reflects the disadvantaged position of many Indigenous people in Australian society. Potential solutions to this predicament are discussed in the section on implications and future directions. The strength of Protective Factors in alleviating recidivism for the ESB and Indigenous groups indicate that progressive dynamic approaches are critical in developing rehabilitation strategies. For the CALD group, the SAVRY was unable to accurately predict any form of recidivism. As previously identified CALD participants represent a myriad of dissimilar ethnic groups with an array of cultural practices and histories. Though the SAVRY has previously demonstrated validity with African American and Hispanic American subjects (Vincent et al., 2011), both ethnic categories have stronger historical and cultural foundations within the region. CALD participants not only differ in cultural background, but they also comprise refugees, asylum seekers, economic and networking migrants. Consequently their criminal motivation and patterns are likely to differ enormously and this is largely unaccounted for in the extant

literature. Risk factors may also generationally transform after successful assimilation. Previous research has detected differences in factors of risk between newly arrived and established migrants (Titzmann, Raabe, & Silbereisen, 2008). Until further research has been conducted on CALD offenders, caution must be exercised when utilising the SAVRY violence risk instrument with this grouping.

6.2.3 Overall Utility

This was the first study exploring the utility of the SAVRY in a conventional Australian juvenile cohort. It was also the first study to validate collectively the SAVRY, the YLS/CMI and the PCL: YV in Australia. For general recidivism the instruments demonstrated adequate validity, though the SAVRY and YLS/CMI marginally outperformed the PCL: YV. All instruments obtained similarly moderate AUC values for violent recidivism. Stronger correlations between Total Score and outcome were observed for the SAVRY and the YLS/CMI over the PCL: YV. The predictive accuracy of violent recidivism was lower, due to the likelihood that participants were re-incarcerated after an initial general re-offense. Being high-risk offenders and subject to strict community sanctions on release, any offense regardless of severity would perhaps result in an immediate return to custody. Also it is likely that high-risk offenders underwent treatment during their time in custody post-interview, and ongoing community supervision and rehabilitation on release, conceivably diminishing their chances of immediate violent behavior.

The comparative validity of the risk measures resembled previous literature (Catchpole & Gretton, 2003; Olver et al., 2009; Schmidt et al., 2011) and the YLS/CMI Total Score is consistent with a previous Australian study featuring a similarly diverse sample. The SAVRY Risk Rating feature displayed effective discernment between risk categories. Participants delegated a Low Risk Rating, were least likely to re-offend (47.6%) and additionally

experienced the longest survival time in the community. By contrast, 85% of High Risk Offenders were recidivists and endured the shortest number of days until re-offense.

An investigation into the contribution of SAVRY items to the re-offense outcome determined that irresponsible parental conduct and negative peer influence were central. Social Learning theory and Differential Association theory describe the fashioning of antisocial behavior following poor socialisation and interaction with a criminal element (Bandura, 1977; Sutherland, 1937). Moreover, poor parental management and criminality have long been established as risk factors for criminal continuity in offspring (Bijleveld & Wijkman, 2009; Capaldi & Patterson, 1996; Farrington, 1989; Loeber & Stouthamer-Loeber, 1986; Murray, Farrington, & Sekol, 2012). Also, the literature on the impact of peer delinquency and gang membership on future antisocial behavior is similarly extensive (Battin, Hill, Abbott, Catalano, & Hawkins, 2006; Lipsey & Derzon, 1998; Loeber et al., 2005; Moffitt, 1993). Further attention is required to develop regional approaches to combat issues of trans-generational offending. Additionally schemes to deter vulnerable youth from entering delinquent peer networks within an Australian framework are crucial. Both issues are intersected and likely require the service of broader social policies aimed at addressing the origins of cyclic familial disorder, disenfranchisement and misconduct.

6.3 Limitations and Strengths

The project was able to generate interesting and thought provoking findings providing a solid foundation for ongoing research. Several methodological strengths were largely responsible for the significant findings detected in the studies. A sample of 215 young offenders was obtained affording sufficient statistical power for the analyses undertaken. Given the comparatively smaller number of young offenders in custody in Victoria, the sample included the vast majority of clients serving custodial sentences at the three justice centres over the collection period. The attrition rate was exceptionally low with only two participants excluded due to incomplete interviews. The ability to attract and interview the majority of available clients

ensured that a relatively large group of Indigenous offenders were assessed. This was particularly significant for the study, given that the state of Victoria has the lowest proportion of Aboriginal prisoners in Australia (ABS, 2013). Participants were interviewed for 90 minutes on average, providing sufficient time for the collection of information. Collateral material comprising client criminal and mental health records additionally enabled informed appraisals.

The overall study was not without limitations. First, the age parameters of the cohort were comparatively wide including young adult offenders up to the age of 21 years. The legal age for a young offender is 10-17 years of age in all Australian jurisdictions, except Queensland which is 10-16 years (AIC, 2005). However as previously elucidated, the dual-track legislation in Victoria allows for young adults deemed to be immature and exhibiting a reasonable expectation of rehabilitation, to be triaged to the youth justice system.

Second, the sample size of female youth was much smaller than for the male youth. Although this reflected the disproportionate ratio of male offenders in custody in Australia, it limited the analyses that could be done within the female population.

Third, the follow-up time implemented in the study was shorter than previous studies. However the follow-up time allowed for an adequate test of predictive validity of the measures since the sample was particularly high-risk and a high proportion of participants re-offended within three months of release. Therefore, the follow-up time was deemed appropriate. Last, recidivism was defined as ‘police charges’ of which may be an overestimation of re-offense as not all charges lead to a conviction (see Richards, 2011c). Contrastingly, a great deal of juvenile crime goes unreported and ‘police charges’ only represent the offenses that were brought to police attention.

6.4 Implications and Avenues for Future Research

The findings and limitations from the broader study raise a number of key issues and concerns for future consideration. Further validation investigations testing the three adolescent risk instruments across Australian correctional environments are suggested. Although the studies' cohort was characteristic of nationwide youth custodial populations, Juvenile justice conventions and legislation differs among the states and territories. Ongoing examination of the utility of youth risk assessment instruments in Australia would promote a deeper understanding of jurisdictional criminogenic need. This would facilitate a stronger regional risk assessment framework.

Although the study implemented a dichotomous re-offense outcome, commonplace in risk assessment literature, it is not the sole index for the efficacy of a risk instrument. As noted by Anthony Maden, 'Expectations need to be realistic….A search for specific predictions is bound to lead to disappointment' (Maden, 2007, p.11). The purpose of contemporary risk instruments is principally to identify pertinent risk factors for violence and to generate a corresponding risk level to aid risk management and treatment decisions. To this end, developing research has investigated the outcomes of instrument implementation on case worker approaches and case management strategies (Luong & Wormith, 2011; Vincent et al, 2012a; Vincent et al., 2012b).

Additional examination of risk factors for violence for both Indigenous and CALD young people is necessary. Developing research on Indigenous criminal trajectories detail the problematic life experiences young Indigenous people face, though further work is required to delineate which particular factors interact specifically with chronic and violent crime. Recent reports discovered elevated rates of conduct disorder and Intellectual Disability in young Indigenous offender samples (Frize et al., 2008; Kenny & Lennings, 2007). The prevalence and identification of mental health disorder among Indigenous young people and the broader Indigenous community is an area warranting further investigation. The involvement of

Indigenous community leaders, elders and academics, is also recommended in the decision making process regarding the usage and implementation of risk instruments that are intended to be verified on Indigenous people. It is critical that accurate levels of risk are assigned to Indigenous offenders given the traumatic history of government intervention in the lives of Indigenous people, high rates of Indigenous deaths in custody, and the tension between Australian and traditional law. Also, a number of culturally appropriate community level programs designed to reduce Indigenous offending are emerging (Australian Nation Council on Drugs, 2013; Macklin & Gilbert, 2011; Richards, Rosevear, & Gilbert, 2011), offering rehabilitation services for Indigenous offenders of a particular risk level.

The findings of the study indicate that the SAVRY is a promising measure for identifying and predicting recidivism for high-risk Indigenous youth in custody. Though preliminary evidence is encouraging, it is essential that prospective Australian research replicates this study and with larger samples if feasible. Moreover, the comparative applicability of the instrument across young Indigenous male and female offenders warrants consideration.

As the predictive ability of the SAVRY for CALD participants was no greater than chance, further investigations are required. It is also necessary to establish a risk factor base for minority offender groups in Australia. Emerging research has list a number of barriers faced by CALD immigrants including language difficulties, discrimination, post-migration trauma and a lack of specialist employment services (Abdelhakim & Grace, 2011; Bartels, 2011). The expedient umbrella category *Culturally and Linguistically Diverse* may not be feasible for risk factor research given that it comprises a myriad of unique ethnic subgroups. Though the SAVRY demonstrated appropriate accuracy for the overall sample, this was in effect due to the higher proportion of ESB offenders. Caution is advised using the SAVRY with CALD affiliated participants until further risk factor research is able to identify solid risk items and patterns for various minority groups. This is particularly crucial for recently arrived asylum seekers and refugee offenders. The author recommends that CALD participants are clinically

assessed by, or assessed in the presence of, a professional of similar ethnic background. A number of government funded community programs have been developed to assist CALD immigrants through the difficult integration process (Bartels, 2011; Centre for Multicultural Youth, 2011). Similar collaborative efforts could promote culturally based therapeutic programs designed to address the needs of young CALD offenders.

Across gender, findings complimented gender-specific pathway research and indicate the potential need for gender based intervention strategies. Given that family and peer disconnect is a problematic theme for young females and manifests in delinquency, programs could focus on repairing family and social bonds. Furthermore, strategies are required to address the high rates of specific traumas experienced by female offenders, importantly in a supportive and empathic environment (Bauman, Gehring, & Van Voorhis, 2009). The SAVRY, YLS/CMI and PCL: YV require further validation testing on Australian young female offenders to ensure generalizability. Nonetheless, the investigation established the potency of dynamic factors across the sample, signalling the need for further examination of the effect fluid risk items have on future offense. This includes the exploration of Protective Factors such as resilience and pro-social involvement and their impact in mitigating delinquency across ethnicity and gender.

Finally due to the high prevalence of self-reported gang membership within the sample, the author believes additional inquiry into gang-related violence is important. Additionally, given that recent research posits that violent offenses involve a higher number of offenders, the dynamics of group violence and influence on those on the periphery requires further attention.

7.0 Chapter Seven: Conclusion

"Few tragedies can be more extensive than the stunting of life, few injustices deeper than the denial of an opportunity to strive or even to hope, by a limit imposed from without, but falsely identified as lying within."

Stephen J. Gould *The Mismeasure of Man* (Gould, 1996).

In the vein of Khalil Gibran's prose, Gould's quotation reflects a discontentment with society's comprehension and adjudication of the susceptible members of society. A misidentification of the origins of one's wrongdoing ultimately results in flawed valuations and unfitting responses. The risk assessment of violent young people is no exception and subsequently commands the acuity and objectivity demanded by Gibran and Gould. Risk assessment is an 'inexact science', particularly when addressing the unpredictable behavioral patterns of delinquent youth. However the cost of not systematically addressing the future risk of violent individuals has unquestionably adverse consequences at the community level and for society as a whole.

The study sought to identify salient risk factors for violence within a typical population of young offenders in custody in Australia. Differences were observed across sex and ethnicity, indicating variant risk trajectories and antecedent influences. Findings confirmed that prominent risk indicators should be considered when implementing case management strategies, particularly for female and cultural subgroups. The study also appraised the validity of the SAVRY, YLS/CMI and the PCL: YV adolescent risk assessment instruments for the custodial cohort. Results demonstrated that the three risk tools were able to accurately predict general and violent recidivism for the overall cohort indicating applicability in an Australian correctional environment. Additionally, the SAVRY was able to identify strong interactions between risk domains and re-offense outcomes for female and Indigenous participants. In contrast, the SAVRY was unable to predict any category of re-offense for the heterogeneous

CALD group. Recommendations for the cautionary use of the instruments with minority groups, and the further investigation of risk patterns across the diverse ethnic categories within CALD, were included. The study was the first to evaluate the properties of the SAVRY instrument in Australia and the first to compare three widely used youth violence risk assessment inventories on any Australian offender population. The author anticipates that this extensive preliminary exploration fosters prospective investigations of youth violence patterns across subgroups and risk instrument appraisal in the Australasian region.

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Appendices

Appendix 1: Participant Consent Form

Appendix 2: Participant Explanatory Statement Form (Plain Language Statement)

Appendix 3: Letters of Ethical Approval

Appendix 4: Structured Interview

Appendix 1: Participant Consent Form

Centre for Forensic Behavioural Science

Monash University
505 Hoddle
Clifton Hill 3068
Vic
Australia
T + 61 3 9947 2600
F + 61 3 9947 2650

Participant Consent Form

Title: The Utility of Structured Professional Judgement Violence Risk Assessments in an Australian Juvenile Offender Population.

NOTE: **This consent form will remain with the Monash University researcher for their records**

I agree to take part in the Monash University research project named above. I have had the project explained to me. I have read the Explanatory Statement, which I keep for my records. I understand that agreeing to take part means that:

- I agree to be interviewed by the researcher ☐ Yes ☐ No
- I agree to being interviewed every 6 months until October 2013 ☐ Yes ☐ No
- I agree to allow the researchers to look at my Youth Justice file to collect information about my personal history ☐ Yes ☐ No
- I agree to allow my Victoria Police Criminal Record Report to be extracted from the LEAP database and provided to the researchers ☐ Yes ☐ No
- I agree to allow my Public Mental Health Record to be extracted from the RAPID database and provided to the researchers ☐ Yes ☐ No

I understand that my participation is voluntary. I can choose not to participate in all or part of the project. I can withdraw at any stage of the project up until the final interview. If I do choose to withdrawal from the study I will not be penalised or disadvantaged in any way.

I understand that any data from the interview and my file that the researchers use in reports or published findings will not contain names or identifying characteristics.

I understand that any information I provide is confidential. No information that could lead to the identification of any individual will be disclosed in any reports on the project, or to any other party. I understand that if the researcher thinks that I might harm myself, others, or may be being harmed by others that they will inform my Justice Health Key Worker

I understand that information from the interviews and my file will be kept in secure storage. It will only be accessed by the researchers. I also understand that the information will be destroyed after 5 years.

Name of Patient	Date	Signature
Name of Person taking consent (if different from researcher)	Date	Signature
Researcher	Date	Signature

If you have a complaint concerning the manner in which this research is being conducted, please contact:
Secretariat Research Coordinating Committee Corporate Strategy and Governance Department
Level 5, Tower 1 Victoria Police Centre 637 Flinders Street Docklands VIC 3008 Tel: +61 3 9247 3690
Fax: +61 3 9247 6712 Email: research.committee@police.vic.gov.au

The Centre for Forensic Behavioural Science operates under the auspices of Monash University and Forensicare

MONASH University Forensicare

Appendix 2: Participant Explanatory Statement Form (Plain Language Statement)

Centre for Forensic Behavioural Science

Monash University
505 Hoddle
Clifton Hill 3068
Vic
Australia
T + 61 3 9947 2600
F + 61 3 9947 2650

Participant Explanatory Statement

January 25, 2012

Title: The Utility of Structured Professional Judgement Violence Risk Assessments in an Australian Juvenile Offender Population.

This information sheet is for you to keep.

Researchers from the Monash University Centre for Forensic Behavioural Science are conducting a study on the assessment of violence risk in adolescents in Australia. This study forms part of an Australian Research Council Discovery Grant. It is being led by Mairead Dolan, a professor in the Department of Psychology and Psychiatry at Monash University. Other researchers involved in the study include Professor James Ogloff, Mr Murray Ferguson, Dr Stefan Luebbers and Mr Stephane Shepherd, whose PhD research forms part of this study.

Why did you choose this particular person/group as participants?
We chose to recruit adolescents who are in custody in Victoria because we are interested in understanding why some youth with a history of violence are able stop behaving in this way and others continue to be violent after they have been released from custody. You have been invited to participate in this study because you are currently on a custodial order in a Youth Justice Centre in Victoria. This explanatory statement provides details about the study. After reading this explanatory statement, if you wish to participate, a researcher will make an appointment to see you. You will be able to ask any questions related to the research. You will need to give consent to participate. Under the National Statement on Ethical Research Involving Humans, we may need to ask your parent or guardian for consent.

The aim/purpose of the research
The aims of this study are 1) to assess how well violence risk assessment questionnaires are able to predict who will and will not be violent in the future, 2) to test whether these questionnaires work well with youth from different cultural backgrounds, and 3) to better understand how brain damage related to head injuries may be related to violent behaviour in youth.

Possible benefits
There are unlikely to be any immediate benefits for you from participating in this study. However, the study will allow us to better understand the reasons that some youth engage in violent behaviour. This may allow us to develop ways to lower the chance of some youth being violent. This could help to reduce the impact of violence on both victims and the youth themselves. This may be possible by helping us to develop violence treatment programs based on the information gathered in this study.

What does the research involve?
The study initially involves being interviewed by a researcher for approximately 2.5 hours. This will involve answering some questions about you and your thoughts and attitudes about violence and offending. It will also involve you completing a number of questionnaires related to your behaviour, emotions and mental health.

We are also asking for permission to read your Youth Justice file to look for information related to your personal background (family history, education, employment, alcohol/drug use, mental health and offending). Additionally, we are asking for permission to access your Victoria Police Criminal History Report in order to assess how well the risk assessment questionnaires perform. Finally, we are asking your permission to access your public mental health history on the RAPID database to help make sure that we are accurately scoring the risk assessment questionnaires.
We also ask you to be available for a short follow up interview ever 6 month until October 2013. These interviews will take approximately 30 minutes each. They will only occur if you are in custody

The research questionnaires are written in English. Because of this, you must be able to speak English to participate.

Appendix 3: Letters of Ethical Approval

VICTORIA POLICE

National Liaison and Research Unit
Strategy and Policy Division
Corporate Strategy and Governance Department

Victoria Police Centre, 637 Flinders Street,
Melbourne VIC 3005
DX 210096
Telephone 9247-3690
Facsimile 9247-6712
Email research.committee@police.vic.gov.au
www.police.vic.gov.au

3 July 2012

Mr. Stephane Shepherd
Centre for Forensic Behavioural Science
505 Hoddle Street
CLIFTON HILL Vic 3068

Dear Mr Shepherd,

Re: RCC 657 – The Utility of Structured Professional Judgement Risk Assessments in an Australian Juvenile Offender Population.

I write to advise you that the Victoria Police Research Coordinating Committee (RCC) has approved your request to undertake the above research involving Victoria Police. This approval is subject to the approval from the Victoria Police Human Research Ethics Committee and evidence of consent from each of the participants.

Please note that Victoria Police Corporate Statistics has costed your request at $440.00.

This approval is contingent on your signing of a legal agreement outlining the conditions governing the conduct of research involving Victoria Police. You will need to complete a Research Access Agreement and return it to Victoria Police before you begin your research. You, and any other staff member or student with access to information collected from Victoria Police, will also be required to complete a Deed of Confidentiality before starting your research.

Copies of the Research Access Agreement, the Deed of Confidentiality and the Victoria Police Research Protocols for External Researchers have been forwarded to you electronically.

If you have any queries or require further clarification please contact the RCC Secretariat on the contact details above.

Yours sincerely,

[redacted]

Dr David Ballek
Secretariat, Research Coordinating Committee

VICTORIA POLICE

National Liaison and Research Unit
Strategy and Policy Division
Corporate Strategy and Governance Department

Victoria Police Centre
Tower 1, Level 5
637 Flinders Street
Docklands VIC 3008
DX 210096
Telephone 9247-6732
Facsimile 9247-6712
Email ethics.committee@police.vic.gov.au
www.police.vic.gov.au

12 December 2012

Stephane Shepherd
School of Psychology and Psychiatry
Monash University
505 Hoddle Street, Clifton Hill,
VIC 3068

Dear Stephane,

189/12: Understanding the nature and characteristics of youth violence in Australia

Thank you for your recent application to the Victoria Police Human Research Ethics Committee (VPHREC). Your application was considered by the committee out of session.

I am now in a position to advise you that your application dated 8/11/2012 has received formal approval for the duration of the project, including any approved extension.

I draw your attention to the terms of the 'Declaration by researcher(s)' in your application, including the following requirements:

- To provide progress reports to VPHREC by 30 June and 31 December each year for the duration of the research project;
- To provide a final report and a copy of any published material at the end of the research project, and
- To notify VPHREC in writing immediately if any change to the project is proposed and await approval before proceeding with the proposed change.

If you have any queries or require further clarification please contact the VPHREC Secretariat on the contact details above.

Yours sincerely,

[redacted]

Nathan Hernandez
Secretariat, Victoria Police Human Research Ethics Committee

MONASH University

Monash University Human Research Ethics Committee (MUHREC)
Research Office

Human Ethics Certificate of Approval

Date:	**21 January 2011**
Project Number:	**CF10/2581 – 2010001407**
Project Title:	**The utility of structured professional judgement violence risk assessments in an Australian juvenile offender population**
Chief Investigator:	**Prof Mairead Dolan**
Approved:	**From: 21 January 2011 To: 21 January 2016**

Terms of approval

1. The Chief investigator is responsible for ensuring that permission letters are obtained, if relevant, and a copy forwarded to MUHREC before any data collection can occur at the specified organisation. **Failure to provide permission letters to MUHREC before data collection commences is in breach of the National Statement on Ethical Conduct in Human Research and the Australian Code for the Responsible Conduct of Research.**
2. Approval is only valid whilst you hold a position at Monash University.
3. It is the responsibility of the Chief Investigator to ensure that all investigators are aware of the terms of approval and to ensure the project is conducted as approved by MUHREC.
4. You should notify MUHREC immediately of any serious or unexpected adverse effects on participants or unforeseen events affecting the ethical acceptability of the project.
5. The Explanatory Statement must be on Monash University letterhead and the Monash University complaints clause must contain your project number.
6. **Amendments to the approved project (including changes in personnel):** Requires the submission of a Request for Amendment form to MUHREC and must not begin without written approval from MUHREC. Substantial variations may require a new application.
7. **Future correspondence:** Please quote the project number and project title above in any further correspondence.
8. **Annual reports:** Continued approval of this project is dependent on the submission of an Annual Report. This is determined by the date of your letter of approval.
9. **Final report:** A Final Report should be provided at the conclusion of the project. MUHREC should be notified if the project is discontinued before the expected date of completion.
10. **Monitoring:** Projects may be subject to an audit or any other form of monitoring by MUHREC at any time.
11. **Retention and storage of data:** The Chief Investigator is responsible for the storage and retention of original data pertaining to a project for a minimum period of five years.

[redacted]

Professor Ben Canny
Chair, MUHREC

cc: Dr Rachael Fullam; Prof James Robert Ogloff; Mr Alexander Murray Ferguson; Mr Stepane Shepherd

Postal – Monash University, Vic 3800, Australia
Building 3E, Room 111, Clayton Campus, Wellington Road, Clayton
Telephone +61 3 9905 5490 Facsimile +61 3 9905 3831
Email muhrec@adm.monash.edu.au www.monash.edu/research/ethics/human/index/html
ABN 12 377 614 012 CRICOS Provider #00008C

Department of Human Services

Incorporating: Community Services and Housing

50 Lonsdale Street
GPO Box 4057
Melbourne Victoria 3001
DX210081
www.dhs.vic.gov.au
Telephone: 1300 650 172
Facsimile: 1300 785 859

OUR REF: ADD/10/44385

YOUR REF:

14 September 2010

Mr Murray Ferguson
Centre for Forensic Behavioural Science
505 Hoddle St
CLIFTON HILL 3068

Dear Mr Ferguson

I refer to your application to the Children Youth and Families Division's Research Coordinating Committee to undertake a study titled 'The Utility of Structured Professional Judgement Violence Risk Assessments in an Australian Juvenile Offender Population'. I appreciate the members of your research team, Professor Dolan and Dr Fullam, meeting with me and my colleagues to further explain the purpose and method of the proposed study.

I have given careful consideration to the expected benefits of the study but also the impact on staff and clients. These are as you would appreciate quite substantial. On balance I am pleased to advise you that the Department of Human Services will support the study, subject to a number of matters being satisfactorily resolved.

The conditions attached to this agreement by the department include the development of protocols regarding access by members of your research team to departmental facilities and clients, proposed publication of materials related to the research and the safeguarding and confidentiality provisions relating to client information. The department also expects a clearly defined work schedule for the duration of the project and agreement on reasonable presentations of the findings from the research to the departmental managers and staff at key intervals during the research study.

The initial departmental contact person for the purpose of developing these protocols and agreements is Mr John Prent, Principal Evaluation Officer, Policy and Client Outcomes Branch. He can be contacted at [redacted] or [redacted]

I look forward to working with you and also Professor Dolan, Professor Ogloff and Dr Fullam on this important project.

Yours sincerely

[redacted]

Kathryn Anderson
Director
Youth Services and Youth Justice

State Government Victoria

Appendix 4: Structured Interview

Youth Justice Interview Markers

DOB _____ Date _____

Ethnicity _____ ID # _____

1. Tell me about your time at primary school? Truancy? Relationship with teachers/students?
2. Tell me about High School? Enjoy? Completion? Grades/Worth Ethic? Opinion on teachers? Friends? Truancy? Importance of school?
3. Work/Volunteering history. Longest job held? Enjoy working? Boss/Colleagues relationships? Problems at work? Sacking/Quit? Turning up late/sickies?
4. How do you support yourself financially? Who helps you?
5. Career aspirations? Long term goals? Barriers to these goals?
6. Family/Caregivers. Who looked/looks after you? Good relationships? Parental/Sibling discord? Parental involvement in life? Discipline? Housemates?
7. Tell me about your friends? Change often? Delinquent? Peer pressure?
8. Partners? Live with? Arguments/Fighting? Children – if have, do you look after them, support them?
9. Do you lie or trick people into doing things for you? Do you get upset when: You don't get what you want/get told off/told what to do? Do people think you are reliable? Do you think you are reliable?
10. Drugs and Alcohol. Age at first use? Regularity? Affect your life/behavior? What triggered use if severe? Cigarette?
11. What do you do with your free time? Bored easily? Risk taking? Weigh up decision?
12. Anger. Often? Why? How long episodes? Angered easily? Lead to fighting? Lose control? Stress – how do you deal with it?
13. What is the happiest you have ever felt? What makes you happy?
14. Saddest time of life? How did you deal with it? Sad often? Depressed?
15. Have you seen a clinician before? Was it helpful?
16. Animal cruelty?
17. Criminality age of onset? Police involvement? Previous arrests/incarceration?
18. Since you were 11 years of age have you ever: Y/N & How many times?
    a. Deliberately destroyed property
    b. Escaped of failed to show up to court
    c. Committed fraud
    d. Possessed or sold drugs
    e. Stolen anything worth more than $50
    f. Break and entre
    g. Stolen a car
    h. False name to police
    i. Possessed a weapon
    j. DUI
    k. Threatened with a weapon
    l. Set a fire
    m. Robbed someone
    n. Assaulted someone
    o. Sexual harassment/assault
19. Have you received a prison sentence/court sanction before – did you abide by the conditions. Attitude towards rehabilitation? Do you think it is unfair?
20. How do you feel when you are engaging in criminal activity? Necessary? Thrilling? Reactive?
21. Planned crime or spur of the moment? To get money or drugs? To standover/show dominance?
22. Who's to blame for your crime?
23. Have you ever felt remorse/sorrow/guilt? Do you think about the effect on victims? Do you blame victims/society/police for your crime? Were your crimes/behavior justified?
24. Do you think having a criminal record will affect your life/stop you from working?
25. What can help you prevent future trouble?
26. Do you think it is important to obey the law?
27. Do you think you have the ability to take advantage of people to get them to do what you want? If so, do you use this ability and how?
28. Are you happy with your life? Changes you would like to make?
29. Involvement in sports/clubs/groups/activities/cultural activities?
30. Positive mentors? Do they help/has it had any influence?
31. Accomplishments? Something you are proud of? Failures?