MONASH University

The Identification and Management of Offenders with Mental Illnesses in Victoria

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Doctor of Philosophy

A thesis submitted for the degree of Doctor of Philosophy at
Monash University in 2017

School of Psychology and Psychiatry

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Publications during enrolment

Schilders, M. R., & Ogloff, J. P. R. (2014). Review of point-or-reception mental health screening outcomes in an Australian prison. *Journal of Forensic Psychiatry & Psychology, 25*, 480-494. doi:10.1080/14789949.2014.933862

Schilders, M. R., & Ogloff, J. P. R. (2017). Stability of life-time psychiatric diagnoses among offenders in community and prison settings. *The Journal of Forensic Psychiatry & Psychology, 28*, 133-154. doi:10.1080/14789949.2016.1263676

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Thesis including published works declaration

Declaration for thesis partially based on conjointly published and unpublished work.

In accordance with Monash University Doctorate Regulation 17/ Doctor of Philosophy and Master of Philosophy (MPhil) regulations the following declarations are made:

I hereby declare that this thesis contains no material which has been accepted for any other degree or diploma at any university or equivalent institution and that, to the best of my knowledge and belief, this 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 that have been published in a peer reviewed journal and two manuscripts that, at the time of submission, were under review in peer-reviewed journals. The core theme of the thesis is a comprehensive study of mental illness among Victorian male sentenced prisoners. The ideas, development and writing up of all the papers in the thesis were the principal responsibility of myself, the student, working within the School of Psychology and Psychiatry, Monash University, under the supervision of Professor James R. P. Ogloff, and Emeritus Professor Paul Mullen.

The inclusion of co-authors reflects the fact that the work came from active collaboration between researchers and acknowledges input into team-based research.

In the case of chapters 4, 5, 6 and 7 my contributions to the work involved the following; design of the study, review of the literature, obtaining approval from relevant ethics committees, collection of data from databases and paper-based files managed by Corrections Victoria, Justice Health, the Department of Health and Victoria Police, data

entry, data-linkages, data analyses, 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	Extent of candidate's contribution	Co-author name(s) and % of Co-author's contribution	Co-author(s), Monash student Y/N
Chapter 4, Paper 1	Stability of life-time psychiatric diagnoses among offenders in community and prison settings	Published	85%. Concept and collecting data and writing first draft	1) James Ogloff, input 15%	N
Chapter 5, Paper 2	Mental health service utilisation – Comparison between offenders and non-offenders	Under review	80%. Concept and collecting data and writing first draft	1) James Ogloff, input 10% 2) Paul Mullen, input10%	N N
Chapter 6, Paper 3	Review of point-of-reception mental health screening outcomes in an Australian Prison	Published	85%. Concept and collecting data and writing first draft	1) James Ogloff, input 15%	N
Chapter 7, Paper 4	Early-Start Offenders have poorer mental health outcomes than adult-onset offenders	Under review	85%. Concept and collecting data and writing first draft	1) James Ogloff, input 15%	N

I have renumbered sections of submitted papers and published papers to generate a consistent presentation within the thesis.

Student signature: ███████████

Date: 22 June 2017

The undersigned hereby certifies that the above declaration correctly reflects the nature and extent of the student's and co-authors contributions to this work. In instances where I am not

the responsible author I have consulted with the responsible author to agree on the respective contributions of the authors.

Main Supervisors signature:

Date: 22 June 2017

I thank God…

My deepest gratitude and thanks are solely for God.

Thank you, God, for giving me strength, knowledge, desire,

ability and opportunity to undertake and complete this research.

God without your countless favours, blessings and guidance

this achievement would not have been possible

Alhamdulilah

Acknowledgments

First, I would like to thank the Department of Justice, Corrections Victoria, Department of Health and Human Services, Victoria Police, Victorian Institute of Forensic Mental Health (Forensicare) and Monash University. This study was only made possible due to the extensive interagency collaboration and support provided.

I would like to express my sincere gratitude to my supervisor, Professor James Ogloff, for his continuous support of my Ph.D. study. You are a true inspiration, and I thank you for your patience, motivation and immense knowledge. Your guidance helped me extensive over the last few years and in writing this thesis. I feel very fortunate and privileged to have the opportunity to work with you and I could not image having a better supervisor and mentor for my Ph.D. study.

My sincere thanks also go to my co-supervisors Emeritus Professor Paul Mullen and Professor Stuart Thomas, who provided me the opportunity to work with them and who provided invaluable guidance and support.

I would also like to extend my thanks to the numerous individuals who helped facilitate this study and who were involved in the data extraction, data collection and administrative processes including Mrs Maree Standford, Mr Murray Bruce, Dr Stefan Luebbers, Mrs Kerry Edgar and Professor Michael Daffern (Forensicare), Ms Claire Tennant, Mrs Virginia Kalma and Mrs Larissa Strong (Justice Health), Mr Dario Mejia and Ms Shasta Holland (Corrections Victoria), Lachlan Rimes (Department of Health), Dr David Ballek (Victoria Police), Vijay Rawat (Monash University), and the correctional staff and clinicians employed in Victoria's male prisons.

Last, but not least, I would like to thank my friends, you know who you are, and my life would not be the same without you.

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Abstract

It is widely accepted that the prevalence of mental illness among offenders and prisoners far exceeds that seen in the general population. Despite this recognition, little is known about the nature and needs regarding the mental health of Victorian male offenders. It is critical to extend research in this area as offenders represent a vulnerable sub-group of the population who have specific and often complex needs that require on-going treatment and support. Furthermore, in Australia little is known about the most effective strategies for detection, prevention and intervention for mentally ill offenders. Much of what is known about the role that mental illnesses play in offending is based on international research that does not readily apply to the Australian climatic, geographical and social context. In addition, noted cross-cultural differences in the profile of offenders means that conclusions drawn cross-culturally are tenuous at best. It is therefore necessary to conduct large-scale, reliable research in a contemporary Australian context.

The current study attempted to redress some of these limitations by investigating a range of issues that relate to mentally ill offenders. The aims of the current study were to: (1) investigate the diagnostic stability of ICD-10 psychiatric diagnoses among offenders; (2) measure and compare the number of offenders and men from the general population with low or high prevalence disorders who were identified and treated within the Victorian mental health system; (3) evaluate the medical, psychiatric and allied health screening outcomes made at the time of reception into the correctional system and; (4) investigate whether early-start offenders were at increased risk of adverse mental health outcomes when compared to adult-onset offenders.

An epidemiological approach utilising a robust retrospective case-linkage design was used in each of the studies. Data collected and analysed in the studies were extracted and linked from Victorian databases and / or official paper-based files managed by Corrections

Victoria, Justice Health, Department of Health and Human Services and the Victorian

Institute of Forensic Mental Health (Forensicare).

The thesis comprised four related empirical studies. The first empirical study

evaluated the lifetime stability of ICD-10 psychiatric diagnoses for offenders ($n = 776$) in

community and prison settings. Four measures of diagnostic stability (i.e., prospective

consistency, retrospective consistency, 75% agreement across all evaluations and diagnostic

shift) were calculated for each setting as well as across settings. Temporal consistency was

moderate for schizophrenia spectrum disorders and low for affective, anxiety and personality

disorders, and diagnostic stability was higher in prison settings rather than community

settings. Diagnostic instability highlighted that the course of mental illness and clinical

features among offenders may genuinely vary over time, across community and prison

settings and may lead to complexities regarding psychiatric care for this population.

The second study contrasted lifetime diagnoses and contacts with the public mental

health service received by a two-year population-based cohort of male offenders ($n = 5402$)

and a random community sample of non-offenders ($n = 2268$). The results indicated that

offenders had significantly more psychiatric morbidity when compared to non-offenders,

even after controlling for socio-demographic differences. Offenders had higher rates of

schizophrenia spectrum, affective, anxiety, personality or substance-use disorders. The study

also identified that mentally ill offenders were most likely to contact mental health services

when they required acute psychiatric services, such as inpatient care and crisis services. This

was opposite to the utilisation of mental health services observed among non-offenders, who

were more likely to receive outpatient services. Higher utilisation of acute psychiatric

services and low utilisation of outpatient services among offenders underscored the need for

continuity of care between community and prison settings.

The third empirical study examined reception screening outcomes for all male prisoners received into custody in Victoria during 2009 ($n = 4229$). Overall, 19% of all prisoners had active symptoms of mental illness, and another 20% had a history of psychiatric illness that required ongoing care. Mentally ill prisoners had a higher risk of suicide or self-harm and required more observation than other prisoners. At reception, no mentally ill prisoners were transferred to the state's forensic hospital and few were transferred to the prison's mental health unit or provided support service referrals. These findings highlight that outcomes made at the point-of-reception are heavily influenced by the availability of prison mental health resources and those in the state-wide forensic mental health service.

The fourth empirical study extended upon Moffitt's hypothesis and investigated whether early-start offenders have poorer mental health outcomes when compared to adult-onset offenders. Mental health outcomes included: childhood diagnoses of conduct, oppositional defiance, affective and anxiety disorders and adult schizophrenia spectrum, affective, anxiety, personality and substance-use disorders. A stratified random sample of 718 male prisoners sentenced to a term of imprisonment was utilised. Early-start offenders were more likely than adult-onset offenders to be diagnosed in childhood, diagnosed with a conduct or oppositional defiance disorder or to be diagnosed with a schizophrenia-spectrum, personality or substance use disorder in adulthood. The effects identified remained after controlling for demographic and antisocial lifestyle factors. However, early-start offenders were not more likely to be diagnosed with an affective or anxiety disorder in childhood or adulthood. Findings provide support for the extension of Moffitt's hypothesis that early-start offenders have a heightened risk for poor mental health; however, this is limited to disorders relating to behaviour in childhood and developing a schizophrenia-spectrum, personality or substance-use disorder in adulthood.

Taken together, this research confirmed that the higher lifetime mental illness and comorbidity rates among offenders when compared to the general population, translated into higher mental health service utilisation for all mental health services, except outpatient services. Severely mentally ill offenders, such as those with a schizophrenia spectrum disorders, utilised a disproportionately large volume of public mental health services. Nonetheless, only moderate temporal consistency in diagnosis was identified for schizophrenia spectrum disorders. This finding in conjunction with the literature, substantiates the premise that a sizeable number of individuals may take more than two years to be correctly diagnosed. In comparison, the poor diagnostic stability of affective, anxiety and personality disorders, suggests that offenders initially diagnosed with these disorders are likely to experience substantial changes in their psychiatric symptoms over time. While all offenders are at risk of developing a mental illness, early-start offenders were identified as a vulnerable sub-group who had a heightened risk of developing a range of psychiatric disorders, including a schizophrenia spectrum disorder. These findings suggest that early-start offenders will have a greater need for treatment and management across the life-span. Furthermore, mentally ill offenders represented a substantial portion of the prison population and place increased demands on the criminal justice system to provide additional resources to assess and respond to the prisoner's mental health needs. Implications of the research for the mental health system, community and prison mental health services, offenders and the general community are considered.

PART I: INTRODUCTION

Chapter 1 – The current research

Thesis Outline

This thesis reports a comprehensive study of mental illness among Victorian male offenders. The thesis includes eight chapters which include two published peer-reviewed journal articles and two articles submitted to peer-reviewed journals for publication.

Chapter two provides an overview of the definitions that operationalise the current investigation and was included to set out the study's parameters. The literature on prevalence of psychiatric disorders among male offenders, with comparisons with the general population, is discussed. The review then discusses the diagnostic stability of mental illnesses among the general population, to inform the study regarding lifetime diagnostic stability of mental illness among offenders. This is followed by a chronological history of the main reasons that have been proposed for the higher rates of mental illness observed among prisoners when compared to the general population. Subsequently, the literature regarding the introduction of psychiatric screening procedures introduced at the point-of-reception into prison is presented. The review then examines the psychology and criminology literature that has identified that the age of onset of delinquent behaviour is the strongest predictor for a persistent chronic course of offending that continues into adulthood. The review was included to provide relevant background to support the need for empirical testing an extension of Moffitt's (2003) new hypothesis. The hypothesis tested was that early-onset offenders are more likely to have worse mental health outcomes in childhood and adulthood when compared to adult-onset offenders.

Chapter three provides a detailed description of the methodology that was employed in the study. The chapter commences with a description of the approach to the literature review, an overview of the methodology, a description of the databases and official paper-

based prisoner records consulted. Next, how the samples were selected, data collection and case linkage procedures are described. This is followed by an overview of how the mental health variables were coded, the analytical strategies selected, and the types of statistical analyses performed to test the research hypotheses. The chapter concludes with ethical considerations as well as the ethical and research approvals obtained.

Chapter four reports the first study of the thesis, an epidemiological study, that evaluated lifetime diagnostic stability of specific ICD-10 psychiatric diagnoses among offenders, who have been incarcerated within the Victorian public mental health system. The study enabled diagnostic stability to be evaluated in a variety of ways including prospective consistency, retrospective consistency, diagnoses received in at least 75% of evaluations, and diagnostic shift between psychiatric diagnoses. Comparisons were made between community and prison settings, as well as across setting for a two-year population-based cohort of male sentenced prisoners. The chapter also commences with a preamble followed by the article that has been published.

Chapter five reports the second study of the thesis that examined the number, type and length of lifetime public mental health contacts and diagnoses received by male offenders who have been incarcerated with a community sample of non-offenders drawn from the general population. The study enabled differences in public mental health service utilisation patterns between offenders and non-offenders diagnosed with psychotic, affective, anxiety, personality and substance use disorders to be identified. The chapter begins with a preamble, followed by the article that has been submitted for publication.

Chapter six reports study three of the thesis. The study examined the mental health screening outcomes for prisoners made at the time of reception into Her Majesty's Melbourne Assessment Prison (MAP), Victoria's reception prison for men. The central focus of the study was to identify the proportion of male prisoners received at MAP during 2009 who had

an acute, stable or history of mental illness and the range of referrals to prison mental health services that were made at the time of reception. The study also compared mentally ill prisoners and non-mentally ill prisoners in terms of suicide and self-harm risk ratings and need for placement in a psychiatric unit. This chapter also starts with a preamble followed by the article that has been published.

Chapter seven presents the fourth study of the thesis that extended upon Moffitt's (2003) hypothesis and investigated whether early-start offenders (i.e., adult offenders who had a youth detention sentence) have poorer mental health outcomes when compared to adult-onset offenders (adult offenders incarcerated for the first time as an adult). Mental health outcomes included; childhood diagnoses of conduct, oppositional defiance, affective and anxiety disorders and adult psychotic, affective, anxiety, personality and substance use disorders. Again, a preamble is presented, followed by the article that has been submitted for publication.

Chapter eight is an integrated discussion in which the findings of all the studies of the thesis are jointly considered with respect to their broader implications.

The Appendix presents materials that were used to carry out the research project, including ethics approvals and proformas used to collect data.

Research Aims

The objective of the thesis was to determine the nature and extent of mental illness among male offenders in Victoria. The thesis aimed to characterise prisoners needs for psychiatric care in community and prison settings, thus informing the need for a continuity of care service model between community and prison settings. This thesis focused on six interrelated key aims, described below.

Research Aim One: Examine the diagnostic stability of psychiatric disorders among offenders

The first aim was to evaluate lifetime diagnostic stability of ICD-10 psychiatric disorders among male offenders. Four measures of diagnostic stability, including prospective consistency, retrospective consistency, diagnosis received in at least 75% of evaluations, and diagnostic shift of psychiatric diagnoses were calculated. Comparisons were made between community and prison settings, as well as across setting. Knowledge of diagnostic stability among offenders is important to establish as diagnostic instability can impact on treatment options and prognosis for the patient, as well as being important from a public health, training and research standpoint. Furthermore, information pertaining to the diagnostic stability of psychiatric disorders among prisoners is required as low stability of disorders can lead to inappropriate service planning or resource allocation recommendations.

Research Aim Two: To compare public mental health service utilisation patterns between offenders and a community sample of non-offenders

The second aim was to identify and compare the number, type and length of public mental health contacts and diagnoses received by men who have been in incarcerated (i.e., offenders) with a community sample of men who had never been incarcerated (i.e., non-offenders). A central focus was placed on exploring whether there are differences in public mental health service utilisation patterns between offenders and non-offenders diagnosed with schizophrenia spectrum, affective, anxiety, personality and substance use disorders. Specifically, three research questions were examined: 1). Do prisoners use public mental health services more than controls? 2) What is the prevalence of primary and secondary psychiatric diagnoses among offenders and non-offenders who receive public mental health services? 3) Are there differences in public mental health service utilisation patterns between prisoners and controls diagnosed with psychotic, affective, anxiety, personality and substance

use disorders? Knowledge about the mental health service utilisation patterns among prisoners may identify differences in the how offenders and non-offenders access mental health services. Recognition of offender's unique mental health needs may assist in developing continuity of care models between community and prison settings. Continuity of care models that support prisoners during times of heightened stress such as transitioning between prison and being discharged back to the community may encourage prisoners to obtain and stay engaged in mental health services. In turn, engagement with mental health services may reduce some of the demands placed on acute psychiatric services as well as reduce contacts with the criminal justice system.

Research Aim Three: Investigate the point-of-reception mental health screening outcomes in an Australian Prison

The third aim was to investigate the point-of-reception mental health screening outcomes for males who were received into custody in Victoria in 2009. This included identifying the proportion of prisoners who were being received into custody at a state-wide reception prison who had an acute, stable or history of mental illness. In addition, an examination was undertaken regarding the outcomes of the screening process including referrals for subsequent care. Lastly, comparisons were undertaken between mentally ill prisoners and non-mentally ill prisoners, in terms of suicide and self-harm risk ratings and unit allocation (i.e., the state's forensic hospital, the acute mental health unit, placement in observation cells or hourly observations by psychiatric nurses). Knowledge of psychiatric screening outcomes at the time of reception into prison will be able to identify the demands placed on mental health services within prisons by mentally-ill prisoners entering prison. This information can be used by correctional services to identify the administrative and therapeutic challenges facing the criminal just system in being able treat and support mentally ill prisoners after they have been identified at the point-of-reception.

Research Aim Four: To compare psychological outcomes between early-start and adult-onset offenders

The fourth aim sought to empirically test the extension of Moffitt's developmental taxonomic theory that early-start offenders are at increased risk of adverse mental health outcomes when compared to adult-onset offenders. Mental health outcomes included; childhood diagnoses of conduct, oppositional defiance, affective and anxiety disorders and adult psychotic, affective, anxiety, personality and substance use disorders. Knowledge from this study will help identify whether early-start offenders have a greater risk than adult-onset offenders, for developing a range of childhood and adulthood psychiatric disorders. This information could be used to inform identification, prevention programs, management, treatment and risk assessments for both youth and adult offenders.

PART II: LITERATURE REVIEW

Chapter 2 – Review of the Literature

A relevant literature review is presented in each of the published and submitted manuscripts included in chapters 4 to 7, so this chapter will generally not replicate these literature reviews. Instead this chapter commences with a description of the approach to the literature review. Next, a critique of different definitions and methodologies used in research was provided for the pertinent definitions used in this research. This is followed by a review of the voluminous literature base that has investigated the prevalence of psychiatric disorders among prisoners and comparisons are made with the general population. Next the literature review discusses the importance of diagnostic stability and reasons for diagnostic instability. As there is a stark absence of studies conducted with offenders, this is followed by a review of the literature conducted with community populations that has investigated the diagnostic stability for schizophrenia spectrum, affective, anxiety and personality disorders. Lastly, common methodological limitations in community based diagnostic stability studies are explored. This is followed by an exploration of the chronological changes that have occurred within the mental health system since deinstitutionalisation.

This review was included to provide an understanding of how the public mental health system has evolved over the last several decades and how the mental health system has overlooked the mental health needs of offenders. Subsequently, developments in mental health provisions within the criminal justice system are reviewed with a focus on mental health screening practices. Lastly the chapter concludes by merging two distinct yet complimentary areas of research. Firstly, developmental taxonomy theories are reviewed with attention drawn to how these theories can be extended to an adult offender population. This is followed by an exploration of Moffitt's (2003; 2006) hypothesis about early-start offenders having a high risk of adverse psychological health outcomes, with an emphasis on how this

hypothesis could be extended to psychiatric disorders and utilised in an adult offender

population.

Approach to the literature review

This chapter examined the current literature base that has investigated 1) mental

health service utilisation patterns among offenders and non-offenders, 2) diagnostic stability

of psychiatric disorders, 3) psychiatric screening practices at the point of reception into

prison, and 4) aetiologies, developmental, offending and mental health trajectories of early-

start and adult-onset offenders. A comprehensive search of published and unpublished

Australian and international literature relevant to these topics was undertaken. Published

material was located using numerous databases including Ovid MEDLINE, PubMed,Taylor

& Francis online, PsycINFO, Scopus, and Google scholar available through the library at

Monash University. Participant terms including "correction*", "criminal*", "detainee",

"felon", "forensic*", "inmate*", "incarcerat*", "offend", "prison*", "remand*", "men",

"delinquen*", "youth" "life-course", "adoles*", in combination with mental illness iterations

of "disorder*", "mental*", "psych*", "prevalence", "diagnos*", "mood", "affective",

"anxiety", "substance", "personality", "services", "inpatient", "admission", "outpatient",

"stability" were used to search the databases. All combinations of the search terms were also

used in Google Scholar to identify any additional empirical studies that may not have been

included in the databases. For each additional empirical study identified the full text study

was obtained from the Monash University library. For all articles sourced, a snow-ball

technique was also implemented, where reference lists of published material were reviewed

to identify further literature to be sourced. Prominent authors in the field were also identified

and additional searchers were conducted to locate peer-reviewed articles, books, book

chapters, conference proceedings and published reports. For each reference identified, the

title and abstract of the study was reviewed to determine the relevance of the study for

inclusion in the literature review. Unpublished material was located by contacting and

consulting with colleagues in the field. Publications from public and government sources

were also searched. Only published and unpublished material in English were retained and

used. Published and unpublished material were selected for inclusion based on the relevance

to the topics being investigated in the current study, as well as the quality of the study (i.e.,

journals with high impact factors were given preference). Qualities considered included;

robustness of the methodology design and data analysis, recency of the research and the

journal it was published. The most recent (i.e., published in the last 10 years or older when

contemporary articles were limited or unavailable) and comprehensive studies were selected

for inclusion. For each study identified as being suitable for inclusion, the full-text study was

obtained.

Definition of offenders

The term 'offender' is commonly understood to refer to an individual who violates an

established societal law and is considered to have committed a criminal 'offence'. Often the

word evokes an image of a dangerous or violent individual. Yet, there are a plethora of

'offences' that offenders commit, ranging from the less serious traffic violations through to

the most serious offence of murder. Defining an offender as an individual who commits any

crime is impractical and virtually impossible to measure as a construct. In society, not all

crimes are reported or detected by police and among the reported / detected crimes not all are

solved. Even if the crime is solved, not all crimes result in arrest as police can exercise

discretion when deciding to arrest an offender. Among arrested offenders not all guilty

offenders will be found guilty in a court of law and of the guilty offenders not all will be

convicted or sentenced to a term of imprisonment. Hence, at each of the above junctures there

are difficulties in correctly identifying an individual as an offender or non-offender. For these

reasons, it is often preferred to classify an offender from a specific point within the criminal

justice system. This is the stance taken in Victoria where the *Corrections Act 1986* (p. 3) broadly defines an offender as an individual "of whatever age who is subject to a correctional order" (i.e., community-based / drug treatment order, parole, home detention or imprisonment). Using this criterion, the most common definitions pertain to individuals who have committed a crime and subsequently been remanded, convicted or imprisoned. However, each of these operational definitions of an 'offender' has strengths and limitations and these will be discussed and contrasted briefly.

Remanded, convicted and imprisoned definitions of offending

Defining an offender as someone who has been remanded, convicted or imprisoned for a crime has several advantages including reflecting the highest amount of burden and cost on the criminal justice system. However, there are also limitations associated with each definition and each definition will yield considerably different rates of offending, even in the same cohort.

People on remand have been arrested by police and charged with a criminal offence. They enter prison unsentenced, as they have not yet been found guilty by a court of law for the offence. People on remanded enter into custody for four main reasons: the individual has not applied for bail, been refused bail, cannot post the amount of bail requested or are unable to meet bail conditions (Corrections Prisons & Parole, 2017b). The remandee will generally remain in prison until their trial and / or sentence hearing. In contrast, a convicted offender can be defined as an individual who is found guilty of committing an offence by a court of law. A conviction measure is more restrictive than remand as not all remandees will be found guilty. One advantage of a conviction measure is that it would reduce the number of false positives, such as innocent offenders being remanded. However, conversely it would also increase false negatives where an individual is not classified as an offender even though they did commit an offence but have not been convicted. This scenario can arise for several

reasons but commonly it is a result of the case not proceeding to prosecution which may result from the offender being diverted out of the criminal justice system (Australian Federal Government, 2005; Victorian State Government, 1997). Other reasons can include there not being enough evidence to proceed to trial or not enough evidence for the jury to find the offender guilty.

The third common measure of offending is imprisonment that refers to an individual being sentenced to a secure facility after being found guilty in a court of law for an offence (Australian Federal Government, 2005; Victorian State Government, 1997). When compared to remand and conviction measures, imprisonment is the most restrictive measure. This reflects that not all crimes committed by individuals, nor all arrests or convictions result in imprisonment. Furthermore, an imprisonment measure excludes offenders who have been convicted but receive a non-custodial sentence, which may include receiving a fine or a community service order or a suspended sentence (Australian Federal Government, 2005; Victorian State Government, 1997). The imprisonment measure would also produce the lowest rates of criminal behaviour and have the lowest number of false positives than remand or conviction. A further benefit of using an imprisonment measure is that the offence rates elicited reflects the greatest expense to society and the criminal justice system.

Summary

There is no perfect measure of offending that will capture the true rate of criminal offending as each of the methods described have their own limitations and advantages. The central distinction between the three groups of offenders is that all offenders who are remanded or sentenced to a term of imprisonment enter prison, whereas not all offenders who are convicted will enter prison. When operationalising offending, often the research question will dictate the most appropriate measure. The current research focused on 'remanded offenders' and 'sentenced offenders', as these offenders place the highest burden on the

criminal justice system and many of these offenders will be repeatedly incarcerated

(Baillargeon et al., 2010). In addition, entering prison has been identified as an important

juncture as it affords an opportunity to identify and / or treat mentally ill offenders (Ogloff,

2002). The broader terms 'prisoner' and 'offender' were also used where the former term

referred to incarcerated individuals and the later refers to an individual who has a history of

incarceration.

Definition of mental illness

While it is widely accepted that the prevalence of mental illness among offenders and

prisoners far exceeds rates seen in the general population (Butler et al., 2006), the term

'mental illness' does not have a single accepted definition. In its most fundamental sense,

mental illness refers to any disturbance of the mind. Whereas in a clinical context, mental

illness is often defined as a clinically recognisable set of symptoms that relate to mood,

thought / cognition and behaviour that is associated with distress and impaired functioning

(American Psychiatric Association, 2013). This definition is comparable to the *Mental Health*

Act, 2014 definition, that specifies a mental illness is a medical condition involving

'significant disturbance of thought, mood, perception or memory' (Victorian State

Government, 2014a, p. 23). In isolation, these definitions can be considered vague at best, as

what may constitute a significant disturbance to one person may not be agreed upon by

another. Hence, a classification system for further defining what constitutes a mental illness

is required to assess whether a person may be mentally ill.

Numerous mental illness categorisation systems have been developed during the past

two millennia, with two of the most commonly used mental illness classification tools

introduced during the 20th century. These include the International Classification of Diseases

10th edition (ICD; World Health Organisation, 1992) and the Diagnosis and Statistical

Manual of Mental Disorders fifth edition (DSM; American Psychiatric Association, 2013).

Each of these classification systems will be discussed and contrasted briefly as well as associated difficulties in measuring the prevalence of mental illnesses using these systems.

Mental illness classification tools

The ICD was created by the World Health Organisation, and in 1949 mental illness classifications were included in the sixth edition (World Health Organisation, 1949). The most recent addition is the ICD-10 (World Health Organisation, 1992), and incorporates 10 main groupings of mental and behavioural disorders including:

- F0 organic, including symptomatic, mental disorders
- F1 mental and behavioural disorders due to use of psychoactive substances
- F2 schizophrenia, schizotypal and delusional disorders
- F3 mood disorders
- F4 neurotic, stress-related and somatoform disorders
- F5 behavioural syndromes associated with physiological disturbances and physical factors
- F6 disorders of personality and behaviour in adult persons
- F7 mental retardation
- F8 disorders of psychological development
- F9 behavioural and emotional disorders with onset usually occurring in childhood and adolescence and an additional group of unspecified mental disorders.

The benefits of the ICD include, that it has been developed with the co-operation of more than 200 countries and provides standardised language and diagnostic criteria for a range of psychiatric disorders that can be used across international borders (World Health Organisation, 2017). However, the current version was last updated in 1990 and does not include advances in understanding or changes in categorising mental illnesses that have taken

place in the last two and a half decades. The next version of the ICD is currently in

development and is expected to be released in 2018 (World Health Organisation, 2017).

In 1952, following the introduction of the ICD-6 (World Health Organisation, 1949),

the American Psychiatric Association (APA) created its own mental illness classification

system, the DSM (American Psychiatric Association, 1952). Since, this time the APA has

revised and updated the DSM several times and the DSM-5 (American Psychiatric

Association, 2013) is the most recent edition. The DSM-5 separates disorders into 21 clusters,

and the disorders that are relevant to this thesis include:

- Schizophrenia spectrum and other psychotic disorders

- Bipolar and related disorders

- Depressive disorders

- Anxiety disorders

- Obsessive-compulsive disorders

- Trauma and stress-related disorders

- Substance-related and addictive disorders

- Personality disorders

Many substantial changes in the categorisation of disorders was introduced in the DSM-

5. One such change was that trauma and stress-related disorders (i.e., post-traumatic stress

disorder and acute stress disorder) as well as, obsessive-compulsive disorders were included

among anxiety disorders in the DSM-IV TR (American Psychiatric Association, 2000a), but

have now been separated in the DM-5.

Since the first publication, the DSM has been widely used by psychiatrists and

psychologists alike, in diagnosing mental illnesses in clinical settings. The advantage of the

DSM is that it provides diagnostic criteria for a broader range of mental illnesses and is

updated more frequently than the ICD-10, enabling advances in understanding or changes in

categorisation to be included. Although the DSM-5 is a widely accepted and used mental illness categorisation system, the ICD is more often used in research, particularly outside of the USA and Canada. The reason for using the ICD-10, is that most countries report psychiatric morbidity to the World Health Organisation hence, governments require reporting of mental illness diagnoses using ICD-10 codes and not DSM-5, even when the DSM-5 codes are often used in clinical practice.

Using mental illness classification systems in research

While the ICD-10 and DSM-5 both provide common language and diagnostic criteria for mental illnesses, the way that they are used in psychology and psychiatry research can differ substantially. Definitions of mental illness can reflect a continuum from broad umbrella terms to clusters and then to narrower clinical definitions. In research this has resulted in some researchers using broad or inclusive definitions that incorporate a wide array of disorders such as schizophrenia spectrum, affective, anxiety, personality and substance use disorders (i.e., Butler & Allnutt, 2003). This is in addition to other researchers utilising narrow concepts such as 'serious', 'severe' or 'major' mental illness (i.e., Fazel & Danesh, 2002). Narrow definitions of mental illness have been used extensively in studies conducted with prisoners. However, even among these studies there are often considerable differences in operationalisation of these terms. Some researchers refer only to schizophrenia (i.e., Brinded, Stevens, Mulder, Fairley, & Wells, 1999), while others include schizophrenia spectrum disorders (i.e., Brinded, Simpson, Laidlaw, Fairley, & Malcolm, 2001) and still others include bipolar disorder and major depressive disorder as severe disorders (i.e., Baillargeon, Binswanger, Penn, Williams, & Murray, 2009).

A study by Butler and Allnutt (2003) that investigated the prevalence of mental illness among prisoners in New South Wales, Australia, can be used to illustrate how defining mental illness in different ways can dramatically effect results. When mental illness was

defined using a narrow definition (i.e. schizophrenia spectrum disorder), 4.2% of male

sentenced prisoners had a diagnosable mental illness. However, these rates escalated

dramatically to 33% when a broader definition of any mental illness was applied (inclusion of

affective and anxiety disorders). This rate almost doubled again to 61%, when the criterion

was expanded to include any neurasthenia, personality and substance use disorders. This

example clearly demonstrates the importance of researchers clearly defining their operational

definition for mental illness, as well as the potential difficulties that can arise when

attempting to compare findings between studies when different operational definitions are

used.

Inclusion of specific psychiatric disorders or psychiatric disorder clusters in research

Research also differs substantially regarding the number of psychiatric disorders that

are included in the study. Some studies investigate a broad spectrum of disorders in the one

sample of offenders such as schizophrenia spectrum, affective, anxiety, personality and

substance use disorder (Brinded et al., 2001; Butler & Allnutt, 2003). In comparison, other

studies may focus on psychiatric disorders that are prevalent among offenders, such as

schizophrenia spectrum, major depression or dissocial personality disorder (Fazel & Danesh,

2002). Yet other studies may restrict their investigation to only one psychiatric disorder

cluster such as schizophrenia spectrum disorders (i.e., Wallace, Mullen, & Burgess, 2004) or

substance use disorders (i.e., Fazel, Bains, & Doll, 2006).

Substantial benefits can be obtained by investigating a range of psychiatric clusters in

the one sample rather than restricting the study to only one group of psychiatric disorders.

These benefits include the opportunity to explore the full spectrum of psychiatric morbidity

and patterns of comorbidity within the one sample. Given the benefits of investigating a

range of psychiatric disorders in the one sample, a review of large scale studies conducted

with prisoners identified that there are five main diagnostic clusters that are often selected.

These clusters include; schizophrenia spectrum, affective, anxiety, personality and substance-use disorders. These disorders are often selected for inclusion because they represent the most severe forms of mental illness (schizophrenia spectrum disorders; Fazel & Danesh, 2002), are high prevalence disorders (affective and anxiety disorders; Butler et al., 2006) and disorders that can complicate treatment for other mental illnesses, or are known risk factors for offending (personality and substance use disorders; Chen et al., 2003; Harris & Batki, 2000).

Summary

Despite researchers and clinicians mainly utilising one of two diagnostic categorisation systems (i.e., ICD or DSM), the term 'mental illness' has been defined in numerous ways in the literature. The differing definitions, categorisation approaches and operational definitions not only impact on the range of psychiatric disorders included in studies but also the results obtained. Differing definitions often impede the ability to directly compare findings from one study to another.

For these reasons, the five most common diagnostic clusters that are used in large scale studies were selected for inclusion in the current research. These include; schizophrenia spectrum, affective, anxiety, personality and substance-use disorders. With these diagnostic clusters in mind, the term 'mental illness' will be used to refer to schizophrenia spectrum, affective and anxiety disorders. The broader term 'psychiatric disorder' will be used to refer to 'mental illnesses' in addition to personality and substance use disorders. These two definitions were selected as they are consistent with the consensus that personality and substance use disorders are not traditional 'mental illnesses'. However, given the high prevalence of personality and substance-use disorders among offenders (Butler, Indig, Allnutt, & Mamoon, 2011; Fazel & Seewald, 2012), and the compounding effects these disorders can present for those with a mental illness (Chen et al., 2003), the disorders warrant inclusion in any investigation of mental illness among offenders.

Definitions of psychiatric disorders

Studies investigating psychiatric disorders among prisoner populations differ substantially in the number, type and operationalisation of psychiatric disorders. It is therefore important to define what constitutes a schizophrenia spectrum, affective, anxiety, personality and substance use disorder. The following provides a brief description of how each of the diagnostic clusters have been defined.

Schizophrenia spectrum disorders

The term 'schizophrenia spectrum disorders' describes a group of serious mental illnesses characterised by psychotic features including: delusions, prominent hallucinations, disorganised speech, and catatonic behaviour (American Psychiatric Association, 2013). Despite some commonalities between different schizophrenia spectrum disorders, these disorders are mainly considered heterogenous, as there is considerable disparities in clinical presentation and etiology among the disorders (Fazel & Seewald, 2012; Kubicki, 2010). As a result, researchers often implement a dimensional instead of categorical approach to schizophrenia spectrum disorder when conducting studies (i.e., Fazel & Seewald, 2012). While there is not one uniform dimensional approach that has been used in the literature, a common approach separates 'schizophrenia spectrum disorders' into two broad groups including 'schizophrenia disorders' and 'schizophrenia spectrum disorders, excluding schizophrenia' (Short, Thomas, Luebbers, Ogloff, & Mullen, 2010; Wallace et al., 2004).

'Schizophrenia disorders' capture chronic and severe forms of non-organic psychosis that most closely resembles schizophrenia in clinical presentation. Disorders meeting this criterion include; paranoid, unspecified, other, acute, catatonic, hebephrenic, residual and simple type schizophrenia as well as schizophrenia psychoses and simple type schizophrenia (ICD-10 code F20; World Health Organisation, 1992). In comparison, 'schizophrenia spectrum disorders (excluding schizophrenia)' include other psychotic disorders such as

schizoaffective, schizotypal, shared psychotic, schizophreniform, brief psychotic, delusional

and unspecified non-organic disorders (ICD-10 codes F21 to F29; World Health

Organisation, 1992). The literature more often excludes transient or organic types of

psychosis such as substance-induced psychosis, depression with psychotic features or senile

psychotic conditions (Short et al., 2010; Wallace et al., 2004). Collectively these two groups

are referred to as 'schizophrenia spectrum disorders'.

Affective disorders

Affective disorders are characterised by long-lasting, persistent disturbances of mood,

together with a full or partial depressive or manic response that is not attributed to any other

physical or mental disorder (World Health Organisation, 1992). Affective disorders have

been reported in a variety of ways in the literature, hence a preference was placed on

including studies in the review that categorised affective disorders as 'depressive disorders',

'bipolar disorders', 'other affective disorders' or that combined the three groups as 'affective

disorders'.

'Depressive disorders' include disorders such as major depression, depressive episode

and recurrent depression (ICD-10 code F32 to F34 and F38 to F39; World Health

Organisation, 1992). These disorders are characterised by one or more prolonged episodes

where the individual experiences markedly low or sad mood that impacts on the individuals

functioning including; interest in life, appetite, sleep patterns, energy, drive, concentration,

and behaviour (American Psychiatric Association, 2013). The second group consists of

'bipolar disorders' such as bipolar I and bipolar II (ICD-10 codes F31). Individual with

bipolar experience manic episodes with alternating depressive episodes. During manic

episodes, the individual exhibits symptoms such as: elation, irritability, insomnia, grandiose

notions, poor judgement, increased speed and / or volume of speech, disconnected and racing

thoughts, increased sexual desire and markedly increased energy and activity level (American

Psychiatric Association, 2013). Lastly, 'other affective disorders' include disorders such as cyclothymic disorder, manic episode, persistent mood (affective) disorders, other mood (affective) disorders and unspecified mood [affective] disorder (ICD-10 code F30, F34, F38 and F39; World Health Organisation, 1992).

Anxiety disorders

Anxiety disorders include an array of disturbances characterised by excessive anxiety as a central or core symptom. There are numerous 'anxiety disorders' that can be included in research hence, a priority was placed on 'trauma and stress related disorders', 'non-trauma and stress related disorders' and 'obsessive-compulsive disorders.' The reason for selecting these disorders is that these three groups of disorders were combined under the category of anxiety disorder in the DSM-IV TR (American Psychiatric Association, 2000a) and are now separated in the DSM-5 (American Psychiatric Association, 2013).

A 'trauma and stress related disorder' includes disorders such as posttraumatic stress disorder, acute stress disorder, adjustment disorders, other specified trauma- and stressor-related disorders and unspecified trauma- and stressor-related disorders (ICD-10 codes F43; World Health Organisation, 1992). These disorders generally manifest as a result of experiencing a stressful stimulus or significant life change (American Psychiatric Association, 2013). Regarding 'non-trauma and stress related disorders,' this category included phobic anxiety disorder, panic disorder, generalised anxiety disorder, other anxiety disorders, unspecified anxiety disorders, separation anxiety disorder and obsessive compulsive disorder (ICD-10 codes F40, F41.0, F41.1, F41.8, F41.9, F42 and F93.0; World Health Organisation, 1992). Lastly, obsessive compulsive disorder includes obsessive and / or compulsive behaviours or thoughts that are generally performed in order to alleviate the thought or distress (ICD-10 codes F42; World Health Organisation, 1992).

Personality disorders

While personality disorders are not considered as types of psychiatric illness in their traditional sense, they are an important group of mental disorders that warrant inclusion in any study investigating mental health, especially among offenders. The presence of a personality disorder can impact profoundly on an individual creating considerable personal and social disruption (Moran et al., 2003; Nestor, 2002). There is a wide spectrum of disorders included in F6 disorders of personality and behavior in adult persons of the ICD-10 (World Health Organisation, 1992). However, large scale Australian and international studies investigating a wide spectrum of psychiatric disorders in prisoner populations usually only include disorders of adult personality (i.e., Brinded et al., 2001; Butler & Allnutt, 2003). These disorders include paranoid, schizoid, dissocial, emotionally unstable, histrionic, anankastic, anxious (avoidant), dependent and other specific personality disorders (F60.0 to F60.8; World Health Organisation, 1992). Categorisation in this manner also aligns with how personality disorders are categorised in the DSM-5 (American Psychiatric Association, 2013).

Substance use disorders

Substance use disorders are also not considered a traditional mental illness. However, due to the increase in methamphetamine and amphetamine use during the last few decades and the compounding effects substances use can present for those with a mental illness (Chen et al., 2003; Wallace et al., 2004), substance use disorders warrant inclusion in any investigation of mental illness. Furthermore, due to drug use being criminalised individuals who use or are dependent on drugs are at increased risk of being incarcerated for drug related offences (Fergusson, Swain-Campbell, & Horwood, 2003).

Despite the importance of investigating substance use among prisoner populations, considerable differences in the number and range of substance use disorders have been noted

in the literature. Nonetheless, often a preference has been given to investigating substance-use disorders that reflect dependence, use or substance-induced disorders such as substance-induced psychosis (ICD-10 codes F10-F19; Brinded et al., 2001; Butler & Allnutt, 2003; Fazel et al., 2006; World Health Organisation, 1992). Hence, caffeine-related disorder, tobacco-related disorders and acute substance intoxication are more often excluded, as intoxication does not necessarily imply that the individual has a more conventional substance use disorder (Short et al., 2010; Wallace et al., 2004). Operationalising substance use disorders in this manner is preferable as abuse of and dependence upon a substance reflects that the substance is used to the point that the individuals' functioning is impaired. Furthermore, these definitions exclude casual or recreational use of a substance.

Summary

Despite diagnostics clusters comprising disorders that share core similarities, there is also considerable heterogeneity between disorders within the diagnostic cluster in terms of aetiology and clinical presentation. Hence, to aid in investigating and directly comparing results between studies, a preference was given to studies that utilised a dimensional rather than categorical approach to schizophrenia spectrum, affective, anxiety, personality and substance use disorders.

Specifically, schizophrenia spectrum disorders comprised of 'schizophrenia disorders' and 'schizophrenia spectrum disorders (excluding schizophrenia)'. Affective disorders included 'depression', 'bipolar' or 'other affective disorders'. Regarding anxiety disorders, a priority was placed on 'trauma and stress related disorders' and 'non-trauma and stress related disorders'. Regarding 'personality disorders', only disorders of adult personality were included. Lastly, 'substance use' was restricted to substance use and dependence and excluded caffeine-related disorder, tobacco-related disorders and acute substance intoxication.

Methodologies utilised in research

In addition to the complexities involved in defining 'mental illness' and 'psychiatric disorders', there are also several other compounding factors that can also affect results reported in the literature. These include methodological differences such as whether psychiatric disorders are assessed on a current or lifetime basis and the method used in assessing mental illness. These factors can impact on operational definitions and result in entirely different findings even within the same cohort and a brief discussion is provided below.

Current versus lifetime prevalence of psychiatric disorders

Most psychiatric disorders detailed in the DSM-5 and ICD-10 have a specific timeframe included as one of the diagnostic criterion, where symptoms need to be exhibited for a specified duration of time. Examples include a one-month period for schizophrenia or a two-week period for major depression (American Psychiatric Association, 2013). The disorder' specific timeframes are often disregarded by researchers due to a preference for assessing disorders using one uniform timeframe for all disorders. More often, researchers elect to assess psychiatric disorders based on current symptoms exhibited resulting in a current diagnosis or based on a lifetime diagnosis which reflects that the individual has at some point during their lifetime been diagnosed with a specific disorder.

Advantages of a current diagnosis includes reflecting the individual's present symptomology and need for treatment, which may include therapy, medication or a combination of both. A current diagnosis is also often preferred because it reflects the immediate demands on the mental health services. However, among studies that use a current diagnosis to assess the prevalence of mental illnesses among prisoners, the time-frame can vary substantially, from one month (i.e., Brinded et al., 2001), to six months (i.e., Gibson et al., 1999) or one year (i.e, Butler & Allnutt, 2003), while other studies do not provide a time-

frame (i.e., Teplin, 1994). Without a consensus, as to the specific duration that constitutes a current mental illness, research will continue to define the 'currency' of mental illness in differing ways and this affects the results obtained and impedes direct comparisons.

In comparison, a lifetime diagnosis while not necessarily reflecting the current demands for mental health treatment, as an individual may be in remission, does have an advantage of reflecting the extent of vulnerability among prisoners. For example, some mental illnesses can reoccur in cycles such as depression (Vittengl, Clark, Dunn, & Jarrett, 2007) and yet others are considered lifelong disorders such as schizophrenia (Chang, Chan, & Chung, 2009). Hence a lifetime definition can be more suitable than a current definition in many situations, such as service planning.

Overall, the timeframe used in assessing the prevalence of mental illnesses will significantly impact on the results obtained in any study. As the time frame increases from current to a lifetime diagnosis the prevalence rates will also increase, even within the same cohort. An illustration of this phenomenon can be provided using the Butler and Allnutt (2003) study. The prevalence rate of any psychiatric disorder almost doubled from 38.7% when a one month timeframe was used, to 61% when the timeframe was extended to 12-months. This example reaffirms the importance of clearly defining the time-frame used in the study, as well as potential difficulties that can arise when attempting to compare the findings reported in studies when different time-frames are used.

Methods used in assessing psychological disorders

Psychiatric disorders can also be assessed using a variety of methods. Clinical interviews utilising a structured and standardised or unstructured or unstandardised approach are frequently used methods. In research the Schedules for Clinical Assessment in Neuropsychiatry, developed by the World Health Organisation are commonly utilised to assess ICD-10 and DSM-5 disorders. Another commonly used method is case-linkage studies

that rely on extracting data from databases. There are advantages and disadvantages to each of the different methods and these will be briefly discussed.

Benefits of clinical interviews include: increasing the likelihood that all participants are assessed in a similar manner, the use of validated measures, and the interviews can be tailored specifically for the study. Nonetheless, undertaking clinical interviews is not only costly but also labourious and due to these factors often studies are limited in their sample size. In a systematic review, among studies that assessed the prevalence of schizophrenia in sentenced prisoners, 61% had small sample sizes of less than 300 prisoners (Fazel & Danesh, 2002). Given that schizophrenia is a low prevalence disorder, affecting fewer than 1% of the general population and 7% of prisoners (Butler et al., 2006; Short et al., 2010), small sample sizes could impede the ability of identifying true prevalence rates. Obtaining data solely using clinical interviews is also likely to underestimate the prevalence of mental illnesses. When clinical interviews are conducted in prison settings, offenders may not consent to participate in the study. Furthermore, prisoners with acute symptoms are likely to be excluded as they may be in a psychiatric inpatient unit and the severity of their symptoms may preclude the prisoner from being able to provide consent to participate.

Conversely, case-linkage procedures enable large cohorts to be studied and the inclusion of acutely unwell individuals or those admitted to psychiatric units. However, as the data were not originally collected for research purposes, there will be restrictions in the depth and breadth of information and a degree of error in data linkages will be unavoidable (Mortensen, 1995).

Summary

In any review of the literature it is important to consider the different methodologies utilised in research including whether psychiatric disorders are assessed on a current or lifetime basis and the method used in assessing mental illness. Considerable variation exists

in methodologies utilised, which can impede direct comparisons between studies. Most studies investigating the prevalence of mental illness have been based on clinical interviews, despite this methodological approach likely underestimating prevalence rates. Furthermore, more studies use a one-month,12-month or lifetime timeframe when assessing mental illness. Hence, a priority was placed on including studies that conducted clinical interviews when investigating the prevalence of psychiatric disorders on either a current (one-month or 12-month) or lifetime basis, as this enabled direct comparison.

Prevalence of psychiatric disorders

Prior to conducting any investigation into the mental health needs of prisoners, it is important to briefly review the voluminous literature base dedicated to identifying the prevalence of psychiatric disorders among prisoners with comparisons to the general population. This will enable an understanding of how psychiatric morbidity differs between prisoners and the general population, as well as the proportion of prisoners who would need prison and community based mental health services.

Schizophrenia spectrum disorders

Schizophrenia spectrum disorders are considered low prevalence disorders as they effect approximately one percent of the general population (American Psychiatric Association, 2013; Butler et al., 2006; Short et al., 2010; Teesson, Slade, & Mills, 2009). However, among male prisoners the prevalence rate is substantially elevated, with studies estimating that 2 to 8% of all male prisoners have a schizophrenia spectrum disorder (Brinded et al., 2001; Fazel & Danesh, 2002; Fazel & Seewald, 2012; Mullen, Holmquist, & Ogloff, 2003).

Several current and lifetime estimates of schizophrenia spectrum disorders among prisoners have been reported in Australian literature. In one of the earliest studies, Herrman

and colleagues (1991) conducted structured clinical interviews with 158 male sentenced

prisoners in three Melbourne prisons. Of those interviewed, 2% were diagnosed with a

current schizophrenia spectrum disorder and 4% had a lifetime schizophrenia spectrum

disorder. In a similar NSW study, Butler and Allnutt (2003) screened 458 sentenced prisoners

and 756 reception prisoners. The authors reported that 4.2 per cent of sentenced prisoners and

10.7 percent of reception prisoners, experienced psychotic symptoms pertaining to

schizophrenia spectrum disorders, in the year prior to the study. While the lifetime rate of

schizophrenia spectrum disorder for sentenced prisoners was comparable to the prevalence

reported by Herrman and colleagues (1991), the prevalence rate was more than twice as high

among reception prisoners. In a later study, Mullen and colleagues (2003) reported that 8% of

male Australian prisoners had a lifetime schizophrenia spectrum disorder, with 5% of males

meeting the criteria for schizophrenia. Taken together these Australian studies suggest that

the lifetime prevalence rate for schizophrenia spectrum disorders ranges between 4 and 11%

for offenders and prevalence rates are higher among remanded rather than sentenced

prisoners.

The prevalence rates reported for schizophrenia spectrum and schizophrenia disorders

in these Australian studies are marginally higher than those reported internationally. In a

meta-analysis conducted by Fazel and Danesh (2002), the authors examined 23 world-wide

studies of schizophrenia spectrum disorders involving nearly 9,000 male sentenced prisoners

and more than 7,000 male reception prisoners. Overall the prevalence of schizophrenia

spectrum disorders among sentenced prisoners was 3% and 4% cent for reception prisoners.

However, the authors noted there was variability amongst studies with prevalence rates

ranging from 2% to 6%. Much of the variability among studies can be attributed to the

authors pooling studies together even though some studies utilised a current definition and

others a lifetime criterion. Furthermore, many of the international studies focused primarily

on the prevalence of schizophrenia and not the broader range of schizophrenia spectrum

disorders that the Australian studies included. In a later meta-regression conducted by Fazel

and Seewald (2012) that included more than 26,000 male prisoners from 74 separate studies,

the prevalence of schizophrenia spectrum disorders among sentenced prisoners was 3.7% and

3.5% among remanded prisoners. Remarkable consistency was identified across time for

schizophrenia spectrum disorders, although prevalence rates were found to be higher in low-

middle income countries when compared to high-income countries (5.5% *vs*. 3.5%).

The Australian studies however, are more consistent with studies reporting separate

current and lifetime prevalence rates for schizophrenia and related disorders separately. A

New Zealand study conducted by Brinded et al., (2001), assessed all male remanded

prisoners (*n* = 540) and a random sample of male sentenced prisoners (*n* = 4447, 18%) in

New Zealand prisons. It was identified the current prevalence rate for schizophrenia spectrum

disorders among sentenced prisoners was 2.2%, with a lifetime prevalence of 6.6%. and the

prevalence rates were only a fraction higher among reception prisoners (3.4% *vs*. 7.9%). In

one of the few studies to compare a prisoner sample with a community sample, the 12 month

prevalence of schizophrenia spectrum disorders was 11.8 times higher among reception

prisoners than in the community (7.0% vs. 0.6%) (Butler et al., 2006).

Affective disorders

It is estimated 2.2% of individuals in the general population will have a current

affective disorder (Teesson et al., 2009). Among prisoners, the prevalence rate for affective

disorders has been reported to be substantially higher. Butler and Allnut (2003) reported

among male sentenced prisoners in NSW, 7% suffered from at least one affective disorder in

the preceding one month and 12.4% in the preceding 12 months. For reception prisoners, the

prevalence rates were even higher, 17.1% met the one-month criteria and 21.1% met the 12-

month criteria. The 12-month prevalence rate for reception prisoners was consistent with the

23.2% reported by the same authors three years later (Butler et al., 2006). Direct comparison using the 12-month prevalence rate have identified an affective disorder was 3.3 times more prominent among reception prisoners when compared to the community (23.2% vs. 9.9%) (Butler et al., 2006).

Regarding specific affective disorders, depression has been identified to be the most prevalent among prisoners. Australian and international studies have consistently reported the one month prevalence rate ranges between 5.1% and 5.9% (Brinded et al., 2001; Butler & Allnutt, 2003) and a 12-month prevalence of 9.5% and 11% (Butler & Allnutt, 2003; Fazel & Danesh, 2002). Among reception prisoners this rate is even higher with to 10.7 to 13.5% meeting the one-month criteria (Brinded et al., 2001; Butler & Allnutt, 2003) and 9.0 to 16.0% meeting the twelve-month criteria (Butler & Allnutt, 2003; Fazel & Danesh, 2002). In a meta-regression conducted by Fazel and Seewald (2012) the authors identified among 54 publications including more than 16,000 prisoners, the prevalence of depression was 10.2%. Furthermore, while there was evidence the prevalence rates for depression were increasing among USA samples, the prevalence rates were stable among non-USA samples, including Australia.

The point prevalence rates of major depression reported for male sentenced prisoners are almost twice as high as the rates reported for male community samples (5.1 to 5.9% *vs*. 2 to 3%; American Psychiatric Association, 2000; Brinded et al., 2001; Butler & Allnutt, 2003) and more than three times higher among reception prisoners (10.7 to 13.5% *vs*. 2 to 3%; American Psychiatric Association, 2000; Brinded et al., 2001; Butler & Allnutt, 2003). These comparisons are consistent with direct comparisons, where reception prisoners were 2.6 times more likely to have a depressive disorder than individuals in the community sample (17.5 vs. 8.8%; Butler et al., 2006). The higher prevalence rates among reception prisoners when

compared to sentenced prisoners and community samples suggest that entering prison is a risk factor for developing depressive symptoms.

Regarding bipolar affective disorder, the prevalence rate among community samples ranges from 0.4% (point prevalence) to 1.6% (lifetime prevalence; American Psychiatric Association, 2000). Indirect comparisons between the literature suggests the point prevalence rates among prisoners are more than double for sentenced prisoners than observed in the general population (1.1% vs. 0.4%; American Psychiatric Association, 2013; Brinded et al., 2001; Butler & Allnutt, 2003). This difference was even more marked among reception prisoners, who were 7.0 times more likely than individuals in the community to have a bipolar disorder (3.5% vs. 0.6%; Butler et al., 2006).

For other affective disorders, the prevalence rates among male community samples for dysthymic disorder ranges between 3% (point prevalence) to 6% (lifetime prevalence) (American Psychiatric Association, 2013). The point prevalence rate is broadly consistent with the one and 12 month prevalence rates of 3.4% and 3.8% for dysthymia reported for Australian male sentenced prisoners (Butler & Allnutt, 2003). However, when direct comparisons were made between reception prisoners and the general population, prisoners were 5.0 times more likely to meet the 12 month criteria for a dysthymia disorder, than individuals in the general population (7.6 vs. 1.7%; Butler et al., 2006).

Anxiety disorders

Most studies that have investigated the prevalence of anxiety disorders have utilised the DSM-IV TR (American Psychiatric Association, 2000a) categorisation of anxiety disorders (i.e., combining trauma and stress-related disorders, non-trauma and stress related disorders and obsessive-compulsive disorders), and not the DSM-5 (American Psychiatric Association, 2013) categorisation where these disorders are now separated

Anxiety disorders are considered high prevalence disorders and among male sentenced prisoners, it has been estimated 18.1% met the one month criteria and 28.4% met the 12-month criteria (Butler & Allnutt, 2003). The 12-month prevalence rate is more than three times higher among prisoners when indirectly compared to the estimate of 9.7% among the general population (Teesson et al., 2009). However, when Butler et al., (2006) directly compared reception prisoners with a community sample, prisoners were 5.1 times more likely to be diagnosed with an anxiety disorders (37.9% *vs*. 13.4%).

The most common anxiety disorder identified among both sentenced and reception prisoners was Post-Traumatic Stress Disorder (PTSD). Among sentenced prisoners 8.5 to 9.5% met the diagnostic criteria within the preceding month and 16.2% within the preceding 12 months (Brinded et al., 2001; Butler & Allnutt, 2003). For reception prisoners, the prevalence rates were even higher with 9.5 to 16.9% meeting the one month criteria and 21.7% meeting the 12-month prevalence criteria (Brinded et al., 2001; Butler & Allnutt, 2003). These rates are considerably higher than the 3% 12-month prevalence and the 8% lifetime prevalence rates for PTSD reported for community samples (American Psychiatric Association, 2000). When direct comparisons were made, reception prisoners were 10.2 times more likely to have been diagnosed in the last 12-months with PTSD (25.6% vs. 4.2%; Butler et al., 2006). The high prevalence rates for PTSD among prisoners, suggests prisoners are more likely to have experienced past serious psychological trauma which may be related to their upbringing, lifestyle or temperament. This is opposite to how prisoners are often perceived by the general population as 'traumatises' rather than being a traumatised victim (Butler & Allnutt, 2003).

The second most common anxiety disorder among prisoners was Generalised Anxiety Disorder (GAD). Among sentenced prisoners the one month prevalence rate was 8.8%, versus 12.4% for the preceding 12 months and these rates were only slightly lower than the

12.4% one month and 13.4% 12 month prevalence identified among reception prisoners (Butler & Allnutt, 2003). Panic disorder was also prominent among sentenced prisoners with 2.7% meeting the preceding one month criteria and 6.9% meeting the 12 month criteria (Butler & Allnutt, 2003). Among reception prisoners, these rates were slightly higher with 4.6% meeting the one month criteria and 7.3% meeting the 12 month criteria (Butler & Allnutt, 2003). When prevalence rates were indirectly compared to general community samples, GAD and panic disorder prevalence rates were markedly higher among male prisoners than community samples (GAD, one year 3% and lifetime 5%, panic disorder one year 0.5 to 1.5% and lifetime 1 to 2%; American Psychiatric Association, 2000; Butler & Allnutt, 2003). When compared directly, reception prisoners were 3.5 times more likely to be diagnosed with GAD, and 5.4 times more likely to be diagnosed with panic disorder (Butler et al., 2006). Furthermore, the higher prevalence rates reported among prisoners for GAD provide further support prisoners are fraught by high levels of anxiety and worry regarding their life circumstances. Butler (2003) proposed it is likely PTSD and GAD go undiagnosed in prison populations. Both disorders are difficult to treat with medication alone and successful treatment often involves a combination of medication and psychological intervention over a substantial period of time.

Less common, but still present, disorders included obsessive-compulsive disorder, agoraphobia and social phobia. For OCD, the one-month prevalence rate for sentenced prisoners has been reported to be between 1.4 and 4.8% and a 12-month prevalence rate of 1.6% (Brinded et al., 2001; Butler & Allnutt, 2003). For reception prisoners, this rate is only slightly higher with the one month prevalence ranging between 2.3 to 5.0% and the 12-month prevalence rate being 2.7% (Brinded et al., 2001; Butler & Allnutt, 2003). For agoraphobia, the one-month and 12-month prevalence among sentenced prisoners was 1.3 to 2.0% and for reception prisoners this was only slightly higher at 2.9 to 3.0% (Butler & Allnutt, 2003).

Lastly, social phobia was diagnosed in 0.9% of sentenced prisoners and 1.1 to 1.5% of reception prisoners (Butler & Allnutt, 2003). Despite the low prevalence of these disorders, reception prisoners were 3.5 times more likely to have an OCD disorder, 1.8 times more likely to have agoraphobia and 0.4 times more likely to have a social phobia when compared to the general population (Butler et al., 2006).

Personality disorders

Given the diagnostic criteria for dissocial personality disorder incorporates behaviours conducive to criminal behaviour, such as unlawful behaviour, conning others, physical assault or theft (World Health Organisation, 1992), it could be presumed a substantial proportion of prisoners would meet the diagnostic criteria for a personality disorder. In support of this premise, a meta-analysis that included 17 studies with just under 11,000 reception and sentenced prisoners identified that 46% of remanded and 48% of sentenced prisoners had a dissocial personality disorder (Fazel & Danesh, 2002). Most of these studies utilised the Structured Clinical Interview for DSM-II and DSM-III (Spitzer, Williams, & Gibbon, 1987) or obtained clinical diagnoses from national databases. Twenty-five of the 27 studies conducted with remanded prisoners reported high prevalence rates ranging from 40 to 64%. The other two studies had slightly lower prevalence rates of 28 to 32%, which might be a result of having small samples.

In contrast, an Australian study conducted by Butler and Allnutt (2003) identified dissocial personality disorder was the least common personality disorder among prisoners, with only 2.5 of remanded and 2.7% of sentenced prisoners identified as having a dissocial personality disorder. The remarkable consistency of high prevalence rates of dissocial personality across studies included in the Fazel and Danesh (2002) meta-analysis highlights the prevalence reported by Butler and Allnutt (2003) was unexpectedly low. Butler and Allnutt (2003) attributed the low prevalence rates being a result of the International

Personality Disorder Examination (IPDE) screener being poor at identifying dissocial

disorder. Evidence to support this premise was provided in the Australian National Survey of

Mental Health and Wellbeing which also utilised the IPDE and failed to diagnosis even one

individual with antisocial personality disorder within the community (Butler et al., 2006).

Another study utilising the IPDE screener also reported lower prevalence rates for dissocial

personality disorder than Fazel and Danesh's (2002) meta-analysis. This study conducted in

Germany by Watzke, Ullrich, and Marneros (2006) identified 20.8% of sentenced prisoners

met the diagnostic criteria for dissocial personality disorder. While the prevalence rate was

not as low as the rate reported by Butler and Allnutt (2.5 and 2.7%; 2003), the prevalence rate

was less than half the rate reported in the Fazel and Danesh (2002) meta-analysis. Taken

together, there is evidence to suggest the IPDE screener is not as effective as the SCID

(Spitzer et al., 1987) in assessing dissocial personality disorder or obtaining recorded

diagnoses from national databases and studies utilising the IPDE screener would

underestimate the prevalence of dissocial personality disorder.

Few studies have reported the prevalence of individual personality disorders. In one

Australian study, Butler and Allnutt (2003) identified the most prominent personality disorder

among male reception and sentenced prisoners included impulsive (21.4 vs. 19.0%), paranoid

(19.8 vs. 15.0%), borderline (19.7 vs. 13.3%), anxious (19.0 vs. 11.5%), schizoid (16.3 vs.

10.4%), anankastic (14.6 vs. 11.1%), dependent (11.0 vs. 4.9%) and histrionic (6.6 vs. 3.1%).

These rates are substantially higher than those reported by Watzke et al., (2006) for sentenced

prisoners, where all personality disorders excluding dissocial personality disorder had life-

time prevalence rates ranging from 0% (dependent personality disorder) to 3.0% (paranoid

personality disorder). These differences occurred despite both studies using clinical

interviews and utilising the International Personality Disorder Examination (IPDE).

Butler et al., (2006) directly compared prevalence rates for personality disorder between reception prisoners and the general population. Cluster A personality disorders were 10.4 (27.3 vs. 4.1%) times more prominent among reception prisoners when compared to the general population. Hence, reception prisoners were more likely to have personality disorders including "odd" and "eccentric" disorders such as paranoid, schizoid and schizotypal personality disorders. Cluster B personality disorders were 14.1 (30.9 vs. 3.8%) times more prevalent among reception prisoners when compared to the general community. This finding implies prisoners are more likely to have dissocial (antisocial), histrionic, narcissistic and borderline personality disorders when compared to the community. For Cluster C personality disorders that includes avoidant, dependent and obsessive-compulsive personality disorders, reception prisoners were 7.3 (28.6 vs. 5.6%) times more likely to have these disorders than the general population.

In community samples, all forms of personality disorders are uncommon with less than 3% of the population being diagnosed with any one specific disorder (American Psychiatric Association, 2013). In contrast, the rates of all types of personality disorders are drastically higher among prisoner populations. When direct comparisons were made between prisoners and the general population, Butler and colleagues (2006) identified any personality disorder was 8.6 (43.1 vs. 9.2%) times more prevalent among reception prisoners when compared to the general population. Given the limitations of the IPDE in diagnosing dissocial personality disorder in the studies conducted by Butler et al., (2003; 2006), it is likely the lifetime estimate of personality disorders are substantially higher than the 43.1% and 35.7 reported for reception and sentenced prisoners respectively. If the estimate made by Butler et al. (2003; 2006) for personality disorders was corrected with prevalence of dissocial personality in the international literature for reception (46%) and sentenced prisoners (48%; Fazel & Danesh,

2002), it would suggest the true prevalence of personality disorders among reception and sentenced prisoners would be in the range of 85.6 and 80%.

Substance use disorders

Substance use in the general community is rare with 3.0% having a substance use disorder in the prior 12-month prevalence (Teesson et al., 2009). However, substance use disorders are one of the most prevalent disorders among prisoners. It has been estimated 63.7% of reception and 33.6 to 38.8% of sentenced prisoners have abused alcohol, cannabis, opioids, sedatives or stimulants in the prior 12 months (Butler & Allnutt, 2003; Watzke et al., 2006). The prevalence rate for substance use among sentenced prisoners being almost half the rate reported among remanded prisoners, largely reflects that access to substances after being incarcerated was abruptly stopped and thus the prevalence dropped dramatically. This premise is supported by the one month prevalence of substance use among sentenced prisoners dropping to a rate of only 3.4% (Butler & Allnutt, 2003). Hence, to aid in accurately comparing prevalence rates for substance use between offenders and the general population, prevalence rates among reception prisoners or lifetime prevalence rates should be used. Direct comparisons between prisoners and the general community has identified reception prisoners are 11.4 times more likely to have a substance use disorder when compared to community dwelling individuals (65.7 vs. 18.0%; Butler et al., 2006).

In regard to specific substance use disorders, the twelve-months prevalence rate for alcohol dependence among reception prisoners was 19.2 per cent (Butler & Allnutt, 2003). This prevalence rate is almost four times lower than 5% per cent reported among the community population (American Psychiatric Association, 2000). In addition, the twelve-month prevalence rates among reception prisoners has been reported to be 18.7 to 22.1% for cannabis, 35.5 to 39.5% for opioid, 11.4% to 14.7% for sedative and 27.8% to 34.3% for stimulant dependence (Butler & Allnutt, 2003; Butler et al., 2006). When prevalence rates

were directly compared between community and reception prisoners it was identified the

highest odds were for an opioid use disorder (*OR* = 220.4, 0.4 *vs*. 39.5), followed by a

stimulant use disorder (OR = 135.4, 1.4 vs. 34.3; Butler et al., 2006). Reception prisoners

were also significantly more likely than community individuals to have a sedative use

disorder (*OR* = 41.3, 0.5 vs. 14.7%), cannabis use (*OR* = 6.4, 7.1 vs. 22.1%) or alcohol use

(*OR* = 2.0, 13.9 vs. 21.6%; Butler et al., 2006).

     The exceptionally high rates of substance use disorder among reception prisoners has

relevance to the management of prisoners as a significant number of offenders would be

experiencing withdrawal from substances upon being remanded to prison. This in turn would

place a significant demand on prison resources in terms of providing detoxification and

maintenance. Also, the large number of prisoners diagnosed with a substance use disorder

creates a demand within the prison system for illicit substances.

Comorbidity of psychiatric disorders

     In addition to the higher psychiatric morbidity among prisoners than the general

population, it has also been identified prisoners have higher rates of comorbidity. In

Australia, general population studies have identified in the past year the majority (80%) of

individuals in the community did not have a psychiatric disorder (Teesson et al., 2009).

Among those who had a psychiatric disorder a comorbidity disorder was rare as, 74.5% had

one disorder, 22.0% had two disorders and 3.5% three disorders. In comparison, a large-scale

Australian-based study conducted with male reception and sentenced prisoners found the

majority (61%) of prisoners had at least one psychiatric disorder (Butler et al., 2011). A

comorbid disorder was also prominent among the sample with 25% of prisoners with a

mental illness having a co-occurring substance use disorder. Among prisoners with a mental

illness, the most prominent configuration of a comorbidity was for an affective and anxiety

disorder (73%), followed by a schizophrenia spectrum disorder and an anxiety disorder

(67%), or schizophrenia spectrum and affective disorder (51%). A recent systematic review and meta-regression study conducted by Fazel and Seewald (2012), also highlighted the high rates of comorbidity among prisoners. The authors identified a substantial proportion of prisoners (20.4 to 43.5%) with a mental illness had a comorbid substance use disorder. A comorbid substance use disorder was more variable among prisoners with a schizophrenia spectrum disorder ranging from 13.6 to 95.0%, or an affective disorder ranging from 9.2 to 82.5%. The heterogeneity in research findings likely reflects differences in methodologies utilised as well as potentially real differences in prevalence rates between different types of prisoners (i.e., reception and sentenced) as well as between countries.

Summary

Despite considerable differences in how prevalence rates are operationalised, assessed and reported in the literature, the voluminous literature base has established that although prisoners suffer from the same spectrum of psychiatric disorders as the general population, the frequency, intensity and comorbidity of all types of psychiatric disorders are more prevalent among prisoners when compared to the general population. While it has been estimated that in the general population, one in two individuals will experience a schizophrenia spectrum, affective, anxiety, personality or substance use disorder, in the preceeding 12 months (Jablensky et al., 2000; Slade, Johnston, Oakley-Browne, Andrews, & Whiteford, 2009; Slade, Johnston, Teesson, et al., 2009), these rates were elevated (up to 80%) among prisoners (Butler et al., 2006; Fazel & Danesh, 2002; Short et al., 2010)

Regarding specific disorder clusters, there is substantial evidence the prevalence of schizophrenia spectrum disorders, including schizophrenia, is at least three times higher among prisoners when compared to the general population. The literature has also consistently demonstrated all affective disorders, excluding dysthymic disorders among sentenced prisoners, are more prevalent amongst males incarcerated in prison than their

community dwelling counterparts. Collectively the literature suggests trauma and stress related disorders are more prominent among offenders than non-trauma and stress related disorders; finding almost every second prisoner has experienced a form of anxiety disorder in the preceding 12 months. While personality and substance use disorders are rare in the general population, personality and substance use disorders are the two most common diagnosis among male prisoners (Butler & Allnutt, 2003; Mullen et al., 2003). Taken together, the literature has established that a higher proportion of offenders entering the prison system as either remanded or sentenced prisoners (i.e., reception prisoners) have a psychiatric disorder rather than sentenced prisoners. Comorbidity is also more common among prisoners, as while one in six people (15.6%) in the general population have a primary and at least one co-occurring disorder, among prisoners at least one in four prisoners (24.6%) have a co-occurring disorder.

Diagnostic stability of diagnoses among offenders

Even though the prevalence of psychiatric disorders is well recognised as being substantially higher among prisoners when compared to the general population, little is known about the long-term diagnostic stability of these psychiatric disorders among prisoners. Investigations of diagnostic stability have mainly excluded offenders and prisoners and have focused attention almost exclusively on the general population and community clinical settings. This section of the literature review discusses the importance of diagnostic stability, with attention drawn to the common methods employed in assessing diagnostic stability and reasons for diagnostic instability. This is followed by a review of the literature conducted with community populations that has investigated the diagnostic stability for schizophrenia spectrum, affective, anxiety and personality disorders. Lastly, common methodological limitations in community based diagnostic stability studies are explored.

Importance of diagnostic stability

Long-term stability of diagnoses is important in clinical practice as treatment options and prognosis for the patient largely hinge on the individual being correctly diagnosed (Chang et al., 2009; Whitty et al., 2005). For example, individuals diagnosed with schizophrenia would need different long-term pharmaceutical and psychiatric treatment than individuals diagnosed with drug induced psychoses where symptoms are likely to be absent after the acute phase of illness has passed (Whitty et al., 2005).

Despite the importance of valid and reliable diagnoses, these constructs are particularly difficult to evaluate, as there are limited or no biological markers to diagnose psychiatric disorders, precluding the ability of external validation. Furthermore, in clinical practice clinicians will observe patients' symptoms longitudinally, seek collateral information from multiple sources, and consider differential diagnoses as part of their diagnostic formulation. This process is inevitably exposed to limitations regarding the information available to the clinician, as well as human error, which can reduce the accuracy of the diagnosis formulated. This circumstance exists albeit psychiatric diagnostic systems, including the ICD-10 (World Health Organisation, 1992) and DSM-5 (American Psychiatric Association, 2013) providing diagnostic criteria for psychiatric disorders. Consequently, validity and reliability of diagnoses is often evaluated by the stability of an individual's diagnosis longitudinally (diagnostic stability), such as the consistency of the onset diagnosis with a follow-up diagnosis (Whitty et al., 2005). Diagnostic stability in this manner is a useful index for assessing the validity and reliability of diagnoses, as high diagnostic stability implies the psychopathological or pathophysiological process is consistent across presentations (Fennig, Kovasznay, Rich, & et al., 1994).

Diagnostic stability can be calculated using three different methods including prospective consistency, retrospective consistency and 75% agreement across all evaluations

(Schwartz, Fennig, Tanenberg-Karant, & al., 2000). Prospective consistency, otherwise referred to as positive predictive value (based on diagnosis being gold standard) is calculated as the proportion of individuals retaining the same diagnosis in the last assessment as was given in the first assessment. Retrospective consistency is comparable to sensitivity and is calculated as the proportion of individuals retaining the same diagnosis in the first evaluation as was given in the last evaluation. Lastly, 75% agreement across all evaluations is calculated as the proportion of offenders who on at least 75% of assessments receive the same diagnosis.

Beyond the implications for the patient's mental health, diagnostic stability using the methods described can have important implications from a public policy, training and research standpoint. This is because individuals who have a stable diagnosis are more likely to be true cases and place higher demands on mental health services. In contrast, diagnostic instability of disorders could lead to inappropriate service planning or resource allocation recommendations (Baca-Garcia et al., 2007). Therefore, it is also important to consider that diagnostic instability can occur for a number of reasons including observation, criterion, information or subject variance (Spitzer, Endicott, & Robins, 1975). Observation variance occurs when clinicians interpret the same stimuli in different ways or criterion variance where two clinicians use different criteria to diagnosis a disorder. Information variance occurs when the diagnosis shifts over time due to additional information becoming available or previously gathered information is interpreted in a different manner at a follow-up assessment. Lastly, subject variance happens when there are actual changes in the patient's symptomatology or whether clarity of symptoms occurred due to the patient's response to treatment.

In studies investigating diagnostic stability, it is often not possible to ascertain on a case by case basis which type of error variance influenced diagnostic instability. Furthermore, in epidemiology diagnostic instability is typically attributed to procedural unreliability.

However, this assumption is perhaps more pertinent for short-term rather than long-term

follow-ups and dependent on the specific psychiatric disorder under investigation. In short-

term follow-up studies, diagnostic instability should be low as changes in the patient's

symptomatology over short periods of time should be rare. In addition, short or long-term

diagnostic instability for disorders such as schizophrenia spectrum and personality disorders

should also be low, given these disorders are considered life-time disorders (American

Psychiatric Association, 2013). Therefore, in these examples, concluding that diagnostic

instability is due to observation, criterion or information variance would be reasonable. In

contrast in long-term studies investigating the diagnostic stability of affective or anxiety

disorders, it would be reasonable to assume diagnostic instability is more likely to result from

subject variance (i.e., a true change in symptomatology) rather than procedural unreliability.

This premise reflects that individuals who are afforded psychiatric treatment for an affective

or anxiety disorder may experience a decrease in symptoms or experience remission. A short-

term follow-up evaluation occurring before the patient experiences a reduction in symptoms,

should have high prospective consistency. Conversely, when the follow-up evaluation occurs

after successful treatment it would be reasonable to presume that the patient may have

relapsed or was seeking psychiatric services due to the emergence of new symptoms

pertaining to a different disorder. Hence, when considering diagnostic instability, it is

important to take into consideration the length of the study and the psychiatric disorder under

investigation.

Community-based studies investigating diagnostic stability of psychiatric disorders

Even though schizophrenia spectrum disorders are severe mental illnesses that are

considered lifetime disorders (Fazel & Seewald, 2012; Fazel & Yu, 2011), studies have

mainly focused on investigating the prospective diagnostic stability of schizophrenia. This is

due in part, to the fact that the nature and severity of symptoms of psychosis can fluctuate

over time. These studies have mainly followed up patients with first episode psychosis (Veen, Selten, Schols, & et al., 2004; Whitty et al., 2005) or a confirmed schizophrenia diagnosis at time one, that have required hospitalisation in a psychiatric hospital (Fennig et al., 1994; Kendler, Gruenberg, & Tsuang, 1985; Richard, Swann, & Burt, 1996; Tsuang, Woolson, Winodur, & et al., 1981). Among these studies, high prospective consistency for schizophrenia have been reported, ranging from 78.1% to 96% where six months to 40 years elapsed between the onset diagnosis and follow-up diagnosis and sample sizes ranged from 75 to 936. When study parameters are expanded to include multiple settings, such as combining inpatient, outpatient and emergency department, as well as including individuals diagnosed with non-psychotic disorders, diagnostic stability reduces to 68.6% (Baca-Garcia et al., 2007). This suggests that the ecological prospective diagnostic stability is only moderate.

Fewer studies have investigated retrospective consistency for schizophrenia. Among the studies conducted, retrospective consistency has been found to be lower than prospective consistency ranging from 45% to 73%, when follow-ups occurred between four to 12 years after the onset diagnosis (Baca-Garcia et al., 2007; Richard et al., 1996; Schwartz et al., 2000). The lower retrospective consistency when compared to prospective consistency for schizophrenia suggests a sizeable number of individuals will take several years to be diagnosed with schizophrenia after contacting mental health services. There was also evidence diagnostic stability often decreased as the length of the follow-up period and number of evaluations increased. This was illustrated by Schwartz et al. (2000) where the retrospective consistency for schizophrenia fell from 73% when the six and 24 months' evaluations were compared, to 55% when the baseline and 24-month evaluations were compared. Consequently, it may take up to two years, for many individuals to be diagnosed with schizophrenia. This may account for the higher diagnostic stability initially which then

reduces and stabilises over subsequent years. This premise also draws support from the lower

level of retrospective consistency reported by Schwartz el al. (2000) for evaluations two years

apart being comparable to the rates reported by Baca-Garcia (2007; 55% *vs*. 45.9%

respectively) where the minimum timeframe between the onset and follow-up evaluation was

approximately 12 years.

Less research attention has been afforded to investigating the diagnostic stability of

specific schizophrenia spectrum disorders. However, prospective consistency has been found

to be low for paranoid schizophrenia, 46.4% to 53.7% (Baca-Garcia et al., 2007; Chang et al.,

2009; Kendler et al., 1985; Tsuang et al., 1981), hebephrenic schizophrenia, 40.9% (Kendler

et al., 1985), residual schizophrenia 49.3% (Baca-Garcia et al., 2007), delusional disorder,

34.5 to 41.7% (Baca-Garcia et al., 2007; Whitty et al., 2005) and schizoaffective disorder,

50% (Laberge & Morin, 1995). Collectively, these findings suggest in clinical practice

symptoms pertaining to specific schizophrenia spectrum disorders vary considerable over the

course of the illness (Chang et al., 2009; Whitty et al., 2005).

Unlike schizophrenia spectrum disorders that are more often considered as lifetime

disorders, affective and anxiety disorders are usually conceptualised as episodic (Donovan,

Glue, Kolluri, & Emir, 2010; Vittengl et al., 2007). Overall, affective disorders have been

identified to have moderate stability (54.9 to 78.3%; Baca-Garcia et al., 2007; Tsuang et al.,

1981). However, specific affective disorders generally have lower prospective consistency

with major depressive disorder ranging from 40.3% to 75% and bipolar ranging from 35.4%

to 56% (Andreasen et al., 1981; Baca-Garcia et al., 2007; Bromet, Dunn, Connell, Dew, &

Schulberg, 1986; Fendrich, M., Warner, & L., 1990; Rice et al., 1986; Rice, Rochberg,

Endicott, Lavori, & Miller, 1992; Tsuang et al., 1981). Prospective consistency for anxiety

disorders has been reported to be even lower than the rates reported for affective disorders.

Most studies have identified low prospective consistency for phobic disorder (33 to 52%),

obsessive-compulsive disorder (19.2% to 66%), panic disorder (35 to 66%) and generalised anxiety disorder (15 to 29%; Andreasen et al., 1981; Baca-Garcia et al., 2007; Fendrich et al., 1990; Nelson & Rice, 1997; Rice et al., 1992). A general trend in diagnostic stability was identified for affective and anxiety disorders. Studies conducted in one clinical setting with a short follow up period of up to two years generally reported moderate diagnostic stability and as the number of sites and length of follow-up increased, diagnostic stability decreased. In epidemiology, this pattern of diagnostic instability is typically attributed to procedural unreliability. However, this assumption is perhaps more pertinent for short-term rather than long-term follow-ups. As psychiatric treatment afforded following the onset evaluation for an affective or anxiety disorder may decrease symptoms or result in remission. A short-term follow-up evaluation that occurs before remission should have high prospective consistency. Conversely, when the follow-up evaluation occurs after successful treatment it would be reasonable to presume that the patient may have relapsed or were seeking psychiatric services due to the emergence of new symptoms pertaining to a different disorder. As such, the poor diagnostic stability of affective and anxiety disorders in long-term studies likely reflects changes in the illness picture over time.

Similar to schizophrenia spectrum disorders, personality disorders have generally been characterised as lifetime disorders, as traits and behaviours developed during childhood and adolescence continue throughout adulthood and are resistant to change (American Psychiatric Association, 2013). Early studies investigating the diagnostic stability of personality disorders supported this assumption as personality disorders were identified as being mainly stable over time (Carpenter, Gunderson, & Strauss, 1977; Grinker, Werble, & Dryre, 1968; Gunderson, Carpenter, & Strauss, 1975; Maddocks, 1970; Robins, Gentry, Munoz, & Marten, 1977; Skodol, Buckley, & Charles, 1980; Werble, 1970). Personality disorders were also associated with ongoing poor functioning across multiple domains and

symptomatic impairment (Grilo, McGlashan, & Oldham, 1998). However, these studies were

restricted to investigating the stability of borderline (Carpenter et al., 1977; Grinker et al.,

1968; Gunderson et al., 1975; Skodol et al., 1980; Werble, 1970) or dissocial (Maddocks,

1970; Robins et al., 1977) personality disorders. The studies also had small sample sizes (n =

24 to 59), were conducted in either a single inpatient or outpatient clinic and most had short

follow up periods (i.e. less than three years). Combined these methodological limitations

likely inflated diagnostic stability.

Numerous studies investigating the diagnostic stability of borderline personality

disorder post the introduction of the DSM-III (American Psychiatric Association, 1980)

addressed many of the methodological limitations of early studies. This included increasing

the follow-up period (i.e. up to 20 years) and larger sample sizes, although many were still

often restricted to one clinical setting. Collectively the studies provided evidence that

borderline personality disorder was less stable over time as many individuals, experienced

fewer symptoms and had improvements in social and occupational outcomes (Bardenstein &

McGlashan, 1988; McGlashan, 1984; Paris, Brown, & Nowlis, 1987; Paris, Nowlis, &

Brown, 1988; M. H. Stone, 1987; M. H. Stone, Hurt, & Stone, 1987). Low diagnostic

stability has also been identified for dissocial personality disorder (42.9 to 58.8%; Black,

Baumgard, & Bell, 1995; Helzer, Spitznagel, & McEvoy, 1987; Perry, 1988; Perry, Lavori,

Cooper, Hoke, & O'Connell, 1987; Vandiver & Sher, 1991) and all other personality

disorders (43 to 56%; Bernstein et al., 1993; Klein & Ferro, 1997; Loranger, Sartorius,

Andreoli, & et al., 1994; McDavid & Pilkonis, 1996; Orlandini, Fontana, Clerici, & et al.,

1997).

Today there is substantial empirical evidence that has refuted the long-term stability

of personality disorders, as more often personality disorders demonstrated low diagnostic

stability ranging from 27.8% to 34.7% (Baca-Garcia et al., 2007; Grilo & McGlashan, 1999;

Grilo, Sanislow, Gunderson, & et al., 2004; Lenzenweger, Johnson, & Willett, 2004;

McDavid & Pilkonis, 1996). There is also emergent support for personality disorders being

less enduring (Durbin & Klein, 2006; Shea et al., 2002), hybrids of trait-like attitudes and

symptomatic behaviours (McGlashan et al., 2005), as well as being state-based (Reich, 2002).

Fluctuation of personality disorder symptoms overtime, perhaps are due to maladaptive

coping skills, since symptoms can manifest and abate in conjunction with symptoms of

another psychiatric disorder.

Methodological limitations in community based diagnostic stability studies

       Divergent methodologies have been used in the literature assessing diagnostic

stability and it is likely that many community-based studies have biased the results towards

higher levels of stability then would be seen in ecological settings. First, sampling bias

including recruiting participants from one mental health setting, such as a single outpatient

setting, and drop-out were common problems with longitudinal studies. Second, evaluating

clinical decisions made by the same clinician, clinicians not being blind to the purpose of the

study and evaluating a single diagnostic cluster (such as psychotic disorders; Mojtabai,

Susser, & Bromet, 2003; Rufino, Uchida, Vilela, & al., 2005; Schimmelmann, Conus,

Edwards, & et al, 2005; Schwartz et al., 2000; Veen et al., 2004), while able to control for

observer differences, overestimates diagnostic stability. Third, diagnostic procedures,

including using semi-structured interviews or other diagnostic assessments that are not

routinely used in clinical practice may not reflect the diagnostic stability of naturally

occurring clinical decisions in ecological settings. Fourth, most studies had short follow-up

periods (usually less than 3 years; Barkow, Heun, Wittchen, & et al., 2004; Grilo &

McGlashan, 1999; Grilo et al., 1998; Grilo et al., 2004; Rufino et al., 2005; Schimmelmann et

al., 2005; Schwartz et al., 2000; Veen et al., 2004) and were limited in the number of follow-

up evaluations (usually 2 or 3 evaluations) (Grilo et al., 2004; Schimmelmann et al., 2005;

Schwartz et al., 2000). The premise that the methodologies used in most community studies likely inflated diagnostic stability rates is supported by Baca-Garcia et al., (2007) who reported longitudinal ecological diagnostic stability was poor. Specifically, diagnostic stability was as low as 35% for disorders of adult personality and behaviour, 55% for affective disorders, to 69% for schizophrenia spectrum disorders. In this study the authors investigated the ecological diagnostic stability in a variety of community clinical settings including emergency departments, inpatient and outpatient settings.

Need for studies with offenders

Studies evaluating diagnostic stability among individuals with an offending history are required, as findings from community-based studies may not be generalisable given the well-established differences in the profile of mental illness between offenders and the general community. Prisoners will more often have complex presentations as psychiatric morbidity, dual diagnosis and co-occurring substance abuse problems are more common among prisoners than the general population (Butler et al., 2011; Fazel & Seewald, 2012). Furthermore, compared with the general population, individuals with an offending history often have different pathways to care, are less likely to utilise psychiatric services, have a heightened risk of misdiagnosis, treatment noncompliance and are stigmatised which can effect perceptions of illness aetiology (Kinner, 2006; Williams, Skogstad, & Deane, 2001). Collectively these differences may affect the individual's course and outcome, as well as the validity of diagnoses ascribed by clinicians.

Summary

Diagnostic stability of psychiatric disorders has been investigated substantially among the general population, however, there is a stark absence of studies conducted with prisoners. Among studies conducted there is considerable differences in the level of diagnostic stability

reported for schizophrenia spectrum, affective, anxiety and personality disorders. The general trend identified is that diagnostic stability is high for all disorders when participants are recruited from one mental health setting, assessments are conducted by the same clinician and few follow-up evaluations over a period of less than two-years are conducted. However, as the number of mental health setting, clinicians, number of assessments, and length of follow-up period increases, diagnostic stability starts to drop. This pattern suggests the methodologies employed in many studies inflate the level of diagnostic stability beyond what would be seen in clinical practice. In ecological settings, it has been identified that diagnostic stability for schizophrenia is moderate and for affective and personality disorder diagnostic stability is low.

Studies evaluating diagnostic stability among individuals with an offending history are required, as findings from community-based studies may not be generalisable, as there are well established differences in the profile of mental illness between offenders and the general community. Th differences in the profile of mental illness may result in clinicians encountering more difficulties in correctly diagnosing mentally ill offenders when compared to mentally ill community dwelling individuals. This gap in the literature should also be addressed because diagnostic stability has implications for clinical practice, public policy, training and research.

Mental health system

Even though psychiatric morbidity and co-occurring disorders are higher among prisoners when compared to the general population, there is no singular explanation for the higher prevalence rates. While, it was not a direct aim of this thesis to investigate the reasons for the higher prevalence rates, it is important to acknowledge that many competing and complex explanations have been provided. Some of these explanations relate to the evolving mental health system such as: deinstitutionalisation, a lack of adequate general psychiatric

and specialist services or diversionary options in the community and more formal and rigid

criteria for civil commitment (Gunn, Maden, & Swinton, 1991; Lamb & Weinberger, 1998;

Victorian Auditor-General's Office, 2014). Other factors pertain to experiences in the

community such as homelessness, the reluctance of general psychiatric services to accept

mentally ill patients from the courts and society's intolerance of deviant behaviour by people

with a mental illness (Coid, 2003; Kinner, 2006). In contrast, others have argued that the

higher prevalence rates reflect heightened awareness amongst both professionals and the

public (Ogloff, 2002). These factors have different historical underpinnings and an

exploration of the chronological history is warranted as this will help to understand how the

public mental health system has evolved over the last several decades. The review will also

enable an understanding of the current mental health system that offenders will be obtaining

treatment.

Deinstitutionalisation

Prior to deinstitutionalisation, psychiatric care was almost entirely provided in long-

stay stand-alone psychiatric institutions (i.e., asylums). During the mid-1960s, when the

number of psychiatric beds in stand-alone institutions in Australia peaked at approximately

30,000 (Department of Health and Ageing, 2013), concerns were mounting in Australia and

internationally about the ill treatment of people with a mental illness. The main themes

included isolation, inhumane treatment and the practice of long-term detainment of mentally

ill people, as more often individuals who became inpatients were never discharged (Ashley,

1922; Pollock, 1938). This practice was even more prominent among patients with a prior

offending history or who were deemed a danger to society (Pollock, 1938). This occurred

even though studies conducted pre-deinstitutionalisation shared the assertion that individuals

with a mental illness were not more dangerous than other people (Ashley, 1922; Cloninger &

Guze, 1970; Cohen & Freeman, 1945; Guze, Goodwin, & Crane, 1969; Guze, Woodruff, &

Clayton, 1974; Pollock, 1938).

Between the 1960s and 1990s a systematic deinstitutionalisation movement occurred

in Australia. The stand-alone psychiatric hospitals were progressively closed, reducing the

number of psychiatric beds dramatically to 5,802 (33 per 100,000) by 1992-93 (Department

of Health and Ageing, 2013). The closures of stand-alone psychiatric hospitals had a radical

impact on Australia's mental health system, as there were insufficient community resources

to offset the reduction in psychiatric services previously provided by psychiatric hospitals

(Australian Health Ministers, 2003). Inadequacies existed in outpatient services, community

residential services and 24-hour psychiatric care facilities for severely mentally ill people

requiring long term care (Australian Health Ministers, 1998). Without adequate service

options, the system was no longer able to keep up with the demands of mentally ill

individuals and services were grappling to meet even the highest priority needs of mentally ill

individuals (Australian Health Ministers, 1992). Similar deficiencies were also apparent

internationally, and it was during this time deinstitutionalisation was implicated as a key

factor in increasing the risks of mentally-ill individuals becoming incarcerated (Davis, 1992;

Hodgins, 1992; Hodgins, Mednick, Brennan, & et al., 1996; Palermo, Smith, & Liska, 1991;

Sosowsky, 1980; Torrey, 1997).

One of the most critical impacts of deinstitutionalisation was that the large-scale

closures of stand-alone psychiatric hospitals resulted in deficiencies in accommodation and

treatment options for mentally ill people living in the community (Australian Health

Ministers, 1992; Jemelka, Trupin, & Chiles, 1989; Laberge & Morin, 1995). Without

affordable community housing options, mentally ill people were at risk of experiencing

homelessness, which heightens the risk of incarceration (Belcher, 1988; Galea & Vlahov,

2002; Kushel, Hahn, Evans, & et al, 2005; Metraux & Culhane, 2006). Becoming itinerant

also heightens the risk of mental status decompensation, due to disengaging with voluntary

mental health services and ceasing to take prescribed medications (Belcher, 1988). For

individuals diagnosed with schizophrenia, these risk factors place the individual at jeopardy

of being in a psychotic state within the community and, coming into contact with police

(Belcher, 1988).

Changes in civil commitment laws also came into effect during deinstitutionalisation

resulting in more formal and rigid criteria for civil commitment, reducing the likelihood of

mentally ill people receiving mental health services that they needed (Canales, 2012; Lamb,

Weinberger, & Gross, 2004; A. A. Stone, 1978). Additionally, the changes afforded people

the opportunity to refuse treatment, resulting in more mentally ill individuals going untreated

in the community (Lamb & Weinberger, 1998; Laub, Nagin, & Sampson, 1998; Teplin,

1994). This, together with living in the community where mentally-ill individuals could

access substances that were unavailable in psychiatric hospitals, also increased the risks of

offending. Untreated mentally ill people, especially those who also abuse substances, are at

increased risk of violence, which increases the probability of the person becoming involved

in the criminal justice system (Fulwiler, Grossman, Forbes, & et al., 1997; Hodgins et al.,

1996; Kushel et al., 2005; Mulvey, 1994; Steadman, 1997; M. H. Stone, 1997; Swanson,

Estroff, Swartz, & et al., 1997).

Mentally ill people with an offending history or those recently released from prison,

were also less likely to access adequate general psychiatric, specialist services or diversionary

options in the community, as there was a reluctance of general psychiatric services to accept

this dually-stigmatised sub-group of mentally ill patients (Coid, 2003; Gunn et al., 1991;

Jemelka et al., 1989; Kinner, 2006; Laberge & Morin, 1995; Lamb & Weinberger, 1998;

Watson, Corrigan, & Ottati, 2004). These factors, in conjunction with changes in police

decision making practices and society's intolerance of deviant behaviour by mentally ill

people, increased the risk of mentally ill individuals becoming involved in the correctional

system, especially for minor offences (Coid, 2003; Gunn et al., 1991; Lamb & Weinberger,

1998).

Taken together, these key factors have been used to argue that seriously mentally-ill

individuals were being diverted from stand-alone psychiatric hospitals into the correctional

system (Teplin, 1983). As a result the term "criminalisation of the mentally ill" was coined

(Abramson, 1972) and prisons have been referred to as the new psychiatric hospitals that

provide public psychiatric care to mentally-ill people (Torrey, 1995). Deinstitutionalisation

has also been cited as causing the revolving door principle of repeat incarcerations among

mentally-ill individuals (Hoge, 2007). Despite it being argued that deinstitutionalisation has

increased the proportion of mentally ill people being incarcerated (Davis, 1992; Palermo et

al., 1991; Torrey, 1995), empirical evidence does not always support this contention

(Steadman et al., 1984; Wallace et al., 2004; Winkler, et al., 2016). There has also been a lack

of longitudinal studies investigating changes in offending patterns that have incorporated the

period of deinstitutionalisation or included a control sample. One study addressed this

problem and demonstrated there was a higher rate of criminal convictions among individuals

diagnosed with schizophrenia post deinstitutionalisation, especially for violent and drug

related offences (Wallace et al., 2004). Nonetheless, this rate was matched by a

proportionately similar increase in offending in the general population. Therefore, the higher

proportion of mentally ill people entering the correctional system was argued by Wallace and

colleagues (2004) to be unlikely the sole result of deinstitutionalisation.

Irrespective of whether deinstitutionalisation is responsible for the higher rates of

mental illness among prisoners it is clear that prior to deinstitutionalisation there was limited

opportunity for seriously mentally ill individuals who were lifetime residents in stand-alone

psychiatric hospitals to commit offences, be arrested or incarcerated. Therefore, living in the

community post deinstitutionalisation exposed seriously mentally ill individuals not only

with an opportunity to offend but also exposed the individual to a range of risk factors

associated with offending.

Reforms to the public mental health system

Pressure mounted for governments to work together and commit to reforming the

public mental health system, after it was recognised there were substantial inadequacies

within the public mental health system. This culminated with the introduction of the *National*

Mental Health Policy (Australian Health Ministers, 1992) which was endorsed by all Health

Ministers in 1992. This was the first time since Federation the eight state and territory

governments worked together to redress service development issues requiring nationally

focused policies. As prior to the *National Mental Health Policy*, Australian public mental

health services were fragmented, as each of the eight state and territory governments were

exclusively responsible for the running of their respective jurisdictions' mental health

services.

Reforms centred on integrating mental health services into mainstream health care, to

rectify some of the inadequacies of the mental health system by investing in expanding

inpatient and community services (Australian Health Ministers, 1992). To achieve this end, a

cohesive mental health program was developed to replace the services traditionally provided

in stand-alone psychiatric hospitals. This included transferring the provision of acute

psychiatric inpatient care into community based general hospitals and expanding community-

based care alternatives. During the first five years, Victoria led the reforms by undertaking

extensive structural changes to the public mental health system, whereas other jurisdictions

were slower to reform services (Australian Health Ministers, 1998). Similar reforms were

also carried out internationally, however expansions of community based psychiatric beds

and psychiatric services has not been able to keep up with the reduction of stand-alone

psychiatric hospital beds or services (Fakhoury & Priebe, 2007; Saxena, Thornicroft, Knapp, & Whiteford, 2007). Since the reforms did not redress the accommodation and treatment problems, this has likely further exacerbated the problems encountered by mentally ill individuals, especially those with a serious mental illness and / or offending history.

Mental health reforms within the Victorian correctional system

At the same time the Australian mental health system was being reformed, several reforms were also being undertaken within the Victorian criminal justice and forensic mental health systems. Two changes that significantly improved the services and care of mentally ill people in the criminal justice system was the establishment of the Victorian Institute of Forensic Mental Health (Forensicare) in 1997 and the subsequent opening of the Thomas Embling Hospital (TEH) in 2000. As a statutory agency, Forensicare is responsible for providing adult forensic mental health services, research, training and professional education in the health and justice sectors in Victoria (Victorian Institute of Forensic Mental Health, 2016). The TEH is a 116-bed secure forensic mental health hospital that provides advanced clinical treatment and programs. While most patients passing through the hospital are transferred from the criminal justice system for psychiatric assessment and / or treatment, the largest proportion of patients detained in the TEH are forensic patients (Victorian Institute of Forensic Mental Health, 2016). In addition, other prison based mental health services, such as St Paul's psychosocial unit at Port Phillip Prison have also been established. These services aim to provide multi-disciplinary care, treatment and rehabilitation for male prisoners requiring assistance and integration into the mainstream prison population or wider community on release (G4S Correctional Service, 2017).

Additionally, in July 2007 the Victorian Department of Justice established the Justice Health business unit. Justice Health is responsible for the planning and coordination of health services across police, courts, and Corrections Victoria to ensure an integrated and

coordinated approach for health services (Corrections Prisons & Parole, 2017a). The unit was established to consolidate the health functions previously provided in collaboration between Corrections Victoria and the Prisoner Healthcare Unit, Department of Human Services. The establishment of Justice Health has helped ensure the provision of quality driven and streamlined services with a centralised governance model.

National studies on the prevalence on mental illness

A second priority post deinstitutionalisation was to investigate the prevalence and impact of mental illness among Australians. As a result, three cross-sectional surveys collectively known as the *National Survey of Mental Health and Wellbeing* (i.e., Department of Health and Ageing, 2013; Department of Human Services, 2007) were conducted. The first two surveys were conducted within the adult general poulation in 1997, with the first survey investigating the prevalence and impact of high-prevalence disorders including depression, anxiety and substance use disorders (Australian Bureau of Statistics, 1998). The second survey investigated low-prevalence disorders such as psychotic disorders (Jablensky et al., 2000). As the first two surveys focused solely on adults, a third survey commissioned in 1998 focused on mental illnesses among children and adolescents (Sawyer et al., 2001).

Collectively, the national surveys provided an understanding of trends in mental health, as well as contemporary estimates regarding the prevalence of mental illness among Australians. Nonetheless, the initial surveys failed to recognise or include prisoners as a sub-group who often experiences higher rates of mental illness than individuals in the general population. Consequently, the need and demand for mental health services among prisoners remained unknown and estimates of the prevalence of mental illness among prisoners was obtained from smaller prison based studies. These studies often had small samples (Brinded et al., 2001; Gibson et al., 1999; Herrman et al., 1991) and were conducted at single sites (i.e., one prison; Ghubash & El-Rufaie, 1997; Guy, Platt, Zwerling, & Bullock, 1985; Krefft &

Brittain, 1963; Smith, O'Neill, Tobin, Walshie, & Dooley, 1996; Teplin, 1994). The studies

were also often limited to investigating the prevelance of a single disorder (i.e., schizophrenia

disorder; Bøjholm & Strömgren, 1989), or within sub-groups of offenders, such as remanded

(Andersen, Sestoft, Lillebæk, Gabrieisen, & Kramp, 1996; Birmingham, Mason, & Grubin,

1996; Brinded et al., 2001; Brooke, Taylor, Gunn, & Maden, 1996; Davidson, Humphreys,

Johnstone, & Owens, 1995) or sentenced (Bland, Newman, Dyck, & Orn, 1990; Chiles,

Cleve, Jemelka, & Trupin, 1990; Gunn et al., 1991) prisoners.

Despite methodological differences, collectively these studies brought heightened

awareness to prisoners, by identifying that prevalence rates of schizophrenia spectrum,

affective, anxiety, personality and substance use disorders, among prisoners surpassed those

found in the general population. Nonetheless, the studies also likely underestimated the

prevalence of mental illness among prisoners, as most studies would have excluded the most

acutely mentally ill prisoners. Acutely unwell prisoners more often are unable to provide

informed consent or are inelligible to participate because of being admitted to prison

psychiatric units.

In 2007 and 2010 respectively, the two adult national surverys were replicated (V.

Morgan et al., 2011; Slade, Johnston, Oakley-Browne, et al., 2009; Slade, Johnston, Teesson,

et al., 2009) and similar to the first surveys, prisoners were entirely excluded. This occurred

even though empirical evidence continued to draw attention to prisoners having

disproportionately higher rates of psychiatric morbidity than the general popultion (Fazel &

Danesh, 2002).

The two adult national surveys, however, did incorporate questions asking

participants whether they had been previously charged with an offence or incarcerated. This

enabled the first study to identify that people with a history of incarceration were twice as

likely to have a high-prevalence mental disorder in the previous 12 months (41.1% vs.

20.0%; Slade, Johnston, Teesson, et al., 2009). This included higher prevalence rates of affective (19.3% vs. 6.2%), anxiety (27.5% vs. 14.4%) and substance use (22.8% vs. 5.1%) disorders, when compared to those whom had never been incarcerated. Despite identifying offenders had higher prevalence rates, no further comparisons were made between offenders and the general population including exploring whether mental health needs or service utilisation differed between the two groups. In the 2010 study investigating schizophrenia spectrum disorders, an even more stark absence of comparisons between the two groups was noted. The only commentary relating to offenders, was that 10.6% of participants with a schizophrenia spectrum disorder had been charged with an offence and 3.2% had been incarcerated during the year prior to the study (V. Morgan et al., 2011).

The lack of attention afforded to prisoners and offenders in the national studies has persisted even though there is a clear need for these sub-groups to be incorporated. Especially given a sizeable proportion of mentally-ill offenders will continually transition between the community and prison, taking their mental health service needs with them. As each year most prisoners will serve relatively short sentences of less than 12 months and approximately half will be re-incarcerated within one year (Broadhurst, Maller, Maller, & Duffecy, 1988). These factors highlight that a substantial proportion of prisoners will require access to both community and prison based mental health services. Furthermore, continuity of care between the community and prisons is important, especially during heightened periods of stress, such as on entering prison, while imprisoned and upon discharge from prison. By prisoners accessing appropriate mental health services the risk of repeated incarcerations may be reduced (Baillargeon et al., 2009; Fazel & Yu, 2011). Accessing appropriate mental health services in prison can also reduce the risk of self-harm and suicide while incarcerated (Fazel, Cartwright, Norman-Nott, & Hawton, 2008; Lohner & Konrad, 2007). Upon release, continuity of care might also reduce drug-related deaths and suicide (Bird, 2008; Kariminia et

al., 2007; Pratt, Appleby, Piper, Webb, & Shaw, 2010). Despite the potential benefits of appropriate treatment, offenders have been identified as encountering difficulties in accessing suitable community mental health services, possibly due to the dual stigma of having a mental illness and a criminal history (Kinner, 2006). Furthermore, high rates of co-occurring disorders often preclude offenders from accessing community-based treatment Cha(Ogloff, 2002; Ogloff, Lemphers, & Dwyer, 2004; Ogloff, Talevski, Lemphers, Simmons, & Woods, 2015). For those who obtain treatment, co-morbidity may complicate treatment options, as therapy for different disorders may be incompatible with one another (Adams & Ferrandino, 2008).

Despite this evidence, national surveys have continued to overlook this particularly vulnerable sub-group of the population with unique and often complex needs and have missed an opportunity to address this critical shortfall. Furthermore, no known study exists that directly compares lifetime mental health service utilisation between prisoners and those in the community who do not offend. As a result it remains unknown whether the higher rates of mental disorders among prisoners than the general population, translates into prisoners having a greater use of mental health services. Given the lack of large scale research attention afforded to prisoners, it is also probable that mental illnesses among offenders and prisoners has always been higher than among the general population. However, it has only been in the last few decades with heightened awareness from the increasing amount of research attention afforded to offenders, that it has become more widely recognised that mental illness prevalence rates among offenders far surpasses those seen in the general population.

Ongoing reform initiatives to the mental health system

Since the reforms to the public mental health system commenced, new priorities have been developed and incorporated based on emergent knowledge and evolving community expectations. One of the key objectives incorporated since 1998 has been to decrease the

prevalence and severity of mental illness among Australians. To work towards this goal, the *National Mental Health Strategy* embraced an explicit population health approach that acknowledged there are a number of important determinants of mental health wellbeing (Australian Health Ministers, 1998, 2003). These largely encompass psychosocial and environmental factors such as education, employment, income, and access to community resources (Visher, La Vigne, & Travis, 2004). However, these government initiatives have largely been directed towards children, adolescents or adults in the community who have never been incarcerated. This has occurred despite offenders being a socially disadvantaged sub-group of the population who experience these psychosocial and environmental risk factors at increased rates than the general population. Numerous studies have identified that offender's grapple to obtain education, employment and stable accommodation (Greenberg & Rosenheck, 2008; Martell, Rosner, & Harmon, 1995; Michaels, Zoloth, Alcabes, & et al., 1992; Solomon & Draine, 1995). As a result, offenders have minimal community and social supports (Laberge & Morin, 1995), limited economic security, and a lack of structure in their lives which increases their risks of being incarcerated for minor offences (Lamb & Grant, 1982). In addition, mentally ill offenders have been identified as being more likely to be victimised or to victimise others (Maniglio, 2008; Martell et al., 1995; Short, Thomas, Luebbers, Mullen, & Ogloff, 2013).

Importance has also been placed on destigmatising mental illness and developing services that incorporate the complete gamut of mental health services from mental health promotion, prevention through to treatment (Australian Health Ministers, 2003). In the first instance, mental health promotion and prevention efforts aim to stop mental illnesses from developing, whereas effective treatment aims to decrease the duration of mental health symptoms. Multi-modal treatment options have become a central focus to reduce the severity of mental illness and to address disablement that mentally ill individuals experience in

personal, social and vocational functioning (Victorian Department of Human Services, 2007). However, these government initiatives have largely overlooked offender's unique needs, even though offenders have high levels of psychiatric morbidity and are more likely to experience social, personal and vocational dysfunction and require multi-modal treatment options.

Furthermore, since the *Second National Mental Health Plan* (1998-2003) (Australian Health Ministers, 1998) there has been a move towards providing mental health services to people with high-prevalence disorders such as depression, anxiety and substance use. This initiative was introduced to overcome the public mental health services predominant focus on treating people with severe mental illnesses such as schizophrenia disorders. At the time, it was evident the mental health system struggled to balance cost-effective management of patients with schizophrenia with the needs of other mentally ill individuals. Individuals with low-prevalence disorders, such as schizophrenia which affect approximately 1% of the general population, were utilising a disproportionately high amount of public mental health services due to having high treatment needs (Jablensky et al., 2000; Short et al., 2010). In contrast, people with high-prevalence disorders were unlikely to receive community mental health services as they are more likely to receive services from their general practitioner or private psychiatric services (Burgess et al., 2009).

Instead of investing in expanding community based mental health services to address this shortfall, the Australian Federal government introduced the *Better Access* program in 2006. The program aimed to address the low treatment rates among people with high-prevalence disorders by providing a rebate through the Medicare Benefits Schedule (MBS), for approved general practitioners, psychiatrists, psychologists, social workers and occupational therapists services (Department of Health and Ageing, 2008). Nonetheless, the *Better Access* program is not available in prisons. This has occurred even though prisoners with high-prevalence disorders are less likely to receive prison psychiatric services, as prison

mental health services are geared to providing acutely unwell prisoners with low-prevalence disorders psychiatric treatment (Victorian Auditor-General's Office, 2014). Therefore, prisoners with high-prevalence disorders are at a disadvantage once they enter prison as an opportunity to obtain psychiatric services which may substantially improve quality of life may be lost.

Public mental health system today

Australia has entered the third decade of targeted reforms of mental health services under the *National Mental Health Strategy*. Since the reforms commenced in the 1990s advocating major structural changes to the mental health system considerable changes have been achieved (Australian Health Ministers, 1992). Nonetheless, the changes have been inconsistent across jurisdictions and have mainly overlooked the unique and complex treatment needs of offenders.

Since deinstitutionalisation, public mental health services have not been able to keep up with demands of mentally ill individuals, especially mentally ill offenders (Victorian Auditor-General's Office, 2014). The Australian mental health system currently has been criticised for operating at sub-optimal levels, as the system grapples with being able to afford comprehensive and effective services that matches the multifaceted needs and demands of the community (Meadows & Burgess, 2009; Short et al., 2010). Concerns have also been raised that a considerable number of people with mental illness do not receive mental health services (Burgess et al., 2009) and the system has failed to provide integrated care for people with a dual-diagnosis (Teesson et al., 2009). These are pertinent issues for prisoners, as the impact of mental health reforms on prisoners may be magnified. It is probable the inadequacies of the mental health system impacts to a greater extent on the accessibility and utilisation of services by prisoners. This reflects, the higher rates of mental illness, including

schizophrenia, as well as co-morbidity among prisoners, in turn heightens the need for multi-modal psychiatric care.

Summary

It is likely the underlying cause for the higher prevalence rates among prisoners is not attributed to one single factor, but instead results from a complex interaction of multiple factors. Irrespective of the cause, it is now widely accepted prisoners constitute a vulnerable sub-group of the population who experience mental illness at higher rates than the general population. Furthermore, since deinstitutionalisation, substantial inadequacies have developed in the provision of community mental services that may impact more on offenders than the general population. This reflects offenders experience more psychosocial and environmental risk factors, as well as higher rates of substance abuse which may create barriers in obtaining services. National reforms and studies have also mainly excluded offenders even though there is a clear need for offenders to be incorporated. It would be arguably imprudent for mental health polices to be based solely upon data collected with the general population as this may further marginalise offenders who are an already highly-stigmatised group. A need was highlighted for empirical studies to investigate whether inadequacies of the mental health system impacts to a greater extent on accessibility of services for offenders.

Mental health care of prisoners

Within Australia, the provision of mental health care becomes the responsibility of criminal justice systems, once offenders are detained in police cells or prisons. Hence, the elevated levels of psychiatric morbidity among prisoners, also pose many challenges for criminal justice systems. For the criminal justice system to efficiently respond to the unique needs of mentally ill offenders, it is not only important to identify the prevalence of mental illness, but also determine the increased demands mentally ill prisoners place on prison

services. In recognition that standard services offered by prisons may not be suitable for

mentally ill prisoners, national and international criminal justice systems, have made a

concerted commitment to improve systems to identify, manage and treat mentally ill

prisoners. In this section of the literature review, developments in mental health service

provisions within the criminal justice system are reviewed with a focus on mental health

screening practices. This review was also included to highlight the challenges police face in

identifying mentally ill offenders and why identification often becomes the responsibility of

prisons.

Developments in mental health service provisions within the criminal justice system

   With increasing numbers of mentally ill offenders entering the criminal justice

system, the American Psychiatric Association (2000b) recommended four basic elements for

criminal justice mental health services to improve the quality of care for offenders. These

elements included: (1) screening and referral; (2) assessment and evaluation and (3) mental

health treatment and (4) discharge planning. Recognising the importance of the four

elements, national and international criminal justice systems began introducing mental health

screens at different junctures within the criminal justice system. Mental health screens were

introduced to ensure that as soon as possible on entering the criminal justice system,

offenders with a mental illness could be efficiently identified, assessed and referred to

mental-health services (Ogloff, 2002).

   Effective identification of mentally ill offenders as soon as they enter the criminal

justice system was required as many mentally ill offenders are not in receipt of mental health

treatment at the time of offending. It has been estimated that up to 56.4% of remanded men

and 68.8% of sentenced men with a mental illness had not received community mental health

treatment prior to being incarcerated (Simpson, Brinded, Laidlaw, Fairley, & Malcolm,

1999). Offenders with a psychiatric disorder also have unique needs which may reduce the

suitability of standard interventions and services offered within the criminal justice system.

Having a psychiatric disorder may also increase the risk of self-harm and suicide for the

offender and can impact on the safety of other detained offenders and those working in the

criminal justice system (Ogloff, 2002). Suffering from the effects of intoxication or emotional

problems may also increase problems adjusting to the prison environment due to the prisoner

being less capable to comprehend or adhere to prison rules and procedures (Ogloff, Davis,

Rivers, & Ross, 2007). Therefore, for a large proportion of offenders, entering the criminal

justice system can provide an opportunity to obtain mental health treatment that might not

otherwise be received (Brooke, Taylor, Gunn, & Maden, 1998; Ogloff et al., 2007; Singleton,

Meltzer, & Gatward, 1998).

Mental health screening of offenders entering the criminal justice system

There are several junctures within the criminal justice system that can be used to screen

and identify mentally ill offenders. In the first instance, offenders first encounter police

custody during the apprehension phase. In many jurisdictions police have the authority to

divert mentally ill offenders out of the criminal justice system. In Victoria, police have

legislated powers as part of the *Mental Health Act 2014*, which permits police discretion in

diverting individuals who appear to be mentally disordered to a mental health hospital instead

of taking them to police cells (Victorian State Government, 2014a). However, there is

evidence to suggest police are most likely to enact this authority with offenders who are most

overtly mentally ill. This premise is supported by findings that although the majority of

police cell detainees had a current diagnosable mental disorder, detainees infrequently

exhibited disorganised, bizarre and hyperactive symptoms (Ogloff, Warren, Tye, Blaher, &

Thomas, 2011).

The apprehension phase might also result with police detaining the offender in police

cells. Hence, police cells provide a second opportunity to screen offenders for mental illness.

The importance of having standardised mental health screening practices in police cells was highlighted in an Australian study conducted Baksheev, Thomas and Ogloff (2010). The authors identified that three quarters of all detainees in two busy metropolitan police stations had a current diagnosable mental disorder. Similar rates have also been reported in other Australian and international studies (Blaauw, Kerkhof, & Vermunt, 1998; Heffernan, Finn, Saunders, & Byrne, 2003; James, 2000; Ogloff et al., 2011). Despite the clear need for mental health screens for detainees, there is substantial heterogeneity of screening practices utilised. Some police stations have no formal processes, while others utilise non-standardised assessments and only a few use standardised assessments (James, 2000; Ogloff et al., 2007).

Furthermore, there is empirical evidence to support that some screening practices such as the custodial nurse health screen undertaken in some Victorian police cells result in high false negative rates, as practices fail to identify many mentally ill individuals (Baksheev, Ogloff, & Thomas, 2012). This study highlighted if current practices utilised during the apprehension phase do not use effective standardised screening tools, mentally ill offenders will continue to slip through the cracks and risk exacerbation of their mental health symptoms. Screening police cell detainees for mental illness is further complicated by the apprehension phase being brief, lasting hours to a few days. Detecting mental illnesses in offenders is also often complicated by police often not having the training or expertise to identify or assess symptoms of mental illness.

Given the logistical problems and staffing limitations of conducting mental health screens for all police cell detainees, detection responsibility often falls on prisons to screen reception prisoners for mental illness. To address this demand, many jurisdictions both nationally and internationally have introduced mechanisms to systematically screen and identify mentally ill prisoners as they are received into prison (Baksheev et al., 2012; Martin, Colman, Simpson, & McKenzie, 2013; Nicholls, Roesch, Olley, Ogloff, & Hemphill, 2005).

The introduction of psychiatric screening practices was largely influenced by the need to have systems in place to overcome the challenges correctional services face each day in receiving large volumes of prisoners, many of whom are mentally ill and / or are at risk of self-harm and suicide (American Psychiatric Association, 2000b).

Although, many prisons have introduced psychiatric screening processes at the point of reception, these practices vary widely. Some prison officials merely ask prisoners on reception a few questions about their mental health history, with other prisons utilising more comprehensive screening by mental health professionals using validated screening protocols (Ogloff et al., 2007). Validated reception screening protocols have been developed as an alternative to providing all prisoners entering prison with a comprehensive mental health assessment. Providing such an assessment would be inefficient and unfeasible due to time constraints and the extensive resources required to assess large numbers of prisoners entering the prison system each day.

In addition, screening procedures are required to be integrated into an already lengthy reception process. The screening assessment is, therefore, used as the first stage of a tiered approach for mental health problems, where mentally ill prisoners can be identified and referred for more in-depth assessment or treatment (Grubin, Carson, & Parsons, 2002; Ogloff, 2002). In most instances screening tools have been designed to facilitate the efficient allocation of scarce mental health resources, which promotes the use of primary services in the first instance and referral is made to secondary or tertiary psychiatric services when needs are identified by the primary service clinician. This practice is comparable to established practices in the community where people with a mental illness are triaged and where the individual requires secondary services a referral is made. Despite the well-established need for formal mental health screening of all reception prisoners, administration rates differ among prisons in different countries. It has been estimated that approximately 78% of all

prisoners in the United States of America receive a mental health screen (Beck & Maruschak, 2001), compared to 100% of offenders in Australia and the United Kingdom (Birmingham et al., 1996; Ogloff et al., 2007).

While screening prisoners at the point of reception is a substantial step forward, screening should only be considered as the first phase of a multifaceted solution. In the first instance, success of the screening process is dependent upon the quality of the screening tool, the skills of the interviewer and on the availability of resources. To date a variety of reliable screening tools have been developed such as the Jail Screening Assessment Tool (JSAT; Nicholls et al., 2005) and Brief Jail Metal Health Screen (Steadman, Scott, Osher, Agnese, & Robbins, 2005) that can be effectively administered by suitability qualified individuals, such as psychiatric nurses. Nonetheless, the effectiveness of mental health screening practices has been criticised. Birmingham and colleagues (2000; 1996) assessed remand prisoners on entry to prison and compared the diagnoses with the outcomes of the prison health screen administered by hospital officers and medical officers. Overall, the prison health screen correctly identified a minority of mentally ill offenders, as 77 per cent of mentally ill offenders were not detected (148 *vs*. 34). In another recent study, it was identified that even with good-in-reach teams, case detection and enrolment into services remained at a much lower rate than epidemiology suggests should be in receipt of specialist mental health services (Senior et al., 2013). Hence, even with the introduction of mental health screening practises there is still evidence prisoners remain poorly identified and treated as they enter prison (Birmingham, 2003; Hayes, Senior, Fahy, & Shaw, 2014). This be a result of decisions at the time of reception being influenced by a range of factors including the availability of mental health resources, as few referrals to psychiatric services, including tertiary services, are made at the time of reception (Ogloff et al., 2007).

The over-representation of mentally ill prisoners being received into jails each day and the introduction of reception mental health screening tools, also emphasises the pressing need to investigate how mentally ill prisoners are managed at the point of reception. Despite this, little is currently known about the demands placed on mental health services at the point of reception. In one study, Brooke, Taylor, Gunn, and Maden (1996) assessed the immediate treatment needs of 10% of prisoners remanded from 13 prisons in England and Wales. Of the 750 male remanded prisoners assessed, 168 (22%) were identified as requiring psychiatric intervention, including 50 (7%) requiring urgent interventions. Among the 50 prisoners requiring urgent interventions, 16 (3%) required immediate transfer to an off-site forensic psychiatric hospital, five (1%) possibly required transfer to a psychiatric hospital and 29 (5%) needed placement at the prison hospital.

Summary

The last several decades have ushered in a new era for national and international criminal justice systems, where a concerted commitment has been made to improve systems to identify, manage and treat mentally ill prisoners. The introduction of mental health screens in police cells and prisons is a considerable step forward in overcoming the challenges of receiving large numbers of mentally ill offenders each day. Furthermore, for a large proportion of offenders, entering the criminal justice system can provide an opportunity to obtain mental health treatment that might not otherwise be received. Nonetheless, mental health screening practices differ substantially between prisons and few studies have reviewed the mental health screening outcomes at the point of reception. Studies are required in this area, as mental health screens can only be effective if those administering the mental health screen are utilising the opportunity to refer the offender to appropriate services and treatment. There are some evidence referrals are underutilised as criminal justice systems have

inadequate mental health resources to respond to the unique and often complex mental health needs of offenders.

Early and late-start offending pathways

In this last section of the literature review, two distinct yet complimentary areas of research are combined. The first body of research centres upon studies conducted with child and adolescent offenders. This body of research includes identification that age of onset of delinquent behaviour is an indicator of underlying bio-psycho-social difficulties that predispose the individual to a persistent chronic course of offending that continues into adulthood (Moffitt 2003, 2006). Recognition of the significant role that age of onset plays in offending, has culminated in the creation of developmental taxonomic theories (Moffitt, 1993, 1994; Patterson, 1996). These theories centre on the argument that the delinquent population comprises separate categories of offenders who have distinct aetiologies and trajectories of offending. In brief, early-start offenders (those who start offending prior to 14 years of age) are most likely to continue offending as adults, and be repeatedly incarcerated in adult prison, then any other group of individuals. Furthermore, Moffitt (2003, 2006) proposed that early-start offenders are at higher risk of adverse psychological health outcomes in adulthood than other offenders or non-offenders. Although developmental taxonomic theories are useful in understanding offending and mental health trajectories these theories entirely exclude offenders who commence offending as adults.

The second body of research centres upon studies conducted with adult offenders. This body of research has been the focus of the literature review so far and includes the identification that adult offender's experience high levels of psychiatric morbidity as well as comorbidity. Despite the benefits of incorporating developmental taxonomic theories into research conducted with adult offenders, few studies have recognised the importance of incorporating age of onset of offending in studies investigating mental illness among adult

offenders. In research conducted with adult offenders, offenders with a psychiatric disorder

are most often grouped together as one homogenous group. This occurs even though it is well

recognised that even within the same disorder (i.e., schizophrenia) there is considerable

disparities in clinical presentation and aetiology (Fazel & Yu, 2011). Furthermore, it is well

accepted that many mentally ill offenders will require ongoing mental health services in both

community and prison settings, as most offenders will serve relatively short sentences of less

than a year, and approximately half will be reincarcerated within one year of release

(Broadhurst et al., 1988). Application of the developmental taxonomy theories in this area

would suggest that among mentally-ill offenders, early-start offenders would be more likely

to require continuity of care programs as they would be more likely to have a psychiatric

disorder and continually reoffend.

      This last section of the literature review explores the developmental taxonomy

theories with attention drawn to how the theories could be extended to an adult offender

population. This is followed by an exploration of Moffitt's (2003, 2006) hypothesis about

early-start offenders having a high risk of adverse psychological health outcomes, with an

emphasis on how this hypothesis could be extended to psychiatric morbidity and utilised in

an adult offender population.

Developmental taxonomy theory

      Most people at some stage during their life partake in activities that contravene

society's laws; however, only a minority will become chronic life-course persistent offenders.

Despite life-course persistent offenders comprising a very small segment of the population

(approximately 6 to 7 percent; Chung, Hill, Hawkins, Gilchrist, & Nagin, 2002; Moffitt,

1993), they commit a disproportionate amount of crime (up to half of all offences; Wolfgang,

1983). The crimes committed are often more serious and violent when compared to other

offenders (Bartusch, Jeglum, Lynam, Moffitt, & Silva, 1997; Chung et al., 2002; Moffitt,

1993; Wolfgang, 1983; Woodward, Fergusson, & Horwood, 2002). This likely explains why a substantial body of research has been dedicated to understanding whether life-course persistent offenders have different trajectories than other offenders and the non-offending population.

Examination of both psychology and criminology literature dating back several decades has identified that the age of onset of delinquent behaviour is among the strongest predictor for a persistent chronic course of offending that continues into adulthood. Specifically, the earlier an individual engages in delinquent behaviour, the greater the chance the individual will continue to engage in antisocial acts that become more persistent, serious and violent overtime (Blumstein, Cohen, Roth, & Visher, 1986; Farrington & West, 1990; LeBlanc & Loeber, 1998; Loeber & Farrington, 1998; Piquero & Brezina, 2001; Tolan, 1987). Age of onset of offending research was advanced by Moffitt (Moffit & Caspi, 2001; 1993, 1994, 2003, 2006; Moffitt, Caspi, Dickson, Silva, & Stanton, 1996; Moffitt, Caspi, Rutter, & Silva, 2001; Moffitt, Lynam, & Silva, 1994) and Patterson (1996; Patterson, Capaldi, & Bank, 1991; Patterson, Forgatch, Yoerger, & Stoolmiller, 1998; Patterson & Yoerger, 1993, 1995, 1997) culminating in the creation of developmental taxonomic theories. These theories centre on the argument that the delinquent population comprises two distinct categories of offenders who can be broadly described as early-onset life-course-persistent offenders and late-onset adolescence-limited offenders, with each having distinct aetiologies and trajectories of offending.

Early-start life-course-persistent offenders are individuals who begin offending prior to 14 years of age (Moffitt, 2003; Patterson & Yoerger, 1997). Offending by early-start life-course-persistent offenders has been associated with neuropsychological, disadvantaged environment, social, family and individual processes (Moffitt, 2006; Patterson et al., 1998). Very early in life these individuals exhibit neuropsychological functioning deficits including

difficult temperament and impaired cognitive functioning, emerge very early in life (Moffitt, 1993). The problems experienced by the child due to the neuropsychological deficits are compounded by a disadvantaged environment (Moffit & Caspi, 2001; Patterson, 1996). The disadvantaged environment is argued to result in the child being disciplined inadequately, having poor parental supervision, impaired family problem solving and experiencing coercive family interactions (Moffit & Caspi, 2001; Moffitt, 1994; Moffitt et al., 1996). Through these early socialisation experiences, the individual learns that antisocial behaviours have an adaptive value, despite their social interactions being negatively impacted by antisocial acts (Moffit & Caspi, 2001; Patterson & Yoerger, 1997). These deficits set the stage for the development, reinforcement and exacerbation of antisocial behaviours that continue over the life course (Moffitt, 1993; Patterson, 1996; Patterson et al., 1991; Patterson et al., 1998; Patterson & Yoerger, 1993, 1995). Offending by early-start offenders is considered to emerge due to the complex interaction of developmental, neurological and disadvantaged environment factors (Moffitt, 2003; Patterson et al., 1991). These factors encourage the development of a predisposition to engage in antisocial acts that further impacts negatively on social interactions, which leads to a destructive cycle of offending (Patterson, 1996; Patterson et al., 1991; Patterson et al., 1998; Patterson & Yoerger, 1993).

In comparison, the aetiology and trajectory of late-start adolescence-limited offenders differs dramatically to early-start life-course-persistent offenders. Late-start adolescence-limited offenders, commence offending after the age of 14 years and are less deviant than early-start life-course-persistent offenders (Moffitt, 1993; Patterson & Yoerger, 1997). While late-start adolescence-limited offenders experience fewer neurological deficits and environmental disadvantages than early-start offenders, they experience more deficits than adolescences who do not offend (Moffitt, 1993). Due to these noted differences, Patterson (1997) proposed a 'marginal citizen' hypothesis in which late-onset adolescence-limited

offenders were described as having marginally functional family environments, where

parents were more skilled in utilising discipline than parents of early-start life-course-

persistent. Although parenting skills were poorer than those of parents of non-offending

adolescences. Thus, late-start adolescence-limited offenders are more likely to have normal

developmental trajectories including developing a range of prosocial behaviours, such as

academic success, ability to form and maintain friendships and build relationships with others

(Moffitt, 1993).

Antisocial behaviour therefore occurs for different reasons, the late-start adolescence-

limited offender learns antisocial behaviour through social mimicry as they imitate

behaviours of delinquent peers (i.e., early-start life-course persistent offenders; Moffitt, 1993,

1994). Engaging in antisocial behaviour is driven by the adolescent's desire to bridge the gap

between biological and social maturity, as well as to prematurely obtain the benefits and

personal independence that are associated with an adult social role (Moffitt, 1993). As the

adolescent transitions into adulthood and commences legitimately attaining a job, financial

independence experiences intimate relationships, gets married and has children, their

antisocial behaviour decreases and eventually extinguished (Moffit & Caspi, 2001). The

adolescent is also able to draw on and use their prosocial skills they developed prior to

offending to desist antisocial behaviour. The late-start adolescence-limited offender,

however, remains at moderate risk for offending due to their association with delinquent

peers who may promote engaging in antisocial behaviours (Fergusson, Horwood, & Nagin,

2000).

Individuals who commence offending early have a worse prognosis than late-start

adolescence-limited offenders. While late-start adolescence-limited offenders are most likely

to engage in offending for a short time, early-start life-course-persistent offenders are at

increased risk of continuing to offend as adults and being repeatedly incarcerated in adult

prisons (Patterson, 1996).

Offending trajectories of children and adolescents

Despite the general trends among early and late-onset offenders, it is also clear not all

early-start offenders will become life-course persistent offenders. Similarly, not all late onset

offenders will be adolescence-limited offenders. To address the gap in the two main

developmental theories, researchers have extended the theories to incorporate the distinct

offending trajectories that can logically occur during the transition between childhood to

adulthood (Blumstein et al., 1986; Chung et al., 2002; Loeber & Farrington, 2000; Loeber &

Marc Le Blanc, 1990). These trajectories are presented in Table 1.

Broadly the trajectories can be grouped into five distinct groups based on the stability

of offending from childhood through to adulthood: 1. abstainers are individuals who did not

commit criminal offences during childhood and adolescence. Early-start offenders comprise

two categories; 2. early-start life-course persistent offenders who start offending early and

continue offending throughout adulthood, and; 3. a smaller group of early-onset desisters who

although started offending before adolescence outgrow offending before adulthood. The late-

onset offenders can also be separated into two groups; 4. late-onset adolescence-only

offenders who start offending late and cease offending before adulthood and; 5. a smaller

group of late-onset persisters who start offending during adolescence and continue offending

into adulthood.

The stability of offending categorisation approach reflects that all children and

adolescences can be grouped into one of the distinct subpopulations based on their pattern of

offending and each has a unique trajectory. Using stability categorisation, the early-onset

desisters and late-onset adolescence-only offenders cease offending by adulthood as they

transition from adolescence to adulthood, with a smaller proportion desisting by middle

adulthood (Ezell & Cohen, 2005; Sampson & Laub, 2003). Studies have identified desistance

in offending behaviour is linked to several developmental factors such as getting married or

gaining stable employment (Blokland & Nieuwbeerta, 2005; King, Massoglia, & Macmillan,

2007; Laub et al., 1998; LeBlanc, 1993; Sampson, Laub, & Wimer, 2006; Siennick et al.,

2014). These factors are consistent to those identified by Moffitt (2006) and Patterson (1997)

for late-onset adolescence-only offenders. The early-onset desisters also differ from the early-

onset life-course persistent offenders and share many similarities with late-onset adolescence-

only offenders. They experience fewer risk factors that are conducive of offending such as

having the ability to form and maintain friendships at school, having fewer antisocial peers,

and living in neighbourhoods where drugs are not easy to obtain (Chung et al., 2002). It is

likely experiencing fewer disadvantaged environment factors enables early-onset desisters to

develop adaptive skills that can be used to take on adult roles in society and cease offending.

In comparison, the early-onset life-course-persistent offenders and the late-onset

persisters continue offending into adulthood and are increased risk of being incarcerated in an

adult prison. Chung (2002) identified that despite the late-onset persisters having a later onset

Table 1 – Broad offending trajectories across the life-span

Offender category	Offender sub-type	Offending			Description
		Childhood <14 years	Adolescence >14 to <18 years	Adulthood >18 years	
Early-start	Desisters	Y	Y	N	Offending starts in childhood and ceases before adulthood
	Life-course persistent	Y	Y	Y	Offending starts early and continues into adulthood
Adolescent onset	Only	N	Y	N	Offending starts in adolescence and ceases before adulthood
	Persisters	N	Y	Y	Offending starts during adolescence and continues into adulthood
Adult	Life-course abstainers	N	N	N	Do not commit criminal offences across the life span
	Onset	N	N	Y	Offending starts in adulthood

of offending they share many similarities with the early-onset life-course persistent offender. In comparison, the early-onset life-course-persistent offenders and the late-onset persisters continue offending into adulthood and are increased risk of being incarcerated in an adult prison. Chung (2002) identified that despite the late-onset persisters having a later onset of offending they share many similarities with the early-onset life-course persistent offender, such as offending behaviour escalating in severity over time and continuing into adulthood. Nonetheless, the two groups could be meaningfully differentiated, as early-onset life-course-persistent offenders were more likely to be aggressive and more likely to live in neighbourhoods where drugs were easy to obtain than late-onset persisters (Chung et al., 2002). Despite these differences, it is these two groups who can be collectively referred to as 'early-start offenders' are important from an adult offender perspective.

Limitations of developmental taxonomic theory in adult offending

The child-adolescent offending groups, however, fail to include one other critical group who is important from a life-course perspective. The abstainers can also be separated into two logical groups, being abstainers who do not commit criminal offences throughout their lifetime and adult-onset offenders who commence offending in adulthood. This latter group of adult-onset offenders are also at risk of being incarcerated in an adult prison during their lifetime. Nonetheless, the adult-onset offenders have rarely been included in empirical studies and are not included in Moffitt's (1993) or Patterson's (1996) development taxonomy theories. Extending the developmental taxonomy theory to include adult-onset offenders in research with adult offenders would be beneficial as it is probable adult-onset offenders also have different aetiologies and trajectories than early-start offenders. This premise is based upon adult-onset offenders being part of the childhood and adolescent abstainers. This group of adolescents have been described as having normal developmental trajectories including prosocial behaviours, academic success and ability to form and maintain relationships with

others (Moffitt, 1993). Therefore, while early-start offenders are likely to reoffend upon

release, it is probable adult-onset offenders have developed a range of adaptive skills that will

enable them to desist from offending upon release from prison.

Early-start offending and mental illness

Mofitt (2003, 2006) proffered an extension of the development taxonomic theory that

early-start offenders are at increased risk of adverse physical and mental health outcomes by

mid-life, then other offenders or non-offenders. Few studies have empirically tested Moffitt's

hypothesis. Piquero (2007) provided evidence that physical and mental health outcomes were

more prominent among early-start life-course-persistent offenders when compared to both

late-start adolescence-only offenders and non-offenders. In the study demographic (i.e., race,

sex, and educational attainment) and individual (i.e, verbal IQ, low birth weight, and body

mass index) differences were controlled. Overall, between the ages of 27 and 33 years, early-

start life-course-persistent offenders were more likely than late-start adolescence-limited

offenders to experience at least one adverse physical health outcome and psychological

distress. Antisocial lifestyle factors mediated the association between early-onset life-course-

persistent offending and psychological distress. However, Piquero (2007) limited evaluating

psychological outcomes to psychological distress which was a compensate score

incorporating perceptions of anxiety, illness, depression and related somatic concerns. Hence,

it is unclear whether early-start offenders were also more likely to develop a psychiatric

disorder. This area warrants exploration as it may be that the higher rates of psychiatric

morbidity among adult offenders, is more prominent among offenders who commenced

offending prior to adulthood when compared to those who commenced offending in

adulthood

Summary

Developmental taxonomy theories have contributed considerably in identifying distinct aetiologies and development trajectories between offenders. These theories emphasise the age of onset of offending is the most influential factor in predicting recurrent offending. The central argument is that for early-onset life-course-persistent offenders and late-onset persisters (i.e., early-start offenders), it is the earlier onset of severe behavioural problems exhibited during childhood that transitions into antisocial behaviours. Antisocial behaviours often commence with less serious forms of offending, that develop into more serious offending during adolescence and the perseverance of these behaviours into adulthood. Nonetheless, there is a stark absence of studies with adult offenders that have included developmental taxonomy theories. Furthermore, developmental taxonomy theories entirely exclude adult-onset offenders, who commence offending after the age of 18 years. It would be beneficial to extend developmental taxonomy theories to incorporate adult-onset offenders, especially in studies undertaken with adult offenders. It is probable that as adult-onset offenders experience fewer neuropsychological, environment, social, family and individual disadvantages, that they are less likely to reoffend than early-start offenders.

In addition, Moffitt's (2003, 2006) extension of the development taxonomic theory proposes early-start offenders are at increased risk of adverse physical and mental health outcomes by mid-life, then other offenders or non-offenders. Given it is well established psychiatric morbidity among offenders is high, it would also be beneficial to extend Moffitt's theory to include adult-onset offenders and investigate whether early-start offenders are also more likely to develop a psychiatric disorder than adult-onset offenders.

PART III: METHODOLOGY

Chapter 3 – Methodology

This chapter provides a detailed description of the methodology used in all data-linkage studies included in the thesis. The chapter begins with an overview of the methodology, a description of the databases and official paper-based prisoner records consulted. Next, how the samples were selected, data collection, and case linkage procedures are described. This is followed by how the mental health variables were coded, the analytical strategies selected, and the types of statistical analyses performed to test the research hypotheses. The chapter concludes with ethical considerations as well as the ethical and research approvals obtained.

Overview of Methodology

Four separate, yet related, empirical studies addressed the four research questions described in Chapter One. An epidemiological approach utilising a robust retrospective case linkage design was used in each of the studies. As all data collected and analysed in the studies were extracted from Victorian databases and / or official paper-based files managed by Corrections Victoria, Department of Health, Justice Health files or Forensicare there were no active participants.

For studies 1 and 2, the case-linkage design linked a two-year cohort of male sentenced prisoners obtained from the Corrections Victoria database to the Department of Health psychiatric register. This type of design was deemed the most appropriate as it enabled all men sentenced to a term of imprisonment from 1 January 2006 to 31 December 2007 to be included and a range of lifetime psychiatric outcomes to be evaluated. The time-frame was chosen as it enabled enough time to elapse for the majority (95.9%) of prisoners to be discharged from prison and their offending outcomes and life-time public mental health contacts to be included. Life-time public

mental health contacts included contacts received in community and prison settings prior to being incarcerated in 2006 or 2007 and following discharge, as well as mental health services received while in prison. The design allowed for Study 1 to investigate the lifetime diagnostic stability of a range of psychiatric diagnoses. In Study 2, a random community sample of non-offenders that was utilised in a prior published study (Short, Thomas, Luebbers, Ogloff, & Mullen, 2010b) was also included. Inclusion of a random sample of non-offending men enabled rigorous comparisons of mental health service utilisation between offenders and non-offenders.

Study 3 utilised an entirely separate cohort, and a retrospective cross-sectional design was employed. All information utilised in the study was manually extracted from the Her Majesty's Melbourne Assessment Prison's (MAP) 2009 official psychiatric intake registry, managed by Forensicare. This type of design was deemed the most appropriate, as it enabled all men entering the Victorian prison system for an entire year to be included. Furthermore, it enabled an evaluation of how the health and mental health outcomes at the time of reception differed based on psychiatric rating at the time of reception.

Study 4 utilised a stratified random sample of 716 male offenders who were drawn from among the men in the primary cohort who were sentenced between 1 January and 31 December 2007. Stratification was undertaken based on the offender's psychiatric rating at the time of reception which included acute / severely mentally ill (n = 200), stable / suspected mental illness (n = 118), history of mental illness requiring treatment (n = 200) and non-mentally-ill controls (n = 200). Stratification in this manner ensured prisoners with differing levels of psychiatric need and different forms of mental illnesses were included in the sample. The sample represented 69.2% of all acute / severely mentally ill prisoners, 100% of all prisoners with a stable / suspected mental

illness, 26.3% of prisoners with a history of mental illness and 15.1% non-mentally ill prisoners, who were sentenced to a term of imprisonment during 2007. Information from the Corrections Victoria database and the Department of Health psychiatric register was linked to information manually extracted from each prisoner's paper-based Prisoner Health File managed by Justice Health. This study design was deemed the most appropriate, because extracting psychiatric information for high prevalence disorders, such as affective, anxiety and substance use disorders, from the Prisoner's Health File addressed the limitations of the Department of Health psychiatric register. This enabled Study 4 to empirically investigate whether early-onset offenders have more severe mental health outcomes when compared to adult-onset offenders.

The methodology and research designs utilised in each of the studies are considered robust. This is because data linkage studies allow the inclusion of a large sample size and facilitates the examination of associations between multiple variables across extended periods of time, that would otherwise be unattainable or affordable (Mortensen, 1995). The use of large samples maximises the power of statistical analyses, enhancing the accuracy of results and the usefulness of results and perform an important role in informing public policy. The inclusion of a very large sample serves also to protect the privacy of individuals whose information is being collected, as data are merged from multiple sources and de-identified prior to analysis. This process, and the large-scale findings that result, would not be possible without the collection of private health information directly from databases and / or official paper-based records.

The retrospective case-linkage design utilised in all studies also enabled many of the limitations associated with prospective designs to be overcome such as, recruitment biases and retention issues. More often prospective designs would have a recruitment bias and exclude the most severely mentally ill prisoners from participating. Severally

mentally ill prisoners or those admitted to a psychiatric inpatient unit at the time of the study being undertaken, would not be able to participate, as their mental state would likely render them unable to provide informed consent. The most unwell offenders, with the highest mental health needs, would be precluded from participating. Overcoming this type of recruitment bias, especially in a series of studies investigating psychiatric disorders among offenders was pertinent. Using a retrospective case-linkage design enabled the most severely mentally ill prisoners to be included. Even if prospective studies successfully recruited offenders with differing levels of mental health need, participant drop out would be unavoidable. This is because many prisoners are incarcerated briefly (i.e., a couple of days or weeks) or they move between prisons.

While the case-linkage design utilised is deemed methodologically robust, a degree of error is unavoidable when entering the original data as well as performing data-linkage procedures (Mortensen, 1995). In addition, more detailed information could have been collected using other methods, such as conducting interviews which incorporated diagnostic tools such as the SCID or PANSS. By not incorporating diagnostic interviews prohibited the ability to evaluate the results of the current study against a 'gold standard'. Hence, providing commentary as to whether the treatment decisions made at the time of reception were appropriate for the mental illness diagnosed was not possible. Also, there is the possibility that, had this study incorporated other methods, the prevalence rate of mental disorders among Victorian prisoners would have been higher than reported. Nevertheless, prevalence rates found psychotic, affective and anxiety disorders were consistent with the literature. Furthermore, it would have been cost prohibitive for a prospective study to recruit an entire population of prisoners, such as all sentenced prisoners in an entire Australian state over a two-year period which was achieved in Study 1 and 2 and all reception

prisoners in an entire Australian state for a one-year duration in Study 3. The

population-based studies that included all offenders incarcerated in an entire state was a

major strength in this dissertation, that would not have been possible using other

methods.

Lifetime changes in psychiatric diagnoses, service utilisation patterns and mental

health trajectories, were also investigated in the current studies. This was only possible

by using official records, as other methods such as questionnaires would rely on the

individual's memory and this would have impacted on the quality of data obtained. The

retrospective design, therefore, enabled the results reported in each of the studies to

reflect ecological conditions facing Victorian offenders, the criminal justice system and

mental health service providers. However, as all data utilised in the current studies were

routinely collected for non-research purposes, there were some limitations in terms of

the breadth, depth and quality of information available. Nonetheless, the present study

provided a contemporary investigation of a range of pertinent issues effecting Victorian

mentally ill prisoners.

Description of databases and official paper-based prisoner records

Data for all studies were extracted electronically from three separate Victorian

databases, as well as manually from 716 paper-based Prisoner Health Files and one

official paper-based prisoner psychiatric intake registry.

Prison Information Management System (PIMS)

Socio-demographic information and offending information for the cohort was

extracted from the Prisoner Information Management System (PIMS), maintained by

Corrections Victoria. Correctional staff from all Victorian prisons have been required to

record socio-demographic, offending, infractions, prisoner movements, discharge and

other relevant information for all remanded and sentenced prisoners in the PIMS

database. For each offender who enters the Victorian correctional system for the first

time, on the day of reception into prison, a PIMS record is created, with a unique six-

digit Corrections Record Number (CRN). The same CRN is subsequently used for all

future incarcerations. Each prisoner record is kept up to date for the duration of

imprisonment, as corrections staff update the PIMS record daily or as required, due to

service requirements.

The LEAP database is updated in an ongoing manner as members of the Victorian

Police are required as part of their job requirements to enter all details of contacts

between the police and members of the public into the system. Information captured is

also updated as new information is obtained or when police investigations identify new

information.

Client Management Interface – Operational Data Store (CMI/ODS)

Lifetime psychiatric histories for the cohort were extracted from the official

Department of Health, Client Management Interface – Operational Data Store (CMI/ODS).

Established in 1961, the CMI/ODS is one of the oldest and most comprehensive psychiatric

case registers (Eaton et al., 1992).

All public community and inpatient mental health services are required to record all

psychiatric contacts into the CMI/ODS system. All psychiatric information is entered in the

CMI/ODS system within six weeks of the end of the month of receiving the service or being

admitted to an inpatient unit, or at the time of service discharge. Hence, records are kept

contemporaneous due, in part, to service requirements and financial incentives to maintain

up-to-date records, as State funding allocations can be affected by information obtained from

the CMI/ODS system.

Within the criminal justice system, only clinicians working at Thomas Embling Hospital, the states secure forensic hospital and specialised psychiatric units including; the acute assessment unit located at MAP and the St Paul's psychosocial unit at Port Philip Prison, have been required to record psychiatric diagnoses and inpatient admissions that occur within these locations. Hence, the CMI/ODS system does not capture outpatient services provided by psychiatric staff outside of these units. Nonetheless, given that the most acutely unwell prisoners will be treated within these units, and that most prisoners in the studies served relatively short sentences of less than 12 months ($n = 4030$, 74.6%), it is still possible to compare diagnoses and service usage in prisons. In addition, the register does not contain mental health services provided by general practitioners, private clinicians, or services provided to Victorian citizens by mental health services in other Australian states. Some individuals with affective, anxiety, personality or substance use disorders thus, would not be captured in the registry, as they may be treated outside of the public mental health system (Short et al., 2010). Although it is still possible to compare services and diagnoses for these disorders, the numbers do not reflect the true prevalence of the disorders. Nonetheless, in Victoria all involuntary psychiatric treatment services including involuntary admissions take place in the public sector. As a result, the vast majority of individuals with a schizophrenia-spectrum disorder have contact with the public mental health system at some point during the course of their illness (Krupinski, Alexander, & Carson, 1982). Hence, the registry contains the majority of lifetime diagnoses given to an individual with a schizophrenia spectrum disorder and provides a useful estimate of the lifetime prevalence estimate for schizophrenia (Wallace et al., 2004).

Psychiatric information captured in the CMI/ODS system included details of all psychiatric: diagnoses, inpatient admissions, outpatient contacts, psychiatric crisis services, involuntary community treatment orders and supported accommodation, provided within the

Victorian public mental health system. All contacts with mental health services and all diagnoses are recorded in the CMI/ODS system by qualified mental health professionals. Prior to 1992, diagnoses were assigned according to ICD-9 (World Health Organisation, 1978) and post 1992 the ICD-10 has been used to record diagnoses (World Health Organisation, 1992). In the event that a patient receives several diagnoses during a single evaluation all diagnoses were recorded in the CMI/ODS system. Hence, for any given contact the patient could be recorded as having one or more diagnoses.

Law Enforcement Assistance Program (LEAP)

Criminal histories for the cohort were extracted from the official Victorian Law Enforcement Assistance Program (LEAP) database managed by Victoria Police. The LEAP database was established on 1 March, 1993 (Victoria Police, 2010) and is a dynamic database designed to capture operational policing matters. Information captured includes all convictions and court dispositions as well as criminal history and other contacts with police. In addition, family violence incidents and victimisation incidents known to the police are also captured in LEAP.

The database was designed to replace the Information Bureau of Records (IBR) cards, that were hard copy documents that contained police and criminal records information. In 1993 when the LEAP database was launched, some information from the IBRs was transferred into the LEAP database, including scanned copies of the IBRs attached to the individuals LEAP record. Hence, prior to 1993 not all data fields are available, and from 1993 all records are comprehensive. Given the cohort in the current studies were all sentenced to a term of imprisonment during 2006 to 2007, this limitation of the LEAP database did not adversely impact the integrity of the data extracted.

The LEAP database is updated on an ongoing basis as members of the Victorian Police are required as part of their job requirements to enter all details of contacts between the police and members of the public into the system. Information captured is also updated as new information is obtained or when police investigations identifies new information. The Central Data Entry Bureau of Victoria Police also undertakes regular quality control checks and inaccurate or incomplete information is amended when identified.

Prisoner Health File

The CMI/ODS system was identified as being limited in terms of under-representing the prevalence of affective, anxiety, personality and substance use disorders, as well as having limitations in recording all prison based mental health contacts. Therefore, information was supplemented by manually extracting socio-demographic, medical, psychiatric and allied health contacts provided to prisoners while incarcerated from the prisoner's paper-based Prisoner Health Files (PHF) managed by Justice Health.

For each offender who enters the Victorian correctional system for the first time, on the day of reception into prison, medical records staff at the MAP, create a paper-based PHF. For each offender, the same six-digit CRN allocated within the PIMS database is used as the unique identifier for the offenders PHF. When an offender is transferred from MAP to another Victorian prison, their PHF is also transferred with them. Therefore, irrespective of which Victorian prison/s the offender is incarcerated in, all health, psychiatric and allied health professionals record details of each contact are recorded into the PHF by the relevant consulting clinician at the time the service is provided to the offender. Hence, the PHF is kept up to date for the entire duration the offender is incarcerated, due medical and legal requirements to keep up to date health records.

The PHF also contains a standardised mental health and suicide / self-harm risk assessment form (modified JSAT; modifications restricted to localising terminology such as that pertaining to income sources prior to prison and substance types; Ogloff et al., 2007) that is administered by a registered senior psychiatric nurse to each offender as they enter MAP. Consistent with the original JSAT, the modified JSAT focuses on assessing areas of concern in terms of risk requiring follow-up. In addition, the modified JSAT is supplemented by gaining mental health information from multiple sources, which is recommended by the JSAT authors. Once the psychiatric screen has been completed, the psychiatric nurse files the completed JSAT form in the offenders PHF. Similar psychiatric screens are also undertaken and documented in the PHF, each time the offender is transferred to another prison or returns from court.

Psychiatric Intake Registry

Psychiatric and suicide / self-harm ratings, as well as medical, psychiatric and allied health outcomes and recommendations made at the time of reception at MAP were extracted from the MAP Psychiatric Intake Registry. The registry contains 365 pages, one page for each day of the year (Appendix A) and has been designed to be used by senior psychiatric nurses. At the end of each day, senior psychiatric nurses record key health, psychiatric and allied health information obtained from the modified JSAT, for each offender received at MAP. Similar practices have been observed in Canadian pre-trial centres (Nicholls, Lee, Corrado, & Ogloff, 2004). The registry is, therefore, kept up to date daily due to service requirements.

Sample Selection

Offender sample

The primary offender cohort was sourced directly from the Prisoner Information System (PIMS) database maintained by Corrections Victoria. The sample included all adult male prisoners sentenced to a term of imprisonment in Victoria from 1 January 2006 until 31 December 2007. The primary offender sample was utilised in Study 1 and 2. A stratified random sample of 716 male prisoners sentenced to a term of imprisonment between 1 January 2007 and 31 December 2007 (secondary cohort), was drawn from the primary sample and utilised in Study 4. A third cohort of prisoners was sourced from the MAP Psychiatry Intake Registry, maintained by Forensicare was utilised in Study 3. The sample included all remanded and sentenced prisoners who were imprisoned in Victoria between 1 January 2009 to 31 December 2009. All studies therefore, excluded female prisoners and juvenile offenders. Remanded prisoners were also excluded from all studies except Study 3.

Community sample

A community sample was also utilised in Study 2. The community sample had been used in a prior published study, and the design is described elsewhere (Short et al., 2010). In brief, the random community sample contained 2,268 male non-offenders obtained from the Victorian state-wide electoral roll.

Data Collection and Case Linkage Procedure

A six-phase data collection procedure was undertaken to obtain all data utilised in the dissertation. Information was extracted and linked from three government databases and two types of paper-based records. Figure 1 presents a summary of the data extraction and linkage procedures utilised for all studies.
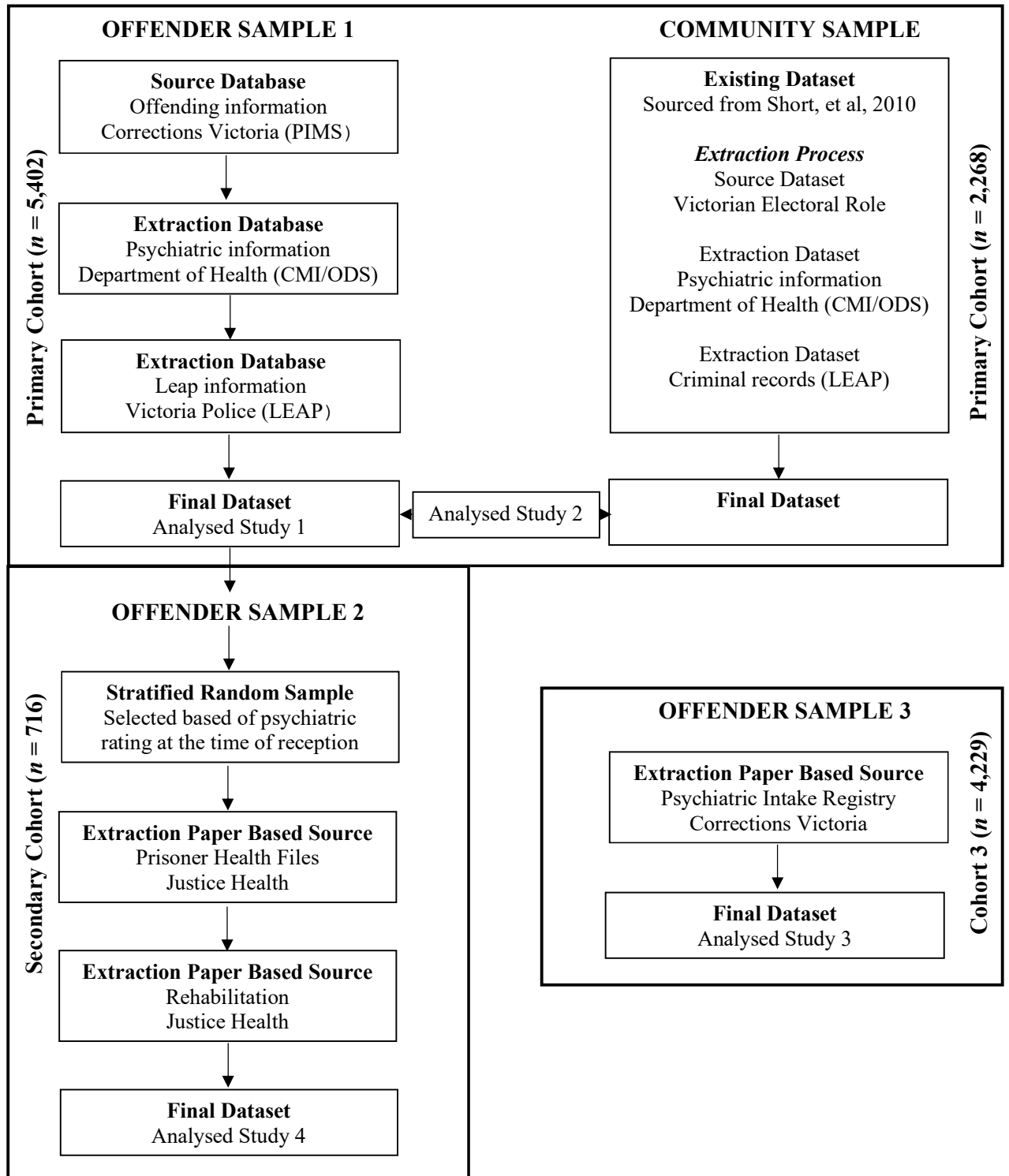
Figure 1 - Data extraction and linkage procedures for Study 1 to 4

Phase One – Cohort 1 selection from the Prisoner Information Management System (PIMS)

The data extraction procedure commenced with identifying and extracting CRN, socio-demographic and incarceration information (Appendix B) from the PIMS database, for all male prisoners who were sentenced to a term of imprisonment from the 1 January 2006 to 31 December 2007. Socio-demographic information extracted included; first name, surname, known alias, gender, date of birth, country of birth, marital status, indigenous status, education and employment information. Incarceration information included; reception date, warrant status at reception, aggregate sentence, minimum sentence, sentence date, most serious offence, security rating, number of prior sentenced imprisonment terms, discharge date, discharge type and recidivist information.

In total, 7,058 records were extracted, subsequently 1,656 records were removed as they pertained to the same individual being sentenced more than once during the two-year index period. In these cases, only the offender's first record was retained, and all subsequent records were excluded. The final cohort therefore contained 5,402 individuals who had each been imprisoned at least once during 2006 ($n = 2881$) or 2007 ($n = 2521$).

The dataset created at the end of phase one formed the master dataset for all subsequent data linkages. Each of the prisoners were initially identifiable by two different numerical identifiers, this was required to carry out all data-linkages. The identifiers included the Corrections Victoria CRN which is a unique number allocated to each offender entering the correctional system. A unique numerical identifier was also created for each offender for the current study. Information was collected in an identified form until all linkages were completed.

Phase Two – Linking the offender sample with the psychiatric registry (CMI/ODS)

Prior to conducting case-linkages, CRNs for the 5402 offenders were provided to Justice Health, enabling CRNs to be cross-referenced to obtain each offender's JAID. The JAID is a unique numerical identifier given to an individual who accesses the public mental health system.

Subsequently, case-linkages to the official Department of Health, Client Management Interface – Operational Data Store (CMI/ODS) psychiatric registry for the cohort in the second phase replicated procedures utilised in previous Australian research to enable direct and temporal comparisons (i.e., Short et al., 2010; Wallace et al., 2004). For each offender, their lifetime psychiatric history was extracted from the CMI/ODS. To aid the extraction process the unique study identifiers, along with JAID numbers and personal identifiers (including the offender's first name, surname, known aliases, date of birth and gender) were linked to the CMI/ODS system. Information extracted from the CMI/ODS system included all psychiatric diagnoses ($n = 23,742$) and all contacts with public mental health services including; mental health contacts ($n = 170,744$), inpatient admissions ($n = 4,223$) and community treatment orders ($n = 1,191$). Prior to linking all psychiatric information to each prisoner's record, all psychiatric records were reviewed to ensure each psychiatric entry was only entered once for any given date and any duplicate records were removed.

Once the data were returned to the researchers, the unique study identifiers were used to manually link each of the records provided by the Department of Health to the master dataset. Psychiatric information, including contact with mental health services and psychiatric diagnoses was manually linked to the master dataset based on four different time periods this included psychiatric treatment and services received prior to the index offence, during the index offence, post discharge from the index offence and

across the prisoner's lifetime. In addition, psychiatric information was also separated

into services received in the community and those received in prison. Psychiatric

diagnoses recorded in the CMI/ODS system was also used to allocate each prisoner into

either the mentally ill group or non-mentally ill control group. The mentally ill group

was separated into five sub-groups based on the most serious primary diagnosis and

included; schizophenia-spectrum, affective, anxiety, personality and substance use

disorders. This primary dataset was utilised in Study 1 investigating the diagnostic

stability of schizophrenia-spectrum, affective, anxiety and personality disorders in

community and prison settings.

Phase Three – Linking the offender sample with a community non-offender sample

The primary dataset was subsequently linked to a community non-offender sample that

was utilised in a prior published study (Short et al., 2010). The original sample contained

2,392 males obtained from the Victorian state-wide electoral roll, as more than 90% of adult

Australians are registered to vote (Victorian Electoral Commission, 2008). As the original

data contained offenders and individuals under the age of 18 years, the community sample

was cross-referenced with the Corrections Victoria database to identify and remove all men

who had been incarcerated ($n = 47$) and all males under the age of 18 years ($n = 77$). This

ensured comparisons were only undertaken with non-offending males, aged 18 years and

over ($n = 2268$). This dataset was utilised in Study 2 that compared the occurrence of mental

illness and public service mental health service utilisation between offenders and non-

offenders.

Phase Four – Linking the offender samples with LEAP

Case-linkages to the official Law Enforcement Assistance Package (LEAP), maintained

by Victoria Police, for the cohort in the fourth phase also replicated procedures utilised in

previous Australian research (i.e., Short et al., 2010; Wallace et al., 2004). For each offender, their arrest history and victim of crime information was extracted from LEAP. To aid the extraction process the unique study identifiers, along with the offender's CRN and personal identifiers (including the offender's first name, surname, known aliases, date of birth and gender) were linked to the LEAP system. Initial cross-referencing of the offender's names, aliases and date of birth resulted in an exact match for 4,729 (87.5%) offenders. The second step involved using soundex for first name, last name and exact date of birth and resulted in a match for a further 177 (3.3%) offenders. The third to fifth step of cross-referencing used the exact first name and surname and 3 different criteria for date of birth. In step 3, the offender's date of birth was within 7 days and resulted in a match for 13 (0.2%) offenders. For step 4, the offender's date of birth was set to being exactly one year different and matched 14 (0.3%) offenders. The final step used the offenders date of birth with the same year and day, but a different month and resulted in a match for 12 (0.2%) offenders. Data matching procedures were successful for 4,947 (91.5%) offenders in the primary cohort ($n = 5402$). The remaining 457 prisoners could not be identified in the LEAP database and therefore they were excluded from Study 4, prior to selecting the stratified random sample.

Information extracted from the LEAP database included criminal offences, family violence incidents and victimisation incidents known to the police. For each offender, full details were extracted including the date and location of the incident, details of the incidence or offence, detail pertaining to the offender, victims and/or witnesses involved in the incident, specific legal / judicial outcomes and any other relevant information.

Phase Five – Cohort 2 selection and linkage to the Prisoner Health Files (PHF)

In phase five, a sample of 719 prisoners sentenced in 2007 and stratified by psychiatric code at the time of reception into the correctional system was randomly selected from the primary cohort. Stratification based on psychiatric rating awarded at the time of reception

into prison ensured outcomes of interest could be reliably evaluated and contrasted among prisoners with differing levels of psychiatric need.

To aid this process, a separate file was obtained from the Corrections Victoria PIMS database that contained all psychiatric ratings (known as a 'P' rating) the prisoner received during their term of imprisonment. In practice, each prisoner receives a standardised mental health and suicide/self-harm risk assessment by an experienced registered senior psychiatric nurse at the time of reception. At the completion of the assessment, the psychiatric nurse utilises the information to allocate each prisoner a psychiatric rating based on the category of mental illness prescribed by the Corrections Victoria hierarchical rating system. 'P' (for psychiatric) are assigned according to the severity of the symptoms and need for treatment. P1 – diagnosed as having a serious psychiatric condition or being acutely unwell; P2 – diagnosed as having a suspected or stable psychiatric condition; P3 – history of mental illness but stable; and P4 – previous history of a psychiatric illness requiring ongoing care. P3 and P4 P-codes were collapsed into a single category pertaining to a history of a psychiatric disorder requiring ongoing treatment (history of mental illness group). Any prisoner not allocated a P-rating was considered not mentally ill.

The P-ratings obtained from Corrections Victoria were cross-referenced with the reception date to identify the prisoners P-rating at the time of reception into prison as well as all changes to P-ratings throughout the prisoner's sentence. Once this data linkage was complete a sample of 200 prisoners with a P1 rating (severe/acute mental illness), 200 prisoners with a P3 or P4 rating (history of mental illness requiring ongoing treatment) and 200 prisoners without a psychiatric rating (controls) were randomly selected. As there were only 119 prisoners with a P2 psychiatric rating all prisoners were selected. The cohort represented 69.2% of all acute / severely mentally ill prisoners, 100% of all prisoners with a

stable/suspected mental illness, 26.3% of prisoners with a history of mental illness and 15.1%

of non-mentally ill controls who were sentenced to a term of imprisonment during 2007.

     For each offender in the random offender sample, medical, psychiatric and allied

health information was manually extracted for each offender, from their paper-based

Prisoner Health File (PHF), maintained by Justice Health. To aid the extraction process

the researchers provided Forensicare medical records staff with a list of CRNs to recall

the relevant PHFs. The researcher reviewed and extracted information manually from

the PHFs in three different types of locations:

1. For prisoners who had been released at least five years prior to data collection,
    their PHF was held at a storage facility. Therefore, all files were transferred
    from the storage facility to Justice Health offices for review.

2. For prisoners who had been released within the five years prior to data
    collection, their PHF was held at MAP. Hence, all files held at MAP were
    reviewed onsite at MAP.

3. For prisoners who were currently in prison either for the index offence or for
    reoffending, their PHF was held within the same prison they were currently
    imprisoned. Therefore, each of Victoria's 12 male prisons were visited to
    review the PHF for prisoners incarcerated at the time of data collection.

     To aid the manual data collection process, a paper based proforma (Appendix C) was

created to record all information extracted. The proforma captured: 1) information from the

standardised mental health and suicide / self-harm risk assessments (modified JSAT), 2)

health, psychiatric and allied health contacts, and 3) prescribed medications

     Information manually extracted from the modified JSAT form included social-

demographic, offending, psychiatric and prison transfer information. Social-

demographic information extracted included whether the offender was expecting a

visitor while incarcerated, whether they have a support network, housing prior to arrest, highest level of education, English proficiency, last date of employment, main lifetime occupation and whether they have a job to return to upon discharge. Offending information included, youth detention, number of days in police cells and current offence. Psychiatric information included psychiatric rating at the time of reception, intellectual disability, acquired brain injury, current and lifetime psychiatric diagnoses, current medications, current community mental health service provider, family history of mental illness, alcohol / substance use history, self-harm history, suicide attempts, mental state examination at the time of reception, psychiatric rating, self-harm rating and recommendations made at the time of reception. Prison transfer information included, the prison left, the prisoner arrived, date of transfer, psychiatric rating, self-harm rating and reason for the transfer.

Health, psychiatric and allied health information extracted included the date of the contact, the type of service received and for inpatient contacts the reason for admission. Prescribed medications were also extracted and included all medications that were prescribed during the entire period of incarceration.

Once data collection was complete, all information from the proformas were entered into Excel for coding and then linked manually to the primary dataset and analysed using SPSS. This dataset was utilised in Study 4, that evaluated differences in childhood and adult psychiatric diagnoses between early-start and adult-onset offenders.

Phase six – Cohort 3 selection extracted from the MAP Psychiatric Case Registry

In phase six, information was manually extracted from the 2009 official paper-based MAP Psychiatric Intake Registry, maintained by Forensicare. Information extracted included 1) psychiatric rating, 2) self-harm risk rating, 3) medical, psychiatric and allied health service recommendations / referrals and 4) unit recommendations. This

dataset contained information for cohort 3, and was used in Study 3 that investigated

psychiatric, medical and allied health outcomes made at the point of reception into the

correctional system.

Coding of psychiatric disorders

The current thesis recognised that over the course of the offender's lifetime, the

offender may receive multiple and often different diagnoses. Coding of psychiatric diagnoses

therefore, underwent a two-stage process. In the first instance, disorders were selected for

inclusion in the current study. Subsequently, all life-time diagnoses were reviewed for each

offender and the offender was allocated to a primary psychiatric group, and all co-occurring

diagnoses were also coded.

Selection of psychiatric disorders for inclusion in the studies

Although all life-time psychiatric diagnoses were extracted from the CMI/ODS system,

only common diagnoses with a prevalence of more than 5% at a three-character level (Fxx)

among the sample were retained. Diagnoses with a prevalence of less than 5% were excluded,

due to small sample sizes precluding the ability to perform meaningful analysis. This

methodological approach to capture the most common disorders diagnosed among offenders

draws support from a study spanning 10 countries that found the 10 most prominent three-

character (Fxx) disorders accounted for 70% of primary diagnoses made (Mussigbrodt,

Michels, Malchow, & et al., 2000). Consequently, schizophrenia spectrum, affective, anxiety,

personality and substance use disorders, were selected for inclusion. In Study 4 affective,

anxiety, conduct and behavioural disorders recorded during childhood or adolescence, were

also retained.

Schizophrenia spectrum disorders

The 'schizophrenia spectrum' disorder group was ranked as having the most serious psychiatric disorders among the cohort. In Study 1, 'schizophrenia spectrum' disorder was separated into two groups to investigate the diagnostic stability of different types of 'schizophrenia spectrum' disorders. The two groups comprised of 'schizophrenia' and 'other schizophrenia spectrum' disorders. 'Schizophrenia' included: paranoid schizophrenia, unspecified schizophrenia, other schizophrenia, acute schizophrenia episode, catatonic schizophrenia, hebephrenic schizophrenia, residual schizophrenia, schizophrenia psychoses and simple type schizophrenia (ICD-9 code 295.90 and ICD-10 code F20). In comparison 'other schizophrenia spectrum disorders' included schizoaffective (ICD-9 codes 295.70 and ICD-10 codes F25.0 to F25.1), schizotypal (ICD-9 codes 301.22 and ICD-10 codes F21), shared psychotic, delusional (ICD-9 codes 297.1 and ICD-10 codes F22), schizophreniform disorder (ICD-9 codes 295.40 and ICD-10 codes F20.81), brief psychotic disorder (ICD-9 codes 296, 297 and 298 plus ICD-10 codes F21 to F29). Inclusion criteria used for the two groups captured chronic and severe forms of non-organic psychosis that most closely resembled schizophrenia in clinical presentation. Therefore, the following disorders were excluded; substance-induced psychosis, depression with psychotic features, or senile psychotic conditions which are more transient or organic types of psychosis (ICD-9 codes 291.9 and 292.9 and ICD-10 codes F10.159, F10,259, F10.959, F12.159, F12.259, F12.959, F14.159, F14.259, F14.959, F19.159, F19.259 and F19.959). Categorisation using this methodology has good diagnostic reliability (Krupinski et al., 1982; Mussigbrodt et al., 2000). In Study 2 and 4 'schizophrenia spectrum' disorders combined individuals diagnosed with either a 'schizophrenia' or 'other schizophrenia spectrum' disorder.

Affective disorders

The 'affective' disorder group was ranked as having the second most serious type of mental illness and included three clusters of disorders including; 'bipolar', 'depression' 'other affective' disorders. 'Bipolar disorders' included bipolar I and bipolar II disorders (ICD-9 codes 296.40 to 296.89 and ICD-10 codes F31) and 'depressive' disorders included major depressive disorder, such as depression episode (ICD-9 codes 296.20 to 296.26 and 311 and ICD-10 codes F32) and recurrent depressive disorder (ICD-9 codes 296.30 to 296.36 and ICD-10 codes F33). Lastly, 'other affective' disorders included cyclothymic disorder (ICD-9 code 301.13 and ICD-10 code F34), manic episode (ICD-10 code F30), persistent mood [affective] disorders (ICD-9 code 300.4 and ICD-10 code F34), other mood [affective] disorders (ICD-10 code F38) and unspecified mood [affective] disorder (ICD-10 code F39). In Study 1, 'affective' disorders were separated into the three groups to investigate the diagnostic stability of different types of 'affective' disorders. However, for Study 2 and 4 the three affective disorder groups were combined in analysis.

Anxiety disorders

The 'anxiety' disorder group was ranked as having the third most serious type of mental illness and included two groups of individuals, those with a 'trauma and stress related' disorder and those with a 'non-trauma and stress related' disorder. A 'trauma and stress related disorder' included posttraumatic stress disorder, acute stress disorder, adjustment disorders, other specified trauma- and stressor-related disorders and unspecified trauma- and stressor-related disorders (ICD-9 codes 308.3 to 309.9 and ICD-10 codes F43). As none of the offenders was diagnosed with either reactive attachment disorder or disinhibited social engagement disorder these disorders were not included in 'trauma and stress related' disorders (ICD-9 code 313.89 and ICD-10 codes F94.1 and F94.2). Regarding 'non-trauma and stress related disorders,' this category included phobic anxiety disorder (ICD-9 codes

300.22 to 300.29 and ICD-10 codes F40), panic disorder (ICD-9 code 300.01 and ICD-10

code F41.0), generalised anxiety disorder (ICD-9 code 300.02 and ICD-10 code F41.1), other

anxiety disorders (ICD-9 code 300.9 and ICD-10 codes F41.8) and unspecified anxiety

disorders (ICD-9 code 300.00 and ICD-10 code F41.9). In the cohort, none of the offenders

were diagnosed with separation anxiety disorder (ICD-9 code 309.21 and ICD-10 code

F93.0) or selective mutism (ICD-9 code 312.23 and ICD-10 code F94.0) and therefore these

disorders were not included. In addition, obsessive compulsive disorder (ICD-9 code 300.3

and ICD-10 codes F42) was included in 'non-trauma and stress related' disorders because

few offenders were diagnosed with this disorder. Within the cohort, not one of the offenders

was diagnosed with dissociative [conversion] disorders (ICD-9 codes 300.12 to 300.15 and

ICD-10 codes F44) or other neurotic disorders (ICD-10 codes F48) or somatoform disorders

(ICD-9 codes 300.82 and 300.7, as well as, ICD-10 codes F45.1 and F45.21) therefore, these

disorders were excluded from the current study. In Study 1, 'anxiety' disorders were

separated into the two groups to investigate the diagnostic stability of different types of

'anxiety' disorders. However, for Study 2 and 4 the two anxiety disorder groups were

combined in analysis.

Personality disorders

The 'personality' disorder group was ranked as having the fourth most serious type of

mental illness. All the specific personality disorders including, paranoid, schizoid, dissocial,

emotionally unstable, anxious [avoidant], dependent, other specific and unspecified

personality disorder (ICD-9 codes 301.0 to 301.9 and ICD-10 codes F60.0 to F60.9) were

included, except histrionic personality and anankastic personality disorders (ICD-9 codes

301.4 to 301.50 and ICD-10 F60.4 to F60.5). These latter two personality disorders were

excluded, as none of the offenders was diagnosed with these disorders in the current study. In

Study 1, the diagnostic stability for each 'personality' disorder was investigated separately.

However, for Study 2 and Study 4 all personality disorders were combined for analysis.

Substance use disorders

The 'substance use' disorder group was ranked as having the fifth most serious

type of mental illness. Substantial changes occurred in how substance use disorders

were categorised between the ICD-9 and ICD-10. Therefore, substance use disorders

selected for inclusion in the current study are first described with reference to ICD-10

codes and then subsequently to the relevant ICD-9 codes. Substance use disorders

included mental and behavioural disorders due to alcohol, opioids, cannabinoids,

hypnotics, cocaine, hallucinogens and multiple drug use and use or other psychoactive

substances (ICD-10 codes F10 to F14, F16 and F19). However, mental and behaviour

disorders due to other stimulants, including caffeine and tobacco use (ICD-10 codes

F15 and F17) were not included in the current study, because these disorders do not

require treatment or intervention. Furthermore, mental and behavioural disorders due to

use of volatile solvents (ICD-10 code F18) was not included as none of the offenders in

the cohort were diagnosed with these disorders. In addition, only the following ICD-10

modifiers; harmful use, dependence syndrome and withdrawal state (ICD-10 codes

F10-F19 codes ending with .1 to .3) were include in the current study. Acute

intoxication (ICD-10 codes F10-F19 codes ending with .0) was not included because

intoxication does not necessarily depict an ongoing substance use problem. In addition,

withdrawal state with delirium and amnesic syndrome (ICD-10 codes F10-F19 codes

ending with .4 and .6) were also not included in the current study, as none of the

offenders were identified to have been diagnosed with these disorders.

Diagnoses that were recorded per ICD-9 were reviewed with the substance use

inclusion criteria detailed above, and all disorders meeting the inclusion criteria were

included in the study. In Studies 2 and 4 'substance use' disorders were not separated

into groups and Study 1 and 3 did not include substance use disorders.

Childhood disorders

Study 4 also included three psychiatric disorders that are usually diagnosed in

childhood or adolescence. These disorders including; conduct disorder (ICD-9 codes

312.32, 312.81 to 312.9 and ICD-10 codes F91.1, F91.2, F91.9), oppositional defiance

disorder (ICD-9 codes 313.81 and ICD-10 codes F91.3) and attention deficit

hyperactive disorder (ICD-9 codes 314.00 to 314.01 and ICD-10 codes F90).

Allocation of offenders to psychiatric group

Two processes including 75% agreement across all evaluations and clear diagnostic

progression, were used to allocate individuals into a primary psychiatric group.

Categorisation of psychiatric diagnoses, using these methods replicated procedures utilised in

previous Australian research to enable direct and temporal comparisons (Short et al., 2010;

Wallace et al., 2004).

The 75% agreement across all evaluations required that an individual had to receive the

same diagnosis in at least three-quarters of all evaluations. As dual diagnosis was common

among offenders, the evaluation of 75% agreement, separated diagnoses into disorders that

could be clinically confused and those that cannot be clinically confused. An example, of two

diagnoses that can be clinically confused is paranoid schizophrenia diagnosis and manic

episode with psychotic symptoms as both disorders share many of the same clinical

symptoms. However, it is not plausible to confuse paranoid schizophrenia with obsessive

compulsive disorder. By evaluating all life-time diagnoses for an individual using this

approach increased the reliability of categorising an individual into the correct diagnostic

group. An example is provided in Table 2.1 to detail how categorisation of diagnoses using the 75% agreement across diagnoses was undertaken.

In this example, a schizophrenia diagnosis was the most frequently diagnosed mental illness. Therefore, disorders that could be clinically confused with schizophrenia such as manic episode with psychotic symptoms were included in the evaluation and disorders such as obsessive-compulsive disorder that cannot be clinically confused, were excluded from the evaluation. Since a schizophrenia spectrum disorder was diagnosed in 88% of all cases, the individual was allocated to the schizophrenia spectrum group. In addition, the individual was diagnosed in 75% of all evaluations with a schizophrenia diagnoses and therefore met the eligibility to be allocated to the schizophrenia group. If clinically dissimilar disorders, such as obsessive-compulsive disorder, had been included in the evaluation the individual would have not met the 75% agreement across diagnoses for either schizophrenia spectrum (63% 5 of 8) or schizophrenia (50% 4 out of 8). This point demonstrates the reliability of the categorisation approach utilised.

Clear diagnostic progression, involving clinical judgement was also used to allocate offenders to a diagnostic category. Using this approach, clinical judgment was used to review all diagnoses received by the offender, to determine whether there was clear evidence of disease progression. An example is provided in Table 2.2 below, on how clinical judgement was used to judge whether clear diagnostic progression of a mental illness had occurred.

In this example, five out of eight diagnoses were for affective disorders and three of the eight (37%) diagnoses were for a schizophrenia-spectrum disorder. Using the 75% agreement across diagnoses, the offender did not meet the criteria for either an affective or schizophrenia-spectrum disorder. Nonetheless, using clinical judgement there is clear diagnostic progression from an affective disorder to schizophrenia-spectrum, as 3 of the 4

Table 2 - *Hypothetical example: Evaluating the 75% agreement across diagnoses*

Date of diagnosis	Type of diagnosis	Percentage of cases with the initial diagnosis	Eligibility decision at the Fx level	Percentage of cases with the initial diagnosis	Eligibility decision at the Fxx level
1 January 2010	Paranoid schizophrenia	100% (1 of 1)	Case satisfies the 75% eligibility criteria and is included in the schizophrenia spectrum sample	100% (1 of 1)	Case satisfies the 75% eligibility criteria and is included in the schizophrenia sample
22 July 2010	Obsessive compulsive disorder	100% (2 of 2)		100% (2 of 2)	
20 March 2011	Latent schizophrenia	100% (3 of 3)		100% (3 of 3)	
25 March 2011	Obsessive compulsive disorder	100% (4 of 4)		100% (4 of 4)	
8 August 2012	Paranoid schizophrenia	100% (5 of 5)		100% (5 of 5)	
18 November 2013	Manic episode with psychotic symptoms	83% (5 of 6)		83% (5 of 6)	
16 September 2014	Unspecified schizophrenia	86% (6 of 7)		86% (6 of 7)	
4 April 2015	Schizoaffective disorder	88% (7 of 8)		75% (6 of 8)	

Table 3 - *Hypothetical example: Evaluating the clear diagnostic progression of a mental illness*

Date of diagnosis	Type of diagnosis	Percentage of cases with the initial diagnosis	Eligibility decision at the Fx level	Percentage of cases with the initial diagnosis	Eligibility decision at the Fxx level
12 March 1996	Major depressive	100% (1 of 1)	Case satisfies the 75% eligibility criteria and is included in the schizophrenia spectrum sample	100% (1 of 1)	Case satisfies the 75% eligibility criteria and is included in the schizophrenia sample
6 August 1998	Manic episode with psychotic symptoms	100% (2 of 2)		50% (1 of 2)	
29 September 2004	Major depressive	100% (3 of 3)		33% (2 of 3)	
1 April 2005	Bipolar	100% (4 of 4)		50% (2 of 4)	
11 November 2008	Unspecified schizophrenia	83% (4 of 5)		40% (2 of 5)	
12 November 2008	Major depressive	83% (5 of 6)		50% (3 of 6)	
8 June 2009	Paranoid schizophrenia	71% (5 of 7)		43% (3 of 7)	
31 October 2009	Paranoid schizophrenia	63% (5 of 8)		34% (3 of 8)	

(75%) most recent diagnoses were for a schizophrenia-spectrum disorder. The offender also

did not meet the 75% eligibility criteria for any disorder at the Fxx level. However, similarly

3 of the 4 (75%) most recent diagnoses were for a specific schizophrenia disorder and

therefore, the offender was also deemed to have exhibited clear diagnostic progression to a

schizophrenia disorder and classified into this group.

Using the 75% agreement across all evaluations and clear diagnostic progression all

offenders were allocated into the relevant primary psychiatric group. Any offender who did

not have a recorded psychiatric diagnosis was allocated to the non-mentally ill group. In

addition, all co-occurring diagnoses were also recorded for each offender.

Coding of psychiatric care in community and prison settings

From the CMI/ODS psychiatric register, all lifetime contacts with the public mental

health system were extracted. Contacts with the public mental health system can include

direct (such as an inpatient admission or an outpatient appointment) or indirect contacts (such

as a clinician making a telephone call to organise a service for the patient). Contacts can also

be with the patient or with someone associated with the patient (such as a parent, carer or

partner). In all studies, only direct contacts between the patient and the clinician were coded

and included in analyses. Categorisation of psychiatric care, using these methods replicated

procedures utilised in previous Australian research to enable direct and temporal comparisons

(Short et al., 2010; Wallace et al., 2004).

Psychiatric care was separated into six main categories: (1) inpatient care, (2) supported

accommodation, (3) involuntary community treatment order, (4) outpatient services (5)

psychiatric crisis services and (6) any contact with the public mental health system. Inpatient

care consisted of hospitalisation in a psychiatric inpatient unit. Supported accommodation is a

housing option provided to mentally ill individuals who need regular clinical and/or tenancy

support. Involuntary community treatment orders (CTOs) are legal treatment plans tailored to

a specific individual and are made by a magistrate or Mental Health Review Tribunal. The

CTOs authorise that the individual living in the community must accept mental health care

(such as medication, therapy, rehabilitation) and breaching the order could result with the

individual being admitted to inpatient care and provided with appropriate treatment which

may include medication. Outpatient services include psychiatric treatment options provided

to individuals living in the community, who do not require hospitalisation or who have been

recently discharged from inpatient care. Psychiatric crisis services are community-based

services provided by the Crisis Assessment and Treatment Team, which is responsible for

assessing and providing intensive community treatment to individuals who are experiencing

an acute phase of mental illness or who are in crisis, and an assessment needs to be made as

to whether the individual requires inpatient care or can be managed in the community. Any

contact with the public mental health system included; receiving one of the five types of

mental health services detailed above and / or having a recorded psychiatric disorder

diagnosis.

Psychiatric care provided within community settings was coded separately to

psychiatric services provided within prisons. For community and prison setting up to three

levels of psychiatric care was coded: (1) contact with the service, coded 0 if no contact was

made and 1 if contact was made, (2) number of contacts with the service, and (3) average

length of the contact with the service, both measured on a continuous basis. For inpatient

admissions, involuntary treatment orders and supported accommodation all three levels were

investigated. However, for outpatient services, psychiatric crisis services and any contact

with the public mental health system only the first two levels of the outcome variable were

used.

Reliability of linkage and coding practices

In large scale data-linkage studies a degree of human coding errors is unavoidable. Prior to conducting statistical analysis an assessment of human error was undertaken by manually re-coding 10% of all data. A threshold level of 2% error (108 cases out of 5402) was set as the acceptable cut-off level for unavoidable human error. The error rate identified for psychiatric diagnosis was 1.4% (73 cases) and for psychiatric care the error rate was 0.3% (14 cases). Given the error rate identified was lower than the cut-off level, only the cases identified were recoded.

Data Analyses

Prior to conducting statistical analysis, data cleaning was undertaken for all variables. A second check of human error was undertaken during data cleaning involving checking for out of range values (such as a value of 2 or higher when the variable was coded 0 and 1). The data was also checked for missing data, and no empty cells were identified.

Given the large number of variables and potential comparisons permitted by the range of data collected in the study a range of statistical analyses were performed. Descriptive statistics including means and standard deviations for continuous data and numbers and percentages for categorical data, were performed on the mentally ill and control groups to group, code and characterise the samples. To test the research hypotheses, many different univariate and multivariate statistical analyses were performed. For all statistical analyses, significance levels were set at a .05, and 95% confidence intervals used. All data analyses were conducted using Statistical Package for Social Sciences (SPSS, version 22).

To determine whether there were significant differences between groups independent samples *t*-test and between subjects analysis of variance (ANOVAs) were used for continuous data and chi-square test for categorical data. Chi-square analysis also allowed for the calculation of relative risks to determine the magnitude of risks between groups. The

kappa coefficient was also used to statistically assess the level agreement between the diagnoses made at the first and last assessments, while correcting for chance.

The effect of offender group on a range of mental health outcomes, were investigated using multiple regression when the outcome was continuous and binary logistic regressions when the outcome was categorical. The regressions also enabled potentially confounding variables (such as socio-demographic, anti-social life style variables) to be statistically controlled in analyses. The binary logistic regressions also enabled odds ratio's to be calculated to determine the magnitude of risk of an outcome occurring between groups.

Ethics

Ethics and research approval

The study conducted within the Victorian correctional system was supported by the Justice Health (Appendix D) and Corrections Victoria (Appendix E) and approved by the Human Research Ethics Committee of the Department of Justice, Victoria (Appendix F), both the Corrections Victoria Research Committee and complies with the Australian National Health and Medical Research Centre guidelines (National Health and Medical Research Council, 2007). In addition, research approval was also obtained from the Victoria Police (Appendix G), the organisations responsible for managing the databases that data was extracted from in the present study.

Ethical considerations

Data recorded and extracted from the Victorian state-wide databases and paper-based records were not originally collected for the present study and this precluded the ability to obtain informed consent from individuals whose information was utilised.

While researchers should always endeavour to obtain informed consent from research participants, the National Statement on the Ethical Conduct in Human

Research (National Health and Medical Research Council, 2007) recognises that the requirements for consent may be justifiably waived in certain circumstances. As outlined in Section 3.2.4., data linkage studies may necessitate the use of identifiable data without consent from the persons whose information is being collected, to ensure the data linkage is accurate and the integrity of the research is upheld. Furthermore, Section 2.3.6 states, research may proceed without participant consent; if it is impracticable to obtain consent from participants, if involvement in the research constitutes no more than low risk to participants and if the potential benefits of the research outweigh any risks of harm associated with not seeking consent. In addition, the guidelines stipulate the researchers have a responsibility to protect the privacy and confidentiality of the data.

In addition, the Victorian Information Privacy Principles (Victorian State Government, 2014b), Information Privacy Principle 2.1 (c) states organisations can use or disclose personal information about an individual for purposes other than the primary purpose of collection if; it is impracticable for the organisation to seek the individual's consent before the use or disclose, the use or disclosure is necessary for research, the research is in the public interest and the data reported is in a form that does not identify any particular individual.

It is, therefore, recognised that there are a range of circumstances where obtaining consent might be impracticable and that research can proceed without obtaining participant consent. The current study was carefully designed to meet all the legal requirements of the National Statement on the Ethical Conduct in Human Research (National Health and Medical Research Council, 2007), as well as the Victorian Information Privacy Principles, and these are described in detail below.

Impracticality of contacting participants and obtaining consent

In the Australian Law Reform Commission's report on Australian Privacy laws and practice, the Office of the Privacy Commissioner (OPC) provided the following examples of situations that might give rise to 'impracticality' for the purposes of the Privacy Act (Australian Federal Government, 1988):

- Individuals may be uncontactable due to death or relocation;

- Individuals may be part of a demographic group who is difficult to contact;

- The number of records involved may cause logistical problems; or

- The objective of the investigation may need to be concealed from subjects to minimise various forms of bias.

While the last recommendation was not relevant to the current study, the other three recommendations were, and will be discussed in turn. In the current study, individuals were deemed to be uncontactable, and thus it was highly impracticable to obtain consent from all participants. Firstly, prior to the commencement of the study, the researchers did not have access to contact details of the 5,402 men sentenced during 2006 and 2007. To obtain consent, contact details would need to have been provided by government authorities and obtaining these details would require additional disclosure of personal information and intrusion into participants' lives.

In the case a government authority, such as Corrections Victoria, could provide contact details of all participants, it would take an inordinate amount of time for the government authority to locate the contact details for everyone, and then for the researchers to establish contact with the 5,402 offenders. It would have been unreasonable to impose on health research organisations (which are mostly taxpayer-supported organisations) the economic burden of obtaining contact details and

individual consent for research purposes, where the risk of harm to individuals from the research is negligible (Holman, 2001).

Moreover, even if contact details were obtained for the entire cohort, offenders are a sub-group of the population who is difficult to contact due to itinerancy and lack of other social and employment ties (Holman, 2001). It is foreseeable participants' contact details may have changed since the time of being sentenced or released from prison, and some may have died. As such, it would have been impossible to locate and contact all potential participants to seek their consent.

Furthermore, even if the researchers could obtain correct and up to date contact details for the entire cohort and mail outs requesting consent could be sent. The cost of locating everyone, in addition to printing costs for consent forms, mail out costs for the initial mail out, and then printing and mailing, for follow-up contacts would have made the project infeasible (Holman, 2001). The researchers had access to only a small budget that would not have covered all the associated costs. To manage such a task financially, the sample size would have needed to be reduced substantially, limiting the statistical validity and practical usefulness of the findings.

Assuming the costs could be managed and mail-outs undertaken, mail-outs often garner a very low response rate because there is not an opportunity for researchers to establish rapport with potential participants (Holman, 2001). A further argument concerning the impracticability of obtaining consent in the current research was the nature of the group under study. Offenders are one of the least likely groups to consent to research participation. Hence, obtaining consent from individual participants could have raised complex bias issues. The OPC Review noted evidence that requiring consent to participate in some research projects significantly reduces the participation rate and therefore the scientific value and integrity of the research (Office of the

Federal Privacy Commissioner, 2001). This is because the information available from participants to answer the research questions becomes unrepresentative. Health practitioners are ethically bound to publish valid results. As responses fall below 90% the scientific validity of the results is questionable. Any lower response rate may mean the results are unsuitable for practical use, and thus becomes impracticable (Holman, 2001). The Australian Institute of Criminology (2007) highlights that those who do respond may form a biased sample, and argues in fact it may be those who do not respond that are the real target for research. This point was particularly relevant in the current study, as the focus was on investigating mental illnesses among offenders and it could have been likely that more non-mentally ill rather than mentally ill offenders would have consented to participate in the study.

Taken together, the above reasons highlighted several significant logistical problems that supported the argument that in the current study it was impracticable to locate, contact and obtain consent from more than 5000 individuals. Therefore, imposing the requirement of having to obtain contact details for everyone, would have rendered the current study impracticable.

Maintaining confidentiality

It was recognised that as consent was not sought from participants, concerns arose about respecting and protecting the privacy of individuals' whose information was being used, disclosed and collected. Especially given use and disclosure of re-identifiable data was necessary for the completion of the current study, to ensure the integrity of data linkage and the validity of the findings. In recognition of the ethical issues, procedures and processes were developed to maintain confidentiality and the privacy of participants. Care was also exercised throughout the linkages to ensure anonymity was maintained and confidentiality upheld.

In the first instance, these procedures and processes addressed the requirements of Information Privacy Principle 2.1 (c) "in the case of disclosure- the organisation reasonably believes that the recipient of the information will not disclose the information" (Victorian State Government, 2014b). To ensure the security of data, all researchers associated with the project were bound by confidentiality agreements. A Memorandum of Understanding was developed, and all researchers signed the memorandum agreeing to be bound to the requirements of maintaining confidentiality, by not disclosing information in any way that would breach privacy legislation. As part of these agreements, the researchers ensured only appropriately qualified members of the research team (who were bound by the confidential agreement), were privy to the entire identified sample and all relevant personal and sensitive data. Other involved parties (e.g. researchers, Justice Health or Victoria Police personnel) only had temporary access to limited data as required to perform and disclose their aspect of the project. Furthermore, all data were securely stored at the Centre for Forensic Behavioural Science in accordance with Monash University research guidelines. As soon as all data linkages were complete, all identifying data (i.e., first name, surname and known alias) were removed. The large sample size ($n = 5402$) meant it was highly unlikely the researchers could recall the identity of any individual from the large sample post de-identification.

As information was required to be collected in a re-identifiable way to enable data linkages to be complete, data collection procedures followed strict procedures. These procedures were carefully designed to ensure the risk of sensitive or personal information being exposed was minimised.

In the first instance, a staff member of Corrections Victoria extracted full socio-demographic and offending information from the PIMS database for the entire cohort.

Prior to providing the dataset to the researchers the Corrections Victoria staff member

created two separate datasets. The first dataset contained, CRNs and offending

information for all individuals in the cohort. The second dataset contained, CRNs and

socio-demographic information for all individuals. The creation of two separate

password protected datasets and using a registered courier to deliver the datasets

separately to the researchers, minimised the risk of breach of privacy. This was because

this process ensured confidential and sensitive information (i.e. criminal records) were

protected in transit and minimised the chances of the data being misused, as data was

never transported in an immediately identifiable form. Once the re-identifiable data was

received by the researchers, the two datasets were linked together, and all individuals

were allocated a unique numerical number (study ID).

While Corrections Victoria utilises six-digit CRNs as unique identifiers the

Department of Health utilises JAID numbers which vary in length. Hence, to aid in the

data extraction process from the Department of Health CMI/ODS system, all CRNs

were provided to Justice Health to cross reference the CRNs to obtain JAID numbers.

For Victoria Police, there was no method available to link CRN or JAID numbers to the

identifiers used by Victoria Police. Personal identifiers (i.e., full name, aliases, date of

birth and gender) and study ID were copied into Microsoft Excel and saved onto two

password protected compact discs. For the Department of Health, JAID numbers were

also included in the Excel spreadsheet. The compact discs were couriered to a trained

member from the Department of Health and Victoria Police (who are bound by

confidentiality agreements), who upon confirmation of receiving the disk were

provided the password in an encrypted email. The relevant staff members from the

Department of Health and Victoria Police extracted psychiatric information from the

CMI/ODS public mental health database and criminal offending information from the

LEAP database, respectively. These procedures were developed to ensure there was a low risk of multiple matches to the exact same name and date of birth, leading to the collection of wrong information in the data-linkage process or from service providers. Furthermore, multiple manual and electronic algorithmic methods are employed by the Department of Health and Victoria Police in the data matching process to increase the reliability of data extraction. Before returning the password protected datasets to the researchers, the Department of Health and Victoria Police staff members removed all personal identifiers (except for gender and date of birth). The records became identifiable by the unique study number only, as the Department of Health staff member also removed JAID numbers. This process ensured the privacy of information was protected as personal identifiers were not transported in the same file as sensitive information. Similar procedures to the ones implemented by Corrections Victoria were also followed, where the password protected datasets was couriered to the researchers. Upon receipt of the data, the Department of Health and Victoria Police provided the researchers with the password by email. Subsequently, the researchers undertook all data linkages using the reidentified data.

Regarding the paper-based Prisoner Health Files and MAP psychiatric intake registry, all information was manually extracted in four secure locations (i.e., MAP, Justice Health main office, prisons and the Centre for Forensic Behavioural Science) by the researchers whom were bound by confidentiality agreements. The completed proformas used in data collection were stored at the Centre for Forensic Behavioural Science in a locked filing cabinet until all data were manually entered into a password protected Excel spreadsheet.

In addition to these precautionary measures, to protect individual's privacy, personal identifiers including CRN, JAID, first name, last name and known alias were

removed from the primary dataset and copied into a separate dataset once all data linkages were completed. Subsequently data was only identifiable by the study's unique numerical ID created by the researchers and only the researchers who had signed the Memorandum of Understanding had access to the dataset containing the personal identifiers.

The above strict procedures were developed to reduce the potential harm of misuse of data, and to reduce the risk of severe and unforeseen events. Nonetheless, procedures were also developed for serious adverse and unforeseen events, such as information getting lost, damaged or stolen. However, throughout the data extraction, transportation of data and data linkages no unforeseen events occurred, and all processes adhered to the strict protocols developed.

In addition to these precautionary measures, the inclusion of 5,402 individuals in the study ensured anonymity was not compromised as the result of a small sample size. Furthermore, all statistical analyses were conducted on aggregate data only. Individual data was not analysed or reported in any way, precluding the possibility of identifying any individual from the results.

Low risk to participants

Research processes that involve, obtaining re-identifiable data from multiple data sources to carry out data-linkages, and de-identifying data after completing data linkages, are commonly used in epidemiological research. This type of research design is generally considered as having a low or negligible risk, as participants are not actively involved in the research. Therefore, there is no risk of personal harm, discomfort and / or inconvenience for individuals in the study and / or to others, due to participating.

Nonetheless, epidemiological studies need to be carefully designed to protect the privacy of individual's information that is collected and used. As a breach of privacy could result in psychological harm, devaluation of personal worth, social harms, economic harms and / or legal harms. As described in the maintaining confidentiality sub-section, carefully designed strict research protocols were developed and implemented in the current study. These protocols reduced the risk of a breach of privacy and ensured the participants privacy was safeguarded throughout all phases of the research including extracting, collecting, linking and managing data. These additional steps were taken in accordance with Victorian and national legislation (National Health and Medical Research Council, 2007) to protect participants' privacy. The protocols implemented were also consistent with similar epidemiological studies (See Short et al., 2010; Wallace et al., 2004) that have not resulted in any harm or breach of participant's privacy. By designing the study in such a manner ensured the study constituted no more than low risk to individuals in the cohort. Furthermore, the benefits of the research substantially outweighed the low risks of harm to participants whose information was used in the current study.

Potential benefits of the current study to public interest

The Information Privacy Principle 2.1 (d) states disclosure of information without consent can occur if "the organisation reasonably believes that the use or disclosure is necessary to lessen or prevent serious and imminent threat to an individual's life, health, safety or welfare; or a serious threat to public health, safety, or public welfare" (Victorian State Government, 2014b; p. 113). This principle was relevant to the current study, as many types of crimes are a significant threat to the lives, safety and welfare of individuals and the community at large. It is well established the prevalence of psychiatric disorders and comorbidity among offenders surpasses those seen in the

general population (Butler et al., 2006; Butler et al., 2011; Fazel & Danesh, 2002).

Furthermore, mentally ill offenders adversely impact community safety and place

substantial burdens on health and criminal justice systems. Despite this, in Australia,

little is known about the most effective strategies for detection, prevention and

intervention for offenders with a mental illness. This is an important issue, as it has

been argued criminal behaviour leading to arrests and/or convictions among mentally-

ill offenders, could be significantly reduced if the individual received appropriate

community mental health treatment (Dvoskin & Steadman, 1994; Osher, Steadman, &

Barr, 2003).

Much of what is known about the role that mental illness plays in offending is

based on international research that does not readily apply to the Australian context.

Furthermore, noted cross-cultural differences in the profile of offenders means

conclusions drawn cross-culturally are tenuous at best. It is therefore necessary to

conduct large-scale, reliable research in a contemporary Australian context, as it would

be arguably imprudent for Australian government policy to be based upon data

collected in a different cultural, historical and political context.

The current study addresses this shortfall by investigating a range of issues that

relate to mentally ill offenders. Specifically, the data extracted from the data bases

enabled an investigation of (1) lifetime mental health service utilisation of offenders in

community and prison settings, (2) diagnostic stability of psychiatric disorders in

community and prison settings, (3) medical and psychological screening outcomes at

the point of reception into prison and (4) differences in mental health outcomes

between early-onset offenders and adult-onset offenders.

Given the range of issues that were investigated in the current study, the current

study adhered to Principle 2 of the Health Records Act (Victorian State Government,

2001) and the Victorian Privacy Principle 2 of the Information Privacy Act (Victorian

State Government, 2000). These two Principles specify that the purpose for which the

information will be used, should relate to the purpose for which the information was

originally collected. The information used was originally collected when the offender;

had contact with the police (LEAP data), when incarcerated in prison (PIMS data,

psychiatric intake registry), or when provided with medical, psychological and allied

health treatment in community (CMI/ODS data) or prison (CMI/ODS data and Prisoner

Health Files) settings. The current study utilised this information to obtain a greater

understanding of mental health and treatment needs among offenders in community and

prison setting.

Specifically, it was also envisioned the findings obtained through these studies,

will lead to a greater understanding of treatment needs of offenders and can be used to

inform Victorian practices and policies, such as leading to improvement in the

provision of services for mentally ill offenders. At present, there are no dedicated

pathways for mentally ill offenders to follow, after entering or being discharged from

the criminal justice system. Furthermore, there are no formal treatment and monitoring

protocols for mentally ill offenders while incarcerated and no research to inform

clinicians on the best way to treat and monitor offenders with a mental illness. Thus,

this research will highlight current gaps in psychiatric treatment provisions. The

findings can therefore be used in developing identification, prevention, management,

risk assessment, and continuity of care treatment programs for offenders. By improving

services for mentally ill offenders, there may be a reduction in offending and

recidivism, which would improve community safety. Furthermore, these types of

initiatives could result in important benefits to the offender, the community, police,

correctional facilities and the Courts. The research also provided novel understanding

of how offenders differ from non-offenders in terms of the number, type and length of lifetime mental health contacts and mental illnesses.

Although retrospective case linkage studies necessitate an intrusion into the privacy of participants, they provide a robust methodology from which valid and reliable conclusions can be drawn. Ultimately, the results of the study will increase our understanding of a range issues that relate to mentally ill offenders, while having minimal to no impact on the lives of the individuals whose data is held in the existing Victorian government databases. The potential benefits to public interest of this research as outlined, can be seen to outweigh the interest in respecting individual privacy in this case. Particularly as the risk of individual harm because of waiving the requirement of consent for the current study is minimal. Thus, the research adheres to the principle of beneficence and the research guidelines stipulated in Section 1.6 and 2.3.6 (b) of the National Statement on Ethical Conduct in Human Research (National Health and Medical Research Council, 2007). The current research is also in the public interest which adheres to Victorian Information Privacy Principles, Information Privacy Principle 2.1 (c) (Victorian State Government, 2000).

PART IV: EMPIRICAL STUDIES

Chapter 4 – Stability of life-time psychiatric diagnoses among offenders

in community and prison settings

This chapter presents the first study of the thesis. The article evaluated the

lifetime diagnostic stability of schizophrenia spectrum, affective, anxiety and

personality disorders among a population-based cohort of 5402 male prisoners

sentenced over a two-year period. Of the 5402 offenders, 776 offenders met the criteria

of having at least two diagnoses for psychiatric disorders that were included in the

study. The study was undertaken to fulfil a shortfall in the literature, as although

diagnostic stability overtime is important, to our knowledge, no published study had

investigated the stability of a broad spectrum of psychiatric diagnoses among offenders.

This gap exists even though the prevalence of mental illness among prisoners far

surpasses the general population and that mentally ill offenders often need ongoing

mental health assessment and services within the community. The study made a

valuable contribution to the current literature as it identified the temporal consistency

was moderate for schizophrenia spectrum and low for affective, anxiety and personality

disorders. Diagnostic stability was higher in prison settings when compared to

community settings.

This article has been published in *The Journal of Forensic Psychiatry and

Psychology* (Schilders & Ogloff, 2017). This is an international peer-reviewed journal

that publishes psychiatry and psychology articles relating to offenders and legal issues

pertaining to community and correctional settings. The journal has an impact factor of

0.598 as reported by Thomson Reuters (2016) in the 2016 Journal Citation Reports. At

22 June 2017, the article has been cited once.

Monash University

Declaration by candidate

In the case of Chapter 4, Paper 1, the nature and extent of my contribution to the work was the following:

Nature of contribution	Extent of contribution
Study design, data collection, analysis and write up	85%

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
Professor James Ogloff	Study design, data analysis and write up	15%
Emeritus Professor Paul Mullen	Study design, data analysis and write up	NA

Candidate's Signature

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	■■■■■	22nd June 2017

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Stability of life-time psychiatric diagnoses among offenders in community and prison settings

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ABSTRACT

The dearth of studies investigating diagnostic stability among offenders, and diagnostic stability being important from the patient's mental health perspective, as well as from a public health, training and research standpoint, highlights the need to evaluate lifetime stability of ICD-10 psychiatric diagnoses for offenders in community and prison settings. A case-linkage design linked a two-year population-based cohort of male-sentenced prisoners with a state-wide psychiatric register (23,742 psychiatric consultations). Four measures of diagnostic stability were calculated for each setting as well as across settings, for all offenders who received at least two psychiatric diagnoses. Temporal consistency was moderate for schizophrenia spectrum disorders and low for affective, anxiety and personality disorders, and was higher in prison setting than community settings. Diagnostic instability highlights that the course of mental illness and clinical features among offenders may genuinely vary over time, across community and prison settings and may lead to complexities regarding psychiatric care for this population

Introduction

Long-term stability and reliability of diagnoses are important in clinical practice as treatment options and prognosis for the patient largely hinge on the patient being correctly diagnosed (Chang, Chan, & Chung, 2009; Whitty et al., 2005). Diagnostic stability, such as the consistency of the onset diagnosis with a follow-up diagnosis, is a useful index for assessing the reliability of diagnoses (Whitty et al., 2005). This is because with limited or no biological markers to diagnose psychiatric disorders, clinicians base their diagnostic formulation on clinical presentation. This process is inevitably exposed to limitations regarding
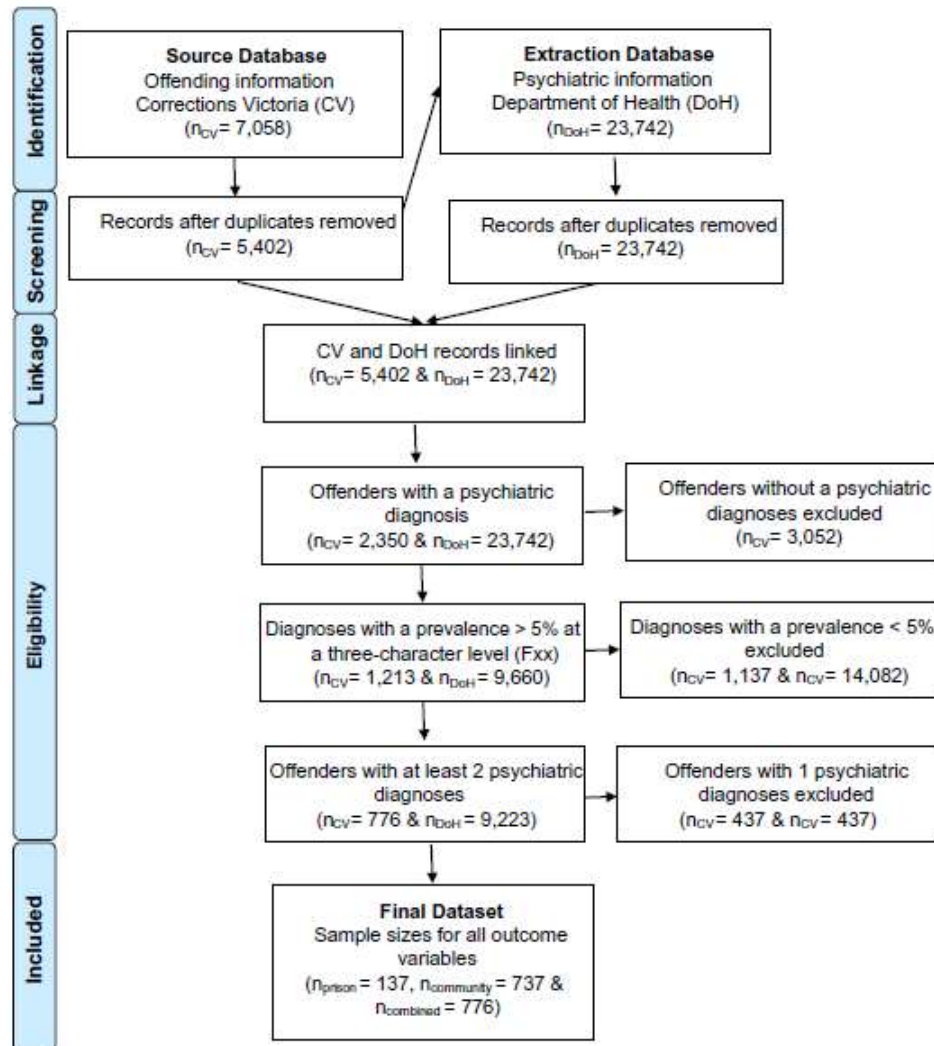
Figure 1. Flow chart depicting the data linkage procedures.

the information available to the clinician, as well as human error, which can reduce the accuracy of the diagnosis formulated. This circumstance exists although psychiatric diagnostic systems, including the ICD-10 (World Health Organisation, 1992) and DSM-5 (American Psychiatric Association, 2013) provide diagnostic criteria for psychiatric disorders. Beyond the implications for the patient's mental health, diagnostic stability is also important from a public health, training and research standpoint, because diagnostic instability may lead to inappropriate service planning or resource allocation recommendations (Baca-Garcia et al., 2007).

While diagnostic stability has been substantially evaluated in community settings (Baca-Garcia et al., 2007; Chang et al., 2009; Grilo & McGlashan, 1999; Grilo, McGlashan, & Oldham, 1998; Kessing, 2005a, 2005b; Rufino, 2005;

Schwartz et al., 2000; Shea et al., 2002; Tsuang, Woolson, Winodur, Crowe, 1981; Whitty et al., 2005), no study has evaluated the stability of psychiatric diagnoses among offenders or prisoners. Studies evaluating diagnostic stability among individuals with an offending history are required, as findings from community-based studies may not be generalisable, as there are well-established differences in the profile of mental illness between offenders and the general community.

Offenders represent a particularly vulnerable sub-group of the population that have higher rates of mental illness than the general population. Almost 39% of male prisoners have a psychiatric disorder, and approximately 25% will have a secondary psychiatric disorder (Butler, Indig, Allnutt, & Mamoon, 2011). Furthermore, compared with the general population, individuals with an offending history often have different pathways to care, are less likely to utilise psychiatric services, have a heightened risk of misdiagnosis, treatment noncompliance and are stigmatised which can effect perceptions of illness aetiology (Deane, Skogstad, & Williams, 1999; Kinner, 2006; Williams, Skogstad, & Deane, 2001). Collectively, these differences may affect the individual's course and outcome, as well as the reliability of diagnoses ascribed by clinicians.

Against this background, the current study evaluated lifetime diagnostic stability of specific psychiatric diagnoses among offenders and investigated whether the higher rates of mental illnesses among offenders, than the general population, translates into differences in diagnostic stability among offenders. Diagnostic stability was measured by prospective consistency, retrospective consistency, diagnosis received in at least 75% of evaluations, and diagnostic shift of psychiatric diagnoses (ICD-10). Comparisons were made between community and prison settings, as well as across settings.

Method

This study approved by the Justice Human Research Ethics Committee, was conducted in Victoria, Australia's second most-populous state, with a multicultural population of 5.74 million people (Australia Bureau of Statistics, 2013) with more than 80% residing in highly urbanised areas.

Cohort

The present study was conducted as part of an ongoing programme of research investigating mental illnesses among male sentenced offenders in prison and community settings. A population-based cohort was utilised, consisting of all male offenders sentenced to a term of imprisonment between 1 January 2006 and 31 December 2007 (n = 5402), in Victoria. The time-frame was chosen as it enabled enough time to elapse for the majority of prisoners (95.9%) to be

discharged from prison and their community mental health diagnoses post discharge from prison to be included in addition to their community diagnoses prior to prison and any diagnoses received while in prison. The median age of all prisoners was 40.0 years and the minimum number of years that psychiatric information was available for was 24 years and the maximum was 82 years.

Of the 5402 offenders in the cohort, 3052 (56.5%) offenders were excluded as they had not made contact with the public mental health system. Although all diagnoses were extracted, only common diagnoses that had a prevalence of more than 5% at a three-character level (Fxx) among the sample were retained. Small sample sizes for all other diagnoses that had less than 5% prevalence precluded the ability to perform meaningful analysis. Substance use disorders were also excluded because they were infrequently the first or last diagnosis which precluded the ability to meaningfully investigate diagnostic stability, such as calculating prospective and retrospective consistencies. This methodological approach to capture the most common disorders diagnosed among offenders draws support from a study spanning 10 countries that found that the 10 most prominent three-character (Fxx) disorders accounted for 70% of primary diagnoses made (Müssigbrodt et al., 2000). Substance use disorders were excluded from the current study because they were infrequently the first or last diagnosis which precluded the ability to conduct meaningful analysis such as calculating prospective and retrospective consistencies. Consequently, schizophrenia spectrum disorders (F20–F29), affective disorders (F30–34), anxiety disorders (F40–F43) and personality disorders (F60–61) were selected for inclusion. Using this approach, a further 1137 (21.0%) offenders were excluded from the study as they had been diagnosed with a disorder that had a prevalence of less than 5% among the cohort. Further, 437 (8.1%) offenders were also excluded as they had only received one lifetime psychiatric diagnosis. Hence, the study utilised 776 (14.4%) offenders that met the inclusion criteria of having at least two life-time psychiatric diagnoses within the scope of the present study. In total, 9223 diagnoses met the inclusion criteria, of which 4964 (53.8%) were made in inpatient settings, with the remaining diagnoses made in ambulatory settings such as outpatient clinics and rehabilitation centres. All psychiatric assessments were provided between 30 March 1978 and 14 February 2014. The median age of offenders at the first diagnoses was 27.0 years (*Range* = 18–76), the median number of years between the first and last psychiatric diagnosis was 4.4 years (*Range* = 1 day–34.7 years) and the median numbers of diagnoses per offender was 5.0 (*Range* = 2–256). The majority of offenders had at least one prior term of imprisonment in 2007 (51.5%, *Range* = 0–19 prior incarcerations), were not reincarcerated after being released from prison (72.4%), born in Australia (85.7%), of non-Indigenous background (93.2%), single/never married (66.2%), had ceased education before completing secondary school (91.2%) and were unemployed (76.0%).

Data extraction procedure

Data linkage procedures commenced with extracting socio-demographic (i.e. first name, surname, known alias, date of birth and gender) and offending information from the Corrections Victoria database for all offenders. In total, 7058 records were extracted, 1656 records were removed as they pertained to the same individual being re-imprisoned during the two-year period. The second-phase linked the socio-demographic information for the 5402 offenders to the state-wide public mental health register (registry) in order to extract all lifetime psychiatric diagnoses ($n = 23,742$). Since 1962, all public and forensic mental health services in Victoria have recorded all psychiatric contacts into the registry, including details of all diagnoses, admissions and receipt of treatment services, within six weeks of the end of the month of separation. However, the registry does not include diagnoses provided by private general practitioners or other private mental health professionals. Therefore, some individuals with affective, anxiety or personality disorders would not be captured in the registry as they may be treated outside the public mental health system. Nonetheless, in Victoria, all mandated psychiatric treatment services including involuntary admissions take place in the public sector. Indubitably, most individuals diagnosed with a schizophrenia spectrum disorder would receive ongoing psychiatric treatment services in the public sector. Hence, the registry contains the majority of lifetime diagnoses given to an individual with a schizophrenia spectrum disorder.

All diagnoses in the registry are made by qualified mental health professionals (i.e. psychiatrists, psychiatric registrars and psychologists) after conducting a clinical interview with the client. A patient can be recorded as having one or more diagnoses, as co-occurring diagnoses are also recorded. Prior to 1992, diagnoses were assigned according to ICD-9 and post 1992, the ICD-10 has been used. As the current study centred on investigating the diagnostic stability of ecological community and prison-based diagnoses, inpatient- and ambulatory-based diagnoses were integrated and separated only in terms of whether they were made in community or prison settings. In total, 674 (86.9%) of all offenders were first diagnosed in a community-based setting.

Data analysis

For community and prison settings, four measures of diagnostic stability were calculated for each specific disorder that had a prevalence of more than 5%, using methods described by Schwartz et al. (2000). Prospective consistency was calculated as the proportion of offenders who retained the same diagnosis in the last assessment as that awarded in the first assessment. Retrospective consistency was the proportion of offenders who retained the same diagnosis in the first evaluation as was given in the last evaluation. The kappa coefficient was also used to statistically assess the level agreement between the diagnoses

made at the first and last assessments, while correcting for chance. The 75% agreement across all evaluations reflected the proportion of offenders who on at least 75% of assessments received the same diagnosis for one or more disorders. Diagnostic shift was also evaluated between the four major psychiatric categories in order to identify the underlying pattern of change between the first and last diagnosis. Lastly, as diagnostic instability was evident for all specific diagnoses, the effect of age at first diagnosis, setting of first diagnosis (coded 0 = community and 1 = prison), number of diagnoses and number of days between first and last diagnosis on prospective diagnostic stability (coded 0 = not stable and 1 = stable) of the four major psychiatric categories (DV) at the three-character (Fxx) level was investigated using four logistic regressions.

Results

Diagnostic stability of diagnoses received in community, prison and combined settings are presented in Tables 1–3.

Community-based evaluations

First evaluation diagnoses were in the same main diagnostic category as the diagnosis made at the last evaluation for 402 of the 737 (54.4%) offenders. A schizophrenia spectrum disorder was the most common psychiatric diagnosis in community settings at both the first and last evaluation (31.9 vs. 38.4%). Prospective consistency was high for schizophrenia spectrum disorders (80.4%) with paranoid schizophrenia having the highest diagnostic stability (60.0%). All other disorders had poor prospective diagnostic stability well below 50%. Retrospective consistency at the last diagnoses was lower than the prospective consistency and ranged from 24.3% for personality disorders to 66.8% for schizophrenia spectrum disorders.

Prison-based evaluations

A smaller number of offenders ($n = 137$) received diagnoses while imprisoned than in community settings. Diagnoses were mainly restricted to schizophrenia spectrum disorders (72.3%) which had high prospective and retrospective consistencies (86.9 and 90.5%). More offenders received a schizophrenia diagnosis when compared to other schizophrenia spectrum diagnosis (75.8 vs. 24.2%). This likely contributed to the moderate prospective and retrospective consistencies for schizophrenia (76.0 and 73.1%), compared to poor stability of other schizophrenia spectrum disorders (20.0 and 29.4%). For the most common diagnoses, the prospective and retrospective consistencies were fair for paranoid schizophrenia (52.9 and 52.5%) and low for all other specific schizophrenia spectrum diagnoses. Few offenders were diagnosed with an affective, anxiety or

Table 1. Prospective and retrospective consistency of ICD-10 diagnoses made by community mental health services ($n = 737$).

Diagnosis	First evaluation N	Last evaluation N	First vs. last evaluation Kappa	Prospective consistency %	Retrospective consistency %
Schizophrenia spectrum disorders	235	283	.59	80.4	66.8
Schizophrenia	141	202	.44	68.8	48.0
Paranoid schizophrenia	45	85	.37	60.0	31.8
Unspecified schizophrenia	54	101	.22	42.6	22.8
Other schizophrenia	15	10	.07	6.7	10.0
All other Schizophrenia disorders[a]	27	6	–	–	–
Other schizophrenia spectrum	95	81	.25	31.6	37.0
Unspecified nonorganic psychosis	45	33	.19	20.0	27.3
Schizo-affective type schizophrenia – unspecified	15	29	.11	20.0	10.3
Delusional disorder	14	9	.25	21.4	33.3
Acute and transient psychotic disorder unspecified/other	17	5	–	–	–
All other schizophrenia spectrum disorders[b]	4	10	–	–	–
Affective disorders	216	166	.35	45.4	59.0
Bipolar affective disorder – manic, unspecified, without psychotic symptoms and other	23	33	.33	43.5	30.3
Depressive disorder	167	118	.36	40.7	57.6
Depressive episode – not in the postnatal period, other and unspecified	134	95	.32	35.8	50.5
Major depressive disorder – single episode, nec, recurrent	32	23	.11	12.5	17.4
All other affective disorders[c]	27	16	.07	7.4	12.5
Anxiety disorders	200	181	.28	44.5	49.2
Non trauma & stress related	30	15	.35	20.0	40.0
Mixed anxiety and depressive disorder	10	7	.35	30.0	42.8
All other non-trauma & stress related[d]	20	8	.35	25.0	62.5
Trauma & stress related	169	166	.25	42.0	42.8
Adjustment disorder	73	88	.26	37.0	30.7
Adjustment reaction	49	14	.20	14.3	50.0
Acute stress reaction	40	56	.22	32.5	23.2
Post Traumatic stress disorder	7	7	–	–	–

(Continued)

Table 1. (Continued).

Diagnosis	First evaluation N	Last evaluation N	First vs. last evaluation Kappa	Prospective consistency %	Retrospective consistency %
Personality disorders	86	107	.16	30.2	24.3
Dissocial PD	52	73	.17	28.8	20.5
Emotionally unstable/Borderline PD	12	14	–	–	–
Other PD	16	18	.04	6.3	5.6
All other PDs[e]	7	3	.20	14.2	33.3

[a]All other schizophrenia disorders includes; acute schizophrenia episode, catatonic schizophrenia, hebephrenic schizophrenia, residual schizophrenia, schizophrenia psychoses and simple type schizophrenia.

[b]All other schizophrenia spectrum disorders includes; acute schizophrenia-like psychotic disorder, acute polymorphic psychotic disorder with symptoms of schizophrenia, paranoia and schizotypal disorder.

[c]All other affective disorders includes; cyclothymia, mania with psychotic symptoms, other unspecified mood disorder, prolonged depressive reaction, predominant disturbance of emotions, and unspecified affective disorder.

[d]All other non-trauma & stress related disorders includes; anxiety, anxiety disorder unspecified, anxiety with neurotic depression, obsessive compulsive disorder, generalised anxiety disorder, social phobias and panic disorder.

[e]All other PDs includes; paranoid PD and mixed and other PD.

Table 2. Prospective and retrospective consistency of ICD-10 diagnoses made by prison mental health services ($n = 137$).

Diagnosis	First evaluation N	Last evaluation N	First vs. last evaluation Kappa	Prospective consistency %	Retrospective consistency %
Schizophrenia spectrum disorders	99	95	.61	86.9	90.5
Schizophrenia	75	78	.42	76.0	73.1
Paranoid schizophrenia	34	33	.39	52.9	54.5
Unspecified schizophrenia	26	38	.19	46.2	31.6
All other Schizophrenia disorders[a]	14	6	.25	21.4	50.0
Other schizophrenia spectrum	24	17	.12	20.0	29.4
Schizo-affective type schizophrenia – unspecified	8	13	.13	25.0	15.4
All other schizophrenia spectrum disorders[b]	17	5	.23	17.6	60.0
Affective disorders	15	11	.49	46.7	63.6
Bipolar affective disorder – including manic, unspecified, without psychotic symptoms and other	9	6	.51	44.4	66.7
Depressive disorder[c]	5	5	.59	60.0	60.0
Anxiety disorders	7	10	.31	42.9	30.0
Non trauma & stress related[d]	3	6	.20	33.3	16.7
Trauma & stress related[e]	4	4	.22	50.0	50.0
Personality disorders	16	21	.72	87.5	66.7
Dissocial PD	11	14	.69	81.8	64.3
All other PDs[f]	5	4	.43	40.0	50.0

[a]All other schizophrenia disorders includes; hebephrenic schizophrenia, residual schizophrenia, other schizophrenia and simple type schizophrenia.

[b]All other schizophrenia spectrum disorders includes; acute polymorphic psychotic disorder with symptoms of schizophrenia, acute schizophrenia-like psychotic disorder, acute and transient psychotic disorder, delusional disorder, paranoia, other schizophrenia spectrum disorder and schizotypal disorder.

[c]All other affective disorders includes; depressive episode – not in the postnatal period, dysthymia, hypomania, mania with psychotic symptoms, major depressive disorder and predominant disturbance of emotions.

[d]All other non-trauma & stress related disorders includes; anxiety disorder unspecified, anxiety with neurotic depression, obsessive compulsive disorder, and mixed anxiety and depression and anxiety with neurotic depression.

[e]Trauma & stress related includes; adjustment reaction, adjustment disorder and post traumatic stress disorder.

[f]All other PDs includes; paranoid PD, emotionally unstable/borderline PD, mixed and other PD and other PD.

personality disorder. Nonetheless, diagnostic stability was high for personality disorders (87.5 and 66.7%), mainly due to the high stability of dissocial personality disorders (81.8 and 64.3%), as stability for all other personality disorders was moderate (40 and 50%). Whereas stability was moderate for affective (46.7 and 63.6%) and poor for anxiety disorders (42.9 and 30.0%).

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Table 3. Prospective and retrospective consistency of ICD-10 diagnoses across community and prison setting (n = 776).

Diagnosis	First evaluation N	Last evaluation N	First v. last evaluation Kappa	Prospective consistency %	Retrospective consistency %
Schizophrenia spectrum disorders	249	299	.57	79.5	66.2
Schizophrenia	151	217	.41	66.2	46.1
Paranoid schizophrenia	45	88	.32	55.6	28.4
Other schizophrenia	19	8	.14	10.5	25.0
Unspecified schizophrenia	56	115	.20	42.9	20.9
Acute schizophrenic episode	13	1	–	–	–
All other Schizophrenia disorders[a]	18	6	.07	5.56	16.7
Other schizophrenia spectrum	99	82	.22	28.3	34.1
Unspecified nonorganic psychosis	46	31	.17	17.4	25.8
Schizo-affective type schizophrenia – unspecified	15	32	.06	13.3	6.3
Delusional disorder	14	10	.24	21.4	30.0
Acute and transient psychotic disorder unspecified/other	17	5	–	–	–
All other schizophrenia spectrum[b]	9	4	–	–	–
Affective disorders	228	176	.35	45.6	59.1
Bipolar affective disorder – including manic, unspecified, without psychotic symptoms and other	26	35	.37	46.2	34.3
Depressive disorder	173	123	.35	40.5	56.9
Major depressive disorder – single episode, nec, recurrent	35	22	.15	14.3	22.7
Depressive episode – not in the postnatal period, other and unspecified	137	101	.32	36.5	49.5
All other affective disorders[c]	14	18	–	–	–
Anxiety disorders	203	182	.29	43.8	48.9
Non trauma and stress related[d]	33	21	.35	30.3	47.6
Trauma & stress related	169	161	2.5	40.2	42.2
Acute stress reaction	39	56	.23	33.3	17.9
Adjustment disorder	73	86	.25	35.6	30.2
Adjustment reaction	50	11	.14	10.0	45.5
Post traumatic stress disorder	6	8	–	–	–

Personality disorders	97	120	.18	33.0	26.7
Dissocial PD	59	79	.21	32.2	24.1
Other PD	19	22	.12	15.8	13.6
Emotionally unstable PD/Borderline PD	11	13	–	–	–
All other PDs[e]	6	6	–	–	–

[a] All other schizophrenia disorders includes; catatonic schizophrenia, hebephrenic schizophrenia, latent schizophrenia, residual schizophrenia, schizophrenia psychoses and simple type schizophrenia.

[b] All other schizophrenia spectrum disorders includes; acute polymorphic psychotic disorder without symptoms of schizophrenia, acute schizophrenia-like psychotic disorder, schizotypal disorder, other and unspecified affective psychosis and paranoia.

[c] All other affective disorders includes; cyclothymia, dysthymia, hypomania, mania with psychotic symptoms, other and unspecified affective disorder, predominant disturbance of emotions, prolonged depressive reaction and unspecified mood disorder.

[d] All other non-trauma & stress related disorders includes; anxiety, anxiety disorder unspecified, anxiety with neurotic depression, generalised anxiety disorder, mixed anxiety and depressive disorder, obsessive compulsive disorder, panic disorder and social phobias.

[e] All other PDs includes; dependent PD, paranoid PD and mixed and other PD.

Across community and prison settings

Consistent with community and prison settings, schizophrenia spectrum disorders were the most common and stable diagnostic group across settings, evidenced by high prospective consistency (79.5%). Also comparable to community and prison setting, schizophrenia disorders had moderate stability (66.2%), and other schizophrenia spectrum disorders had poor stability (28.3%) across settings. Nonetheless, prospective and retrospective consistencies for all specific schizophrenia spectrum disorders were low including paranoid schizophrenia (55.6 vs. 28.4%) and unspecified schizophrenia (42.9 vs. 20.9%). Prospective and retrospective consistencies were also poor for all other diagnostic categories, including affective disorders (45.6 vs. 59.1%), anxiety disorders (43.8 vs. 48.9%) and personality disorders (33.0 vs. 26.7%).

Four separate logistic regressions were performed to investigate the effects of four independent variables on prospective diagnostic stability of the four major psychiatric categories (DV_1 schizophrenia spectrum, DV_2 affective, DV_3 anxiety and DV4 personality disorders) at the three-character (Fxx). In each logistic regression, the four independent variables (age at first diagnosis, setting of first diagnosis, number of diagnoses and number of days between first and last diagnosis) were entered simultaneously.

The results of the first logistic regression identified that among offenders with a schizophrenia spectrum disorder (DV), offenders with a stable diagnosis had significantly more diagnoses ($B = .085$, SE = .024, Wald = 12.89, $p < .001$, Risk Ratio = 1.09, 95% CI = 1.04–1.14) than offenders with an unstable schizophrenia spectrum disorder diagnosis. However, age at first diagnosis, first diagnosis being received in a prison setting and number of days between first and last diagnosis were not significant predictors. In model 2 for affective disorders, compared with offenders with an unstable diagnosis, offenders with a stable diagnosis were significantly older when they received their first diagnosis ($B = .076$, SE = .016, Wald = 21.98, $p < .001$, Risk Ratio = 1.08, 95% CI = 1.05–1.11), less days elapsed between first and last diagnosis ($B = .000$, SE = .000, Wald = 6.51, $p = .011$, Risk Ratio = 1.00, 95% CI = 1.00–1.00), the first diagnosis was made in a prison setting ($B = 2.16$, SE = .92, Wald = 5.46, $p = .019$, Risk Ratio = 8.62, 95% CI = 1.42–52.56) and number of diagnoses was not a significant predictor. For anxiety disorders, only age of first diagnosis was a significant predictor, where offenders with a stable diagnosis were significantly older when first diagnosed ($B = .038$, SE = .019, Wald = 3.99, $p = .046$, Risk Ratio = 1.04, 95% CI = 1.00–1.08) than offenders with an unstable anxiety diagnosis. In model 4 for personality disorders, none of the four variables significantly predicted diagnostic stability.

75% agreement across all evaluations

The proportion of offenders receiving the same diagnosis during at least 75% of all evaluations in the combined settings was lower for schizophrenia

Table 4. Percentage of offenders who received a diagnosis in at least 75% of the evaluations, in community mental health settings, in prison mental health settings, and across community and prison setting (n = 776).

Diagnosis	Prison only diagnoses			Community only Diagnoses			Combined Community & Prison Diagnoses		
	N	n	%	N	n	%	N	n	%
Schizophrenia spectrum disorders	112	79	70.5	383	209	54.6	415	216	52.0
Schizophrenia	101	61	60.4	287	115	40.1	315	112	35.6
Paranoid	62	18	29.0	194	21	10.8	218	17	7.8
Other	–	–	–	67	1	1.5	83	1	1.2
Unspecified	64	10	15.6	221	21	9.5	239	17	7.1
Hepbrephrenic	6	1	16.7	–	–	–	16	1	6.3
Other schizophrenia spectrum	43	7	16.3	277	26	9.4	303	27	8.9
Delusional	8	3	37.5	58	5	8.6	72	5	6.9
Schizoaffective	24	2	8.3	88	5	5.7	98	4	4.1
Unspecified non-organic psychosis	–	–	–	143	5	3.5	167	6	3.6
Affective disorders	35	12	34.3	400	104	26.0	426	107	25.1
Bipolar affective disorder	16	8	50.0	80	14	17.5	90	17	18.9
Depressive disorder	14	4	28.6	314	71	22.6	330	71	21.5
Depressive disorder	3	1	33.3	94	5	5.3	99	7	7.1
Depressive epsode	11	3	27.3	267	47	17.6	282	46	16.3
Other mood	–	–	–	–	67	1	1.5	91	1
Predominant disturbance of emotions	–	–	–	10	1	10.0	11	1	9.1
Cyclothymia	–	–	–	1	1	100.0	1	1	100.0
Anxiety disorders	18	4	22.2	423	102	24.1	440	102	23.2
Non-trauma related	12	1	8.3	95	9	9.5	109	11	10.1
GAD	–	–	–	7	2	28.6	10	2	20.0
Panic disorder	–	–	–	16	2	12.5	17	2	11.8
Neurotic depression	4	1	25.0	10	1	10.0	19	2	10.5
Anxiety disorder	–	–	–	36	1	2.8	50	1	2.0
OCD	–	–	–	–	–	–	6	1	16.7
Mixed anxiety & depressive disorder	–	–	–	20	3	15.0	23	4	17.4
Trauma and stress related	8	2	25.0	384	83	21.6	389	81	20.8

(Continued)

Table 4. (Continued).

Diagnosis	Prison only diagnoses			Community only Diagnoses			Combined Community & Prison Diagnoses		
	N	n	%	N	n	%	N	n	%
Acute stress reaction	–	–	–	160	8	5.0	221	15	6.8
Adjustment disorder	5	2	40.0	241	32	13.3	333	31	9.3
Adjustment reaction	–	–	–	72	15	20.8	75	7	9.3
PTSD	–	–	–	47	2	4.3	63	1	1.6
Personality disorders	43	11	25.6	348	48	13.8	374	58	15.5
Dissocial	31	8	25.8	271	23	8.5	290	27	9.3
Dependent	–	–	–	8	2	25.0	8	1	12.5
Habit & Impulse control	–	–	–	6	1	16.7	6	1	16.7
Mixed & other & unspecified	13	2	15.4	125	3	2.4	143	4	2.8

Notes: N is the total number of offenders that received at least two diagnoses.
n is the number of offenders that received the same diagnosis in at least 75% of evaluations.

Table 5. Cross-tabulation of first and last ICD-10 diagnoses ($n = 776$).

	Initial diagnoses No.	Last evaluation diagnoses N (%)			
		Schizophrenia spectrum	Affective	Anxiety	Personality
Schizophrenia spectrum	249	198 (79.5)	15 (6.0)	18 (7.2)	18 (7.2)
Affective	228	35 (15.4)	104 (45.6)	54 (23.7)	35 (15.4)
Anxiety	202	37 (18.3)	41 (20.3)	89 (44.1)	35 (17.3)
Personality	97	28 (28.9)	16 (16.5)	21 (21.6)	32 (33.0)

spectrum disorders (52.0%), affective (25.1%) and personality disorders (15.5%), when compared to community and prison settings respectively (Table 4). In comparison to community settings, men in prison settings were more likely to receive the same diagnosis in 75% of evaluations for schizophrenia spectrum (54.6 vs. 70.5%), affective (26.0 vs. 34.3%) and personality (13.8 vs. 25.6%) disorders. Anxiety disorders were infrequently diagnosed and the 75% agreement across all evaluations was low and comparable between community and prison settings (22.2 vs. 24.1%).

In community and prison settings; prospective and retrospective consistencies for schizophrenia disorders (40.1 and 60.4%) contributed more to the stability of schizophrenia spectrum disorders than other schizophrenia spectrum disorders (9.4 and 16.3%). Even so, specific schizophrenia diagnoses had low stability, with paranoid schizophrenia having the highest stability (10.8 and 29.0%). Among affective disorders, bipolar disorders had the highest consistency; however, this finding was not observed in either community or combined settings. For anxiety disorders, trauma and stress diagnoses were more likely to be diagnosed in community and prison settings in 75% of evaluations when compared to non-trauma and stress diagnoses. Dissocial personality disorder was the personality disorder that was most likely to meet the 75% diagnosis criteria. Nonetheless, each of these categories had low diagnostic stability.

Diagnostic stability of co-occurring diagnoses

A co-occurring diagnosis at the two-character level was recorded for the majority of offenders. This included 79.2% ($n = 585$) of offenders in community, 61.4% ($n = 84$) in prison and 80.8% ($n = 627$) in the combined settings. Even so, few offenders ($n = 8$, 10.4%) were identified as meeting the 75% agreement for a co-occurring diagnosis in combined ($n = 7$, .9%), community ($n = 6$, .8%) or prison ($n = 0$) settings and this was mainly restricted to a co-occurring personality disorder ($n = 7$, 87.5%).

Diagnostic shift for the main psychiatric categories

Diagnostic shift between the main psychiatric disorders at a two-character level infrequently occurred among offenders who were originally diagnosed with

a schizophrenia spectrum disorder, as the majority retained a schizophrenia spectrum diagnosis at the last evaluation (Table 5). Diagnostic shift to an affective disorder occurred frequently among offenders who were diagnosed with an anxiety (23.3%) or personality disorder (9.1%). Similarly, for anxiety disorders diagnostic shift was more likely to occur among offenders who were first diagnosed with an affective (29.7%) or personality disorder (11.5%). Personality disorders were the most unstable category and the proportion of offenders who retained a personality disorder (26.2%) diagnosis was lower than the proportion of offenders initially diagnosed with an affective (29.2%) or anxiety (29.2%) disorder that received a personality disorder diagnosis at the last evaluation.

Discussion

The present study demonstrated moderate to high prospective stability for schizophrenia spectrum disorders and low stability for affective, anxiety and personality disorders. While temporal stability was generally higher in prison settings than community settings, diagnostic stability was low for each of the specific diagnoses in all settings, with the exception of dissocial personality disorder in prison settings. Although co-occurring diagnoses were prominent, few offenders meet the 75% agreement across all evaluations for a primary and co-occurring disorder.

As no known study has evaluated the diagnostic stability of psychiatric disorders among offenders, the results of the present study cannot be directly compared. The paucity of studies investigating a broad spectrum of psychiatric disorders in the one sample, methodological differences and somewhat conflicting results in community-based studies also prevent definitive comparisons. Nonetheless, the current findings, demonstrating high prospective consistencies of schizophrenia spectrum disorders, compared favourably with that reported by Baca-Garcia et al. (2007) in a community-based ecological study (70.5 vs. 69.6%). As schizophrenia spectrum disorders are commonly lifetime disorders, this finding was expected. However, prospective consistency in the current study was considerably lower than the prospective consistencies reported for schizophrenia disorders among community populations which ranged from 89 to 93% (Mason, Harrison, Croudace, & Glazebrook, 1997; Tsuang et al., 1981; Vetter & Köller, 1993), although, for specific diagnoses such as paranoid schizophrenia, the current study's findings were comparable 55.6 vs. 53.7% (Tsuang et al., 1981). The current study also found poor retrospective consistency (46.1%) for schizophrenia disorders. This rate was also consistent with Baca-Garcia et al. (2007; 45·9%) where up to 12 years elapsed between the onset and follow-up evaluation and Schwartz et al. (2000), when the baseline and 24-month evaluations were compared (55%). The findings in conjunction with the literature substantiate the premise that a sizeable number of individuals may take more than two years to be correctly diagnosed. Hence, in the short-term, diagnostic

stability is high and as the length of the follow-up period increases diagnostic stability reduces and then stabilises. Furthermore, the current study's finding that offenders with a stable schizophrenia spectrum diagnosis were more likely to have been diagnosed on more occasions within the public mental health system provided evidence to suggest that these offenders have more acute episodes than offenders with an unstable schizophrenia spectrum diagnosis.

The finding that less than half of all offenders diagnosed with an affective or anxiety disorder retained the same diagnosis was in accordance with some published studies (Baca-Garcia et al., 2007; Rufino et al., 2005). However, the temporal consistency for these disorders was lower than that reported in other community-based studies (Kessing, 2005a, 2005b; Schwartz et al., 2000; Tsuang et al., 1981), many of which had a drastically shorter follow-up period or were conducted in a limited number of settings that likely contributed to the higher stability rates reported. In epidemiology, diagnostic instability such as that identified in the current study, is typically attributed to procedural unreliability. However, this assumption is perhaps more pertinent for short-term rather than long-term follow-ups which span more than a decade. As psychiatric treatment afforded following the onset evaluation for an affective or anxiety disorder may decrease symptoms or result in remission. A short-term follow-up evaluation that occurs before remission should have high prospective consistency. Conversely, when the follow-up evaluation occurs after successful treatment it would be reasonable to presume that the patient may have relapsed or were seeking psychiatric services due to the emergence of new symptoms pertaining to a different disorder. As such, the poor diagnostic stability of affective and anxiety disorders in the current study likely reflects changes in the illness picture over time. This premise draws support from the 237 of the 430 (55.1%) offenders who were diagnosed with an affective or anxiety disorder at the first evaluation that were diagnosed with a different psychiatric disorder at the last evaluation. Therefore, the instability identified in the current study and that of Baca-Garcia and colleagues more likely reflects the actual diagnostic stability seen within current mental health services. Furthermore, the current study found that compared to offenders with an unstable affective disorder diagnosis, offenders with a stable affective diagnosis were significantly older, more likely to be diagnosed for the first time in a prison rather than community setting and had fewer days between their first and last diagnosis. Taken together these findings suggest that an affective disorder diagnosis is the most stable for a sub-group of older offenders who experience context-dependent affective symptoms, triggered by being incarcerated and that these symptoms dissipate after the offender either adjusts to being imprisoned or is released from prison. In comparison, for anxiety disorders, offenders with a stable diagnosis were significantly older when first diagnosed within the public mental health system than those with an unstable diagnosis.

The present study's low retrospective and prospective consistencies for personality disorders in community (30.2 and 24.3%) and combined settings (33.0 and 26.7%) was consistent to those reported by Baca-Garcia et al. (2007; 34.7 and 27.8%) and systematic reviews of diagnostic stability of personality disorders (Grilo & McGlashan, 1999; Grilo et al., 1998). These findings are lower than the diagnostic stability reported for personality disorder in short term follow-ups (i.e. up to two years follow-up, 56%; Chanen et al., 2004). The lower long-term stability of personality disorders identified in the current study and other long-term follow-ups provides support for the presupposition that the presence of personality disorders is not necessarily stable over extended periods of time (Grilo & McGlashan, 1999; Grilo et al., 1998; McDavid & Pilkonis, 1996). This is contrary to the standpoint that personality disorders are lifetime disorders, as traits and behaviours developed during childhood and adolescence continue throughout adulthood and are relatively resistant to change (American Psychiatric Association, 2013). The current study's findings are also consistent with the presumption that personality disorders are less enduring over the life-course (Durbin & Klein, 2006; Shea et al., 2002), hybrids of trait-like attitudes and symptomatic behaviours (McGlashan et al., 2005), as well as being state-based (Reich, 2002). Fluctuation of personality disorder symptoms overtime, perhaps is due to maladaptive coping skills, since symptoms can manifest and abate in conjunction with symptoms of another psychiatric disorder.

Strengths and limitations

As the first known study that evaluated diagnostic stability of disorders among offenders, the present study addressed a critical shortfall in research. Investigating diagnostic stability in this manner extended upon community-based studies for a population that has a heightened risk of developing a mental illness and requiring long-term psychological assessment and treatment. A major strength of the study was utilising a population-based design that assessed all life-time changes to psychiatric diagnoses made by all government funded public and prison mental health services, in an entire Australian state. This methodology addressed many limitations evident in community-based evaluations, which diminished biasing results towards higher levels of stability. This included not relying on: clinical decisions made by the same clinician, evaluating a single disorder or diagnostic cluster, one mental health setting, short follow-up periods, small sample sizes and, limited number of follow-up evaluations (Durbin & Klein, 2006; Grilo & McGlashan, 1999; Grilo et al., 1998; Kessing, 2005a, 2005b; McDavid & Pilkonis, 1996; McGlashan et al., 2005; Rufino et al., 2005; Schwartz et al., 2000; Shea et al., 2002). While the case-linkage design utilised in the present study is deemed methodologically robust, a degree of error is unavoidable when entering the original data as well as performing data-linkage procedures (Mortensen, 1995). The lack of a non-offending comparison group in the current

study makes it difficult to determine the extent that diagnostic stability may differ between offenders and non-offenders. However, the consistency of the current study's findings with the results reported in other long-term community-based studies suggests that there are few differences between offenders and non-offenders. The data utilised in the current study also under-represents affective, anxiety and personality disorders as offenders may have presented to primary care or private mental health services. Nonetheless, the large representative sample in the current study ensured that results obtained reflect naturally-occurring clinician decisions and diagnostic stability of psychiatric disorders among offenders. Lastly, substance use disorders were excluded from the current study therefore, it remains unknown how stable substance use disorder diagnoses are among offenders or how a co-occurring substance use disorder might impact the diagnostic stability of the psychiatric diagnoses included in the current study. Future studies should address this limitation, due to substance use disorders being a prominent primary and co-occurring disorder among offenders (Butler et al., 2011).

Implications

The finding that prospective consistency for schizophrenia spectrum disorders was higher than retrospective consistency suggests that at first presentation, schizophrenia spectrum disorders are more likely to be under-diagnosed than over-diagnosed. Diagnostic stability for all specific disorders, including paranoid schizophrenia and unspecified schizophrenia, were considerably lower than for schizophrenia spectrum disorders overall. Thus, the current categorical approach to diagnosing psychiatric disorder may be inappropriate and disorders may be better conceptualised as symptom-cluster dimensions (Kendell & Jablensky, 2003) or in terms of clinical symptomology, course and outcome of the disorder, familial patterns and response to treatment (Krishnan, 2005).

There are also implications for research and public policy. Individuals who were identified as having a stable lifetime diagnosis are more likely to be true cases and place higher demands on acute services. In contrast, individuals who shifted diagnostic categories may be misclassified cases and contaminate clinical samples, which may in turn reduce the possibility of obtaining meaningful results including identifying real differences between groups (Mazlade et al., 1992). Additionally, prison-based diagnoses being more stable than community diagnoses, likely reflects that diagnostic stability is the highest when the severity of symptoms are at their peak and prison environments may enable psychiatric personnel to continually observe the offender's symptoms.

For point-prevalence studies conducted within prisons or other studies that assess mental illness, the methodology utilised more often assesses psychiatric disorders at one fixed point in time (Fazel & Danesh, 2002). These studies likely underrepresent the prevalence of disorders among offenders, as the present

study provides evidence that diagnostic systems utilised are more likely to under-diagnosis psychiatric disorders, including schizophrenia spectrum disorders. This is reflected in the current study, which found that at the first evaluation 249 (4.6%) offenders had a recorded schizophrenia spectrum diagnosis and this rose to 298 (5.5%) by the last evaluation. Hence, true prevalence rates may only be able to be determined longitudinally, possibly partially due to the suboptimal levels of inter-rater reliability of psychiatric disorders in the field, coupled with errors on behalf of diagnosticians. Health policy recommendations or service provisions based on such results may be less effective, as mental health outcomes for true cases are likely to be substantially different from those who are misclassified. Offenders with an unstable diagnosis are likely to have higher recovery rates and do not require frequent or ongoing mental health services. In comparison, offenders with a stable schizophrenia spectrum diagnosis are more likely to require on-going mental health services and management within the community and prison settings.

Author contribution

Michelle R Schilders contributed to the conception and design, analysis and interpretation of data and drafting the article. James R P Ogloff critically revised the article for important intellectual content, and final approval of the version to be published.

Disclosure statement

No potential conflict of interest was reported by the authors.

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Chapter 5 - Mental health service utilisation – Comparison between offenders and non-offenders

This chapter presents the second study of the thesis. The article evaluated the utilisation of mental health services in a 2-year cohort of male sentenced offenders compared to male non-offenders. The study enabled an assessment of the number of offenders and non-offenders with low and high prevalence disorders who had been identified and treated within the Victorian mental health system.

This study was undertaken to fulfil a shortfall in the literature as, the rates of mental illnesses among offenders is disproportionately higher among offenders when compared to the general population, it was unknown whether the higher prevalence rates translate into higher mental health service utilisation. Furthermore, no published study had directly compared lifetime mental health service utilisation between male offenders and men in the general population who had never been incarcerated. This gap exists even though offenders have been reported to encounter difficulties in the community in accessing and obtaining mental health services.

This article has been submitted for publication in *Australian and New Zealand Journal of Psychiatry*, an international peer-reviewed journal that publishes articles aiming to translate clinical and experimental work in psychiatry to increase clinicians understanding of mental disorders in psychiatry and psychology clinical practice. The journal has an impact factor of 3.536 (ISI Web of Knowledge, 2015).

For consistency, the manuscript is presented in American Psychiatric Association style (APA), and pages have been re-numbered in accordance with the thesis.

Monash University

Declaration by candidate

In the case of Chapter 5, Paper 2, the nature and extent of my contribution to the work was the following:

Nature of contribution	Extent of contribution
Study design, data collection, analysis and 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
Professor James Ogloff	Study design, data analysis and write up	10%
Emeritus Professor Paul Mullen	Study design, data analysis and write up	10%

Candidate's Signature
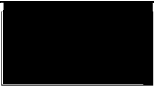
Declaration by co-authors

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

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Mental health service utilisation – Comparison between offenders and non-offenders

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Declaration of Interests: Miss Schilders, Professor Ogloff and Emeritus Professor Mullen have nil interests of disclosure.

Contributions by authors

Michelle R. Schilders contributed to the conception and design, analysis and interpretation of data and drafting the article. James R. P. Ogloff and P. Mullen critically revised the article for important intellectual content, and final approval of the version to be published.

Previous presentation: Nil

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Abstract

Objective: Despite the prevalence of psychiatric disorders and comorbidity among offenders surpassing those seen in the general population, no study has examined lifetime mental health service utilisation of offenders and non-offenders. The aim was to compare the number, type and length of lifetime mental health contacts and diagnoses between male offenders and non-offenders.

Method: A case-linkage design linked a state-wide psychiatric register with a two-year population-based cohort of prisoners ($n = 5402$) and a random sample of non-offenders living in the community ($n = 2268$). Full adult psychiatric histories were extracted for individuals who had received mental health services in community or prison settings.

Results: Offenders utilised public mental health services more than non-offenders. Among individuals who were diagnosed within the public mental health system with a schizophrenia spectrum, affective, anxiety, personality or substance use disorder, a larger proportion were offenders than non-offenders.

Conclusion: Offenders contact mental health services more often at times of crisis and are more likely than others to have complex presentations. Offenders with schizophrenia-spectrum, affective or anxiety disorder were most likely to contact mental health services when they required acute psychiatric services. This was opposite to the utilisation of mental health services observed among non-offenders, who were more likely to receive outpatient services. Higher utilisation of acute psychiatric services and low utilisation of outpatient services among offenders underscores the need for continuity of care between community and prison settings.

Keywords: Public mental health, forensic psychiatry and health service

Introduction

It is well established that the prevalence of psychiatric disorders is disproportionately higher among offenders who have been incarcerated when compared to the general population (Brugha et al., 2005; Butler et al., 2006; Fazel et al., 2006; Fazel & Danesh, 2002; Jablensky et al., 2000; Short et al., 2010; Slade, Johnston, Teesson, et al., 2009). Almost 39% of male prisoners have been found to have a psychiatric disorder, the prevalence rose to 52% when substance use is included (Butler et al., 2011). Dual diagnosis and co-occurring disorders are also common, affecting approximately 25% (Butler et al., 2011).

Albeit this scenario, far less is known about mental health service utilisation of offenders in the community prior to and following incarceration, or while imprisoned. Community based studies have identified offenders encounter difficulties in accessing community mental health services (Kinner, 2006). This occurs partly because substance abuse is often a prominent complicating factor (Adams & Ferrandino, 2008; Ogloff et al., 2004; Ogloff et al., 2015) and offenders with mental health problems and substance abuse have more serious health problem profiles (Hiller et al., 2005). In prisons, inpatient and outpatient mental health services are underutilised, even by the most severely mentally ill prisoners (Steadman, Holobean, & Dvoskin, 1991). Often concerns pertaining to confidentiality and unfamiliarity with accessing mental health services create barriers that impede prisoners from accessing mental health services while incarcerated (R. D. Morgan, Steffan, Shaw, & Wilson, 2007). Additionally, studies have generally evaluated service utilisation in either community or prison settings during a short discrete timeframe (i.e., services received in the previous month or year), or services received during the critical transition from prison to community. No published study examines lifetime mental health service utilisation among offenders, or directly compares utilisation patterns between offenders and those in the community who do not offend. This

gap exists even though population-based studies have investigated demand for public mental health services (i.e., Department of Health and Ageing, 2007, 2013), these studies have failed to incorporate offenders and findings are not generalisable to offenders for two reasons. First, offenders are a socially disadvantaged sub-group, who are more likely to be male, have limited formal education, high rates of unemployment, are disproportionately poorer, have few social supports and unstable housing (Baron & Salzer, 2000; Caton et al., 1994; Kessler, Foster, Saunders, & Stang, 1995). Second, mentally ill offenders and prisoners are systematically under-represented in studies. General population studies exclude homeless or individuals in transitory housing or incarcerated. The most acutely unwell individuals are also precluded from participating, as they would be unable to provide informed consent or may be inpatients in psychiatric hospitals.

Studies investigating public mental health service utilisation of offenders are needed for four reasons. First, it remains unknown whether the well-established higher prevalence rates of mental illness among offenders, translates into offenders having a greater use of public mental health services. Second, findings from studies of public mental health utilisation in the general population may not be readily applicable to offenders, as there are well established differences in the profile of mental illness. Third, unlike non-offenders, many mentally ill offenders will experience ongoing abrupt disruptions to their mental health treatment due to a lack of continuity of care between community and prison settings. This is a critical issue because a sizeable proportion of offenders continually transition between the community and prison, as most prisoners will serve relatively short sentences of less than 12 months and approximately half will be re-incarcerated within one year (Broadhurst et al., 1988). Fourth, among the general population the availability and utilisation of community-based public mental health services is known to be suboptimal, with many disordered individuals not

receiving appropriate care (Burgess et al., 2009; Department of Health and Ageing, 2007; Meadows & Burgess, 2009; Teesson et al., 2009). This is likely to be even more marked among those leaving prison due to the dual stigma associated with being mentally ill and having an offending history, as well as the higher rates of dual diagnosis and co-occurring substance use (Butler et al., 2011).

Aims of the study

The primary aim was to examine the number, type and length of lifetime public mental health contacts and diagnoses received by male offenders who have been incarcerated with a community sample of non-offenders. A central focus was placed on exploring whether there are differences in public mental health service utilisation patterns between offenders and non-offenders diagnosed with schizophrenia spectrum, affective, anxiety, personality and substance use disorders. We examine three questions. Do prisoners use public mental health services more than controls? What is the prevalence of primary and secondary psychiatric diagnoses among prisoners and controls who receive public mental health services? Are there differences in public mental health service utilisation patterns between prisoners and controls diagnosed with psychotic, affective, anxiety, personality and substance use disorders?

Method

The study was approved by the Justice Human Research Ethics Committee (CF/11/24585), Victoria, and complies with the Australian National Health and Medical Research Centre guidelines (National Health and Medical Research Council, 2007). The study was conducted in Victoria, Australia's second most-populous state, with a highly urbanised population of 5.74 million (Australian Bureau of Statistics, 2013).

Design

The present study was conducted as part of an ongoing programme of research investigating mental illnesses among male sentenced offenders in prison and community setting. The study utilised a retrospective case-linkage design that linked a state-wide psychiatric register with a two-year population-based cohort of prisoners (n = 5402) and a random sample of non-offenders living in the community (n = 2268). Full adult psychiatric histories were extracted for each person who had received mental health service in either community or prison settings. All psychiatric contacts were made between 26 February 1963 and 14 February 2014.

Study population

Cases. The offender sample was drawn from the Corrections Victoria database and included all males (n = 5,402) sentenced to a term of imprisonment between 1 January 2006 and 31 December 2007. The time-frame was chosen as it enabled enough time to elapse for most prisoners (95.9%) to be discharged from prison and their mental health contacts received post discharge from prison to be incorporated in addition to services used prior and during prison. The non-offender sample was used in a prior published study (Short et al., 2010). The random community sample of male non-offenders (n = 2392) was obtained from the Victorian state-wide electoral roll.

Registers

Data for this study was extracted from several Victorian registers.

Prisoner Information Management System (PIMS) is managed by Corrections Victoria and contains socio-demographic and incarceration information for all prisoners remanded or sentenced to incarceration in Victorian prisons. Each offender on entering

the corrections system are allocated with a unique six-digit Corrections Records

Number (CRN). The CRN is subsequently used for all future incarcerations. Records in

the PIMS system are updated daily as prisoners are received, managed or are

discharged from prison.

Victorian Electoral Roll is managed by the Victorian State Government. As voting is

mandatory in Australia, all Victorians are legally required to enrol on the Electoral

Roll. The Electoral Roll therefore, contains the names and contact details of more than

90% of adult Victorians and is kept up to date due to legal requirements (Victorian

Electoral Commission, 2008).

Psychiatric case registry (Client Management Interface – Operation Data Store,

CMI/ODS) is managed by the Department of Health. Since 1962, all public and forensic

mental health services in Victoria have recorded all psychiatric contacts into the

CMI/ODS, including details of all diagnoses, admissions, and receipt of treatment

services, within six weeks of the end of the month of separation. Australia has a

blended public and private mental health system, where free health care including

psychiatric and psychological services is available in inpatient and outpatient

community settings and there are also subsidised private services. The government also

funds forensic psychiatric services within prisons, including inpatient and outpatient

services, however only those prisoners requiring treatment in a mental health unit in

prison or the forensic hospital are identified in the pubic mental health register. The

current study investigated services provided by the public mental health system, which

serves most Australians living in the community, as well as services provided in prison

mental health units. The registry however, does not contain mental health services

provided by general practitioners, private clinicians, or services provided by mental

health services in other Australian states (Short et al., 2010). Therefore, some

individuals with affective, anxiety, personality or substance use disorders would not be

captured in the registry as they may be treated outside of the public mental health

system. While it is still possible to compare services and diagnoses for these disorders,

the numbers do not reflect the true prevalence of the disorders. Nonetheless, all

involuntary admissions and mandated psychiatric treatment services occur in the

community or within mental health units in prisons. Thus, most individuals diagnosed

with a schizophrenia spectrum disorder have contact with the public mental health

system at some point during their illness (Krupinski et al., 1982). The register,

therefore, provides an accurate estimate of the lifetime prevalence rates for

schizophrenia-spectrum disorders (Wallace et al., 2004).

Data linkages

Case-linkages for both samples and categorisation of psychiatric diagnoses replicated

procedures utilised in previous Australian research to enable direct and temporal

comparisons (Short et al., 2010; Wallace et al., 2004). The data extraction procedure

commenced with identifying and extracting socio-demographic (i.e., first name,

surname, known alias, gender and date of birth), incarceration information (i.e., current

offence, sentence length, number of prior incarcerations, recidivism) and CRN from the

PIMS database, for all male prisoners who were sentenced to a term of imprisonment

from 1st January 2006 to 31st December 2007. In total, 7,058 records were extracted,

subsequently 1,656 records were removed as they pertained to the same individual

being sentenced more than once during the two-year index period. In these cases, only

the offender's first record was retained, and all subsequent records were excluded. The

final cohort therefore contained 5,402 individuals' who had been imprisoned once

during 2006 or 2007. From the Victorian Electoral Roll, socio-demographic

information was extracted for a random community sample of male non-offenders (n = 2392). To ensure comparisons were only undertaken with non-offending males, aged 18 years and over (n = 2268), the non-offender sample was cross-referenced with the Corrections Victoria database to remove all men who had been incarcerated (n = 47) and males under the age of 18 years (n = 77). Personal identifiers for the offender and non-offender samples were then used to extract lifetime psychiatric history for each person, from the CMI/ODS. For each person who had received mental health service their full adult psychiatric history was extracted. Information extracted included all contacts with public mental health services, and all lifetime diagnoses recorded by qualified mental health professionals using the *International Classification of Diseases* (ICD-9 or ICD-10; World Health Organisation, 1978, 1992). Although all diagnoses were extracted, only common diagnoses that had a prevalence of more than 5% at a three-character level (Fxx) among the sample were retained. This methodological approach to capture the most common disorders diagnosed among the sample draws support from a study spanning 10 countries that found that the 10 most prominent three-character (Fxx) disorders accounted for 70% of primary diagnoses made (Mussigbrodt, et al., 2000). Consequently, schizophrenia spectrum disorder (F20-F29), affective disorders (F30-34), anxiety disorders (F40-43), personality disorders (F60-61) and substance use disorders (F10-14, F16 and F19) were selected for inclusion.

Outcome

Dependent variables

Two groups of dependent variables were used that were separated into (1) psychiatric disorders and (2) psychiatric care.

Psychiatric disorders. Six principle psychiatric disorder outcomes were included: (1) schizophrenia-spectrum, (2) affective, (3) anxiety, (4) personality (5) substance use and (6) any psychiatric disorders.

Psychiatric care. Six principle psychiatric care outcomes were included: (1) inpatient care, (2) supported accommodation, (3) involuntary community treatment order, (4) outpatient services (5) psychiatric crisis services and (6) any contact with the public mental health system. Inpatient care consisted of hospitalisation in a psychiatric inpatient unit. Supported accommodation is a housing option that is provided to mentally ill individuals who need regular clinical and/or tenancy support. Involuntary community treatment orders (CTOs) are legal treatment plans tailored to a specific individual and are made by a magistrate or Mental Health Review Tribunal. The CTOs authorise that the individual living in the community must accept mental health care (such as medication, therapy, rehabilitation). Breaching the order could result with the individual being admitted to inpatient care and provided with appropriate treatment which may include medication. Outpatient services include psychiatric treatment options provided to individuals living in the community, who do not require hospitalisation or who have been recently discharged from inpatient care. Psychiatric crisis services are community-based services provided by the Crisis Assessment and Treatment Team, who are responsible for assessing and providing intensive community treatment to individuals who are experiencing an acute phase of mental illness or who are in crisis, and an assessment needs to be made as to whether the individual requires inpatient care or can be managed in the community. Up to three levels of the outcome variables were investigated: (1) contact with the service, coded 0 if no contact was made and 1 if contact was made, (2) number of contacts with the service, and (3) average number of days of contact with the service, both measured on a continuous basis. For inpatient admissions, involuntary treatment

orders and supported accommodation all three levels were investigated. However, for

outpatient services, psychiatric crisis services and any contact with the public mental health

system only the first two levels of the outcome variable were used, because the services do

not span more than one day.

Independent variables

Demographics. Six demographic variables including: age at the end of the study and

education attainment (number of years of education). Country of birth (0 = not

Australia, 1 = Australia), indigenous status (0 = non-indigenous Australian, 1 =

indigenous Australian), marital status (0 = de facto, married, widowed or divorced, 1 =

single, never married), and employment status (0 = employed, 1= unemployed).

Data analysis

To investigate the characteristics of the sample, continuous data were reported in means and

standard deviations and categorical data were reported in numbers and percentages. To

address each of the research questions, multiple regressions were performed when the

outcome was continuous and logistic regressions were performed when the outcome was

dichotomous. All regressions determined the effect of offender group on outcome variable

while controlling for socio-demographic variables. All regressions controlled for

sociodemographic variables.

Results

The median age of all individuals was 39.3 years (*Range* = 18 to 87 years) and the minimum

number of years that psychiatric information was available for was 18 years and the

maximum was 51 years. Offenders were of a similar age to non-offenders (M = 40.87 years,

SD = 10.29 *vs*. M = 39.09, SD = 12.12). The median age of individuals at the first diagnoses

was 29.0 years (*Range* = 18 to 76). Among public mental health service users (n = 2071),

more than half (65.2%, n = 1350) had never married, although significantly more offenders

had never married (n = 1256, 66.2% *vs*. n = 94, 54.0%) and more non-offenders were

separated (n = 78, 4.1% *vs*. n = 18, 10.3%). Just over half of all offenders had at least one

prior term of imprisonment (51.5%, *Range* = 0 to 19 prior incarcerations), were sentenced for

less than six months (n = 2808, 52.0%) and were not re-incarcerated after being released from

prison (n = 3911, 72.4%). A public mental health service contact was recorded for 35.1% (n

= 1897) of offenders, which was significantly higher than non-offenders (7.7%, n = 174, *OR*

= 6.51, 95%CI = 5.53 to 7.68). Seventy-five (1.0%) individuals in the present study received

half of the 74,356 contacts, of whom 91% (n = 68) were offenders, and 87% had a recorded

schizophrenia diagnosis.

Psychiatric and Secondary Psychiatric Diagnoses

Table 1 presents the differences between offenders and non-offenders for primary psychiatric

diagnoses. Most service users received a psychiatric diagnosis however, a psychiatric

diagnosis was not recorded for 382 of the 1897 (20.1%) offenders who obtained public

mental health services, and 33 of the 174 non-offenders (19.0%). After controlling for age, a

higher proportion of offenders rather than non-offenders were diagnosed with each type of

psychiatric disorder. Although offenders were more likely to be diagnosed with a

schizophrenia-spectrum disorder, or schizophrenia diagnosis, there was no significant

differences in the mean age of first schizophrenia diagnosis (M = 28.78 years, SD = 8.74 *vs*.

M = 30.61, SD = 11.13).

A secondary psychiatric diagnosis was significantly more common among offenders than non-offenders (60.5%, *n* = 957 *vs*. 43.1%, *n* = 62, *OR* = 1.98, *95%CI* = 1.40 to 2.80). The most prominent configuration of comorbidity among offenders was an affective and anxiety disorder (*n* = 203), followed by a schizophrenia spectrum and an affective disorder (*n* = 113) and lastly a schizophrenia spectrum and an anxiety disorder (*n* = 59). Lastly, 1.8% (*n* = 96) of all offenders had mental illness across all three categories. Offenders were also more likely to have a substance use disorder (*OR* = 1.8, *95%CI* = 1.30 to 2.58) or a personality disorder (*OR* = 6.49, *95% CI* = 4.20 to 10.03). Among offenders with a primary psychiatric disorder, a co-occurring substance use (6.9%) or personality disorder (1.4%) was common and 6.1% had both a co-occurring substance use and personality disorder.

Public Mental Health Service Utilisation Patterns

The effect of offender group on the five psychiatric care outcomes were investigated and the results are presented in Table 2 and 3.

Inpatient care

Offenders with any psychiatric disorder were 1.74 times more (95%CI = 1.23 to 2.46) likely to have had a psychiatric inpatient admission. However, the number of contacts and the average length of psychiatric inpatient stays were comparable. Follow-up analyses identified that only offenders with a schizophrenia-spectrum (*OR* = 3.81, 95%CI = 1.77 to 8.23), affective (*OR* = 1.87, 95%CI = 1.01 to 3.44) or anxiety (*OR* = 2.43, 95%CI = 1.01 to 5.85) disorder were significantly more likely to have a psychiatric inpatient admission when compared to non-offenders. Offenders with a schizophrenia-spectrum disorder also had almost triple the number of admissions and longer inpatient stays when compared to non-offenders. However, only the number of admissions was significant.

Outpatient care

For outpatient care, offenders were 3.24 times less (95%CI = 2.17 to 4.82) likely to have

received outpatient services than non-offenders, although the average number of outpatient

contacts did not significantly differ. Follow-up analyses identified that only offenders with a

schizophrenia-spectrum (*OR* = 4.75, 95%CI = 1.10 to 20.51), affective (*OR* = 4.28, 95%CI =

2.05 to 8.94) or anxiety (*OR* = 5.41, 95%CI = -2.31 to -12.66) disorder were significantly less

likely to use outpatient services when compared to non-offenders. Among individuals

diagnosed with an affective or anxiety disorder, offenders had more contacts with outpatient

services, although among those with a schizophrenia spectrum disorder offenders and non-

offenders had a comparable number of outpatient contacts.

Supported accommodation

There was no significant difference in the proportion of offenders and non-offenders who

received supported accommodation and the average length of accommodation was also

comparable. However, offenders had significantly more supported accommodation stays than

non-offenders. Follow up analyses identified that 78 out of the 97 (80.4%) individuals who

received supported accommodation had a schizophrenia-spectrum disorder and there were no

significant differences between offenders and non-offenders in supported accommodation

service utilisation.

Involuntary community treatment order

For involuntary community treatment orders, there was no significant difference in either the

proportion of offenders and non-offenders making contact, or the number of contacts

received. Follow up analysis identified that 195 of the 209 (93.3%) individuals receiving an

involuntary community treatment order were diagnosed with a schizophrenia spectrum

disorder. There were also no significant differences in the number of contacts. the length of CTOs, as was the likelihood of breaching a CTO (43.5% vs. 40% respectively).

Psychiatric crisis services

Offenders were 2.16 times more (95%CI = 1.52 to 3.08) likely to have received psychiatric crisis services than non-offenders, nonetheless there was no significant difference in the number of contacts. Follow up analysis identified that only offenders with an affective (OR = 4.09, 95%CI = 2.12 to 7.89) or anxiety (OR = 3.16, 95%CI = 1.35 to 7.36) disorder were significantly more likely to have received psychiatric crisis services when compared to non-offenders. In comparison, psychiatric crisis service utilisation patterns were comparable between offenders and non-offenders diagnosed with a schizophrenia, personality and substance use disorder.

Community versus Prison Service Utilisation Among Prisoners

Prisoners in each of the psychiatric groups, where significantly more likely to receive psychiatric inpatient care in community settings rather than within prison settings, and the mean number of admissions was also higher in community than prison settings for all groups, except those diagnosed with a bipolar or personality disorder. Nonetheless, the average duration of psychiatric inpatient care was significantly longer in prison than community settings for each of the psychiatric groups. For outpatient services, prisoners were significantly more likely to contact community-based services and have significantly more contacts with community-based services than prison-based services.

Discussion

This study examined the number, type and length of lifetime public mental health contacts and diagnoses received by male offenders who have been incarcerated with a community sample of non-offenders. Offenders had higher utilisation rates for all types of public mental health services when compared to non-offenders. Consistent with previous research, psychiatric diagnoses were more prevalent among the offender sample (Butler et al., 2006; Fazel & Danesh, 2002) and schizophrenia was more than five times higher among offenders than non-offenders (Bøjholm & Strömgren, 1989; Brinded et al., 1999; Butler et al., 2006; Saha, Chant, Welham, & McGrath, 2005; Teesson et al., 2009; Wallace et al., 2004). Many people do not receive services for affective, anxiety, personality and substance use disorders from the public mental health system. Using prevalence estimates for mental disorders among prisoners (Butler et al., 2006) and community dwelling individuals (Department of Health and Ageing, 2013) as a base, the present study suggests approximately 16% of the offender sample and 12% of the non-offender sample with a primary affective or anxiety disorder diagnosis receive their primary treatment from the public mental health system. While the present results regarding affective and anxiety disorders do not reflect prevalence rates, they still provide meaningful information about differences in public mental health service utilisation between the samples. Offenders were still significantly more likely to have been diagnosed with these disorders than non-offenders (i.e., affective disorders were almost four times more prevalent among offenders than non-offenders and anxiety disorders were more than three times as prevalent).

Offenders were also significantly more likely to have multiple diagnoses reflecting more complex presentations. A schizophrenia spectrum disorder with substance abuse was more than two times higher among offenders than non-offenders (67% *vs*. 32%). This finding is

consistent with the literature (Butler et al., 2006; Teesson et al., 2009) and extends upon research identifying a three-fold increase in co-occurring schizophrenia and substance use from 8.3% in 1975 to 26.1% by 1995 (Wallace et al., 2004). The present study identified that this rate has almost doubled again to 48.6% since 1995.

Strengths and Limitations

Comparing prevalence rates of mental illness and service utilisation patterns for offenders and men who had never been incarcerated has enabled the present study to address a gap in research. As the first study of its kind, this study has extended upon research that has largely overlooked the unique treatment needs and mental health service demands of offenders. The present study utilising a population-based design for offenders and a sizeable sample of non-offending men is therefore a major strength, as it has enabled an assessment of all life-time diagnoses and public mental health contacts to be evaluated for an entire Australian state. A second major strength was investigating five distinct and policy-relevant psychiatric disorders. Nonetheless, several limitations should be noted. While utilising a case-linkage design is methodologically robust, it is recognised that there will be a degree of inherent error when the original data was entered and during the data-linkage procedures (Kustner, Varo, & Gonzalez, 2002; Mortensen, 1995). In addition, while lifetime diagnoses and inpatient admissions in mental health units in prison settings would have been accurately captured in the state-wide psychiatric registrar, it is possible that not all outpatient mental health contacts in these units were recorded. Furthermore, the study was conducted with male offenders and non-offenders, therefore the findings may not be generalisable to female offenders and non-offenders as there are recognised mental illness differences between males and females. Therefore, replication of the current study by incorporating female offenders should be undertaken.

Implications

Although offenders placed higher demands on all types of mental health services than non-offenders, patterns of service utilisation differed. Offenders with a schizophrenia-spectrum, depression or anxiety disorder were more likely to contact services when they required acute psychiatric care, such as a psychiatric hospital admission or psychiatric crisis services, and less likely to receive outpatient services. There is also evidence offenders with a schizophrenia-spectrum disorder experience more acute episodes and episodes last for a longer duration than non-offenders. Conversely, among non-offenders, outpatient services were the most frequently utilised service and acute services were less frequently used.

The finding offenders were less engaged with outpatient services could be due to offenders often being dually stigmatised which can form major barriers that impacts on their ability to receive appropriate community mental health services. Offenders are often viewed as difficult patients or as being treatment resistant by community mental health staff, due to often having co-occurring disorders, being more transient and non-compliant when compared to the general population (Weisman, Lamberti, & Price, 2004). The difference in service utilisation patterns could also be a result of deficiencies in treatment options for mentally-ill prisoners living in the community (Kinner, 2006) and a lack of continuity of care to promote engagement with community mental health services. This highlights an opportunity for community and prison mental health services to collaborate and improve the continuity of care for offenders. This is an important issue, as it has been argued that criminal behaviour leading to arrests and/or convictions among mentally-ill offenders, could be significantly reduced if the individual received appropriate community mental health treatment (Dvoskin & Steadman, 1994).

Outpatient care was virtually entirely utilised by offenders with a schizophrenia spectrum

disorder, however, this does not insinuate that men with high-prevalence disorders do not

need outpatient services. Instead it emphasises the demands on the mental health system

currently outweigh the availability of services, and in turn scarce resources are primarily

allocated to individuals with schizophrenia spectrum disorders (Australian Institute of Health

and Welfare, 2014). This is exemplified by 75 (1.0%) individuals in the present study

receiving half of the 74,356 contacts, of whom 91% (n=68) were offenders, and 87% had a

recorded schizophrenia diagnosis. The findings are also in accordance with the transfer of

treatment responsibility for high-prevalence disorders from the public to private sector after

the Federal government introduced the Better Access program in 2006, that provides rebates

for psychiatrists and psychologists (Department of Health and Ageing, 2013). However, even

with the Better Access program and evidence some mentally-ill men receive treatment from

general practitioners (Burgess et al., 2009), mentally-ill men have also been identified as

being less likely to seek services for mental health problems (Slade, Johnston, Teesson, et al.,

2009). This coupled with the Better Access program being unavailable to individuals

imprisoned, suggests an opportunity to afford and continue treatment which may substantially

improve quality of life may be lost (Kinner, 2006).

For individuals with substance use disorders, current findings highlight the predominant

disconnection between drug and alcohol services and mental health services. More often

people with a dual-diagnosis receive concurrent treatment from separate services delivered in

parallel to one another, or do not receive drug and alcohol treatment at all. This occurs even

though there is an obvious demand for substance abuse treatment within the mental health

system given dual-diagnosis was prominent, especially among offenders. The disjointed

nature of current service provisions fail to address the unique treatment needs of individuals with a mental illness and co-occurring substance use disorder (Proudfoot, Teesson, Brewin, & Gournay, 2003; Teesson & Proudfoot, 2003). The predicament has accentuated the mounting need to introduce an integrated mental disorder and substance abuse model which would streamline treatment for dual diagnosis (Department of Human Services, 2009). The present findings support the establishment of an integrated model of care as there is a substantial demand for effective treatment for those with a dual-diagnosis.

Lastly, 20.3% of the entire sample contacted mental health services and did not receive a psychiatric diagnosis. Among this sub-sample, offenders had greater psychiatric needs demonstrated by more psychiatric admissions and outpatient services than non-offenders. While it is not possible to discern on a case by case basis the psychiatric symptomology of these individuals, these individuals may have presented to mental health services in times of crisis or in the context of a substance misuse episode or personality dysfunction. Nonetheless, these findings clearly emphasise men contact mental health services for a multitude of reasons, some of which are outside of the scope of psychiatric care. It also poses a question as to whether other services may be more appropriate for addressing demands placed on the system by non-mentally ill individuals.

The present study provided evidence that the higher lifetime mental illness and comorbidity rates among offenders translates into higher mental health service utilisation for all mental health services, except outpatient services. A substantial gap in the current mental health system was highlighted, as although high-intensity outpatient care was utilised more by non-offenders does not suggest that offenders do not need outpatient services. Instead it highlights the disjointed nature of current services between community and prison mental health

services is the reason countless individuals 'fall through the cracks'. More often offenders obtain acute psychiatric services, as service provisions fail to address the unique treatment needs required by mentally-ill offenders. To address this shortfall, continuity of care programs is required, especially during times of heightened stress such as transitioning between prison and being discharged back to the community. These types of programs may encourage offenders to obtain and stay engaged in outpatient treatment which may reduce some of the demands placed on acute psychiatric services and reduce contacts with the criminal justice system.

Table 1.
Primary psychiatric diagnosis[a] for offenders and non-offenders

Primary Diagnosis	Offenders n=5402	Non-offenders n=2268	B	SE	Odds ratio	(95%CI)
Clinical disorders						
Schizophrenia spectrum	443 (8.2)	37 (1.6)	1.72	.17	5.60	(3.98 - 7.87)***
Schizophrenia	281 (5.2)	23 (1.0)	1.71	.22	5.53	(3.60 - 8.50)***
Other schizophrenia spectrum disorders	162 (3.0)	14 (0.6)	1.65	.28	5.19	(2.99 - 8.99)***
Affective	421 (7.8)	51 (2.2)	1.29	.15	3.63	(2.71 - 4.88)***
Bipolar	50 (0.9)	6 (0.3)	1.24	.43	3.46	(1.48 - 8.10)**
Depressive	371 (6.9)	45 (2.0)	1.28	.16	3.61	(2.64 - 4.94)***
Anxiety	255 (4.7)	33 (1.5)	1.21	.19	3.34	(2.31 - 4.82)***
Total Clinical Disorders	1119 (20.7)	121 (5.3)	1.54	.10	4.66	(3.84 - 5.67)***
Personality	110 (2.0)	7 (0.3)	1.91	.39	6.78	(3.15 - 14.59)***
Substance use	286 (5.3)	13 (0.6)	2.25	.29	9.45	(5.41 - 16.51)***
Any disorder	1515 (28.0)	141 (6.2)	1.77	.09	5.86	(4.89 - 7.02)***

Note: [a] Individuals allocated to one group based on the most serious mental illness
All analysis controlled for age
* $p < .05$
** $p < .01$
*** $p < .001$

Table 2
Regressions predicting inpatient care by psychiatric disorder

	Inpatient Care					
	Offenders		Non-offenders		B	SE
Schizophrenia spectrum disorder						
No. of persons in service n(%)	390	(80.0)	24	(64.9)	1.34	0.39***
Contacts per service user M(SD)	7.96	(10.51)	2.71	(3.04)	4.40	2.17*
Average length of contact	25.41	(40.02)	12.75	(8.09)	13.75	8.51
Affective disorder						
No. of persons in service n(%)	255	(60.6)	23	(45.1)	.62	0.31***
Contacts per service user M(SD)	2.52	(3.06)	2.09	(1.41)	.16	0.65
Average length of contact	8.19	(10.01)	10.54	(6.74)	-2.40	2.16
Anxiety disorders						
No. of persons in service n(%)	103	(40.4)	8	(24.2)	.89	0.45*
Contacts per service user M(SD)	1.51	(0.71)	2.00	(1.77)	-.43	0.32
Average length of contact	8.84	(21.41)	9.88	(13.49)	-4.94	8.01
Personality disorders						
No. of persons in service n(%)	41	(37.3)	2	(28.6)	.40	0.90
Contacts per service user M(SD)	1.46	(0.64)	2.50	(2.12)	-1.18	0.55*
Average length of contact	5.54	(7.05)	2.63	(2.30)	2.30	5.48
Substance use disorders						
No. of persons in service n(%)	85	(29.7)	5	(38.5)	-.01	0.63
Contacts per service user M(SD)	1.33	(0.79)	1.00	(0.0)	.28	0.38
Average length of contact	6.13	(7.34)	6.40	(5.68)	-.87	3.47
Any psychiatric disorder						
No. of persons in service n(%)	874	(57.7)	62	(44.0)	0.50	0.18**
Contacts per service user M(SD)	4.66	(7.81)	2.24	(2.01)	1.67	1.00
Average length of contact	15.63	(29.69)	10.72	(8.43)	3.82	3.82

Note: All analysis controlled for socio-demographic variables
* $p < .05$
** $p < .01$
*** $p < .001$

Table 3

Regressions predicting supported accommodation and involuntary treatment orders by psychiatric disorder

	Supported Accommodation				Involuntary Community Treatment Order			
	Offenders	Non-offenders	B	SE	Offenders	Non-offenders	B	SE
Schizophrenia spectrum disorder								
No. of persons in service n(%)	78 (17.6)	4 (10.8)	.58	0.56	185 (41.8)	10 (27.0)	.53	.39
Contacts per service user M(SD)	5.21 (7.81)	1.00 (0.0)	7.21	4.17	6.30 (8.00)	2.90 (2.81)	2.99	2.59
Average length of contact	24.80 (18.23)	12.00 (2.16)	.85	17.35	170.66 (102.69)	183.46 (92.48)	-8.08	33.71
Affective disorder								
No. of persons in service n(%)	13 (3.1)	1 (2.0)	.42	1.07	10 (2.4)	-	-	-
Contacts per service user M(SD)	3.00 (6.34)	1.00 (0.0)	.33	.71	2.20 (3.16)	-	-	-
Average length of contact	30.34 (20.32)	10.00 (0.0)	21.25	28.09	90.80 (139.41)	-	-	-
Anxiety disorders								
No. of persons in service n(%)	3 (1.2)	1 (3.0)	-.43	1.37	-	-	-	-
Contacts per service user M(SD)	3.33 (3.22)	1 (0.0)	-	-	-	-	-	-
Average length of contact	42.50 (30.31)	10.00 (0.0)	-	-	-	-	-	-
Personality disorders								
No. of persons in service n(%)	2 (1.80)	-	-	-	-	-	-	-
Contacts per service user M(SD)	2.50 (2.12)	-	-	-	-	-	-	-
Average length of contact	25.00 (21.21)	-	-	-	-	-	-	-
Substance use disorders								
No. of persons in service n(%)	1 (0.3)	-	.96	.84	2 (0.70)	1 (7.7)	-	-
Contacts per service user M(SD)	2.00 (-)	-	1.26	3.29	1.00 (1.00)	1.00 (1.00)	-	-
Average length of contact	40.00 (-)	-	-	-	32.50 (6.36)	166.00 (-)	-	-
Any psychiatric disorder								
No. of persons in service n(%)	97 (6.4)	6 (4.3)	0.26	0.44	198 (13.1)	11 (7.8)	0.33	.33
Contacts per service user M(SD)	5.21 (7.81)	1.00 (0.0)	7.52	3.16*	6.01 (7.84)	2.73 (2.72)	2.85	2.41
Average length of contact	26.06 (19.02)	10.5 (0.84)	15.84	8.60	164.45 (106.48)	181.87 (87.90)	12.86	33.22

Note: All analysis controlled for socio-demographic variables

* $p < .05$

** $p < .01$

*** $p < .001$

Table 4

Regressions predicting outpatient services and psychiatric crisis service by psychiatric disorder

	Outpatient services				Psychiatric crisis service			
	Offenders	Non-offenders	B	SE	Offenders	Non-offenders	B	SE
Schizophrenia spectrum disorder								
No. of persons in service n(%)	354 (79.9)	35 (94.6)	-1.56	0.75*	352 (79.5)	27 (73.0)	0.30	0.40
Contacts per service user M(SD)	113.39 (205.81)	114.74 (143.01)	3.76	36.71	24.59 (34.04)	19.85 (18.50)	2.94	6.79
Affective disorder								
No. of persons in service n(%)	212 (50.4)	41 (80.4)	-1.45	0.38***	267 (63.4)	15 (29.4)	1.40	0.34***
Contacts per service user M(SD)	10.16 (25.69)	32.57 (50.00)	11.96	4.26**	8.73 (9.66)	8.73 (6.73)	-0.76	2.55
Anxiety disorders								
No. of persons in service n(%)	87 (34.1)	23 (69.7)	-1.69	0.43***	131 (51.4)	9 (27.3)	1.15	0.42**
Contacts per service user M(SD)	10.16 (25.69)	32.57 (50.00)	21.95	8.50*	4.82 (5.33)	4.44 (5.18)	-0.61	1.94
Personality disorders								
No. of persons in service n(%)	38 (34.5)	4 (57.1)	-1.26	0.86	50 (45.5)	2 (28.6)	0.83	0.90
Contacts per service user M(SD)	8.05 (9.85)	6.50 (8.54)	2.16	5.39	3.96 (4.38)	2.00 (1.41)	1.38	3.40
Substance use disorders								
No. of persons in service n(%)	56 (19.6)	4 (30.8)	.21	0.72	79 (27.6)	2 (15.4)	0.96	0.84
Contacts per service user M(SD)	5.82 (7.77)	11.25 (10.97)	6.21	4.65	1.33 (0.79)	1.00 (0.0)	1.26	3.29
Any psychiatric disorder								
No. of persons in service n(%)	747 (49.3)	107 (75.9)	-1.33	0.21***	879 (58.01)	55 (39.01)	0.70	0.19***
Contacts per service user M(SD)	49.74 (138.09)	44.04 (88.69)	16.88	9.77	4.35 (7.49)	2.20 (2.17)	0.64	3.33

Note: All analysis controlled for socio–demographic variables

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

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Geneva: Author.

Chapter 6 - Review of point-of-reception mental health screening outcomes in an Australian Prison

This chapter presents the third study of the thesis. The article examined the mental health screening outcomes for prisoners made at the time of reception into Melbourne Assessment Prison (MAP). Specifically, the study examined the proportion of prisoners received at MAP during 2009 who had an acute, stable or history of mental illness and the range of referrals to prison mental health services that were made at the time of reception. The study also compared mentally ill prisoners and non-mentally ill prisoners in terms of suicide and self-harm risk ratings and unit allocation. This study was undertaken to fulfil a shortfall in the literature, as although screening practices have been introduced and are routinely utilised in prisons, no published study had investigated the range of outcomes that occur at the point of reception. This gap exists even though correctly identifying mentally ill prisoners is important as it can assist with providing timely access to required mental health services. The study made a valuable contribution to the current state of literature as it identified how referrals are made at the time of reception as well as gaps in the current provision of prison mental health care.

This article has been published in *The Journal of Forensic Psychiatry and Psychology* (Schilders & Ogloff, 2017). This is an international peer-reviewed journal that publishes psychiatry and psychology articles relating to offenders and legal issues pertaining to community and correctional settings. The journal has an impact factor of 0.598 as reported by Thomson Reuters (2016) in the 2016 Journal Citation Reports. At 22 June 2017, the article has been cited seven times.

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Declaration by candidate

In the case of Chapter 6, Paper 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 and write up	85%

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
Professor James Ogloff	Study design, data analysis and write up	15%

Candidate's Signature

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,

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expertise;

(3) they take public responsibility for their part of the publication, except for the

responsible author who accepts overall responsibility for the publication;

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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	██████	22nd June 2017

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Review of point-of-reception mental health screening outcomes in an Australian Prison

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The point-of-reception into prison is a critical juncture as it provides early opportunities to identify mental illness and initiate treatment. Although large numbers of mentally ill prisoners are received into prison each day, research investigating mental health screening outcomes at the point-of-reception is limited. This study aimed to address this gap by examining reception screening outcomes for all prisoners received into an Australian prison during 2009 ($n = 4229$). Overall, 19% of all prisoners were mentally ill, and another 20% had a history of psychiatric illness that required ongoing care. Mentally ill prisoners had a higher risk of suicide or self-harm and required more observation than other prisoners. At reception, no mentally ill prisoners were transferred to the state's forensic hospital and few were transferred to the prison's mental health unit, or provided support service referrals. These findings highlight that outcomes made at the point-of-reception are heavily influenced by the availability of prison mental health resources.

Keyword: mental health screening tools; reception assessment; prisoner mental health; prevalence; offenders; psychiatric disorder

Introduction

It is widely recognised that mentally ill prisoners are over-represented in the criminal justice system. This is evidenced by point prevalence studies estimating that the prevalence of mental illness, excluding substance abuse, among reception prisoners ranges from 32 to 42% (Birmingham, Mason, & Grubin, 1996; Brinded, Simpson, Laidlaw, Fairley, & Malcolm, 2001; Butler, Allnutt, Cain, Owens, & Muller, 2005). In addition, mentally ill prisoners have been found to receive longer sentences, were less likely to be released on parole and were more likely to serve their time in higher security prisons when compared to non-mentally ill prisoners (Abram, 1990; Hodgins & Cote, 1993). This demonstrates the pressing need to have systems in place throughout the criminal justice system to ensure that prisoners with a mental illness are efficiently

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identified, assessed, afforded timely access to treatment services and, where possible, diverted to appropriate mental-health services (Ogloff, 2002).

While there are several important junctures within the criminal justice system that can be used to identify mentally ill prisoners, such detection responsibility often occurs at the point of reception to the prison. As a result, many jurisdictions have introduced mechanisms to systematically screen and identify mentally ill prisoners as they are received into prison (Baksheev, Ogloff, & Thomas, 2012; Martin, Colman, Simpon, & McKenzie, 2013; Nicholls, Roesch, Olley, Ogloff, & Hemphill, 2005). Nonetheless, these practices vary widely with some prison officials merely asking prisoners on reception a few questions about their mental health history, with other prisons utilising more comprehensive screening by mental health professionals using validated screening protocols (Ogloff, Davis, Rivers, & Ross, 2007).

Validated reception screening protocols have been developed as an alternative to providing all prisoners entering prison with a comprehensive mental health assessment. Providing such an assessment would be inefficient and unfeasible due to time constraints and the extensive resources that would be required to assess large numbers of prisoners entering the prison system each day. In addition, screening procedures are required to be integrated into an already lengthy reception process. The screening assessment is, therefore, used as the first stage of a tiered approach for mental health problems, where mentally ill prisoners can be identified and referred for more in-depth assessment and /or treatment (Grubin, Carson, & Parsons, 2002).

One commonly used validated screening protocol, is the Jail Screening Assessment Tool (JSAT; Nicholls et al., 2005) developed in Canada. The JSAT was created to strike a balance between time constraints and a need to identify a range of mental health issues. As a structured professional judgement tool, the JSAT can be administered by mental health professionals (i.e. psychiatric nurses or others) in less than 20 min on average. The main components of the JSAT include psychiatric history, substance use, suicide/self-harm history, mental state on reception, criminal history and socio-economic characteristics. The screening tool focuses on assessing the prisoner's current level of functioning; predicting the prisoner's social and psychological adjustment to the prison; identifying mental health services required; and referring the prisoner to appropriate mental health services. As the JSAT is a screening tool and not a comprehensive assessment tool, those administering the JSAT are recommended to 'err on the side of caution' when making referrals. This is achieved by screening out prisoners not requiring mental health services but being mindful of reducing the number of false negatives (not referring mentally ill prisoners), at the expensive of false positives (referring non-mentally ill prisoners for mental health services; Nicholls et al., 2005).

Since its inception, the JSAT has been used extensively in Canada (Gagnon, 2009; Nicholls, Lee, Corrado, & Ogloff, 2004) and a modified version of the JSAT (modifications restricted to localising terminology such as

that pertaining to income sources prior to prison and substance types) is used in Victoria, Australia (Ogloff et al., 2007). Research has found that the JSAT is valid and reliable (Ogloff, 2002), and a recent systematic review identified that the JSAT compares favourably to other mental health screening tools such as the Brief Jail Mental Health Screen, Correctional Mental Health Screen for men and the England Mental Health Screen (Martin et al., 2013). In police cells in Victoria, the JSAT was found to be particularly effective at identifying serious mental illness (75%) and psychotic, affective and anxiety disorders (82%; Baksheev et al., 2012). However, one unpublished study conducted in Canada found that the sensitivity of the JSAT was poor (38–50% depending on the disorders included in the case definition), while the specificity was excellent for all definitions of mental disorder (Gagnon, 2009). Nonetheless, the author concluded that there was evidence that the JSAT enabled mental health screeners to elicit appropriate information to make referrals.

As a whole, the over-representation of mentally ill prisoners being admitted to jails and the use of standardised reception screening tools, such as the JSAT, emphasises the pressing need to investigate how mentally ill prisoners are managed at the point of reception. Furthermore, studies have identified that even with good-in-reach teams, case detection and enrolment into services remain at a much lower rate than epidemiology would suggest should be in receipt of specialist mental health services (Senior et al., 2013). Despite this, little is currently known about the outcomes of mental health screening practices that are carried out during the reception process. In one study, Brooke, Taylor, Gunn, and Maden (1996) assessed the immediate treatment needs of 10% of prisoners remanded from 13 different prisons in England and Wales. Of the 750 male-remanded prisoners assessed by the authors, 168 (22%) were identified as requiring psychiatric intervention, including 50 (7%) requiring urgent interventions. Of the 50 remanded prisoners requiring urgent interventions, 16 (3%) required immediate transfer to an off-site forensic psychiatric hospital, five (1%) more were identified as possibly requiring transfer to a psychiatric hospital, depending on the recommendations of an assessment at the prison hospital and a further 29 (5%) needed placement at the prison hospital.

This type of study highlights that there are elevated levels of disorders among reception prisoners. This in turn can pose many challenges for prisons, including reducing the suitability of standard interventions and services offered by prisons, as well as placing increased demands on prison services. Furthermore, in order to enable prisons to efficiently respond to the unique needs of mentally ill prisoners, it is important to identify not only the prevalence of mentally ill prisoners entering prison, but to also determine the additional service requirements needed for such prisoners. Identifying what happens during the reception process is particularly important because once a mentally ill prisoner is identified there are numerous alternative trajectories that the prisoner may follow.

Aims and hypotheses

The present study was conducted as part of an ongoing programme of research investigating mentally ill offenders in jails and prisons. Hence, the study is focusing narrowly on mental health presentations on admission to jail and does not fully reflect the service delivery system. The current study had three inter-related aims. The first aim was to identify the proportion of prisoners that were being received into custody at a state-wide reception prison that had an acute, stable or history of mental illness. The second aim was to examine the outcomes of the screening process including referrals for subsequent care. The third aim was to compare mentally ill prisoners and non-mentally ill prisoners in terms of suicide and self-harm risk ratings and unit allocation (i.e. the states forensic hospital, the acute mental health unit, placement in observation cells or hourly observations by psychiatric nurses).

It was hypothesised that there would be a high percentage of prisoners with current symptoms of mental illnesses or history of mental illness. It was also hypothesised that mentally ill prisoners would be more frequently referred for additional assessments and would more often be assigned a suicide/self-harm risk rating and placed under observation than their non-mentally ill counterparts. Finally, it was hypothesised that mentally ill prisoners assigned a suicide/self-harm risk rating would be placed under observation more often than those not assigned a risk rating.

Method

The study was approved by the Human Research Ethics Committee of the Department of Justice, Victoria.

Setting and services

The study was based at Her Majesty's Melbourne Assessment Prison (MAP), a 286-bed pre-trial jail located in Victoria, which is Australia's second-most populous state, with a multicultural population of 5.5 million people (Australia Bureau of Statistics, 2011). As MAP is Victoria's only reception prison, all male pre-trial and sentenced prisoners are received at MAP initially. Annually, there are now approximately 6000 receptions at MAP of which, the majority are pre-trial detainees. Furthermore, the average age of prisoners being received at MAP is 34.51 years (SD = 10.31).

Upon reception to MAP, each prisoner receives a standardised mental health and suicide/self-harm risk assessment by an experienced registered senior psychiatric nurse using a modified version of the JSAT (modifications restricted to localising terminology such as that pertaining to income sources prior to prison and substance types; Ogloff et al., 2007). Consistent with the original JSAT, the modified JSAT focuses on assessing areas of concern in terms of risk that requires follow-up. In addition, the modified JSAT is

supplemented by gaining mental health information from multiple sources, which is recommended by the JSAT authors. The outcomes of all screens are recorded in the MAP intake registry, similar practices have been observed by Nicholls et al. (2005) in Canadian pre-trial centres.

At the completion of the assessment, the psychiatric nurse utilises the information from the modified JSAT to allocate each prisoner a psychiatric rating (known as a 'P' rating) based on the category of mental illness prescribed by the Corrections Victoria hierarchical rating system. 'P' (for psychiatric) and a suicide/self-harm rating (known as a 'SASH' rating) are assigned according to the severity of the symptoms and need for treatment. P1 – diagnosed as having a serious psychiatric condition or being acutely unwell; P2 – diagnosed as having a suspected or stable psychiatric condition; P3 – history of mental illness but stable; and P4 – previous history of a psychiatric illness that requires ongoing care. The definition of mental illness used by Corrections Victoria includes; Psychotic Disorders, Mood Disorders and Anxiety Disorders. Although personality disorders and substance use disorders are important for long-term management and may complicate treatment for other disorders, they are not included in the mental illness definition because they do not require acute psychiatric treatment. Suicide and self-harm risk ratings were also based on definitions prescribed by the Victorian Criminal Justice hierarchical rating system. This included: S1 – immediate risk of suicide or self–harm; S2 – significant risk of suicide or self-harm; S3 – potential risk of suicide or self-harm; S4 – previous history of suicide or self-harm.

Furthermore, recommendations can be made at the time of reception for the prisoner to receive a further assessment by a psychiatric nurse, psychologist or medical doctor, or a referral to a range of mental health support services. Referrals including self-referrals to the same range of services can also be made at any time following the screening assessment. In addition, prisoners can also be referred to the states secure forensic psychiatric hospital, or within MAP services that include the Acute Assessment Unit (AAU), observation cells and/or visual observation. The AAU is a 16-bed acute mental health unit, staffed and run by the state-wide forensic mental health service which provides voluntary psychiatric assessment and treatment for all male prisoners with suspected or confirmed mental health needs in Victoria. Observation cells are used for suicide watch and prison management. Finally, visual observation entails prisoners receiving visual checks when being placed outside the AAU, such as in either protection or mainstream prison cells.

In addition to routine management, all prisoners identified as severe/acutely mentally ill receive a follow-up assessment by a psychiatric nurse within 7 days of reception based on clinical need. As such, the MAP reception process is currently the most widely used juncture in Victoria to identify and offer treatment to mentally ill prisoners.

Participants

During 2009, 4490 male prisoners were identified using official Melbourne Assessment Prison (MAP) intake records as being received into the prison system. Subsequently, 261 prisoners were excluded because their intake record was incomplete (e.g. missing mental illness or risk rating). Hence, the total cohort consisted of 4229 prisoners, and a retention rate of 94%. It is important to note that some prisoners may have been imprisoned more than once and that demographic information for the entire cohort was not available from the MAP intake records. Furthermore, the cohort of reception prisoners did not include individuals identified by police as needing immediate psychiatric care, since those people were taken by police to a psychiatric facility in accordance with police powers afforded under the *Mental Health Act* (1986).

Data sources, definition of mental illness and measures

The current study relied on extracting officially recorded data relating to the study cohort from the MAP intake registry. Outcomes that were extracted from the registry include: psychiatric rating, suicide and self-harm risk rating, placed under observation, observation cell, type of additional assessment received at reception and referrals to services made at the time of reception. For the purpose of this study, the P3 and P4, P codes were collapsed into a single category pertaining to a history of a psychiatric disorder that requires ongoing treatment (history of mental illness group). Any prisoner not allocated a psychiatric rating was classified as not mentally ill.

Methods of statistical analysis

To investigate the characteristics of the sample, categorical data were reported in numbers and percentages. To explore the relationships between variables, chi-square tests of association were carried out to determine whether there were differences between mentally ill and non-mentally ill prisoners.

Results

Prevalence of lifetime psychiatric condition

Of the 4229 prisoners received at MAP, 1632 (39%) were assessed as having a lifetime psychiatric condition. Specifically, 366 (9%) were identified as P1 (having a severe/acute psychiatric illness), 415 (10%) were identified as P2 (having a suspected or stable psychiatric illness) and 851 (20%) were identified as P3 or P4 (having a previous history of a psychiatric illness). Therefore, 2597 (61%) were not found to have any current or past mental illness.

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Table 1. Referrals for additional assessments and services for mentally ill and non-mentally ill prisoners.

	Mentally ill		Non-mentally ill	
	Severe/acute ($n = 366$)	Suspected/ stable ($n = 415$)	History ($n = 851$)	No P code ($n = 2597$)
Reception assessment				
Psychology	19 (5.2%)	10 (2.4%)	7 (.8%)	7 (.3%)
Psychology & medical	1 (.3%)	1 (.2%)	–	–
Psychology & psychiatric nurse	83 (22.7%)	34 (8.2%)	11 (1.3%)	7 (.3%)
Psychology, medical & psychiatric nurse	4 (1.1%)	–	–	–
Medical assessment	5 (1.4%)	3 (.7%)	3 (0.4%)	2 (.1%)
Medical & psychiatric nurse	17 (4.6%)	19 (4.6%)	6 (0.7%)	1 (.04%)
Psychiatric nurse	152 (41.5%)	270 (65.1%)	294 (34.5%)	215 (8.3%)
No additional assessment	85 (23.2%)	78 (18.8%)	530 (62.3%)	2365 (91.1%)

Referrals for additional assessment or services

Referrals for additional assessments and services for the entire study cohort are presented in Table 1. The proportion of prisoners recorded as being referred for an additional assessment with a psychologist, medical doctor and/or psychiatric nurse at reception was significantly higher among the mentally ill prisoners than their non-mentally ill counterparts (81% vs. 8%, $OR = 14.85$, 95% CI $= 12.52$ to 12.61, $p < .001$). Of the prisoners receiving a referral, the majority were referred for an assessment with a psychiatric nurse only (42% severe mental illness, 65% suspected mental illness, 35% history of mental illness). Only 29% of the acutely mentally ill prisoners received a referral to a psychologist

Eighty-five (23%) of the severe/acute group, 78 (19%) of the suspected/stable group and 530 (62%) of those with a history of mental illness were not recorded as being referred for an additional assessment immediately following the screening assessment. Given the current practices within the MAP system, all of the severe/acutely mentally ill prisoners (i.e. P1) receive a routine follow-up assessment by a psychiatric nurse within seven days of reception based on their clinical need. Often, this occurs more rapidly and mentally ill prisoners typically are seen by a psychiatric registrar (resident), psychiatrist or psychologist as referred by the psychiatric nurse.

Suicide and self-harm risk

Suicide or self-harm risk (SASH) assessment and unit allocation results for the entire study cohort are presented in Table 2. An immediate, significant or

Table 2. Prevalence of suicide and self-harm risk rating and unit allocation in mentally ill and non-mentally ill prisoners.

	Mentally ill		Non-mentally ill	
	Severe/acute (n=366)	Suspected/ stable ($n = 415$)	History ($n = 851$)	No P code ($n = 2697$)
Suicide & self-harm risk rating				
Immediate	3 (.8%)	7 (1.7%)	26 (3.1%)	155 (5.7%)
Significant risk	69 (18.9%)	8 (1.9%)	13 (1.5%)	12 (.4%)
Potential risk	154 (42.1%)	153 (36.9%)	159 (18.7%)	182 (6.7%)
Previous history	72 (19.7%)	143 (34.5%)	394 (46.3%)	468 (17.4%)
Total with risk rating	*298 (81.5%)*	*311 (74.9%)*	*592 (69.6%)*	*817 (3.3%)*
Unit Allocation				
AAU admission	3 (.8%)	–	–	–
AAU wait list	18 (4.9%)	–	–	–
AAU wait list & observation cell	3 (.8%)	–	–	–
AAU waitlist, observation cell & hourly observation	1 (.3%)	–	–	–
AAU wait list & hourly Observation	16 (4.4%)	–	1 (.1%)	–
Observation cell	39 (10.7%)	2 (.5%)	8 (1%)	6 (.2%)
Observation cell & hourly Observation	8 (2.2%)	2 (.5%)	4 (.5%)	4 (.1%)
Hourly observation	87 (23.8%)	104 (25.1%)	116 (13.6%)	129 (4.8%)
Total transferred to a specialist units	*175 (47.8%)*	*108 (26.1%)*	*129 (15.2%)*	*139 (5.1%)*

potential SASH rating was most prevalent among those assessed as having a severe/acute mental illness (62%). However, a substantial number of those with a suspected/stable disorder or a history of being diagnosed with a psychiatric disorder were also assigned a risk rating (41% vs. 23%) when compared to non-mentally ill prisoners (13%). Taken as a whole, mentally ill prisoners were found to be 6.41 times more likely to be assigned a suicide or self- harm risk than non-mentally ill prisoners (*95%* CI = 5.59 to 7.36, $p < .001$).

Unit allocation

Of the 366 prisoners assessed as having an acute/severe mental illness, less than 1% were directly transferred to AAU, a further 10% were placed on the AAU waitlist and 13% were transferred to observation cells. The vast majority (76%) of acute/severe mentally ill prisoners were not transferred to these specialist units. Furthermore, only 1% of mentally ill prisoners diagnosed with a suspected or stable disorder or previously diagnosed with a psychiatric disorder

whether the prisoner was hesitant to accept mental health treatment due to a fear of stigmatisation (Torrey, 1994). Alternatively, service referrals including self-referral may have occurred post reception, or the co-occurrence of a substance or personality disorder might have contributed to the clinical pathway choices. Irrespective of the reason, the findings highlight that an opportunity to link mentally ill prisoners with additional support services may be lost. This is of particular importance because utilisation of appropriate prison services by prisoners has been linked to an increase in successful reintegration into the community and reduced recidivism (Swanson et al., 2001).

Of particular concern was the small proportion of acutely mentally ill prisoners that were directly admitted to the AAU (<1%). Most acutely unwell prisoners, and possibly some of those with a suspected or stable mental illness, should be directly admitted to the AAU for urgent psychiatric assessment and intervention. This premise reflects that the AAU is the only jail unit that matches acuity of the prisoners' mental health needs with appropriate housing and mental health care from a multi-disciplinary team. Hence, any acutely mentally ill prisoner housed outside of the AAU is unlikely to have all their mental health needs met in an expedient manner.

If all acutely unwell prisoners had been admitted to the AAU immediately following reception, 366 (9%) prisoners would have been transferred. This estimate likely included 18% to 25% of prisoners who were incorrectly classified (i.e. false positives; Baksheev et al., 2012). Therefore, if the same percentages were applied in the current study, it is probable that 66–91 of the 366 acutely unwell prisoners may have been falsely identified. Therefore, approximately 275 (6.5%) to 300 (7.1%) were likely to be true acutely unwell cases. These corrected proportions compare favourably to the 7% of remanded prisoners identified by Brooke and colleagues (1996) who required urgent psychiatric intervention.

In addition, dramatically greater numbers of acutely mentally ill prisoners were identified as being placed under observation (18%) or transferred to observation cells (24%) than being transferred to the AAU (1%). This suggests that the prisoners' psychiatric status is not one of the criteria used in determining unit allocation. Furthermore, the findings imply that the demands on the 16-bed AAU currently exceed its capacity and that acutely ill prisoners are being temporarily housed in less-than-ideal cells outside the AAU until a bed becomes vacant. This finding is congruent with that reported for the Thomas Embling Hospital (TEH), where due to bed shortages relatively few admissions are made (i.e. only 100 prisoners admitted in the 2009 year; Ogloff et al., 2007) and prisoners often wait in the AAU for a bed to become available (Victorian Institute of Forensic Mental Health, 2009). This occurs, due to high demands being placed on TEH and the hospital having limited capacity to meet the unique needs of all acutely unwell prisoners requiring hospitalisation. Hence, only the most acutely unwell prisoners are referred to the AAU and then, only some are referred to TEH. It is probable that if the AAU or TEH

had a greater number of beds, more referrals would have been made to the AAU instead to observation or isolation cells.

The combination of hourly observation and observation cell placement may be deemed the most appropriate response for a prisoner assessed as having an elevated suicide or self-harm risk. However, these cells can have detrimental effects on prisoner's mental health (Andersen, Sestoft, Lillebæk, Gabrielsen, & Hemmingsen, 2003; Andersen et al., 2000; Sestoft, Andersen, Lillebæk, & Gabrielsen, 1998). Andersen and colleagues (2000) even described solitary confinement as a 'mental health hazard' in accounting for the elevated levels of incident disorders among prisoners remanded in solitary confinement. This reflects that observation cells, while originally developed as an isolation place for disciplinary reasons such as behaviour against prison rules, are now being used for a variety of functions including suicide and self-harm monitoring and managing mentally ill prisoners awaiting a bed in a prison psychiatric hospital (i.e. in Denmark; Andersen, Sestoft, Lillebæk, Gabrieisen, & Kramp, 1996).

Implications

Considerable advances, both nationally and internationally, have been made in systematically identifying mentally ill prisoners as they are received into prison. Nonetheless, the recommendations following screening are heavily influenced by the availability of mental health resources, as prisons face daily challenges of being able to match each prisoner's unique mental health requirements with scarce mental health services (Senior et al., 2013). When deciding on treatment outcomes, mental health staff need to take into consideration many factors including; the number of prisoners already in receipt of scarce mental health resources, whether any prisoner will be discharged creating availability and whether other prisoners are also concurrently in need of mental health services. As a result, often acutely unwell prisoners will be required to wait for mental health services to become available and the numerous benefits associated with screening practices may not be obtained.

For outcomes to be based on the prisoner's individual needs, prisons would need a substantial expansion of mental health services so that all acutely unwell prisoners could be transferred to specialised psychiatric units (such as the AAU) in order to receive a full psychiatric assessment, ideally the day following reception (Senior et al., 2013). Numerous benefits could be obtained by matching mental health services to the prisoners' mental health needs. For the prisoner this would include: providing expedient access to treatment, a decrease of mental health symptoms, risk of relapse, risk of suicide and self-harm and, increased adjustment to the prison environment (Bonner, 2000; Cox, Landsberg, & Paravotti, 1989; Ivanoff & Hayes, 2002; Nurse, Woodcock, & Ormsby, 2003). This, in turn, would reduce the risk of decompensation, exacerbation of pre-existing conditions or development of new mental health problems as a consequence of being in prison (Nicholls et al., 2005). Benefits for

the prison, correctional staff and other prisoners can also be realised by including enabling scarce resources to be allocated efficiently, increase prison safety and possibly, decrease the incidence of rule infractions and disruptive behaviour (Ogloff, 2002; Veysey, Steadman, Morrisey, Johnsen, & Beckstead, 1998). This can in turn result in long-term benefits including the prisoner being more likely to continue treatment in the community upon release, which could lead to successful reintegration into the community and a range of community benefits including a reduction in recidivism (Swanson et al., 2001).

Limitations of the study

As the current study aimed to investigate the outcomes of screening processes at the time of reception, information was only extracted from official MAP intake records. While it is known that all severe/acutely mentally ill prisoners are routinely seen by a psychiatric nurse within seven days of reception, the data used in this study did not capture all information pertaining to this routine practice, as some severe/acutely mentally ill prisoners were not recorded as receiving an additional assessment/referral at reception. Furthermore, as prisons are environments that have ongoing policy and operational developments, some service delivery changes may have occurred since 2009.

In addition, more detailed information could have been collected using other methods, such as accessing the Corrections Victoria and Justice Health databases or conducting interviews which incorporated diagnostic tools such as the SCID or PANSS. By not accessing the Corrections Victoria or Justice Health databases it was not possible to link outcomes post screening such as the prisoners' actual mental health outcomes or adverse events such as behavioural infractions or self-harm while in custody. Furthermore, not incorporating diagnostic interviews prohibited the ability to evaluate the results of the JSAT against a 'gold standard'. Hence, providing commentary as to whether the treatment decisions made at the time of reception were appropriate for the mental illness diagnosed was not possible. Also, there is the possibility that, had this study incorporated other methods, the prevalence rate of mental disorders among Victorian prisoners would have been higher than reported. Nevertheless, prevalence rates found for acute/severe mental illnesses, suspected or stable disorder and history of being diagnosed with a mental illness were consistent with the literature. Furthermore, to have undertaken diagnostic clinical interviews would have precluded the current studies' ability to assess the outcomes of 4229 prisoners that comprised an entire year of reception prisoners. Regarding the other variables, the reception assessment was identified as the most important juncture in identifying and responding to mentally ill prisoners entering the criminal justice system and, as such, recommendations arising from this juncture were the particular point of interest (Ogloff, 2009).

Future research

This study supports the widespread concern that a significant proportion of prisoners in the Victorian criminal justice system are mentally ill. Therefore, further evidence-based outcome research should be undertaken to examine the prevalence, service needs and trajectories of prisoners with different psychiatric disorders. Without formal mental-health pathways or systems to monitor mentally ill prisoners while incarcerated, some mentally ill prisoners may not receive the care and treatment they require to ensure they are afforded the best possible outcomes. With such a high prevalence of mentally ill prisoners being incarcerated in the criminal justice system, it is imperative that continued research be undertaken with this group of individuals to identify the challenges the criminal justice system may face in meeting their needs. Currently, the Centre for Forensic and Behavioural Sciences is undertaking a programme of research that will be assessing the impact of the problem, including the matching of the acuity of prisoners' mental health needs with the availability of appropriate housing and mental health care. This type of evidence-based research is required in order to improve the way mentally ill prisoners are afforded access to psychiatric care while imprisoned.

Conclusion

Mentally ill prisoners represent a substantial portion of the prison population and, place increased demands on the criminal justice system to provide additional resources to assess and respond to the prisoners' mental health needs. The range of administrative and therapeutic challenges facing the criminal justice system in responding to such needs should be a priority. Although significant changes have been introduced to identify, treat and support prisoners with a mental illness, the range of services and treatment options available to mentally ill prisoners is far from ideal. The current study highlights that these prisoners face additional problems than just dealing with their mental illness. For example, this population proved to be a high-risk group for suicide and self-harm, and also placed a substantial burden on correctional services.

Acknowledgements

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Chapter 7 - Early-start offenders have poorer mental health outcomes than adult-onset offenders

This chapter presents the fourth study of the thesis. The article empirically tested an extension of Moffitt's hypothesis that early-start offenders have higher levels of psychiatric morbidity when compared to adult-onset offenders. Mental health outcomes included: childhood diagnoses of conduct, oppositional defiance, affective and anxiety disorders and adult schizophrenia spectrum, affective, anxiety, personality and substance use disorders. This study was undertaken to fulfil a shortfall in the literature. It is well recognised that offenders who commence offending prior to adulthood have poor mental health. Furthermore, it is widely accepted that adult offenders have higher psychiatric morbidity than the general population. Nonetheless, no published study has investigated whether among adult offenders, offenders who commence offending prior to adulthood have more psychiatric morbidity than offenders who are incarcerated as adults. This gap exists even though the two bodies of research make valuable contributions in understand mental health issues among two sub-populations who experience adverse mental health outcomes. The study made a valuable contribution to the current state of literature in identifying differences as well as similarities in psychiatric morbidity between early-start and adult-onset offenders.

This article has been submitted for publication in the *Journal of Research in Crime and Delinquency*. This is an international peer-reviewed journal that publishes social, political, and criminal justice research. The journal has an impact factor of 2.525 (ISI Web of Knowledge, 2015).

For consistency, the manuscript is presented in American Psychiatric Association style (APA), and pages have been re-numbered in accordance with the thesis.

Monash University

Declaration by candidate

In the case of Chapter 7, Paper 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 and write up	85%

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
Professor James Ogloff	Study design, data analysis and write up	15%

Candidate's Signature

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	███████	22nd June 2017

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Early-start offenders have poorer mental health outcomes than adult-onset offenders

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Abstract

Objective: Moffitt proffered a hypothesis that early-start offenders are at heightened risk for poor mental health. This has yet to be empirically tested with adult offenders who experience disproportionately higher rates of mental illness than the general population. The aim was to extend upon Moffitt's hypothesis and investigate whether early-start offenders have poorer mental health outcomes when compared to adult-onset offenders.

Method: A retrospective design and a stratified random sample of 718 male prisoners sentenced to a term of imprisonment was utilised.

Results: Early-start offenders were more likely than adult-onset offenders to be diagnosed in childhood, diagnosed with a conduct or oppositional defiance disorder or to be diagnosed with a psychotic, personality or substance use disorder in adulthood. The effects identified remained after controlling for demographic and antisocial lifestyle factors. However, early-start offenders did not have a heightened risk for anxiety or anxiety disorder in childhood or adulthood.

Conclusion: Findings provide support for the extension of Moffitt's hypothesis that early-start offenders have a heightened risk for poor mental health. These findings suggest that early-start offenders have a greater need for treatment and management across the life-span, highlighting the need for continuity of care options between community and correctional environments.

Key words: developmental taxonomy theory, early- start offenders, adult-onset offenders, psychological disorders

Introduction

It is well established that adult offenders have higher rates of mental illness and more severe mental health outcomes when compared to the general population (Brugha et al., 2005; Butler et al., 2006; Fazel et al., 2006; Fazel & Danesh, 2002; Jablensky et al., 2000; Short et al., 2010; Slade, Johnston, Teesson, et al., 2009). Furthermore, a substantial proportion of offenders continually transition between the community and prison, as most prisoners will serve relatively short sentences of less than 12 months and more than half will be re-incarcerated within one year (Broadhurst et al., 1988; Lovell, Gagliardi, & Peterson, 2002) This highlights the need to understand the aetiologies and trajectories of mental illness among this vulnerable sub-group of the population. To aid in this understanding, we have combined two distinct yet complimentary areas of research. The first body of research centres upon studies conducted with child and adolescent offenders and the second body of research examines studies conducted with adult offenders.

Child and adolescent offender research

Child and adolescent offender research has identified that the age of onset of delinquent behaviour is the strongest predictor for a persistent chronic course of offending that continues into adulthood. Recognition of the significant role that age of onset plays in offending, has culminated in the creation of developmental taxonomic theories (Moffitt, 1993, 1994; Patterson, 1996). These theories centre on the argument that the child and adolescent population comprises separate categories of offenders who have distinct aetiologies and trajectories of offending. In brief, all individuals can be categorised into distinct groups based on their onset and / or desistance from offending across the life-span (See Table 1). Broadly these groups can be described as early-start offenders (i.e., child-onset life-course-persistent

offenders and adolescent-onset persisters), child and adolescent-only offenders (i.e., child

onset desisters and adolescence-only offenders) and life-course abstainers.

Early-start offenders exhibit severe behavioural problems during childhood and adolescence

that transition into antisocial behaviours, that often commence with less serious forms of

offending, that escalates in severity during adolescence and the perseverance of these

behaviours into adulthood (Chung et al., 2002; Fergusson & Harwood, 2002; Patterson,

1996). Offending among these individuals is associated with neurological, environmental,

social, family, educational and individual disadvantages (Moffitt, 1993; Patterson & Yoerger,

1997).

This trajectory differs substantially from child and adolescent-only offenders who engage in

offending for a short period and offending is desisted in adulthood (Chung et al., 2002; Ezell

& Cohen, 2005; Sampson & Laub, 2003). Desistance from offending by adulthood has been

linked to several developmental factors that occur during the transition from adolescence to

adulthood, including getting married and gaining stable employment (Blokland &

Nieuwbeerta, 2005; King et al., 2007; Sampson et al., 2006; Siennick et al., 2014). It is likely

that experiencing fewer disadvantaged environment factors enables these youth offenders to

develop adaptive skills that can be used to take on adult roles in society, which in turn

reduces the risk of offending and being incarcerated in adulthood.

While developmental taxonomy theories are useful in understanding the different aetiologies

and developmental trajectories that occur from childhood through to adulthood, they fail to

include one other critical group who is important from a life-course and adult criminal justice

system perspective. The life-course abstainers comprise two logical groups, being abstainers

who refrain from offending throughout their lifetime and adult-onset offenders who

commence offending in adulthood. This latter group of offenders are also at risk of being

incarcerated in an adult prison; however, they have mainly been excluded from empirical

studies investigating developmental taxonomic theories. Most studies undertaken to test

Moffitt's (1993) and Patterson's (1993) developmental taxonomic theories have limited

investigation to the aetiology and trajectories of offenders who commence offending in

childhood and adolescence. Due to the earlier onset of offending it is likely that the early-

start offenders are substantially different from adult-onset offenders. This premise reflects

that individuals who do not offend during childhood and adolescence experience fewer

childhood adversities and disadvantages than offenders who commence offending prior to

adulthood (Chung et al., 2002). The more personal adversity that the young person

experiences, the more likely they are to engage in criminal offending. If the young person is

unable to transition into productive adult roles, it is likely they will continue the cycle of

offending in adulthood. Hence, adult-onset offenders experiencing fewer adversities implies

that in comparison to early- start offenders, adult-onset offenders should have obtained a

higher level of education, have developed more supportive social networks, are more likely to

be employed and thus have a lower risk of reoffending.

Furthermore, Moffitt (2003, 2006) proposed that early-start offenders are at higher risk of

adverse physical and psychological health outcomes in adulthood than other offenders or

non-offenders. To date, few studies have empirically tested Moffitt's hypothesis. Piquero et

al., (2007) provided evidence that adverse physical outcomes and psychological distress were

more prominent among early- start offenders when compared to both late-start offenders and

non-offenders. Antisocial lifestyles mediated the association between early-start offending

and psychological distress. Psychological distress was operationalised as self-reported

perceptions of anxiety, illness, depression and related somatic concerns. Hence, it remains

unknown whether early-start offenders are more likely to be diagnosed with a psychiatric

disorder when compared to other offenders. Furthermore, early-start offenders in Piquero's

study were identified as having worse health outcomes (i.e., heart trouble, hypertension).

Therefore, it is possible that those experiencing adverse health outcomes would also report

higher levels of psychological distress because there is a recognised association between

adverse health outcomes and experiencing stress and depression (Bunker et al., 2003; Lett et

al., 2004).

Adult offender research

The prevalence of psychiatric disorders and co-morbidity among adult offenders has been

identified to be higher among adult offenders when compared to the general population

(Brugha et al., 2005; Butler et al., 2006; Fazel et al., 2006; Fazel & Danesh, 2002; Jablensky

et al., 2000; Short et al., 2010; Slade, Johnston, Teesson, et al., 2009). Despite the benefits of

incorporating developmental taxonomic theories into research conducted with adult

offenders, few studies have recognised the importance of incorporating age of onset of

offending in studies investigating mental illness among adult offenders. In research

conducted with adult offenders, offenders with a psychiatric disorder are most often grouped

together as one homogenous group. This occurs even though it is well recognised that even

within the same disorder (i.e., schizophrenia) there is considerable disparities in clinical

presentation and aetiology (Fazel & Yu, 2011). Furthermore, while identification that major

mental illness and early-start offending increase the risk of offending, few studies have

investigated how these two key factors influence offending and outcomes in adulthood. A

study by Tengstrom et al., (2001) identified that among offenders diagnosed with

schizophrenia, early-start offenders had poorer mental health outcomes than late-start

offenders. Early-start offenders were hospitalised on average two years earlier, had more psychopathy personality traits, and more likely to be diagnosed with anti-social personality disorder. However, this study did not control for confounding variables such as demographic or anti-social lifestyle factors, that are known to influence mental health outcomes (Piquero et al., 2007). Furthermore, the study did not include other mental illnesses such as affective, anxiety, personality or substance use disorders, that are prevalent among offenders (Fazel & Danesh, 2002), nor did the sample include a comparison group of non-mentally-ill offenders. Hence, it is not possible to conclude whether the differences identified were attributed to the onset timing of offending or whether the presence or absence of other key offending factors influenced the findings.

There is a notable absence of empirical studies evaluating differences in mental health outcomes between early-start offenders and adult-onset offenders. This has occurred despite it being well recognised that youth and adult offenders are vulnerable sub-groups of the population who have higher rates of mental illness than the general population (Fazel & Danesh, 2002). Furthermore, adult-onset offenders are not included in Moffitt's or Patterson's developmental taxonomic theories. This is a critical gap as it is unknown whether long-term mental health outcomes differ between offenders who commence offending prior to adulthood and offenders who commence offending as adults. It is probable early-start offenders through experiencing more childhood adversities have a greater risk of not only developing a cycle of offending that extends into adulthood but are also at higher risk of developing a psychiatric disorder, than adult-onset offenders.

Against this background, the aim of the current study is to extend upon Moffitt's hypothesis and empirically investigate whether early-start offenders (those who commence offending

prior to adulthood) have more severe mental health outcomes when compared to adult-onset offenders. Specifically, it is hypothesised early-start offenders will be significantly more likely to have been diagnosed in childhood with any childhood disorder, an affective / anxiety disorder or a conduct / oppositional defiance disorder when compared to adult-onset offenders. It is also hypothesised that in comparison to adult-onset offenders, early-start offenders will be significantly more likely to have been diagnosed in adulthood with a psychotic, affective, anxiety, personality or substance use disorder.

Method

Setting

The present study conducted within the Victorian correctional system was approved by the Human Research Ethics Committee of the Department of Justice, Victoria and complies with the Australian National Health and Medical Research Centre guidelines (National Health and Medical Research Council, 2007). Victoria is Australia's second most populous state with a multicultural population of 5.74 million people (Australia Bureau of Statistics, 2013a) with more than 80% residing in highly-urbanised areas and more than 6,000 incarcerated males (Department of Justice and Regulation, 2016).

Cohort

The present study was conducted as part of an ongoing programme of research investigating mental illnesses among male sentenced offenders in prison and community settings. The larger study utilised a retrospective data-linkage design and a population-based cohort consisting of all male offenders sentenced to a term of imprisonment between 1 January 2006 and 31 December 2007 ($n = 5,402$), in Victoria. The time-frame was chosen as it enabled enough time to elapse for most prisoners (95.9%) to be discharged from prison and their psychiatric diagnoses received prior to prison, during incarceration and post discharge from

prison to be included. From the larger sample, a stratified random sample of 716 male

prisoners sentenced during 2007 were selected for inclusion in the current study.

Stratification was undertaken based on the offender's psychiatric rating at the time of

reception. This ensured prisoners with differing levels of psychiatric need and different forms

of mental illnesses were included in the sample. The sample represented 69.2% (n = 200) of

all acute / severely mentally ill prisoners, 100% (n = 118) of all prisoners with a stable /

suspected mental illness, 26.3% (n = 200) of prisoners with a history of mental illness who

required ongoing treatment and 15.1% (n = 200) non-mentally ill prisoners were sentenced to

a term of imprisonment during 2007.

Table 2 presents the descriptive statistics for early-start and adult-onset offenders. The

median age of prisoners was 39.0 years (*Range* = 25 to 83) and the minimum number

of years psychiatric information was available for was 25 years and the maximum was

83 years. All psychiatric assessments were provided between 30 March 1978 and 14

February 2014. More than half (n = 428, 59.8%) of all offenders received at least one

life-time psychiatric diagnoses within the scope of the present study, including 124

(72.1%) early-start and 304 (57.4%) adult-onset offenders. Furthermore, 35.9% (n =

257) had a primary and co-occurring disorder. The median age of offenders at the first

diagnosis was 25.0 years (*Range* = 4 to 58) and early-start offenders were younger

when first diagnosed (*Median* = 21.0, *Range* = 8 to 47 years) when compared to adult-

onset offenders (*Median* = 28.00, *Range* = 4 to 58). More than half (57.2%, *Range* = 0

to 19 prior incarcerations) of all offenders were imprisoned for the first time in 2007,

were born in Australia (82.0%), of non-Indigenous background (94.1%), single/never

married (63.8%), had ceased education before completing secondary school (96.2%)

and were unemployed (72.1%).

Data extraction procedure

Three distinct data sources were used in the current study. Data linkage procedures commenced with extracting socio-demographic (i.e., first name, surname, known alias, date of birth and gender), offending information (i.e., the number of prior incarcerations) and psychiatric rating at the time of reception from the Corrections Victoria database for all offenders. The second-phase linked the socio-demographic information for each offender to the state-wide public mental health register (registry) to extract all lifetime psychiatric diagnoses. Since 1962, all public and forensic mental health services in Victoria have recorded all psychiatric contacts into the registry, including details of all diagnoses, admissions, and receipt of treatment services, within six weeks of the end of the month of separation. In Victoria, all mandated psychiatric treatment services including involuntary admissions take place in the public sector. Indubitably, most individuals diagnosed with a psychotic disorder would receive ongoing psychiatric treatment services in the public sector. Hence, the registry contains most lifetime diagnoses given to an individual with a psychotic disorder. The registry, however, does not include diagnoses provided by private general practitioners or other private mental health professionals. Therefore, some individuals with affective, anxiety, personality or substance use disorders would not be captured in the registry as they may be treated outside of the public mental health system. To address this gap, data was supplemented by information captured by psychiatric nurses during the psychiatric screen that each prisoner received at the time of reception into prison. Information extracted from the psychiatric screen included psychiatric diagnoses, drug use history (tobacco, alcohol and substance use), family history of mental illness, and youth offending.

Dependent Variables

Two groups of dependent variables were used, separated into 1) childhood diagnoses

and 2) adult diagnoses. Childhood diagnoses included three principle outcome mental

health variables 1) any childhood diagnosis, 2) affective and anxiety diagnosis, and 3)

conduct and oppositional defiance disorders. Due to the low numbers of offenders

being diagnosed with an affective or anxiety disorder during childhood, these two

disorders were combined in analyses. In addition, conduct disorder and oppositional

defiance disorders were also combined. Adult diagnoses included five principle

outcome mental health variables 1) psychotic disorders, 2) affective disorders, 3)

anxiety disorders, 4) personality disorders and 5) substance use disorders. Responses

for each principle outcome variables were coded 0 or 1, with 1 indicating the offender

had received a diagnosis and 0 indicated they had not received a diagnosis.

Independent Variables

Three groups of independent variables were used in the study including 1) offense onset

group, 2) demographic variables, and 3) antisocial lifestyle variables. Each of these

variables were selected for inclusion, because they have been associated with offending

and/or adverse mental health outcomes.

Offense onset groups. The principle independent variable was offense onset grouping.

Offenders who had not been sentenced to a youth detention centre were allocated to the

adult-onset offending group (coded as 0) and offenders who had been sentenced to a

youth detention centre were allocated to the early-start offender group (coded as 1).

Demographics. Eight demographic variables including: age at the end of the study as a continuous variable, country of birth coded as either not born in Australia (coded 0) and born in Australia (coded 1). Indigenous status coded as non-indigenous Australian (coded 0) and indigenous Australian (coded 1). Marital status coded as in a relationship (de facto or married), widowed or divorced (coded 0) and single never married (coded 1). Familial history of mental illness coded as either no family history of mental illness (coded 0) or family history of mental illness (coded 1). Education attainment calculated as the number of years of education (continuous). Ability to read and write in English coded as can read and write in English (coded as 0) and some problems or cannot read and write in English (coded as 1). Employment status coded as either employed (coded 0) and unemployed (coded 1).

Antisocial lifestyle. Four antisocial lifestyle variables were included: number of prior incarcerations, average number of cigarettes smoked per day and the average number of alcoholic drinks consumed per day, each measured as continuous variables. A drug use index was also calculated using the same methods described by Piquero et al., (2007). In short, a 10-item index was used to calculate drug use including hash; cocaine; heroin; methadone; opiates; glue, gas or poppers; amphetamines or stimulants; barbiturates or sedatives; tranquilizers or valium; and psychedelics. Methadone included methadone, suboxone, buprenorphine and naltrexone which are all drugs prescribed for opioid-related disorders. For barbiturates / sedatives and tranquilisers / Valium only non-prescription use was included. Each category of drug was scored on a two-point scale consisting of 0 (have used fewer than five times) or 1 (have used more than 5 times). A total drug use index score was calculated by summing the item scores, with higher scores indicating higher drug use. The drug use index has been reported to

measure a single underlying construct and has good internal consistency ($\alpha = .78$; Piquero et al., 2007), that compares favourably to the reliability of the index in the current study ($\alpha = .66$).

Data analysis

The effect of offender group on the two groups of dependent variables (childhood and adult diagnoses), while controlling for demographic variables and antisocial lifestyle variables, was investigated using separate logistic regressions, due to the outcome being dichotomous.

Results

Differences between the offender groups across study variables

The way early-start offenders differed across study variables when compared to adult-onset offenders is presented in Table 2. Early-start offenders had poorer mental health outcomes, evidenced by being significantly more likely to have been diagnosed with seven of the nine principle mental health disorders included in the study (See Table 2). Compared to adult-onset offenders, early-start offenders were younger, more likely to be single, never married, be unemployed, consume more alcohol drinks per day and have a higher average drug use index. These findings are largely consistent with the between-group differences proposed by Moffitt (2003, 2006).

Childhood Psychiatric Disorders

The effect of offender group on the child mental health outcomes are presented in Table 3. In Model 1 – any childhood psychiatric disorder, early-start offenders when compared to adult-onset offenders, were significantly more likely to have received a psychiatric diagnosis within the public mental health system as a child. Offenders who were younger, born in

Australia and had a greater number of adult incarcerations were significantly more likely to

have a childhood psychiatric diagnosis.

In Model 2 – conduct / oppositional defiance disorders, early-start offenders were

significantly more likely to have been diagnosed with a conduct or oppositional defiance

disorder when compared to adult-onset offenders. In addition, younger offenders and

offenders with a greater number of prior incarcerations were significantly more likely to have

been diagnosed with a conduct or oppositional defiance disorder.

For Model 3 – affective and anxiety disorders, there was no significant differences between

early-start and adult-onset offenders and none of the anti-social life-style factors significantly

predicted being diagnosed with an affective or anxiety disorder. However, younger offenders

were significantly more likely to have been diagnosed with an affective or anxiety disorder.

Adult Psychiatric Disorders

The effect of offender group on the five adult mental health outcomes are presented in Table

4. In Model 1, compared to adult-onset offenders, early-start offenders were significantly

more likely to be diagnosed with a psychotic disorder. Furthermore, offenders with a greater

number of incarcerations and who consumed fewer alcohol drinks per day were significantly

more likely to have a psychotic disorder.

In Model 2, early-start offenders were not significantly more likely than adult-onset offenders

to have an affective disorder. However, older offenders, those who were proficient in reading

/ writing in English and those who smoked a great number of cigarettes per day were

significantly more likely to have an affective disorder

For Model 3, early-start offenders were not significantly more likely to have an anxiety disorder than adult-onset offenders. Having a childhood affective or anxiety disorder diagnosis significantly increased the risk of having an anxiety disorder diagnosis in adulthood. Offenders of Indigenous status and single never married were also significantly more likely to have an anxiety disorder.

In Model 4, early-start offenders were significantly more likely to have a personality disorder than adult-onset offenders. Having a childhood conduct or oppositional defiance disorder diagnosis significantly increased the risk of having a personality disorder diagnosis in adulthood. Offenders born in Australia, with a greater number of prior incarcerations and those who smoked a greater number of cigarettes were significantly more likely to have a personality disorder.

For Model 5, early-start offenders were significantly more likely to have a substance use disorder than adult-onset offenders. Offenders born in Australia, that smoked a greater number of cigarettes and those that had a higher drug use score were significantly more likely to have a substance disorder.

Discussion

This study tested an extension of Moffitt's new hypothesis that early-start offending is associated with adverse mental health. To test this hypothesis, the current study compared a group of early-start offenders with a group of offenders who commenced offending in adulthood. Data from an ongoing programme of research investigating mental illnesses among male sentenced offenders was used to test the hypothesis. The results were consistent with the extension of Moffitt's hypothesis, with early-start offenders being more likely than

adult-onset offenders to be diagnosed in childhood, diagnosed with a conduct or oppositional defiance disorder or to be diagnosed in adulthood with a psychotic, personality or substance use disorder. The effects identified remained significant after controlling for demographic and participation in antisocial lifestyle factors. However, early-start offenders were not more likely to be diagnosed with an affective or anxiety disorder in either childhood or adulthood. Hence, the current study provides evidence to support extending the developmental taxonomic theory developed by Moffitt to incorporate major mental illnesses.

As no known study, has evaluated whether early-start offenders are more likely than adult-onset offenders to be diagnosed with a mental illness, the results of the current study cannot be directly compared. The paucity of studies investigating a broad spectrum of psychiatric disorders in the one sample, methodological differences and not including an adult-onset offending group prevent definitive comparisons. Nonetheless, it is well recognised the prevalence of mental illness among offenders far exceeds the rates in the general population (Fazel & Danesh, 2002) and that youth offenders experience even poorer mental health problems when compared to adult offenders, as well as youths and adults who do not offend (Human Rights and Equal Opportunity Commission (HREOC), 2005). The current study expanded upon these findings and identified that youth offenders who become repeat offenders and continue offending into adulthood have worse long-term mental health outcomes than offenders who commence offending in adulthood.

That a conduct or oppositional defiance disorder was associated with being an early-start offender and having more adult incarcerations is broadly consistent with the literature. Conduct and oppositional defiance disorders are common disorders among youth offenders, as it has been estimated 41 to 65% have a conduct disorder or oppositional defiance disorder

(Abrantes, Hoffman, & Anton, 2005; Fazel, Doll, & Langstrom, 2008). The findings also support the assertion that early-start offenders exhibit severe behavioural problems during childhood that transition into antisocial behaviours that lead to offending, that is maintained into adulthood (Fergusson & Harwood, 2002; Moffitt, 2006; Tengstrom et al., 2001). The finding that early-start offenders had a heightened risk of having a personality disorder was also consistent with Tengstrom et al., (2001).

The findings are also broadly consistent with Piquero et al., (2007) study who identified early-start offenders were significantly more likely to exhibit higher levels of psychiatric distress than adolescence-limited and non-offenders. In the current study, early-start offenders were identified to have a higher risk of being diagnosed with a psychotic, personality and substance use disorder, however, not affective or anxiety disorders. This suggests depressive and anxiety symptomatology may be more associated with general offending or lifestyle factors or even adverse physical health outcomes as identified by Piquero, and not necessarily the age of onset of offending.

Strengths and Limitations

As the first known study evaluating an extension of Moffitt's new hypothesis that early-start offending is associated with adverse mental health, the present study addressed a shortfall in research. Investigating mental health outcomes in this manner extended upon child and adolescent studies for a population who has a heightened risk of continuing to offend into adulthood, as well as having a heightened risk of developing a mental illness and requiring long-term psychological assessment and treatment in both community and prison settings. A major strength of the current study was investigating seven distinct and policy-relevant psychiatric disorders. Nonetheless, limitations should be noted. As the study was conducted

with male offenders, the findings may not be generalizable to female offenders as there are

recognised mental health and offending differences between male and female offenders

(Fergusson & Harwood, 2002). Therefore, replication of the current study by incorporating

female offenders should be undertaken. Additionally, early-start offending was

operationalised as whether an offender had been sentenced to custody in a youth detention

centre prior to adulthood and not based on the age of the first youth offence. It is possible that

some of the adult-onset offenders had committed criminal offences prior to adulthood,

however, had not been charged, convicted and sentenced to youth detention. The

operationalisation for early-start offenders was selected because youth offenders who have

been sentenced to custody are more likely to have committed serious offences, rather than

minor offences, have experienced more adversity and exhibit an entrenched pattern of

offending (Bartusch et al., 1997; Moffitt et al., 2001; Patterson, 1996; Woodward et al.,

2002). Hence, highlighting that these young offenders have more complex and diverse needs.

Furthermore, the operationalisation of early-start offenders combined early-start life-course-

persistent offenders as well as late-start escalators together. Combining these youth offenders

in such a manner is theoretically robust as the two groups share many developmental and

environmental characteristics (Chung et al., 2002) and this approach has been used in the

literature for investigating differences among offender groups. Nonetheless, it is

recommended future studies incorporate age of offending to determine whether commencing

offending earlier is associated with even poorer mental health outcomes. It is probable early-

start life-course-persistent offenders have a worse mental health trajectory than the late-onset

offenders despite both groups sharing many similarities including continuing to offend into

adulthood.

Implications

A critical policy issue is how to intervene to assist youth offenders to desist from crime, prevent mental illnesses from developing, support mentally ill offenders, and reduce repeated contacts with the criminal justice system. While most youth offenders will desist from offending in adulthood (Fergusson et al., 2000; Patterson, 1996), there remains a sub-group who will persistently reoffend as adults and as the current study identified these offenders are at greater risk for worse long-term mental health outcomes. The current research was not able to identify casual pathways. Nonetheless, the findings highlight a sub-group of early-start offenders will require long-term management, treatment and risk assessments from youth and adult community mental health providers, as well as juvenile justice and prison mental health services. These early-start offenders would also benefit from the development of whole-of-system initiatives that aim to improve prevention, identification, management and treatment options.

Early-start offenders were more likely to be diagnosed with a psychotic or personality disorder and be continually reincarcerated. Among early-start offenders with a personality disorder, the majority ($n = 33$, 82.5%) were diagnosed with a dissocial personality disorder, suggesting these offenders have developed maladaptive personality characteristics that are conducive to offending. Furthermore, mentally ill offenders are often viewed as difficult patients or as being treatment resistant by community mental health staff due to being more transient, non-compliant and often having co-occurring disorders, when compared to the general population (Weisman et al., 2004). It has also been identified there are currently deficiencies in treatment options for mentally-ill offenders living in the community (Kinner, 2006) and a lack of continuity of care to promote engagement with community mental health services. Hence, not all mentally-ill offenders, even those with serious psychiatric disorders,

such as schizophrenia, would be obtaining adequate mental health services. This may partially explain the higher number of incarcerations among early-start offenders with a psychotic or personality disorder, as not receiving appropriate community mental health treatment increases the risk of recidivism (Dvoskin & Steadman, 1994). Therefore, early-start offenders could benefit greatly from continuity of care programs developed in collaboration between community and prison mental health services. Continuity of care programs designed around engaging offenders in treatment and supporting offenders as they transition between community, prison and community settings upon release, could reduce reoffending, as such programs could assist the offender to receive appropriate mental health treatment.

Early-start offenders were also at greater risk of having a substance-use disorder than adult-onset offenders. Smoking a greater number of cigarettes and having a higher drug use score, were also significantly associated with having a substance-use disorder. Illicit drug use and drug addiction are recognised factors that increase an individual's risk of becoming in contact with the criminal justice system, as well as substance use being a strong predictor of recidivism (Cottle, Lee, & Heilbrun, 2001). However, frequently during routine assessment and treatment of mentally ill offenders, clinicians exclude assessment of substance use disorders and the impact that substance use has on the individual. Furthermore, current service provisions deliver substance use and mental health treatment as separate parallel services. This requires mentally ill individuals with a substance use disorder to access concurrent treatment from separate service provides. This occurs even though there is an obvious demand for substance abuse treatment within the mental health system given dual-diagnosis is prominent, especially among offenders (Schilders & Ogloff, In press) and individuals abusing substances have more serious health problem profiles (Hiller et al., 2005). The current disjointed nature of service provisions does not consider the unique

treatment needs of offenders with a substance use disorder or those with a co-occurring

mental illness (Proudfoot et al., 2003; Teesson & Proudfoot, 2003). The findings in the

current study that early-start offenders are significantly at higher risk of developing a

psychotic, personality and substance use disorder highlights these offenders would benefit

from an integrated mental disorder and substance abuse model which would streamline

treatment for dual diagnosis (Department of Human Services, 2009) which could help these

individuals with the management and treatment of their complex mental health needs.

Conclusion

Offending is a major problem due to its impact on community safety, the individual, family

of the offender and the criminal and mental health systems. The current study identified adult

offenders are not a homogeneous group, as early-start offenders have a heightened risk of

developing a range of psychiatric disorders and mentally ill early-start offenders are

significantly more likely to be incarcerated in adulthood more times than other offenders.

These findings highlight the importance of developing preventive programs and early

interventions to help young offenders mitigate or reduce the adverse mental health trajectory

and destructive cycle of crime that was evident among early-start offenders in the current

study. This is especially paramount given young offenders represent one of the most

vulnerable sub-groups of the population where more often their environmental conditions and

early experiences, instead of innate character or moral defects, result in the young person

engaging in criminal activities (Moffit & Caspi, 2001). Therefore, entering the juvenile

justice system can be viewed as opportunity to afford the young offender with help and

support for their unique presentation of problems. These young offenders would require not

only interventions that help reduce criminogenic risks factors, but they would also benefit

from tailored assessments. Assessments should focus on identifying and understanding the

diverse needs of the young person, to formulate a tailored intervention program to help

mitigate or reduce the risks associated with developing a range of adverse mental health

outcomes. Without effective intervention, it is likely many young offenders will continue a

life course trajectory that will involve the development of personality traits and behaviours

conducive to repeated offending, substance use, and for some, serious mental illnesses such

as psychotic disorders.

Table 1 – Broad offending trajectories across the life-span

Offender category	Offender sub-type	Offending			Description
		Childhood <14 years	Adolescence >14 to <18 years	Adulthood >18 years	
Child onset	Desisters	Y	Y	N	Offending starts in childhood and ceases before adulthood
	Life-course persistent	Y	Y	Y	Offending starts in childhood and continues into adulthood
Adolescent onset	Only	N	Y	N	Offending starts in adolescence and ceases before adulthood
	Persisters	N	Y	Y	Offending starts during adolescence and continues into adulthood
Adult	Life-course abstainers	N	N	N	Do not commit criminal offences across the life span
	Onset	N	N	Y	Offending starts in adulthood

Table 2. Differences in Study Variables across Offender Groups

	Early-start		Adult-onset		Risk Ratio / t-statistic
	N / M	% / SD	N / M	% / SD	
Dependent variables					
Childhood diagnosis					
Any childhood diagnosis[a]	40	23.3	33	6.2	4.56***
Affective/anxiety disorder[a]	10	5.6	13	2.4	2.37*
Conduct/oppositional defiance disorder[a]	21	12.2	11	2.1	6.56***
Adulthood diagnosis					
Psychotic disorder[a]	54	30.0	59	11.0	3.47***
Affective disorder[a]	59	32.8	197	36.7	0.84
Anxiety disorder[a]	45	25.0	152	28.4	0.82
Personality disorder[a]	40	22.2	66	12.3	2.04**
Substance use disorder[a]	59	32.8	115	21.5	1.79*
Independent variables					
Demographics					
Age[b]	37.18	8.47	42.53	9.84	6.53***
Born in Australia[a]	154	85.6	433	80.8	1.41
Indigenous status[a]	12	6.7	30	5.6	1.21
Single never married[a]	137	76.1	320	59.7	2.15***
Family history of mental illness[a]	25	13.9	62	11.6	1.23
Education in years[b]	9.53	2.15	9.44	2.57	6.22
Problems reading and writing English[a]	34	18.9	93	17.4	1.11
Unemployed[a]	152	84.4	364	67.9	2.57***
Antisocial lifestyle factors					
Number of prior incarcerations[b]	1.23	2.37	1.42	2.48	0.87
Cigarette smoked per day[b]	16.81	10.72	15.66	12.11	-1.13
Alcohol drinks per day[b]	6.44	9.71	4.03	7.95	-3.31**
Drug use index[b]	2.33	1.74	1.90	1.75	-2.83*

Note: a N, % and risk ratio reported, b M, SD and t-statistic reported

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

Table 3 - Logistic Regression Predicting Childhood Mental Illness

	Model 1 Any childhood diagnosis		Model 2 Conduct / Oppositional Defiance Disorders		Model 3 Affective / Anxiety Disorders	
	B	**SE**	**B**	**SE**	**B**	**SE**
Independent variables						
Offender groups	.944	.292**	1.323	.424**	-.079	.501
Demographics						
Age	-.204	.033***	-.182	.047***	-.242	.063***
Indigenous status	.196	.513	.153	.706	1.028	.667
Country of birth	1.315	.567*	.594	.659	.367	.786
Marital status	.109	.346	.311	.528	.454	.662
Family history	.509	.376	.706	.487	.682	.559
Education	-.037	.058	.028	.100	.008	.108
Read and write English	.337	.355	.453	.487	-.031	.603
Employment	.158	.336	-.025	.481	-.241	.506
Antisocial lifestyle factors						
Number of prior incarcerations	.238	.063***	.211	.090*	.097	.163
Cigarette use	.016	.013	-.004	.019	.018	.020
Alcohol use	.003	.016	-.001	.022	.016	.023
Drug use	-.028	.083	.038	.115	-.116	.138
Constant	3.205	1.454	1.414	2.131	4.074	2.624
Log-likelihood	350.06		202.15		157.27	
Nagelkerke R square	.319		.256		.252	

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

Table 4 Logistic Regression Predicting Adult Mental Illness

	Model 1 Psychotic Disorder		Model 2 Affective Disorder		Model 3 Anxiety Disorder		Model 4 Personality Disorder		Model 5 Substance use Disorder	
	B	SE	B	SE	B	SE	B	SE	B	SE
Dependent variables										
Childhood conduct or oppositional defiance disorder	-.113	.461	.337	.397	.123	.440	.613	.434*	.518	.397*
Childhood affective or anxiety disorder	.338	.533	.541	.449	2.380	.536***	.851	.505	.522	.464
Independent variables										
Offender groups	1.290	.238***	-.111	.201	-.285	.224	.626	.248	.446	.210
Demographics										
Age at reception	-.005	.015	.026	.010**	.014	.011	-.004	.015	.007	.012
Indigenous status	.658	.397	-.061	.346	.886	.342**	-.962	.568	.051	.365
Country of birth	.285	.312	-.053	.211	.469	.251	.838	.360	.581*	.271*
Marital status	.375	.254	-.101	.176	.483	.199*	.194	.250	.298	.206
Family history of mental illness	.046	.328	-.365	.262	-.375	.291	-.494	.383	.209	.268
Education	-.007	.046	.044	.035	.023	.038	-.044	.043	.012	.039
Read and write English	.042	.286	-.574	.225*	-.123	.236	.145	.283	-.145	.244
Employment	-.061	.253	.067	.182	-.100	.197	.000	.254	-.060	.207
Antisocial lifestyle factors										
Number of prior incarcerations	.098	.041*	-.044	.036	.019	.036	.131	.042	-.041**	.040
Cigarette use	.017	.010	.018	.007*	.000	.008	.020	.009	.020*	.008**
Alcohol use	-.030	.015*	.001	.010	-.001	.011	.004	.013	.011	.010
Drug use	.051	.066	.003	.052	.026	.055	-.001	.068	.127	.055*
Constant	-2.771	.914	-2.110	.638	-2.512	.710	-2.752	.911	-2.927	.757
Log-likelihood	559.11		889.67		779.48		551.40		743.68	
Nagelkerke R square	.134		.056		.099		.107		.087	

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

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PART V: INTEGRATED DISCUSSION

Chapter 8 – Integrated discussion

This chapter provides an integrated discussion of the findings of the studies presented in this thesis. The chapter begins with a summary of the purpose and objectives of the research. Next, the main findings from each of the studies are summarised. This is followed by a discussion of the implications of the research for clinicians, the mental health system, the police and criminal justice system and offenders, families and carers. The chapter concludes with the strengths and limitations of the research, future directions for research and a conclusion.

Purpose and objective of the research

The overarching purpose of this research was to explore the ways in which mentally-ill offenders are identified, managed and treated within community and prison mental health systems. A further objective was to explore how psychiatric service utilisation patterns differ between offenders and non-offenders. The last purpose was to identify whether psychiatric morbidity differed between early-start on adult-onset offenders.

To aid in addressing the purpose of the research five interrelated objectives were addressed. The first objective was to investigte the diagnostic stability of ICD-10 psychiatric diagnoses among offenders. The second objective was to measure and compare the number of offenders and non-offenders with low or high prevalence disorders who were identified and treated within the Victorian mental health system. The third objective was to evaluate medical, psychiatric and allied health screening outcomes at the time of reception into the correctional system. The fourth objective was to investigate whether early-start offenders were at increased risk of adverse mental health outcomes when compared to adult-onset offenders.

Overview of main findings

A robust retrospective case-linkage design was utilised to address the four interrelated objectives in four empirical studies, and the findings from each of the studies are summarised below.

Empirical study one: Stability of life-time psychiatric diagnoses among offenders in community and prison settings

The second empirical study moved beyond mental health service utilisation to evaluate lifetime diagnostic stability of specific ICD-10 psychiatric diagnoses among offenders. There is an extensive literature base that has established the prevalence of mental illness among offenders exceeds the rates in the general population, and a substantial amount of literature has investigated diagnostic stability among community population. To our knowledge, this is the first study to investigate diagnostic stability of ICD-10 disorders among offenders. The study used an epidemiological retrospective case-linkage design to assess diagnostic stability as measured by prospective consistency, retrospective consistency, diagnosis received in at least 75% of evaluations, and diagnostic shift of psychiatric diagnoses. Comparisons were made between community ($n = 737$) and prison ($n = 137$) settings, as well as across settings ($n = 776$).

Prior to discussing the main results of the study, it is important to note that when investigating diagnostic stability, methodological limitations need to be considered when comparing results across studies. Among general population studies, only one study conducted by Baca-Garcia et al., (2007) investigated long-term (i.e., up to 12 years) ecological diagnostic stability of a broad spectrum of psychiatric disorders in the one sample. Other published studies have been limited to relying on: clinical decisions made by the same clinician, evaluating a single disorder or diagnostic cluster, one mental health setting, short follow-up periods, small sample sizes and, limited

number of follow-up evaluations (Durbin & Klein, 2006; Grilo & McGlashan, 1999; Grilo et al., 1998; Grilo et al., 2004; Kessing, 2005a, 2005b; McDavid & Pilkonis, 1996; McGlashan et al., 2005; Rufino et al., 2005; Schwartz et al., 2000; Shea et al., 2002). Due to the methodological limitations of most studies, diagnostic stability reported for psychiatric disorders would be inflated and accounts for most of the variance between the current study's results and the literature discussed below.

The finding that prospective consistency for schizophrenia disorders was higher than retrospective consistency (66.2 *vs*. 46.1%) for offenders was remarkably consistent with Baca-Garcia et al., (2007) findings (69.6 *vs*. 45.9%). The retrospective consistency result was also consistent with Schwartz et al., (2000), when the baseline and 24 month evaluations were compared (55%). However, prospective consistency in the current study was considerably lower than that reported in short-term community-based studies (89% to 93%; Mason, Harrison, Croudace, Glazebrook, & Medley, 1997; Tsuang et al., 1981; Vetter & Köller, 1993). Although, for specific diagnoses, such as paranoid schizophrenia, the current study's findings were comparable (55.6 vs. 53.7%; Tsuang et al., 1981). The findings in conjunction with the literature substantiate the premise that a sizeable number of individuals may take more than two years to be correctly diagnosed. Hence, in the short-term, diagnostic stability is high and as the length of the follow-up period increases diagnostic stability reduces and then stabilises. The current study also identified offenders with a stable schizophrenia-spectrum diagnosis had been diagnosed on more occasions, suggesting these offenders have more acute episodes than offenders with an unstable schizophrenia spectrum diagnosis.

That less than half of all offenders diagnosed with an affective or anxiety disorder retained the same diagnosis was in accordance with published studies that had comparably long follow-up period as the current study (Baca-Garcia et al., 2007; Rufino et al., 2005).

However, the low stability in the current study contradicts findings of moderate to high

stability identified in other community-based studies (Kessing, 2005a, 2005b; Schwartz et al.,

2000; Tsuang et al., 1981). These studies all had drastically shorter follow-up periods or were

conducted in a limited number of settings. In epidemiology, diagnostic instability is typically

attributed to procedural unreliability. However, this assumption is perhaps more pertinent for

short-term rather than long-term follow-ups which span more than a decade. As psychiatric

treatment afforded following the onset evaluation for an affective or anxiety disorder may

decrease symptoms or result in remission. A short-term follow-up evaluation that occurs

before remission should have high prospective consistency. Conversely, when the follow-up

evaluation occurs after successful treatment it would be reasonable to presume the patient

may have relapsed or were seeking psychiatric services due to the emergence of new

symptoms pertaining to a different disorder. As such, the poor diagnostic stability of affective

and anxiety disorders in the current study likely reflects changes in the symptom presentation

over time. This premise draws support from the 237 of the 430 (55.1%) offenders who were

diagnosed with an affective or anxiety disorder at the first evaluation who were diagnosed

with a different psychiatric disorder at the last evaluation. Therefore, the low stability

identified in the current study and within other long-term follow-up studies (Baca-Garcia et

al., 2007; Rufino et al., 2005), more likely reflects the actual diagnostic stability seen within

current mental health services.

The current study also found that compared to offenders with an unstable affective

disorder diagnosis, offenders with a stable affective diagnosis were significantly older, more

likely to be diagnosed for the first time in a prison rather than community setting and had

fewer days between their first and last diagnosis. Taken together, these findings suggest an

affective disorder diagnosis is the most stable for a sub-group of older offenders who

experience context-dependent affective symptoms, triggered by being incarcerated and these

symptoms dissipate after the offender either adjusts to being imprisoned or is released from prison. In comparison, for anxiety disorders, offenders with a stable diagnosis were significantly older when first diagnosed within the public mental health system than those with an unstable diagnosis.

In prison settings, prospective and retrospective diagnostic stability was high for personality disorders (87.5 and 66.7%). This was attributed to the high stability of dissocial personality disorders (81.8 and 64.3%) as stability for all other personality disorders was moderate (40.0 and 50.0%). In comparison, low prospective and retrospective consistencies for personality disorders was identified in community (30.2 and 24.3%) and combined settings (33.0 and 26.7%). These latter results were consistent to those reported by Baca-Garcia et al., (2007; 34·7 and 27·8%) and systematic reviews of diagnostic stability of personality disorders (Grilo & McGlashan, 1999; Grilo et al., 1998). Nonetheless, the findings are considerably lower than the diagnostic stability reported for personality disorder in short term follow-ups (i.e. up to two years follow-up, 56%; Chanen et al., 2004). The lower long-term stability of personality disorders identified in the current study and other long-term follow-ups provides support for the presupposition that the presence of personality disorders is not necessarily stable over extended periods of time (Grilo & McGlashan, 1999; Grilo et al., 1998; McDavid & Pilkonis, 1996). This is contrary to the standpoint that personality disorders are lifetime disorders, as traits and behaviours developed during childhood and adolescence continue throughout adulthood and are resistant to change (American Psychiatric Association, 2013). The current study's findings are also consistent with the presumption that personality disorders are less enduring over the life-course (Durbin & Klein, 2006; Shea et al., 2002), hybrids of trait-like attitudes and symptomatic behaviours (McGlashan et al., 2005), as well as being state-based (Reich,

2002). Fluctuation of personality disorder symptoms over-time is perhaps due to maladaptive coping skills, since symptoms can manifest and abate in conjunction with symptoms of another psychiatric disorder.

Taken together, the present study demonstrated moderate to high prospective stability for schizophrenia spectrum disorders and low stability for affective, anxiety and personality disorders. While temporal stability was generally higher in prison settings than community settings, diagnostic stability was low for each of the specific diagnoses in all settings, except for dissocial personality disorder in prison settings. There were remarkable consistencies between the ecological diagnostic stability results in the current study for offenders and the results published by Baca-Garcia et al., (2007) for a community sample. This suggests although offenders experience higher levels of psychiatric morbidity than non-offenders that the disease progression is remarkably similar for offenders as reported for non-offenders.

Empirical study two: Mental health service utilisation – Comparison between offenders and non-offenders

The first study contrasted lifetime public mental health service utilisation of Victorian offenders with non-offenders. While a voluminous literature base has established the prevalence of psychiatric disorders and comorbidity among offenders surpass those seen in the general population (Fazel & Danesh, 2002), few studies have investigated mental health treatment needs of offenders. To our knowledge, this was the first study that examined the number, type and length of lifetime public mental health contacts and diagnoses received by male offenders and non-offenders. A central focus was placed on exploring, whether there are differences in public mental health service utilisation patterns between a population-based cohort of offenders ($n = 5402$) and a random community sample of non-offenders ($n = 2268$).

Significantly more psychiatric morbidity was identified among offenders when

compared to non-offenders, even after controlling for socio-demographic differences. Using

contact with the public mental health system, the current study estimated 5.2% of Victoria's

offending population and 1.0% of Victoria's non-offending population will develop a

schizophrenia disorder during their lifetime. The prevalence rates for schizophrenia being

more than five times higher among offenders than non-offenders, was remarkably consistent

with previous Australian (Butler et al., 2006; Teesson et al., 2009; Wallace et al., 2004) and

international research (Bøjholm & Strömgren, 1989; Brinded et al., 1999; Fazel & Danesh,

2002; Saha et al., 2005). Despite extensive reforms occurring within national and

international mental health systems over the last several decades, the prevalence rates of

schizophrenia have remained extremely stable. The consistency of prevalence estimates in the

current study and the literature also supports the assertion that in Victoria, most individuals

diagnosed with a schizophrenia-spectrum disorder have contact with the public mental health

system at some point during their illness (Krupinski et al., 1982).

In comparison, the numbers reported for affective, anxiety, personality and substance

use disorders do not reflect true prevalence. This is because many individuals with these

disorders are normally treated outside the public mental health system by private clinicians or

general practitioners (Burgess et al., 2009). Nonetheless, the findings still provide meaningful

information about differences in psychiatric morbidity and public mental health service

utilisation between the samples. Offenders had a greater risk of developing an affective (*OR*

= 3.63, *95% CI* = 2.71 to 4.88), anxiety (*OR* = 3.34, *95% CI* = 2.31 to 4.82), personality (*OR*

= 6.78, *95% CI* = 3.15 to 14.59) or substance-use (*OR* = 9.45, *95% CI* = 5.41 to 16.51)

disorder. The heightened risk identified among offenders when compared to non-offenders

was also remarkably consistent with another contemporary Australian study (Butler et al.,

2006). Utilising prevalence estimates for mental disorders among prisoners (Butler et al.,

2006) and community dwelling individuals (Department of Health and Ageing, 2013) as a

base, it was estimated 16% of the offender sample and 12% of the non-offender sample with

a primary affective or anxiety disorder received their primary treatment from the public

mental health system. While, the estimate for offenders cannot be directly compared to the

literature, the estimate for non-offenders was consistent with an Australian study (10%; Short

et al., 2010). Given the consistency of the other findings to the literature, the estimate for

offenders can also be assumed to be accurate. Thus, most offenders and non-offenders with

high prevalence disorders do not receive treatment within the public mental health system.

This argument is also in accordance with the transfer of treatment responsibility for high-

prevalence disorders from the public to private sector after the Federal government

introduced the Better Access program in 2006, that provides rebates for psychiatrists and

psychologists (Department of Health and Ageing, 2013)

Offenders were also significantly more likely to have multiple diagnoses reflecting

more complex presentations. The most prominent configuration of comorbidity among

offenders was an affective and anxiety disorder, and this was consistent with research (Butler

et al., 2011). Only a small proportion of individuals had a primary substance use diagnosis or

received treatment for a primary substance use disorder in the mental health system.

Nonetheless, dual diagnosis was identified as being a substantial issue, especially among

offenders and those diagnosed with a schizophrenia spectrum disorder. Among people with a

schizophrenia spectrum disorder, 67% of offenders had a co-occurring substance use disorder

while 32.6% of non-offenders had a co-occurring disorder. This finding is consistent with the

literature (Butler et al., 2006; Teesson et al., 2009) and extends upon research identifying a

three-fold increase in co-occurring schizophrenia and substance use from 8.3% in 1975 to

26.1% by 1995 (Wallace et al., 2004). The present study identified that this rate has almost

doubled again to 48.6% since 1995. The substantial demand for effective treatment for those

with a dual-diagnosis supports the need of an integrated mental disorder and substance use

model which streamlines treatment for dual diagnosis (Department of Human Services,

2009).

       The study also identified that mental health service utilisation patterns differed

substantially between mentally ill offenders and mentally ill non-offenders. Mentally ill

offenders were more likely to contact the mental health system when they required acute

psychiatric care (i.e., psychiatric inpatient care or psychiatric crisis services) and less likely to

engage with outpatient services. This pattern of service utilisation was opposite to how

services were utilised by non-offenders. Mentally ill non-offenders were more engaged with

outpatient services and were significantly less likely to need acute psychiatric care. As no

known study has compared lifetime mental health service utilisation patterns the findings

could not be directly compared. Nonetheless, the findings that offenders were less engaged

with outpatient services are consistent with criticisms that there are deficiencies in treatment

options for mentally-ill prisoners living in the community (Kinner, 2006). However, the

finding was not entirely consistent with the Department of Health and Human Services

(2016b) finding that mental health services are often only available after an individual

becomes acutely unwell. This predicament was only observable in the current study for

offenders and not non-offenders. Therefore, there appears to be something distinct about

being an offender that impacts on their ability to obtain outpatient services.

       Lastly, 20.3% of the entire sample contacted mental health services and did not

receive a psychiatric diagnosis, and this finding is consistent with another Victorian based

study (Short et al., 2010). Among this sub-sample, offenders had greater psychiatric needs,

demonstrated by more psychiatric inpatient admissions than non-offenders. It was not

possible to discern on a case by case basis the psychiatric symptomology of these individuals.

However, they may have presented to mental health services in times of crisis or in the

context of a substance misuse episode or personality dysfunction. These findings clearly

emphasise that men contact mental health services for a multitude of reasons, some of which

may be outside of the scope of psychiatric care. It also poses a question as to whether other

services may be more appropriate for addressing demands placed on the system by non-

mentally ill individuals.

Taken together, the findings provide evidence to support the proposition that public

mental health system resources are almost entirely allocated to individuals with a

schizophrenia-spectrum disorder (Department of Health and Ageing, 2013). In addition,

despite the low prevalence rates for schizophrenia identified among offenders and non-

offenders, offenders with a schizophrenia disorder utilised a disproportionately large volume

of public mental health services. This was exemplified by 75 (1.0%) individuals receiving

half of the 74,356 contacts, of whom 91% ($n = 68$) were offenders, and 87% had a recorded

schizophrenia diagnosis. Furthermore, the findings provided evidence that offenders with a

schizophrenia spectrum disorder have more acute episodes and episodes last for a longer

duration than their non-offending counterparts.

Empirical study three: Review of point-of-reception mental health screening outcomes in an Australian Prison

The third empirical investigation in this thesis focused on evaluating the point-of-

reception mental health screening outcomes for all prisoners ($n = 4229$) received into Her

Majesty's Melbourne Assessment Prison (MAP) during 2009. Although large numbers of

mentally ill prisoners are received into prison each day, research investigating mental health

screening outcomes at the point-at-reception is limited. This study was the first known

Australian study, and one of the very few international studies, to review jail mental-health

screening outcomes made at the point of reception into custody.

The first aim was to identify the proportion of prisoners who were being received into custody at a state-wide reception prison that had an acute, stable or history of mental illness. At reception, 19% of prisoners had a current mental illness and 20% had a mental illness history, this finding was consistent with prevalence rates reported in the literature (Birmingham et al., 1996; Brinded et al., 2001; Butler et al., 2005). Hence, this study supported past research that offenders entering the correctional system are a highly mentally disordered group.

A second key objective was to examine the range of referrals for subsequent care, made at the time of reception into prison. Despite a broad range of services being available to prisoners while imprisoned, referrals were found to be vastly underutilised. A referral to see a psychiatric nurse was the most common referral made at the time of reception, with 22% of the cohort being referred. Referrals to psychologist or other mental health professional were less common and among acutely unwell prisoners 23% did not have a recorded referral, apart from routine care. These findings are consistent with the literature that has identified that in prisons, inpatient and outpatient mental health services are underutilised, even by the most severally mentally ill prisoners (Steadman et al., 1991; Victorian Auditor-General's Office, 2014).

Lastly, the study compared mentally ill prisoners and non-mentally ill prisoners in terms of suicide and self-harm risk ratings and unit allocation. While it was expected acutely mentally ill prisoners would require substantially more services than their non-mentally ill counterparts, a history of mental illness was also associated with having higher treatment needs. Prisoners with a current, stable or history of mental illness had unique psychiatric needs, as they were more likely than others to require observation and were at increased risk of self-harm and suicide than other prisoners.

The study also investigated placement in psychiatric units such as the Acute Assessment Unit (AAU) on-site at MAP or the state's forensic hospital (Thomas Embling Hospital, TEH). At reception, only a small proportion (1%) of acutely mentally ill prisoners were directly admitted to the AAU and no prisoner was transferred to the TEH. In comparison, dramatically greater numbers of acutely mentally ill prisoners were placed under observation (18%) or transferred to observation cells (24%). These findings imply the demands on the 16-bed AAU and TEH currently exceed its capacity and acutely mentally ill prisoners are being temporarily housed in less-than-ideal cells outside the AAU until a bed becomes vacant. This finding is congruent with that reported for the TEH, where due to bed shortages, relatively few admissions are made (i.e. only 100 prisoners admitted in the 2009 year; Ogloff et al., 2007) and prisoners often wait in the AAU for a bed to become available (Victorian Institute of Forensic Mental Health, 2009). This occurs due to high demands being placed on TEH and the hospital having limited capacity to meet the unique needs of all acutely unwell prisoners requiring hospitalisation. Hence, only the most acutely unwell prisoners are referred to the AAU and then, only some are referred to TEH. It is probable that if the AAU or TEH had a greater number of beds, more referrals would have been made to the AAU instead to observation or isolation cells.

Taken together, the follow-up referral is a crucial step in ensuring that prisoners mental health needs are monitored and met. Those not receiving a referral may not be afforded such an opportunity and, their mental health status may deteriorate undetected. Nonetheless, it is difficult to ascertain whether the low referral rates reflected the way services were offered or whether the prisoner was hesitant to accept mental health treatment due to a fear of stigmatisation (Torrey, 1994). Alternatively, service referrals including self-referral may have occurred post reception, or the co-occurrence of a substance or personality disorder might have contributed to the clinical pathway choices. Irrespective of the reason,

the findings highlight that an opportunity to link mentally ill prisoners with additional support

services may be lost. This is important because utilisation of appropriate prison services by

prisoners has been linked to an increase in successful reintegration into the community and

reduced recidivism (Swanson et al., 2001).

Empirical study four: Early-start offenders have poorer mental health than adult-onset

offenders

The fourth empirical study investigated mental illness differences between early-start

and adult-onset offenders. Moffitt (2003, 2006) proffered an extension of her developmental

taxonomic theory, that early-start offenders are a sub-group of the population who are at

increased risk of adverse physical and mental health outcomes by mid-life. To date, few

studies have empirically tested Moffitt's hypothesis and study four is the first known study to

empirically evaluate differences in the development of childhood and adulthood psychiatric

disorders between early-start ($n = 180$) and adult-onset ($n = 536$) offenders.

Overall early-start offenders were identified as having higher levels of psychiatric

morbidity when compared to adult-onset offenders. These finding were broadly consistent

with Piquero et al., (2007) finding that early-start offenders exhibit higher levels of

psychiatric distress than adolescence-limited and non-offenders. In terms of specific

disorders, early-start offenders were more likely than adult-onset offenders to be diagnosed in

childhood or diagnosed with a conduct or oppositional defiance disorder, and the effects

remained after controlling for demographic and antisocial life-style factors. The finding that

conduct and oppositional defiance disorders are common disorders among youth offenders

was consistent with the literature (Abrantes et al., 2005; Fazel, Doll, et al., 2008; Odgers,

Moffitt, Broadbent, & Caspi, 2008).

In adulthood, it was found that early-start offenders had a heightened risk of having a

personality disorder when compared to adult-onset offenders and this was also consistent

with the literature (Tengstrom et al., 2001). Lastly, early-start offenders were identified to

have a higher risk of being diagnosed with a psychotic and substance use disorder, however

these results cannot be directly compared to the literature. Nonetheless, the results extend

upon a recent meta-regression analysis that identified that more than 3% of juvenile offenders

have a schizophrenia spectrum disorder diagnosis (Fazel, Doll, et al., 2008). This rate is more

three times higher than lifetime prevalence rates for schizophrenia in the general population.

Hence, taking the current findings and the literature together, suggests the elevated rates of

schizophrenia spectrum disorder observed among early-start offenders prior to adulthood,

continue into adulthood. In regards to substance use disorders, the current findings extends

upon the literature that has identified in adulthood, substance use is more prominent among

offenders who commence offending early and continue offending into adulthood, when

compared to those who start offending later or desist from offending in adulthood (Odgers et

al., 2008).

In comparison, early-start offenders were not significantly more likely to have

affective or anxiety disorder in either childhood or adulthood. This finding also cannot be

directly compared, as studies evaluating affective and anxiety disorders have not included a

non-offending group in childhood or an adult-onset group in adulthood. Nonetheless, the

current study's findings are inconsistent with expectations, that the early-start group would be

significantly more likely to have a childhood or adulthood affective or anxiety diagnosis. This

expectation was based on the literature that early-start offenders are more likely to likely to

experience affective and anxiety disorders when compared to other offending groups such as

childhood-only and adolescent onset offenders (Odgers et al., 2008). The difference in the

findings might be explained by methodological differences. While the current study assessed

lifetime diagnoses for affective or anxiety disorders in childhood or adulthood the study by

Odgers et al., (2008) only assessed affective or anxiety disorder symptoms that occurred in

the year before the assessment. The current findings together with the literature suggest, across the life span all offenders are susceptible to developing an affective or anxiety disorder. Furthermore, depressive and anxiety symptomatology may be more associated with general offending or lifestyle factors or even adverse physical health outcomes as identified by Piquero et al., (2007) and not necessarily the age of onset of offending.

Taken together the findings provide empirical support for the extension of Moffitt's hypothesis, that early-start offenders have a heightened risk for poor mental health however, this is limited to disorders relating to behaviour in childhood and developing a psychotic, personality or substance use disorder in adulthood. These findings suggest early-start offenders have a greater need for treatment and management across the life-span, highlighting the need for continuity of care options between community and correctional environments.

Implications of the Research

A key objective of this research was to measure and compare the number of male offenders and male non-offenders with low or high prevalence disorders who were identified and treated within the Victorian mental health system. As such, there are numerous implications of policy and service development within the mental health and criminal justice systems, mental health services, criminal justice system, research and offenders, families and carers. The implications and recommendations discussed are specific to the current Victorian environment however, most implications can also be applied to national and international contexts.

Implications for policy and service development within the mental health and criminal

justice system

   Findings from this research have implications for government agencies who are

responsible for arresting, prosecuting, accommodating or treating mentally ill offenders. The

high rates of psychiatric morbidity and dual diagnosis among offenders poses substantial

challenges for government agencies on how to adequately respond and manage mentally ill

offenders. With increasingly large numbers of offenders continually transitioning between

police cells, prisons and the community, the solution to addressing the needs of mentally ill

offenders is complex and requires an effective whole-of-system approach. Functional

interagency collaboration is needed between numerous key government agencies including

Department of Health and Human Services, Department of Justice and Regulation, Justice

Health, Victoria Police, Court Services Victoria, Corrections Victoria, Victorian Institute of

Forensic Mental Health and other correctional and mental health service providers. Such an

approach is required as most prisoners are sentenced for less than one year and approximately

half are reincarcerated within one year of being released. Consequently, treatment

responsibility for many offenders will continually shift between the key government

agencies, supporting the need for an integrated approach.

   Government agencies acknowledge the importance of providing effective mental

health services and integrated agency planning is urgently required to reduce the substantial

delays in treatment commonly experienced by severely mental ill offenders (Department of

Human Services, 2007; Victorian Auditor-General's Office, 2014). While there is evidence of

agencies working together, there is insufficient or non-uniform collaboration among the

agencies to address the complex needs of mentally ill offenders (Victorian Auditor-General's

Office, 2014). Recently, the agencies were criticised by the Victorian Auditor-General's

Office (2014) for not committing to developing an integrated plan to manage mentally ill

offenders who come under the jurisdiction of these agencies. This predicament continues

despite efforts between the agencies to elect a lead provider to manage mental health services

for offenders (Victorian Auditor-General's Office, 2014). For outcomes to be improved and

adequately address the offender's individual needs, substantial work will need to be

undertaken to promote and harness functional interagency collaboration.

Another critical policy issue is how to intervene to assist youth offenders to desist

from crime, prevent mental illnesses from developing, support mentally ill offenders, and

reduce repeated contacts with the criminal justice system. While most youth offenders will

desist from offending in adulthood (Fergusson & Harwood, 2002; Patterson, 1996), there

remains a sub-group who will persistently reoffend as adults. As the current research

identified these offenders are at greater risk for worse long-term mental health outcomes,

including the development of schizophrenia spectrum disorders. Although the current

research was not able to identify casual pathways, the findings identified a sub-group of

early-start offenders will require long-term management, treatment and risk assessments from

youth and adult community mental health providers, as well as juvenile justice and prison

mental health services. These early-start offenders would also benefit from the development

of whole-of-system initiatives targeted towards improving prevention, identification,

management and treatment options.

One recommended initiative that could increase interagency collaboration and whole-

of-system evidence-based research, is the creation of a whole-of-system database. Currently,

in Victoria, silo-based databases are utilised by each government agency and an organisation

specific unique identifier is created for consumers of the service (i.e., Corrections Victoria

use CRNs and Department of Health use JAIDs). This practice differs substantially from

many European nations (i.e., Denmark) where each citizen has a unique personal identifier.

The creation on a whole-of-system database where each key government agency records and

retrieves information from the one central database would result in substantial benefits. A whole-of-system database would improve the ability to conduct large scale epidemiological studies that play a major role in informing policy. These studies can be conducted to identify areas for service improvements, evaluate newly introduced initiatives and enable government agencies to develop routine reporting of issues relevant to offenders.

Implications for mental health services

There are also implications stemming from the research for single key government agencies, such as Department of Health and Human Services. During the last decade, it became apparent individuals with a dual diagnosis often received concurrent treatment from separate services delivered in parallel to one another, and many individuals were "falling into the gap between agencies and receiving no service at all" (Department of Human Services, 2007, p. 6). Mounting criticisms regarding the disjointed nature of service provisions, failing to address the unique treatment needs of individuals with a mental illness and co-occurring substance use disorder highlighted the importance of dual diagnosis models of treatment (Proudfoot et al., 2003; Teesson & Proudfoot, 2003; Teesson et al., 2009). In response, the Victorian government implementing the *Dual Diagnosis Action Plan 2007* (Victorian Department of Human Services, 2007) that aimed to establish an integrated model of care to improve service provisions and provide effective treatment for those with a dual diagnosis. Since this time, dual diagnosis teams have been imbedded into the mental health system to enhance dual diagnosis capability within mental health and drug and alcohol services. One of the key priorities of the Victorian Dual Diagnosis Initiative is to increase training and identification skills of clinicians working in both mental health and drug and alcohol services, so dual diagnoses can be effectively managed and treated in either sector (Croton, 2007).

While the introduction of dual diagnosis teams demonstrates significant progress, dual diagnosis is still very much in its infancy. There remain substantial limitations in term of

current service provisions, training and availability of dual-diagnosis clinicians. Currently

only four dual diagnosis teams have been established in the Victorian public mental health

system. Furthermore, in practice, there are only a small number of qualified 'dual diagnosis

clinicians' and there is a vast disparity in the training, qualifications and abilities between

psychologist, drug and alcohol workers and other mental health professionals (Department of

Human Services, 2007). An opportunity exists for universities to incorporate dual diagnosis

training initiatives into the curriculum of clinical and forensic based courses, to increase the

numbers of dual diagnosis clinicians. Further work is also required to understand dual

diagnosis aetiologies and developmental trajectories and the most effective approaches for

prevention, identification, management, treatment and recovery. For dual diagnosis treatment

models to bridge the long-standing chasm between mental health and drug and alcohol

services it is important that expansion of services and evaluation of the effectiveness of

service models to treat dual diagnosis, be an ongoing policy priority.

Moving beyond the treatment and management of dual diagnosis, the research also

offers novel insights about the way offenders and non-offenders utilise public mental health

services in an era following significant reforms to the mental health system. There was a

notable lack of service utilisation among men with high prevalence disorders. This findings is

in accordance with the transfer of treatment responsibility for high-prevalence disorders form

the public to private sector after the Federal government introduced the Better Access

program in 2006 (Department of Health and Ageing, 2013). The Better Access program

provides rebates for private psychiatrists and psychologists in community settings. However,

even with the Better Access program and evidence some mentally-ill men receive treatment

from general practitioners (Burgess et al., 2009), mentally-ill men have also been identified

as being less likely to seek services for mental health problems (Slade, Johnston, Teesson, et

al., 2009). This coupled with the Better Access program being unavailable to individuals

imprisoned, suggests an opportunity to afford and continue treatment which may substantially

improve quality of life (Kinner, 2006) and reduce reoffending (Dvoskin & Steadman, 1994)

may be lost.

Moreover, even with the Better Access program, the lack of public mental health

utilisation among those with high prevalence disorders does not insinuate that these men do

not need public mental health services. Instead it emphasises the demands on the mental

health system currently outweigh the availability of services, and in turn scarce resources are

primarily allocated to individuals with a schizophrenia spectrum disorder, most of whom are

offenders. The Department of Health (2016b) supports this assertion and recently reported

that among the general population patients, families and carers often are unable to access

mental health treatment in the early stages of the illness, and more often have to wait until

mental health symptoms become acute. This predicament facing public mental health service

users is far from ideal, given early intervention can improve mental health outcomes,

decrease the risk of relapse and development of compounding disability (Department of

Health and Human Services, 2016b).

Implications for the criminal justice system

The research also has implications for the criminal justice system. At a court and

prison level, there are increasing numbers of offenders with a mental illness being prosecuted

and prison populations are continually expanding. The increasing number of mentally ill

offenders in the criminal justice system places growing pressure on the system to provide

additional mental health resources to respond to the complex needs of offenders.

Additionally, government agencies are facing considerable challenges in determining the best

way to manage the increasing demands placed on the criminal justice system. This quandary

led to the traditional criminal justice responses being criticised as ineffective and the need for

alternate criminal justice procedures gaining the attention of clinicians, key government

agencies and policymakers. In response, many Australian states, including Victoria, introduced mental health courts into the judicial system and similar courts have been established internationally.

Modelled on drug courts, mental health courts are based on the framework of therapeutic jurisprudence, that highlights the law's 'healing potential to increase wellbeing' (Graham, 2007, p. 18). Mental health courts objective is to provide a more individualised and service-focused approach for individuals whose offending is linked to mental illness. The tailored response aims to achieve a range of benefits including enhancing the offender's health and wellbeing, increasing compliance and responsiveness. The courts also help to prevent the criminalisation of mentally disordered offenders, by diverting offenders from the criminal justice system to mental health services, which in turn reduces demands on prison resources (Bartels, 2009; Blagg, 2008; Gotsis & Donnelly, 2008). Hence, the courts and tailored programs aim to address the 'revolving door' phenomenon among mentally ill offenders and the deficits in treatment services.

National and international studies provide evidence of the effectiveness of mental health courts. A reduction in reoffending has been consistently identified, with offenders managed by mental health courts going longer periods of time before committing new offences when compared to offenders who went through the normal court process and were imprisoned (McNiel & Binder, 2007; Sarteschi, Vaughn, & Kim, 2011). The recent 2017/2018 Victorian State Government, committed to continuing to fund mental health courts, such as the assessment and referral court in the Magistrates Court (Victorian Department of Treasury and Finance, 2017). As mental health courts provide a more effective and cheaper alternative to manage mentally ill offenders than traditional court processes (Sarteschi et al., 2011), further development and expansion of these courts should remain a government priority.

A further implication of this research specific to prisons relates to the identification, management and treatment of mentally ill prisoners while incarcerated. In recognition that large numbers of mentally ill offenders enter prison each day, Australia and international prisons have introduced mechanisms to systematically screen prisoners as they are received into prison (Baksheev, Thomas, & Ogloff, 2010; Martin et al., 2013; Nicholls et al., 2005). Nonetheless, screening practices vary widely, with some prison officials merely asking prisoners on reception a few questions about their mental health, with other prisons utilising more comprehensive screening by mental health professionals using validated screening protocols (Ogloff et al., 2007). In Victoria, validated screening protocols have been introduced as the first stage of a tiered approach to identify mental health problems and refer prisoners for more in-depth assessment and / or treatment (Grubin et al., 2002).

A tiered screening protocol to systematically screen offenders, such as that used in Victoria, can achieve substantial gains. Early identification of mental health needs affords the opportunity to provide expedient access to treatment, a decrease in mental health symptoms, risk of relapse, risk of suicide and self-harm and increased adjustment to the prison environment (Bonner, 2000; Cox, Landsberg, & Paravotti, 1989; Ivanoff & Hayes, 2002; Nurse, Woodcock, & Ormsby, 2003). This in turn, would reduce the risk of decompensation, exacerbation of pre-existing conditions or development of new mental health problems as a consequence of being in prison (Nicholls et al., 2005). Benefits for the prison, correctional staff and other prisoners can also be realised including, enabling scarce resources to be allocated efficiently, increase prison safety and possibly, decrease the incidence of rule infractions and disruptive behaviour (Ogloff, 2002; Veysey, Steadman, Morrisey, Johnsen, & Beckstead, 1998). In turn, long-term benefits can be obtained including the prisoner being more likely to continue treatment in the community upon release, successful reintegration into the community and a range of community benefits including a reduction in recidivism

(Swanson et al., 2001). Nonetheless, there is evidence that recommendations following screening are heavily influenced by the availability of mental health resources. Prisons face daily challenges of being able to match each prisoner's unique mental health requirements with scarce mental health services. When deciding on treatment outcomes, mental health staff need to take into consideration many factors including: the number of prisoners already in receipt of scarce mental health resources, whether any prisoner will be discharged creating availability and whether other prisoners are also concurrently in need of mental health services. Thus, even acutely unwell prisoners are required to wait for mental health services to become available and the numerous benefits associated with screening practices may not be obtained.

To address the inefficiencies in forensic mental health service provisions, forensic mental health service resources have been dramatically expanded within national and international prisons. In Victoria, increasing the number of forensic mental health beds is currently underway, with the addition of a new 75-bed forensic mental health unit at Ravenhall, the new medium security men's prison that will open in late 2017. An additional eight-bed unit is also being built at the Thomas Embling Hospital that will open during 2017-2018, plus the Victorian State Government has committed to fund 10 more beds (Victorian Department of Treasury and Finance, 2017). In addition, the recent state budget also includes $50 million to buy land and plan a new forensic hospital (Victorian Department of Treasury and Finance, 2017). These forensic beds will add to the existing 116-beds at the Thomas Embling Hospital and the 16-beds at the Acute Assessment Prison located at Her Majesty's Melbourne Assessment Prison. However, even with the expansion of forensic mental health services, the 225 forensic mental health beds, are substantially fewer than epidemiology would suggest should be available. Findings from the research suggested approximately seven percent of the prison population require immediate acute psychiatric services, ideally in

a mental health unit, and this estimate compared favourably to the literature (Brooke et al.,

1996). Extrapolating this figure to the Victorian population consisting of more than 6,000

male prisons (Department of Justice and Regulation, 2016), suggests there is a current

demand for approximately 420 forensic mental health beds. This indicates that one in two

acutely mentally ill prisoners can be afforded a mental health bed. This point is consistent

with observations made by the Victorian Auditor-General (2014), that prison mental health

services are unable to meet the demand, nor are able to respond to the diverse and complex

needs of the increasing numbers of mentally ill offenders entering prison each year. The

solution to addressing this problem is not just a matter of increasing forensic mental health

beds, but instead further supports the assertion that the traditional criminal justice response is

not effective and is failing to adequately manage, treat or reduce offending among mentally

ill offenders. While it is envisioned that mental health courts, in addition to drug courts, will

have some impact on reducing the numbers of individuals being incarcerated. The numbers of

mentally ill offenders being diverted from the correctional system will only marginally

address the over-demand of prison mental health services and other alternative criminal

justice procedures need to be developed by key government agencies and policymakers.

 The research also identified that at reception, dramatically greater numbers of acutely

mentally ill prisoners were placed under observation (18%) or transferred to observation cells

(24%) than to a mental health bed (1%). The high reliance on observation cells to manage

offender's mental health needs, further supports the assertion that there is a substantial lack of

prison mental health beds. Observation cells, while originally developed as an isolation place

for disciplinary reasons such as behaviour against prison rules, are now being used for suicide

and self-harm monitoring and managing mentally ill prisoners awaiting a mental health bed

(i.e., in Denmark; Andersen, Sestoft, Lillebæk, Gabrieisen, & Kramp, 1996). The

combination of hourly observation and observation cell placement may be deemed the most

appropriate response for a prisoner assessed as having an elevated suicide or self-harm risk. However, these cells can have detrimental effects on prisoner's mental health (Andersen, Sestoft, Lillebæk, Gabrielsen, & Hemmingsen, 2003; Andersen et al., 2000; Sestoft, Andersen, Lillebæk, & Gabrielsen, 1998). Andersen and colleagues (2000) even described observation cells as a 'mental health hazard' in accounting for the elevated levels of incident disorders among prisoners remanded in solitary confinement. The practice of confining an individual in an observation cell in community psychiatric facilities, has also come under scrutiny. This led to eliminating the use of seclusion in observation cells becoming a national safety priority (Department of Health and Human Services, 2016b). In 2014, amendments were also made to *Mental Health Act* regarding the use and reporting requirement of seclusion and restrictive practices used in community psychiatric settings. The *Mental Health Act* (2014, p. 102) outlines that the use of observation cells should only be used 'after all reasonable and less restrictive options have been tried or considered and have been found to be unsuitable.' This raises a serious question regarding the use of observation cells in prisons to accommodate mentally ill offenders awaiting a mental health bed. Arguably the use of observation cells results from an over-demand on mental health beds and not from considerations that the cell is the most suitable alternative for the offender. Policy makers should be mindful of the use of observation cells in prisons and the limitations of the correctional system to provide suitable accommodation to offenders with acute psychiatric needs. As previous mentioned, the solution to addressing the over-demand on mental health beds is complex and it is not just a matter of increasing forensic mental health beds. Nonetheless, clinicians and policy makers should advocate for the development of whole-of-system solutions that can counter the extensive shortage of appropriate psychiatric resources.

Implications for research

The finding that prospective consistency for schizophrenia spectrum disorders was higher than retrospective consistency has implications for research and public policy. Individuals who were identified as having a stable lifetime diagnosis are more likely to be true cases and place higher demands on acute services. In contrast, individuals who shifted diagnostic categories may be misclassified cases or experience true changes in their illness. Irrespective of the reason for an unstable diagnosis the implications for research is that these individuals may contaminate clinical samples, which may in turn reduce the possibility of obtaining meaningful results including identifying real differences between groups (Mazlade et al., 1992). Additionally, prison-based diagnoses being more stable than community diagnoses, likely reflects that diagnostic stability is the highest when the severity of symptoms are at their peak and prison environments may enable psychiatric personnel to continually observe the offender's symptoms. Or it could also be influenced by only the most severely mentally ill offenders being diagnosed in prison settings, which is supported by the number of offenders being assessed in prison being dramatically lower than identified in the community and that most offenders were diagnosed with a schizophrenia spectrum disorder in prison.

For point-prevalence studies conducted within prisons or other studies that assess mental illness, the methodology utilised more often assesses psychiatric disorders at one fixed point in time (Fazel & Danesh, 2002). These studies likely under-represent the prevalence of disorders among offenders, as the present research provides evidence that diagnostic systems utilised are more likely to under-diagnosis psychiatric disorders, including schizophrenia spectrum disorders. This is reflected in the research, which found that at the first evaluation 249 (4.6%) offenders had a recorded

schizophrenia spectrum diagnosis, and this rose to 298 (5.5%) by the last evaluation.

Hence, true prevalence rates may only be able to be determined longitudinally, possibly

partially due to the suboptimal levels of inter-rater reliability of psychiatric disorders in

the field, coupled with errors on behalf of diagnosticians. Hence, health policy

recommendations or service provisions based on such results may be less effective, as

mental health outcomes for true cases are likely to be substantially different from those

who are misclassified. Offenders with an unstable diagnosis are likely to have higher

recovery rates and not require frequent or on-going mental health services. In

comparison, offenders with a stable schizophrenia spectrum diagnosis are more likely

to require on-going mental health services and management within the community and

prison settings.

Implications for offenders, families and carers

Ultimately, the key objective of this research was to advance our understanding of the

nature and needs of mentally ill male offenders. It was anticipated that the research will

enable a contemporary understanding of the specific and often complex mental health needs

of offenders, that may be used in developing suitable interventions for a particularly

vulnerable sub-group of the population. As such, there are implications for patients, families

and carers, as well as the broader community.

Taken together, the present research demonstrates offenders have higher psychiatric

morbidity, including co-occurring diagnoses than seen among the general community. While

offenders with a schizophrenia spectrum disorder had the highest treatment needs, offenders

diagnosed with affective and anxiety disorders also required substantially more mental health

services than their mentally ill non-offending counterparts. Nonetheless, there is evidence

that the treatment experience differs substantially between mentally ill offenders and

mentally ill non-offenders. Mentally ill offenders were more likely to contact the mental

health system when they required acute psychiatric care (i.e., psychiatric inpatient care or psychiatric crisis services), and less likely to engage with outpatient services. This pattern of service utilisation was opposite to how services were utilised by non-offenders. Mentally ill non-offenders were more engaged with outpatient services and were significantly less likely to need acute psychiatric care.

While it was not possible to ascertain the exact reason for the difference in service utilisation patterns, the difference could be driven by prejudices. It is probable that offenders being less engaged with outpatient services could be due to offenders being dually stigmatised, which can form major barriers that impact on their ability to receive appropriate community mental health services. Offenders are also often viewed as difficult patients or as being treatment resistant by community mental health staff, due to often having co-occurring disorder, being more transient and non-compliant when compared to the general population (Weisman et al., 2004). The difference in service utilisation patterns could also be a result of deficiencies in treatment options for mentally-ill prisoners living in the community (Kinner, 2006) and a lack of continuity of care to promote engagement with community mental health services. Irrespective of the underlying cause, the research suggests that unlike non-offenders, offenders are missing out on an opportunity to obtain mental health services in the early stages of illness.

Early intervention, including assessment and diagnosis is a key function of outpatient psychiatric services. Ongoing outpatient treatment also plays a critical role in determining appropriate treatment options and monitoring pharmaceutical interventions, as well as assisting the individual to manage psychiatric symptoms and minimise decompensation. In contrast, not receiving outpatient care places the individual at greater risk of their mental illness becoming acute, and compounding disability (Department of Health and Human

Services, 2016b). This highlights an opportunity for community and prison mental health services to collaborate and improve the continuity of care for offenders.

Continuity of care programs would be particularly beneficial for offenders during times of heightened stress such as transitioning between prison and being discharged back to the community. By developing mental health treatment pathways for offenders entering and being discharged from prison, may increase engagement in outpatient treatment, which may in turn reduce the need for acute psychiatric services and contacts with the criminal justice system. This is an important issue, as it has been argued that criminal behaviour leading to arrests and / or convictions among mentally-ill offenders, could be significantly reduced if the individual received appropriate community mental health treatment (Skrzypiec, Wundersitz, & McRostie, 2004).

Strengths and limitations of the research

In chapters 4 to 7, the main strengths and limitations of each of the empirical studies have been discussed, and so only a brief discussion will be provided here. A major strength of the research is the methodology involving an epidemiological approach that utilised a robust retrospective case linkage design. The case-linkage design involved extracting information about offenders from numerous Victorian databases and / or official paper-based files managed by Corrections Victoria, Department of Health, Justice Health and Forensicare. A key advantage of this methodology was the inclusion of population-based samples (i.e., studies 1, 2 and 3) and large sample sizes (i.e., Study 4). The use of large samples maximised the power of statistical analyses, enhancing the accuracy and usefulness of results and performs an important role in informing public policy. Inclusion of large sample sizes also facilitated the examination of associations between multiple variables across extended periods of time, that would otherwise be unattainable or affordable (Mortensen, 1995). These strengths were particularly important in the current study, as the focus was on investigating

mental illnesses among offenders, especially low prevalence disorders such as schizophrenia

disorder (Hotoph, 2005). The inclusion of a very large sample served also to protect the

privacy of individual's whose information was collected, as data was merged from multiple

sources and de-identified prior to analysis. This process, and the large-scale findings that

resulted, would not be possible without the collection of sensitive information directly from

databases and / or official paper-based records. Another strength of the retrospective case

linkage design was overcoming many of the limitations associated with prospective designs

such as, recruitment biases and retention issues. Offenders are a sub-group of the population

who are difficult to contact due to itinerancy and lack of other social and employment ties.

Therefore, the retrospective case-linkage design enabled the inclusion of individuals who are

notoriously difficult or impossible to locate, as many have itinerant lifestyles revolving

continually between residing in the community, prisons, psychiatric units, and being

homeless (Mortensen, 1995).

A major strength of utilising a retrospective case-linkage design was the extensive

follow-up period, which enabled all lifetime mental health contacts and diagnoses to be

assessed. Thus, the findings obtained could estimate the lifetime risk of experiencing an

outcome, such as developing a schizophrenia spectrum disorder or the need for mental health

services, and eradicated the risk of participant drop out that is inevitable in longer-term

prospective studies (Mortensen, 1995). Nonetheless, one limitation of this design was that

although the government funds forensic psychiatric services within prisons, including

inpatient and outpatient services, only treatment in a mental health unit in prison or the

forensic hospital were captured in the pubic mental health register. Although offenders with

the highest mental health needs would be treated within mental health units and their service

usage captured, other mentally ill prisoners would be treated outside these units. Given most

offenders in the current study were imprisoned for less than 12 months, most of their life-time

psychiatric service usage would occur in the community. Hence, the prison mental health service usage rates are envisioned to only be slightly underreported in the research.

While the case-linkage design utilised in the present study is deemed methodologically robust, limitations should be noted. The most substantial limitation pertains to the accuracy and depth of information extracted from the databases and paper-based files. A degree of error is unavoidable when entering the original data, as well as when performing data-linkage procedures (Mortensen, 1995). Currently in Australia, each government organisation utilises an organisation specific unique identifier (i.e., Corrections Victoria, CRN and Department of Health, JAID) for recording information about individuals contacting the organisation. Therefore, there would be a degree of error in the extracting procedures due to inaccurate or incomplete matching. Without Australia introducing a unique personal identifier for each citizen, such as the unique identifiers introduced in many European nations (i.e., Denmark), a degree of matching and extracting error will be unavoidable in case-linkage studies. While reliability checks could not be undertaken regarding the accuracy of information originally entered into or extracted from the databases, an assessment of coding and data-linkage procedures was undertaken by the researchers. Checking the reliability of coding and data-linkages performed in the current study confirmed that errors made were minimal, occurring in less than 1% of cases. The large sample size utilised also helped mitigate the effect of errors made by those originally entering the data, as well as those made by the researchers in undertaking data linkages, as the impact of error will be negligible in a large sample. A further limitation was that all data utilised in the studies was routinely collected for non-research purposes hence, there was some limitations in terms of the breath, depth and quality of information available. For example, in Study 2 while it was possible to compare services and diagnoses for affective, anxiety, personality and substance-use disorder, the numbers did not reflect the true prevalence of the disorders. This

is because not all individuals diagnosed with these disorders are diagnosed or treated by the public mental health system. Nonetheless, this limitation was addressed in Study 4 by supplementing diagnostic information from the psychiatric registry with information from the offenders Prisoner Health File.

Another strength was Study 2 included a random sample of non-offenders, enabling robust comparisons to be made between offenders and non-offenders in terms of psychiatric diagnosis and service utilisation. Few studies conducted with offenders or prisoners incorporate a non-offending sample to make direct comparisons for the outcomes of interest. Nonetheless, a limitation was that the random sample of non-offenders was not a control sample, matching each offender based on socio-demographics and diagnosis to a non-offender. To obtain a control non-offender sample, an exceptionally large number of individual records would have needed to be extracted from the relevant databases, to match each of the 5402 offenders in terms of socio-demographic and primary diagnosis. To address the limitation of not having a control sample, multivariate statistical methods (i.e., multiple and logistic regressions) were used where relevant confounding variables were entered as covariates. These statistical analyses are robust at controlling for the effects of confounding variables when investigating the impact of the independent variables on the outcome of interest (Hotoph, 2005). Furthermore, as Study 2 aimed to compare the prevalence of schizophrenia among offenders and non-offenders, this would not have been possible to determine if a control sample matched by primary diagnosis had been utilised. Taken together, utilising a random sample of non-offenders as a comparison group was deemed appropriate for the study, and not incorporating a matched control sample should have little impact on the generalisability of the results obtained.

Future direction for research

With the current findings in mind, there are several recommendations for future research. Firstly, the research provided preliminary evidence that offenders with schizophrenia-spectrum, affective and anxiety disorders more often obtain acute psychiatric services and are less likely to engage in outpatient services than mentally-ill offenders with the same disorders. This pattern of service utilisation was also opposite to the utilisation of mental health services observed among non-offenders, who were more likely to receive outpatient services. Despite the noted differences in service utilisation patterns, it was not possible to ascertain the reason offenders and non-offenders utilised mental health services in different ways. It is well recognised that psychiatric outpatient services play a critical role in prevention, assessment, intervention and treatment. Hence, it is important that research continues to investigate the reasons offenders underutilise psychiatric outpatient services and why offenders are less likely to engage in services in the early stages of their illness, prior to the problem becoming acute. Receiving early and effective outpatient services plays an important role, such as preventing mental illness, managing psychiatric symptoms, preventing decompensation, and improving long-term outcomes for the patient. There are also substantial benefits for the mental health and correctional systems such as reducing demands on acute psychiatric services and a reduction in offending. In turn, there may also be benefits for the community such as increasing community safety, supporting families build resilience and preventing family break-down.

As there are substantial positive gains that can be achieved by improving mentally-ill offender's utilisation of psychiatric outpatient services, it is important that research in this area continue. Ideally, future research should aim to collect information directly from offenders and their families regarding their experiences with the mental health system. This point is in line with the vision and values of the Department of Health and Human Services

(2016a, p. 11), which places a priority on 'involving people in decisions that affect their lives' and 'having empathy for people and seeking to understand their perspective.' Given severely mentally ill offenders had the highest treatment needs and were utilising significantly more acute psychiatric services, yet significantly less outpatient services, recruiting participants from among those obtaining acute psychiatric services in community or prison settings would be beneficial.

Knowledge from this type of study could be used to inform initiatives to promote early and continued engagement with psychiatric outpatient services among offenders. Furthermore, the findings could be used in the development of continuity of care programs that assist in developing tailored support programs for offenders during the critical transition into and out of prison and help reduce the number of offenders who are 'falling between the cracks'. These types of service initiatives are a priority area for the Department of Health and Human Services (2016a; p. 28) as one of their key strategic directions is to 'break down the barriers in how care is provided within and across sectors', including between correctional and community mental health services.

The research also included the first known study to investigate the diagnostic stability of common ICD-10 psychiatric diagnoses among offenders. Novel insights were gained about the lifetime diagnostic stability of diagnoses made in community and prison settings, as well as across settings. The study identified that temporal consistency was moderate for schizophrenia spectrum disorders, low for affective, anxiety and personality disorders, and that those with a stable diagnosis had more contacts with the public mental health system. Nonetheless, the current study was not able to identify causal factors that explain differences between offenders with a stable or unstable diagnosis or whether diagnostic stability differs between psychiatric settings, such as psychiatric inpatient units, emergency departments and outpatient facilities. It is important that research continue in this area as there is a dearth of

research conducted with offenders, as studies of diagnostic stability have almost entirely been

dedicated to general or clinical populations. Furthermore, there is emerging evidence that

diagnostic stability varies substantially between psychiatric settings (Baca-Garcia et al., 2007;

Rufino et al., 2005). For example, Baca-Garcia et al., (2007) found that in the general

population, diagnostic stability was higher in psychiatric inpatient units and emergency

departments rather than in outpatient settings. This difference has important implications for

research, service planning and public policy. Often point prevalence studies assessing the

psychiatric morbidity among offenders and prisoners, are used to inform service planning and

public policy. However, most point prevalence studies are conducted in conditions similar to

outpatient settings (Fazel & Danesh, 2002) and these studies are likely to contain

misclassified cases and underrepresent the prevalence of disorders among offenders including

schizophrenia spectrum disorders. In turn, health policy recommendations or service

provisions based on point prevalence studies may be less effective, as mental health outcomes

for true cases are likely to be substantially different from those who are misclassified.

　　　　With these points in mind, it is recommended that research continue to investigate

factors that impact diagnostic stability, especially for offenders and prisoners who experience

heightened psychiatric morbidity yet have been almost entirely overlooked in studies. A

starting point for such research would be to identify casual factors associated with stable and

unstable diagnoses as well as diagnostic stability across psychiatric settings. It is also

recommended that future studies incorporate substance use disorder and how a co-occurring

substance use disorder might impact the diagnostic stability of psychiatric diagnoses.

Substance-use disorders were not incorporated in the current study because they were

infrequently the first or last diagnosis, which precluded the ability to meaningfully calculate

prospective or retrospective consistencies. This type of study is also important especially

among offenders, as substance use disorders are a prominent primary or co-occurring

disorder among offenders (Butler et al., 2011).

The current research also contained the first national and one of the few international

studies to evaluate the screening outcomes that are made at the time of reception into prison.

The study substantiated claims that a large proportion of offenders entering prison exhibit a

high level of psychiatric morbidity and place considerable demands on prison mental health

resources. However, the study was not able to track whether the recommendations made at

the time of reception were received, or the amount of time that elapsed between the

recommendation being made and the psychiatric service being provided. It is probable that

due to the volume of mentally ill prisoners entering the prison system each day, that prisons

grapple with providing efficient and timely mental health services to prisoners following

reception due to the scarcity of mental health resources. Furthermore, to reap the potential

gains of screening and identifying prisoners as mentally ill, psychiatric services must be able

to expediently provide recommended psychiatric services following reception. Despite this

there is a shortage of literature that has tracked the outcomes obtained by prisoners in terms

of obtaining psychiatric services that occur following reception or whether referrals made at

the time of reception are provided in a timely fashion following reception. Given these points,

an area to continue investigating would be to track the amount of time that lapsed between

the prisoner being referred to a psychiatric service and obtainment of the psychiatric service.

Furthermore, as services can be accessed at any time following reception, it would also be

beneficial to evaluate the proportion of prisoners who accessed psychiatric services who did

not receive a referral at the time of reception and the amount of time that transpired between

reception and first contact with psychiatric services. This type of study would build upon the

work conducted in the current research as well as the literature, that has attempted to quantify

the demands placed on prison mental health services by prisoners entering the correctional system.

The current research also provided evidence that supported an extension of Moffitt's hypothesis that early-start offenders have a heightened risk of developing psychiatric illnesses than adult-onset offenders. As the current study was one of the first studies to test the extension of Moffitt's hypothesis, it is important that research continues in this area. It is recommended that future studies separate early-onset offenders into those who commence offending prior to 14 years (early-start life-course-persistent) and those who commence offending after age 14 (adolescent-onset persisters). It is probable that early-start life-course-persistent offenders have even poorer mental health outcomes despite both groups sharing many similarities including continuing to offend into adulthood. Furthermore, while the current study identified that early-start offenders were more likely to develop a conduct disorder or oppositional defiance disorder in childhood, as well as a schizophrenia-spectrum, personality or substance use disorder in adulthood, causal pathways could not be established. Given the debilitating impact of mental illness on the individual as well as schizophrenia, dissocial personality disorder and substance use being recognised risk factors for continued offending (Cottle et al., 2001), highlights the need to continue research in this area.

Lastly, the current research focused entirely on male offenders and the findings may not be generalised to female offenders, as there are recognised mental health and offending differences between male and female offenders (Butler et al., 2011; Fazel & Danesh, 2002). Therefore, replication of the current study with female offenders should be undertaken.

Conclusion

The overarching purpose of this research was to explore the ways in which mentally-ill offenders are identified, managed and treated within community and prison mental health systems. A further objective was to explore how psychiatric service utilisation patterns differ

between offenders and non-offenders. The last purpose was to identify whether psychiatric morbidity differed between early-start on adult-onset offenders.

It is well recognised that offenders have greater psychiatric morbidity than individuals in the general population. The current study has made significant advances to the literature regarding how offenders are identified, managed and treated within community and prison mental health system. The study also contributed in understanding how psychiatric morbidity differs between offenders and non-offenders as well as between early-start and adult-onset offenders. Evidence was provided that the higher lifetime mental illness and comorbidity rates among offenders translates into higher mental health service utilisation for all mental health services, except outpatient services. In addition, despite schizophrenia being a rare disorder, effecting approximately 1 in 100 non-offenders and 5 or more in 100 offenders, public mental health services were almost entirely utilised by these individuals. Nonetheless, among those with a schizophrenia spectrum disorder, offenders rather than non-offenders place the largest burden on public mental health system. A substantial gap in the current mental health system was also highlighted, as although psychiatric outpatient care was utilised more by non-offenders, does not suggest that offenders do not require this service. Instead the disjointed nature of services between community and prison mental health services was highlighted. Many offenders were identified as 'falling through the cracks' and only accessing mental health services when they required acute psychiatric care. To address this shortfall, whole-of-system initiatives and continuity of care programs are required. It was proposed that continuity of care programs could be beneficial in assisting offenders at heightened times of stress such as when transitioning between prison and being discharged back to the community. These types of programs may encourage offenders to obtain and stay engaged in outpatient treatment which may reduce some of the demands placed on acute services and reduce contacts with the criminal justice system.

Further contributions to the existing literature were made by undertaking the first

evaluation of diagnostic stability of ICD-10 diagnoses among offenders. Overall, moderate to

high prospective stability for schizophrenia spectrum disorders and low stability for affective,

anxiety and personality disorders was identified. While temporal stability was generally

higher in prison settings than community settings, diagnostic stability was low for each of the

specific diagnoses in all settings, except for dissocial personality disorder in prison settings.

There were remarkable consistencies between the ecological diagnostic stability results in the

current study for offenders and the results published by Baca-Garcia et al., (2007) for a

community sample. This suggests that although offenders experience higher levels of

psychiatric morbidity than non-offenders that the disease progression is remarkably similar

for offenders as reported for non-offenders.

The research also identified that mentally ill prisoners represent a substantial portion

of the prison population and place increased demands on the criminal justice system to

provide additional resources to assess and respond to the prisoners' mental health needs. A

range of administrative and therapeutic challenges facing the criminal justice system were

identified, such as referrals made at the time of reception were heavily influenced by the

availability of prison mental health services and mental health beds. Although significant

changes have been introduced to identify, treat and support prisoners with a mental illness,

the range of services and treatment options available to mentally ill prisoners is far from

ideal. The current study highlighted that prisoners face additional problems than just dealing

with their mental illness. For example, this population proved to be a high-risk group for

suicide and self-harm and placed a substantial burden on correctional services.

It was also identified that adult offenders are not a homogeneous group, as early-start

offenders had a heightened risk of developing a range of psychiatric disorders and mentally

ill early-start offenders are significantly more likely to be incarcerated in adulthood more

times than other offenders. These findings highlighted the importance of developing

preventive programs and early interventions to help young offenders mitigate or reduce the

adverse mental health trajectory and destructive cycle of crime that was evident among early-

start offenders. It was argued that without effective intervention, many young offenders will

continue a life course trajectory that will involve the development of personality traits and

behaviours conducive to repeated offending, substance use, and for some, serious mental

illnesses such as psychotic disorders.

Practical implications from these findings centre around the need for a whole-of-

system approach that will enable interagency collaboration to address the substantial

challenges that government agencies face in adequately responding and managing mentally

ill offenders. In addition to the contributions made to the scientific literature, it is hoped that

the research will help to inform policies that will improve short and long-term outcomes for

mentally ill offenders, as well as has aided in understanding the range of mental health

resources that offenders need and the challenges that offenders face in accessing appropriate

services to help them manage their symptoms.

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Appendix A - MAP Psychiatric Intake Registry

Date						CRT	RISK	PSYCH	MED	OPD	NA					U		W/L			REFERRAL		
Name	CRN	REC	IPT	HCG		RTRN	S	ASS	ASS	RPN	O	P1	P2	P3	P4	13	OBS	AAU	DTA	KOORI	ΨLOGY	SALVO	VACRO

Appendix B – Data extracted from the PIMS database

CRN	
Given Names	
Surname	
Date of birth	
Reception date	
Warrant status at reception	1 = Unsentenced 2 = Sentenced
Aggregate sentence	1 = No minimum 2 = Under 1 month 3 = 1 < 3 months 4 = 3 < 6 months 5 = 6 < 9 months 6 = 9 < 12 months 7 = 1 < 2 years 8 = 2 < 3 years 9 = 3 < 4 years 10 = 4 < 5 years 11 = 5 < 10 years 12 = 10 < 15 years 13 = 15 < 20 years 14 = 20 < 30 years 15 = 30 < 40 years 16 = 40 years and over 17 = Life (minimum term set) 18 = Life (no minimum term set) 19 = Indefinite
Minimum sentence	As above
Effective sentence	As above
Sentence Year	
Sentence Date	
Most Serious Offence	
Detail	
Security Rating Code	1 = Minimum 2 = Medium 3 = Maximum
Number of prior sentenced imprisonment terms	
Indigenous status code	1 = Non-Indigenous 2 = Indigenous
Country of birth	

Marital Status code	1 = Never married 2 = De facto 3 = Married 4 = Separated but not divorced 5 = Divorced 6 = Widowed
Employment status code	0 = Unknown 1 = Unemployed 2 = Other 3 = Home duties 4 = Pensioner 5 = Student 6 = Employee 7 = Self-employed 8 = Employer 9 = DSP & casual employment
Highest level of education code	1 = No formal schooling 2 = Part primary 3 = Completed primary 4 = Part secondary 5 = Completed secondary 6 = Technical / Trade / Apprenticeship 7 = Tertiary
Discharge Date	
Discharge type code	1 = Deceased in prison 2 = To immigration 3 = Straight release 4 = Parole
Discharge FY	
Recidivist (prison)	
Return Date	
Most serious offence	
Still in prison for episode reported	
Current location & comments	

Appendix C – Proforma used to extract information from PHFs

Clinical Summary __ /__/__

PRISONER HEALTH SUMMARY

Offender Details		Location	
Surname		Current location:	
First name		Reception date:	
CRN		Discharge date:	

Language Proficiency		Ethnicity	
English 1ˢᵗ language		Country of birth	
Read / write in English?		Identified ancestry	
Spoken English		Aboriginal or TSI	

Education		Income / Employment	
School level attained		Employment status	
IDS / ABI		Main Job (Lifetime)	

Social Network		Housing Pre Arrest	
Marital status		Housing pre-arrest	
Expecting a visit		Place	
Visit From		Homeless duration	
Has a support network		Home to go back to	

Reception Information		Rapid History	
Reception Assessment		Diagnoses	
No. of days in cell		Date of last contact	
P-Code at reception		Last AMHS	

Psychiatric History			
Psych medications		Diagnoses	
Depot Rx		Current medication	
CTO		Where treated	
AMHS / IP		Family history	
Any psych care		Self-harm	

Comments

Current Medication (including OSTP)				

Alcohol & Substance abuse history

Substance	Route	Frequency	Max Qty	Max Frequency	Last date
Tobacco					
THC					
Heroin					
Alcohol					
Opiates					
Bup / m'done					
Amphet / ice					
Ice					
Mush / LSD					
Solvents					
Pills (Bzd)					
Marijuana					
Other					
Withdrawal symptoms reception					

Clinical Summary __ / __ / __

Comments

Prisoner movements

Date	Leaving	Arriving	P-Code	S-Code			

ψ Nurse | **Doctor**

Nurse

Other

Comments
-

Patient medical requests

ψ nurse		Doctor / Reg.		Nurse		Dr / Nurse	
ψ nurse& Dr & Nurse				Other Medical			

Comments

This clinical summary is based upon a review of the prisoner's medical file.

Date of Review: __ / __ /2012

Appendix D – Justice Health research support

Department of Justice

Justice Health

Our ref: CD/11/480282

Professor James Ogloff
Director, Centre for Forensic Behavioural Science
Monash University

Email:

Dear Professor Ogloff

Pathways to accessing mental health care in men's prisons research

I am writing regarding Justice Health's support for the planned research on pathways to access mental health care in men's prisons. Please accept this letter as confirmation of Justice Health's support for the research in order to secure Justice Human Research Ethics Committee approval.

Justice Health looks forward to collaborating with you over the next year.

Yours sincerely

LARISSA STRONG
A/g Director, Justice Health

Victoria

Appendix E - Corrections Victoria Research Committee research support

Department of Justice

Corrections Victoria

0 6 OCT 2011

Our ref:

Professor James Ogloff
Director, Centre for Forensic Behavioural Science
Monash University

Dear Professor Ogloff

Support for the *Prisoners Mental Health in Victoria* research project

Thank you for submitting the overview for the *Prisoners Mental Health in Victoria: Identification and Management of Prisoners with Mental Illness in Victoria* research project for our consideration. This letter is to confirm our support for this research.

Understanding the complex needs of offenders that require ongoing treatment and support is a priority for Corrections Victoria. The outcomes from this research could potentially assist in enhancing service delivery to meet the specific needs of this cohort.

This is a very extensive piece of research and I look forward to reading any relevant summary data that can assist in understanding more about the complex needs of prisoners with mental illness in Victoria.
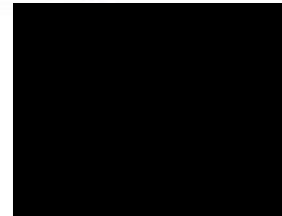
Yours sincerely

Shaymaa Elkadi
General Manager
Targeted Programs

Appendix F - Human Research Ethics Committee of the Department of Justice Victoria

Department of Justice

Justice Human Research Ethics Committee

Tuesday 13 December 2011

Reference: CF/11/24585

Prof. James Ogloff
Centre for Forensic Behavioural Science, Monash University and Justice Health

Re: The Identification and Management of Prisoners with Mental Illnesses in Victoria

Dear Prof. James Ogloff,

I am happy to inform you that the Department of Justice Human Research Ethics Committee (JHREC) considered your response to the project *The Identification and Management of Prisoners with Mental Illnesses in Victoria* and granted **full approval** for the duration of the investigation. The Department of Justice reference number for this project is CF/11/24585. Please note the following requirements:

- To confirm JHREC approval sign the Undertaking form attached and provide both an electronic and hardcopy version within ten business days.
- The JHREC is to be notified immediately of any matter that arises that may affect the conduct or continuation of the approved project.
- You are required to provide an Annual Report every 12 months (if applicable) and to provide a completion report at the end of the project (see the Department of Justice Website for the forms).
- Note that for long term/ongoing projects approval is only granted for three years, after which time a completion report is to be submitted and the project renewed with a new application.
- The Department of Justice would also appreciate receiving copies of any relevant publications, papers, theses, conferences presentations or audiovisual materials that result from this research.
- All future correspondence regarding this project must be sent electronically to ethics@justice.vic.gov.au and include the reference number and the project title. Hard copies of signed documents or original correspondence are to be sent to The Secretary, JHREC, Level 21, 121 Exhibition St, Melbourne, VIC 3000.

If you have any queries regarding this application you are welcome to contact me on

Yours sincerely,

Dr Yasmine Fauzee
Secretary,
Department of Justice Human Research Ethics Committee

Appendix G - Victoria Police research approval

VICTORIA POLICE

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

22 August 2012

Professor James Ogloff
Director, Centre for Forensic Behavioural
Science
Monash University and Forensicare

Dear Prof Ogloff,

Re: Application to the Research Coordinating Committee for *RCC 664 The Identification and Management of Prisoners with Mental Illnesses in Victoria*

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. Note that the data set agreed to in your email of 13 August will be provided.

This approval is conditional on:
- Evidence of approval from the Department of Justice Human Research Ethics Committee,
- The payment to Corporate Statistics of a fee of $1672 (upon receipt of an invoice), and
- The Research Organisation signing a Research Agreement outlining the conditions governing the conduct of research involving Victoria Police.

You will need to ensure the completion of the Research Agreement and return it to Victoria Police before the research can commence. The Research Agreement will be forwarded to you electronically in due course.

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

Yours sincerely,

Dr David Ballek
Secretariat, Research Coordinating Committee