Autism Spectrum Disorder: Forensic Aspects and Sentencing

Considerations

By

Caitlin Eve Robertson

BPsych(Hons)

Submitted in partial fulfilment of the requirements for the degree of

Doctor of Psychology (Forensic)

Deakin University

February 2017

This thesis may be made available for consultation, loan and limited copying in accordance with the Copyright Act 1968.

'I certify that I am the student named below and that the information provided in the form is correct'

**Full Name:** Caitlin Eve Robertson

**Signed:** [Signature Redacted by Library]

**Date:** 28/02/2017
DEAKIN UNIVERSITY
CANDIDATE DECLARATION

I certify the following about the thesis entitled Autism Spectrum Disorder: Forensic Aspects and Sentencing Considerations submitted for the degree of Doctor of Psychology (Forensic).

a. I am the creator of all or part of the whole work(s) (including content and layout) and that where reference is made to the work of others, due acknowledgment is given.

b. The work(s) are not in any way a violation or infringement of any copyright, trademark, patent, or other rights whatsoever of any person.

c. That if the work(s) have been commissioned, sponsored or supported by any organisation, I have fulfilled all of the obligations required by such contract or agreement.

d. That any material in the thesis which has been accepted for a degree or diploma by any university or institution is identified in the text.

e. All research integrity requirements have been complied with.

'I certify that I am the student named below and that the information provided in the form is correct'

Full Name: Caitlin Eve Robertson

Signed: [Signature Redacted by Library]

Date: 28/02/2017
Acknowledgements

A well-known proverb advises that it takes a village to raise a child. It appears that it similarly takes a community to complete a thesis. To my primary supervisor Jane McGillivray, I have enjoyed working with you on my thesis, through frustrations and successes. Your guidance, patience and pragmatism have been greatly appreciated and your support has been a critical component to my success. Many thanks are also owed to other staff within Deakin University for their support and advice in addressing speed bumps, in particular Clint Gurtman, George Yousef and Steve Bowe.

Many others have been pulled into and along on this journey with me. It is my great fortune that my supporters are too numerous to mention individually, however the willingness of these individuals to act as my financers, companions, sympathisers and cheerleaders is all the more remarkable given my often singular focus, intermittent irritability and limited availability. Although many deserve thanks, particular recognition is owed for my parents, whom I expect never considered that their daughter would continue to be so dependent on them, practically, emotionally and financially, into adulthood. Thank you.
Table of Contents

Acknowledgements........................................................................................................iv

List of Tables..................................................................................................................xiv

List of Figures ..................................................................................................................xv

List of Appendices ..........................................................................................................xvi

List of Common Abbreviations .......................................................................................xvii

Abstract .......................................................................................................................... xviii

Chapter 1. Introduction and Overview of Thesis ..............................................................1

  1.1. Clarification of Assumptions and Scope of the Current Thesis .........................3

  1.2. Overview of Thesis Chapters .............................................................................6
      1.2.1. Chapter 2. .................................................................................................6
      1.2.2. Chapter 3. .................................................................................................6
      1.2.3. Chapter 4. .................................................................................................7
      1.2.4. Chapter 5. .................................................................................................8
      1.2.5. Chapter 6. .................................................................................................8
      1.2.6. Chapter 7. .................................................................................................8
      1.2.7. Chapter 8. .................................................................................................9
      1.2.8. Chapter 9. .................................................................................................9

Chapter 2. Introduction to Autism Spectrum Disorder ..................................................1

  2.1. Diagnostic Features of Autism Spectrum Disorder .........................................2
      2.1.1. Deficits in social communication and social interaction .......................2
      2.1.2. Restricted, repetitive patterns of behavior, interests, or activities........3
      2.1.3. Clinical specifiers ....................................................................................3
2.2. Changing definitions: Asperger, The Autism Spectrum and Diagnostic Modifications

2.2.1. Is Asperger’s syndrome a discrete condition?  
2.2.2. Changes to diagnostic criteria and diagnostic continuity.

2.3. The Epidemiology of Autism Spectrum Disorder

2.3.1. Gender variances in prevalence

2.3.1.1. Gender differences in presentation

2.3.1.2. The extreme male brain theory

2.3.2. Upward trend in prevalence over time

2.3.3. Variation in prevalence according to age

2.3.3.1. Difficulties with diagnosis in adulthood

2.3.3.2. Confounding factors and changing diagnostic definitions

2.3.3.3. Remittance of autistic symptomatology

2.4. Psychosocial Outcomes in Adulthood and Adolescence

2.4.1. Lack of community-based support services for adults with ASD

2.4.2. Potential areas of difficulty for adults with ASD

2.4.2.1. Low levels of social participation

2.4.2.2. Loneliness and social dissatisfaction

2.4.2.3. Low academic and vocational achievement

2.4.2.4. Challenging Behaviours and Forensic issues

2.5. Summary of Chapter

Chapter 3. Autism Spectrum Disorder and Offending Behaviour

3.1. Case Reports of Offending Perpetrated by Individuals with Autism Spectrum Disorder
3.2. Prevalence of Offending Behaviour Amongst Individuals with Autism Spectrum Disorder ........................................................................................................32

3.2.1. Research regarding prevalence of ASD amongst offending populations ..........................................................................................................................33

3.2.2. Research regarding prevalence of offending amongst ASD populations .........................................................................................................................46

3.2.3. The Contribution of Co-Morbid Conditions ...............................................................................................................................54

3.2.3.1. Co-morbid Intellectual Disability and offending .................................................................54

3.2.3.2. Psychiatric co-morbidity and offending .................................................................................55

3.2.3.3. A double hit? ASD, offending behaviour and psychopathy.............................................57

3.2.4. Summary of research findings regarding prevalence of offending and ASD .........................................................................................................................59

3.3. Features of ASD Potentially Associated with Offending Behaviour ....62

3.3.1. Socio-communicative impairments .........................................................................................63

3.3.1.1. ‘Zero Degrees’ of empathy .................................................................................................63

3.3.1.2. Social naïveté and vulnerability to exploitation ....................................................................66

3.3.1.3. Lack of understanding or misinterpretation of social cues and norms .................................................................67

3.3.1.4. Asynchronous development: Inconsistency between socio-communicative (psychosexual) and sexual development .................................................................68

3.3.2. Restricted or repetitive patterns of behaviour, interests or activities. .................................................................70

3.3.2.1. Rigidity applying learned social norms ...............................................................................70

3.3.2.2. Escalation associated with the disruption of routines ........................................................71

3.3.2.3. Preoccupation with special interests ...............................................................................72
3.3.2.4. Interpersonal fixations .......................................................... 73
3.3.2.5. Escalation associated with sensory hypersensitivity ............. 74
3.3.2.6. Retaliation for perceived victimization ................................... 75

3.3.3. Summary regarding the potential relevance of ASD traits to offending behaviour ................................................................. 77

3.4. The Nature of Offending Behaviour Perpetrated by Individuals with ASD ................................................................. 78

3.5. Summary of Chapter .................................................................. 81

Chapter 4. Study 1: Self-Report of Offending and the Autistic Phenotype 85

4.1. Rationale ...................................................................................... 85
   4.1.1. Defining and measuring “offending behaviour”: Official data vs. self-report ................................................................. 86
   4.1.2 The Present Study .................................................................. 88

4.2. Method ......................................................................................... 89
   4.2.1. Participants ........................................................................... 90
   4.2.2. Measures .............................................................................. 90
   4.2.2.1. Demographic information .................................................. 91
   4.2.2.2. Psychopathic traits .............................................................. 91
   4.2.2.3. Autistic traits ................................................................. 91
   4.2.2.4. Engagement in offending behaviour .................................. 93

4.3. Results ......................................................................................... 95
   4.3.1. Missing Data ...................................................................... 95
   4.3.2. Annual Engagement in Offending and Other Delinquent Behaviours ................................................................. 95
4.3.2.1. Overall annual frequency and variety of engagement in offending and other delinquent behaviours. ........................................ 96
4.3.2.2. Offence-types endorsed. .......................................................... 97
4.3.3. Adjudication and dispositional outcomes. ............................. 97
4.3.3.1. Lifetime frequency of charges and arrests. ......................... 99
4.3.3.2. Lifetime disposition and application of discretionary and diversionary alternatives. ........................................... 99
4.4. Discussion ......................................................................................... 99
4.4.1. Self-reported engagement in offending behaviour ............. 100
4.4.2. Offence typologies across the autistic phenotype. .......... 100
4.4.3. Forensic response to delinquent behaviour. ....................... 102
4.4.4. Limitations. .................................................................................. 103
4.4.5. Implications and directions for future research............ 106

Chapter 5. The Legal Response: Legal Considerations and CJS Awareness Regarding ASD ................................................................. 108

5.1. Legislation and Common Law Regarding Defendants with Mental Disorders ............................................................................. 108
5.1.1. Fitness to stand trial........................................................................ 109
5.1.2. The Mental Impairment defence. ................................................ 110
5.1.3. Mental disorder as a mitigating factor during sentencing ....... 112
5.2. The Legal Status of Defendants with Autism Spectrum Disorder ..... 117
5.2.1. Legislative considerations: Fitness to Stand Trial and the Mental Impairment Defence ......................................................... 117
5.2.1.1 Fitness to stand trial .................................................................. 118
5.2.1.2. The Mental Impairment defence. .......................................... 121
5.2.1.3. Theory in practice: The practical relevance of Fitness and mental Impairment legislation to ASD ................................... 123

5.2.2. ASD as a mitigating factor during sentencing: The relevance of Verdins’ principles ......................................................... 125

5.3. Judicial Awareness and Perceptions of ASD ................................ 127

5.4. Chapter Summary ................................................................... 130

Chapter 6. Study 2: A Preliminary Assessment of Knowledge and Perceptions of Autism Spectrum Disorder in Australian Magistrate’s Courts ........ 133

6.1. Rationale ............................................................................. 133

6.1.1. How do judges decide? ....................................................... 134

6.1.2. Forensic Decision-Making and ASD ................................. 136

6.2. Method .............................................................................. 137

6.2.1. Aim .............................................................................. 137

6.2.2. Participants .................................................................... 137

6.2.3. Materials .................................................................... 138

6.3. Results ................................................................................ 138

6.3.1. Response Rates ............................................................. 138

6.3.2. Magistrates’ understanding of ASD ................................. 138

6.3.3. Magistrates self-assessed competence with regards to ASD in the CJS .................................................................. 140

6.3.4. Perceived propensity towards offending and victimization ...... 140

6.3.5. Magistrates’ perceptions of the potential forensic relevance of ASD ........................................................................... 140

6.3.5.1. Enhancing communication and understanding .................. 141

6.3.5.2. Likely response to dispositional alternatives ..................... 142
6.3.5.3. Consideration of the legal status of offenders with ASD....143
6.3.6. Importance of the court being made aware of ASD..............143
6.3.6.1. ASD Training Amongst Australian Magistrates..................144
6.3.6.2. The role of forensic psychologists in informing courts
regarding ASD.................................................................145
6.4. Discussion........................................................................146
6.4.1. A coherent and consistent approach?..............................148
6.4.2. The role of psychologists in assisting courts....................151
6.4.3. Limitations of the current study.......................................152
6.4.4. Implications of findings and directions future research....154

Chapter 7. Questions of Morality Amongst Individuals with ASD.........158

7.1. The Moral/Conventional Distinction.....................................159
7.2. Studies Investigating Moral Processing amongst Individuals with ASD
..............................................................................................160
7.3. True Moral Processing or Rule Following for Rule Following’s Sake?
..............................................................................................165
7.4. The Breadth of the Moral Domain........................................168
7.5. Moral Foundations Theory..................................................169
  7.5.1. Care/Harm.................................................................170
  7.5.2. Fairness/Cheating........................................................170
  7.5.3. Loyalty/Betrayal...........................................................171
  7.5.4. Authority/Subversion....................................................171
  7.5.5. Sanctity/Degradation....................................................171
7.5.6 What can Moral Foundations Theory reveal about moral reasoning
in ASD?...............................................................................172
Chapter 8. Study 3: Disparities in moral intuitions and the autistic phenotype

8.1. Rationale

8.2. Aims and Hypotheses

8.2.1. Care/Harm.

8.2.2. Fairness/Cheating.

8.2.3. Loyalty/Betrayal.

8.2.4. Authority/Subversion.

8.2.5. Sanctity/Degradation.

8.3. Method

8.3.1. Participants.

8.3.2. Materials.

8.3.2.1. Demographic information.

8.3.2.2. Psychopathic traits.

8.3.2.3. Autistic traits.

8.3.2.4. Moral intuitions.

8.4. Results

8.4.1. Missing data.

8.4.2. Contribution of demographic variables.

8.4.3. Assumption testing.

8.4.3.1. Sample size.

8.4.3.2. Outlying data.

8.4.3.3. Normality of residuals.

8.4.3.4. Multicollinearity/Singularity.

8.4.3.5. Independence of residuals.

8.4.3.6. Homoscedasticity.
List of Tables

Table 1. DSM-IV-TR and DSM-5 Criteria for Autism Spectrum Disorder ..................8

Table 2. Prevalence of ASD within Offending Populations .................................36

Table 3. Prevalence of Offending Behaviour Amongst Individuals with ASD .........47

Table 4. Annual frequency and nature of offence-like behaviours amongst
respondents reporting engagement in delinquent acts ..............................98

Table 5. Moral reasoning stages as defined by the Japanese Human External Action
and Internal Reasoning Type (HEART) ....................................................163

Table 6. Participant responses on learning disability screening items ..............184

Table 7. Example items for each MFQ domain* ..........................................187

Table 8. Means, alpha reliability coefficients, and zero-order Pearson correlations
reflecting the associations between AQ scores, LSRP scores, Age, learning
disability composite scores and MFQ foundations (n = 153) ......................192
List of Figures

Figure 1. ASD prevalence estimates by age group for data collected in the SDAC 2009 and SDAC 2012. ................................................................. 17

Figure 2. Linear relationship between AQ scores and mean ratings on each of the five moral foundations.............................................................. 194
### List of Appendices

<table>
<thead>
<tr>
<th>Appendix</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>DSM-5 Criteria for Autism Spectrum Disorder</td>
</tr>
<tr>
<td>B</td>
<td>Gillberg Diagnostic Criteria for Asperger’s Syndrome</td>
</tr>
<tr>
<td>C</td>
<td>List of Locations Contacted for Participant Recruitment</td>
</tr>
<tr>
<td>D</td>
<td>Levenson Self-Report Psychopathy Scale</td>
</tr>
<tr>
<td>E</td>
<td>Self-Report of Offending Behaviour</td>
</tr>
<tr>
<td>F</td>
<td>Crimes Statistics Agency Offence Classification (2015)</td>
</tr>
<tr>
<td>G</td>
<td>Autism Spectrum Disorder and the Courts: Lawyer Response ($n = 1$)</td>
</tr>
<tr>
<td>H</td>
<td>Autism Spectrum Disorder and the Courts: Survey Distributed to Magistrates</td>
</tr>
<tr>
<td>I</td>
<td>Moral Foundations Questionnaire</td>
</tr>
<tr>
<td>J</td>
<td>Regression Statistics for Hierarchical Regression Analyses Predicting Moral Foundations from AQ Scores</td>
</tr>
<tr>
<td>K</td>
<td>Breusch-Pagan and Koenker Test Macro</td>
</tr>
<tr>
<td>L</td>
<td>Heteroskedasticity Adjusted Standard Errors Macro</td>
</tr>
</tbody>
</table>
### List of Common Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>APA</td>
<td>American Psychiatric Association</td>
</tr>
<tr>
<td>ASD</td>
<td>Autism Spectrum Disorder</td>
</tr>
<tr>
<td>CJS</td>
<td>Criminal Justice System</td>
</tr>
<tr>
<td>CMIA</td>
<td>Crimes (Mental Impairment and Unfitness to be Tried) Act 1997 (Vic)</td>
</tr>
<tr>
<td>DSM</td>
<td>Diagnostic and Statistical Manual of Mental Disorders</td>
</tr>
<tr>
<td>DSM-IV-TR</td>
<td>Diagnostic and Statistical Manual of Mental Disorders, fourth edition, text review</td>
</tr>
<tr>
<td>DSM-5</td>
<td>Diagnostic and Statistical Manual of Mental Disorders, fifth edition</td>
</tr>
<tr>
<td>HFA</td>
<td>High Functioning Autism</td>
</tr>
<tr>
<td>ICD</td>
<td>International Classification of Disease and Health Related Problems</td>
</tr>
<tr>
<td>ID</td>
<td>Intellectual Disability</td>
</tr>
<tr>
<td>IQ</td>
<td>Intelligence Quotient</td>
</tr>
<tr>
<td>MFQ</td>
<td>Moral Foundations Questionnaire</td>
</tr>
<tr>
<td>MFT</td>
<td>Moral Foundations Theory</td>
</tr>
<tr>
<td>PDD</td>
<td>Pervasive Developmental Disorder</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organisation</td>
</tr>
</tbody>
</table>
Abstract

Amid increasing public and academic interest, a growing body of literature has explored offending behaviour perpetrated by individuals with Autism Spectrum Disorder (ASD). On balance, the extant literature indicates that while most individuals with ASD are law-abiding, a subset engage in offending behaviour with consequent involvement of the criminal justice system (CJS). It has been argued that the expression of features characteristic of ASD may be a major contributory factor to offending behavior observed amongst this population and may additionally cause difficulties for individuals with ASD in navigating the demands of the CJS. Such observations raise questions regarding the legal status of individuals with ASD and the appropriate CJS response to offending behaviour amongst this population. This thesis presents three studies exploring forensic aspects of ASD. First, typologies of offending across the ASD phenotype are examined via an internet-based survey amongst a community sample (n = 109). Results indicated no significant differences in self-reported frequency or variety of offending and few differences in offence typologies according to ASD trait severity, as measured by the Autism Quotient. The views of the Australian magistracy (n = 21) are explored in the second study, with results confirming prior academic conjecture that disparity exists amongst the judiciary in regards to knowledge and attitudes regarding ASD. Finally, the relevance of ASD to moral culpability and mitigation is considered through an online survey exploring the potential link between ASD symptomatology and morality according to a contemporary theoretical model (n = 106). Findings revealed that ASD trait severity predicted differential endorsement of factors considered morally relevant. The discussion includes the limitations and practical implications arising from these studies and directions for future research.
Chapter 1. Introduction and Overview of Thesis

Autism Spectrum Disorder (ASD) is a life-long neurodevelopmental disorder that affects the way that an individual communicates with and relates to other people (American Psychiatric Association; APA, 2013). More specifically, ASD is defined by the presence of impairments in communication, social interaction and imagination, alongside repetitive and restricted patterns of thought and behaviour (APA, 2013). Substantial variation is evident in the behavioural phenotype of ASD, dependent on a number of factors, including the severity of autistic symptomatology, the age of the affected individual and the presence (or absence) of co-morbid conditions (APA, 2013). Accordingly, presentation, degree of impairment and support needs differ significantly between individuals with ASD diagnoses. While academic efforts have resulted in significant advances in our understanding of biological and clinical perspectives of ASD, a historical emphasis of ASD as a disorder of childhood has meant that research efforts have largely centred on the lives of children with ASD (Woodbury-Smith, 2014).

The knowledge base regarding ASD in adulthood remains relatively limited (Fombonne, 2012; Howlin & Moss, 2012; Ketelaars et al., 2007); however, researchers have increasingly explored issues pertinent to understanding the presentation and support needs of adults with ASD. The results of long-term follow-up studies indicate wide variation in psychosocial outcomes for this population (Howlin, 1997, 2000; Palermo, 2004); while some individuals achieve positive outcomes in adulthood, a significant proportion of adults with ASD face disadvantages in a range of domains including, but not limited to, occupational engagement, social functioning and quality of life (Howlin, 1997, 2000). Of particular interest to the current thesis is the small but significant number of
individuals among those with greater overall disadvantage who were documented to have engaged in illegal behaviours, with consequent forensic involvement (Howard & O'Brien, 2009; King & Murphy, 2014; Raggi, Xenitidis, Moisan, Deeley, & Robertson, 2013; Woodbury-Smith, 2014).

The involvement of individuals with ASD in the Criminal Justice System (CJS) raises important questions in regards to the legal status and the appropriate legal response to offending behaviour amongst such individuals (Fazio, Pietz, & Denney, 2012). Such considerations have resulted in increasing academic interest regarding the forensic aspects of ASD as well as the implications the diagnosis carries as an individual progresses through legal proceedings (Browning & Caulfield, 2011; Fazio et al., 2012). A growing number of researchers, policy makers and practitioners have called for increased exploration of these forensic aspects of ASD in order to inform policy and practice regarding disposition, management and the provision of intervention services that respond to or aim to circumvent offending behaviour amongst the ASD population (Allen et al., 2008; Browning & Caulfield, 2011; Fazio et al., 2012; Hayes, 2006, 2007; Lerner, Haque, Northrup, Lawer, & Bursztajn, 2012; Lindsay & Taylor, 2005). Despite the increased interest in this area, the state of knowledge regarding the forensic implications of ASD remains in its infancy (Barkham, Gunasekaran, & Lovelock, 2013; King & Murphy, 2014).

The aim of the current thesis is to address some of the legal considerations that may be pertinent when individuals with ASD come into contact with the CJS as the result of their offending behaviour. Several issues arising from the literature and from practice require further attention:

1. Inconsistencies in the literature base regarding the prevalence and nature of offending amongst individuals with ASD.
2. Inconsistency in academic and forensic practitioner opinions regarding the forensic relevance of ASD.

3. Indications of a significant level of unawareness of ASD amongst CJS workers, including amongst the judiciary.

4. The presence of significant challenges faced by mental health professionals in advising and educating courts regarding the relevant aspects of ASD.

These issues are investigated in the current thesis, with particular attention dedicated to the association between ASD trait severity and the nature of reported offending behaviours, judicial perceptions regarding ASD and issues of morality (a factor often important in forensic decision-making).

1.1. Clarification of Assumptions and Scope of the Current Thesis

On July 20, 2012, James Holmes attended a midnight screening of the new Batman movie sequel “The Dark Night Rises” in the town of Aurora, Colorado. Shortly after the movie commenced, he shot and killed 12 individuals, injuring 70 others. In the aftermath of the shooting, Joe Scarborough, a popular American news anchor on the show ‘Morning Joe’ commented that “more often than not”, offences of this nature were perpetrated by individuals that are “somewhere, I believe, on the Autism scale” (Alvarez, 2012). As in this instance, the presence of ASD has been reported by the media and within academic sources for a number of high-profile cases involving the commission of serious crimes, including for individuals such as Jeffrey Dahmer (Allely, Minnis, Thompson, Wilson, & Gillberg, 2014; Silva, Ferrari, & Leong, 2002); Ted Kaczynski (Allely et al., 2014; Silva, Ferrari, & Leong, 2003); Joel Rifkin (Silva, Leong, Smith, Hawes, & Ferrari, 2005); Adam Lanza (Im, 2016); Martin Bryant (Wooley, 2011); and Anders Brevik (Allely et al., 2014). Widespread
reporting that linked ASD with such lurid cases of offending behaviour appears to have contributed to public alarm and conjecture of a causal link between ASD and serious criminal behaviour, despite a lack of persuasive empirical evidence supporting this conclusion (Lerner et al., 2012).

It is understandable that observers seek causative explanations when faced with behaviour that significantly deviates from social norms, particularly where such violations result in significant harm to others (Brewer & Young, 2015). Given that ASD is frequently associated with unusual behaviour that violates social norms, it is perhaps unsurprising that ASD has been raised as one such potentially causative factor (Brewer & Young, 2015). However, the preparedness of media and academic sources to evoke ASD (often speculatively and/or posthumously) in their attempts to explain criminal behaviour risks contributing to a perception of adults with ASD as “socially undesirable individuals with a propensity for committing violent or other serious crimes” (Brewer & Young, 2015, p. 14).

The negative impacts on public perceptions regarding individuals with psychiatric diagnoses in cases where the condition has been portrayed as a precipitating factor for offending behaviour has been demonstrated (Angermeyer & Matschinger, 2005; Corrigan & Watson, 2002; Hatwell, 2004; Lamb, Weinberger, & Gross, 2004; West, Vayshenker, Rotter, & Yanos, 2015). Anecdotal evidence suggests that this holds true for the ASD population. For example, a public post on the Facebook group “Families Against Autistic Shooters” (no longer an active page) was reported to have described individuals with ASD as “cold calculating killing machines with no regard for human life” following a mass-shooting in Oregon, U.S.A (Solomon, 2015). The stigma elicited from such media portrayals appears likely to have negative implications for assimilation and integration within community settings.
and may be prejudicial in the context of interactions with the CJS (Brewer & Young, 2015). To be clear from the outset, it is not argued in the current thesis that individuals with ASD necessarily possess an elevated risk for engagement in offending behaviour; indeed, it will become evident in later chapters that, at present, the extant literature does not support a direct association between ASD and criminality.

Notwithstanding the observation that the majority of individuals with ASD appear to be law-abiding, it is evident that some will come into contact with the CJS due to engagement in offending behaviour and will thus require forensic disposition. Failure by the CJS to respond effectively in such instances (for example, due to a failure to take into account the presence of an ASD diagnosis during forensic decision-making) may lead to inappropriate assessments and disposition, an inefficient use of resources in an already under-resourced area of practice and potential deleterious consequences for community safety. The purpose of this thesis is to thus inform policy and practice regarding the appropriate management of offending behaviour where it is perpetrated by an individual with ASD, on the basis that such individuals are likely to present with unique precipitants, support needs and challenges for habilitation and community integration.

---

1 Integration and habilitation, rather than reintegration and rehabilitation, in recognition that many incarcerated individuals, particularly those with developmental disorders, do not possess a history of stable and adaptive functioning within the community. Accordingly, the emphasis on a return to a productive and prosocial lifestyle espoused by the concepts of habilitation and integration may not be applicable to this population.
1.2. Overview of Thesis Chapters

Following this introductory chapter, the thesis is comprised of four chapters providing critical reviews and analyses of relevant literature (Chapters 2, 3, 5 and 7), and the presentation of three novel empirical studies exploring patterns of delinquent behaviour (Chapter 4), judicial perceptions (Chapter 6), and issues of morality (Chapter 8) according to the presence of ASD symptomatology. The final chapter consists of an overall discussion in which limitations and implications of the presented research are outlined and suggestions are provided on directions for further research to facilitate a deeper and more integrated knowledgebase concerning the forensic aspects of ASD (Chapter 9).

1.2.1. Chapter 2. Prior to focus on the forensically relevant aspects of ASD, it is useful to provide a more general overview of issues related to identification, presentation and the psychosocial impact of ASD. In Chapter 2, these issues are explored, with particular attention given to issues pertaining to psychosocial outcomes observed amongst adults with ASD, including the challenges faced by those who evidence poorer outcomes in adulthood. Given that the majority of individuals with ASD are law-abiding, it is considered unlikely that any of the factors explored in Chapter 2 would, in isolation, explain engagement in offending behaviour. However, exploration of the phenotypical, psychosocial and epidemiological aspects of ASD provides a crucial context for the complex forensic issues discussed in later chapters.

1.2.2. Chapter 3. A critical review of the available empirical evidence regarding the involvement of individuals with ASD in offending behaviour is provided in Chapter 3. This chapter includes an overview of the cognitive and behavioural processes associated with ASD that have been proposed to contribute to
engagement in offending behaviour amongst this population. It is argued that the inconsistent results presented in the literature are insufficient to provide a detailed understanding of prevalence and typology of offending perpetrated by individuals with ASD. It is further argued that continued attempts to determine the actual prevalence of offending amongst the ASD population may be a fruitless endeavour that diverts attention and resources from other important issues related to the care and treatment of these individuals within the CJS. In contrast, it is suggested that the systematic exploration of offence-typologies amongst people with symptoms of ASD may provide more opportunities to accurately inform practice and policy in regards to offending amongst individuals with ASD.

1.2.3. Chapter 4. Chapter 4 presents empirical data, drawn from an internet-based survey, which systematically investigated self-reported characteristics of and forensic response to delinquent behaviours amongst a community-based sample of individuals displaying varying degrees of ASD – consistent symptomatology. The rationale for the study design is explained within this chapter, along with a description of the methodology and the results. The chapter concludes with a discussion of the results in relation to the available literature and potential directions for future academic exploration in this area. The results of the study suggest that dispositional, diversionary and discretionary provisions are equivalently applied to individuals with ASD as to their neurotypical peers. Whilst this result appears to indicate that individuals with ASD are not disadvantaged in the context of forensic disposition, it is argued that the determination of the appropriate treatment of individuals with ASD within the CJS must be considered in the context of the intended function and underlying philosophy of legislation and legal practice regarding forensic disposition.
1.2.4. **Chapter 5.** Chapter 5 explores the treatment of offenders with ASD within the CJS within the context of current sentencing legislation and practice in Australia. Potential difficulties faced by individuals with ASD in understanding the nature of their illegal conduct and in navigating the demands of the CJS are discussed with reference to legislation and legal precedent concerning the disposition of cases where defendants possess a mental impairment. Significant variation in the forensic response to offenders with ASD is identified in the literature reviewed in Chapter 5, suggesting a lack of awareness regarding the nature and presentation of ASD amongst judicial officers. It is argued that misinformed impressions about individuals with ASD amongst the judiciary, either pre-existing or formed during the course of court proceedings, may be prejudicial to forensic outcomes where individuals with ASD are charged with a criminal offence.

1.2.5. **Chapter 6.** The knowledge and understanding of ASD among magistrates sitting within Australian jurisdictions is explored in the second empirical study of the thesis. Specifically, an explorative study in the form of a free-response pencil-and-paper questionnaire was conducted in order to map the perceptions and attitudes held by members of the Australian magistracy in regard to persons with ASD who appear in their courts. Chapter 6 outlines the reasoning and design for the study, the methodology of the study is described, and the results are presented. The chapter concludes with a discussion of the results in relation to the literature and current operation of the CJS, and the potential role for forensic psychology in regard to offenders with ASD.

1.2.6. **Chapter 7.** As outlined in prior chapters, forensic psychology represents a key ally to the courts in determining the applicability of various legal principles to particular legal cases. In order to better inform the courts on such
matters, research that explores issues pertinent to legal decision-making is an important endeavour. As described in Chapter 6, the issue of moral understanding is pertinent to the sentencing of defendants with ASD. A critical review of existing literature exploring moral functioning amongst individuals with ASD is provided in Chapter 7, and it is suggested that the methodological approach adopted in prior research may have resulted in only a partial understanding of this critical issue in law. A contemporary model of morality, Moral Foundations Theory, is introduced and the potential contribution of such to the state of knowledge regarding morality and ASD is explored in order to provide some background to the study presented in Chapter 8.

1.2.7. Chapter 8. Chapter 8 comprises a study of moral processing across the autistic phenotype. Specifically, the association between ASD trait severity and responses on a questionnaire regarding moral intuitions is empirically investigated. The rationale for the study design is explained, along with a description of the methodology and presentation of results. Critically, in contrast to prior research in this area, this study demonstrated that the severity of reported ASD traits predicted differential endorsement on a range of potential areas of moral concern. Chapter 8 concludes with a discussion of these results in the context of the available literature and current practice in relation to the disposition of cases involving a defendant with ASD.

1.2.8. Chapter 9. The final chapter consists of an overall discussion that provides a review of the key findings and implications of the research undertaken within this dissertation. Specifically, the theoretical and clinical implications emerging from previous chapters are drawn together, the limitations of the empirical studies are discussed and some brief recommendations for future research and practice are provided.
Chapter 2. Introduction to Autism Spectrum Disorder

In 1943, child psychiatrist Leo Kanner produced detailed descriptions of eleven children who were admitted under his care. According to Kanner, these eight boys and three girls displayed a unique “combination of extreme autism\(^2\), obsessiveness, stereotypy and echolalia” (p. 248). On the basis of his observations, Kanner suggested the delineation of a previously unrecognised disorder, which is today known as Autism Spectrum Disorder (ASD). In the decades following Kanner’s initial descriptions, the ‘autistic’ phenotype has received significant academic attention and substantial gains have been made in the identification, treatment and management of individuals with ASD.

ASD is a life-long neurodevelopmental disorder that affects the way that an individual communicates with and relates to other people. The behavioural phenotype is remarkably heterogeneous, aptly summarized by the assertion that “If you have met one person with autism, you’ve met one person with autism” (Advancing Futures for Adults with Autism, 2010, pg. 1). For example, while delayed language is common amongst individuals with ASD, linguistic skills vary significantly with some individuals remaining mute while others are voluble and display grammatically correct (although often idiosyncratic) use of language (APA, 2013; Tager-Flusberg, Paul, & Lord, 2005). Similarly, some individuals present with co-occurring intellectual disability (ID) or psychiatric disorder that may complicate the course and presentation of ASD and impact on adaptive functioning (La Malfa, Lassi, Bertelli, Salvini, & Placidi, 2004; Mazzone, Ruta, & Reale, 2012; Moseley, Tonge, Brereton, 2005).

\(^2\) The term “autism” was adopted by Kanner from Eugen Bleuler’s (1911) monograph regarding schizophrenia (Kanner, 1973). Bleuler (1911) used the term to denote a “detachment from reality, together with the relative and absolute predominance of the inner life” observed amongst patients with schizophrenia (p. 63).
Throughout the literature, a number of clinical descriptions and operational definitions for ASD exist. However, the dominant and most recently updated approach for diagnosis is according to criteria outlined in the Diagnostic and Statistical Manual of Mental Disorders of the American Psychological Association.

2.1. Diagnostic Features of Autism Spectrum Disorder

ASD is diagnosed according to a dyad of observable impairments in socio-communicative and behavioural domains defined within the current edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; APA, 2013). Specific manifestations of such deficits may vary according to a number of factors including the developmental level of the individual, their language ability and their access to intervention and ongoing sources of support. The observed impairments must, however, be present from early childhood (i.e. sustained) and limit or impair functioning across a range of contexts (i.e. pervasive) (APA, 2013).

2.1.1. Deficits in social communication and social interaction. Socio-communicative deficits amongst individuals with ASD may be evident in abnormalities or deficiencies in speech, non-verbal communication, social-emotional reciprocity and/or understanding of social cues required to initiate and maintain social relationships (APA, 2013). Spontaneous nonverbal communicative behaviour (e.g. eye-contact, gestures, facial expression, speech intonation) may be reduced or altogether absent and incongruities in verbal and nonverbal communication are common (Stefanatos, 2012; Tager-Flusberg et al., 2005). Those individuals who develop speech often display pedantic and repetitious use of language and difficulties with pragmatics, syntax and other subtleties involved in verbal and non-verbal communication (Stefanatos, 2012; Tager-Flusberg et al., 2005). Verbal communication is typically one-sided and individuals with ASD may appear asocial;
however, social relationships are frequently desired, often in the absence of a complete understanding of what such relationships entail (APA, 2013; Attwood, 2007; Locke, Ishijima, Kasari, & London, 2010; Mazurek, 2014).

2.1.2. Restricted, repetitive patterns of behavior, interests, or activities. As with socio-communicative deficits, significant variations in the manifestation of restrictive and repetitive behaviours are evident amongst individuals with ASD (APA, 2013; Leekam, Uljarevic, & Prior, 2011). Individuals may display motor stereotypies such as hand-flapping or rocking, atypical object use and echolalic or otherwise repetitious speech processes (Goldman et al., 2009; Leekam et al., 2011; van Santen, Sproat, & Presmanes Hill, 2013). Sensory abnormalities are often present and impact on behavioural restriction; with hyper- and hypo-reactivity associated with atypical responses to sensory stimuli including attraction or aversion to particular sensations, including those associated with food aversions or apparent indifference to pain (Billstedt, Gillberg, & Gillberg, 2005; Leekam, Nieto, Libby, Wing, & Gould, 2007; Zachor & Ben-Itzchak, 2014). Behavioural and psychological inflexibility may also be associated with a resistance towards change, resulting in engagement in ritualized patterns of thought and behaviour (APA, 2013; Leekam et al., 2011).

2.1.3. Clinical specifiers. ASD diagnoses are adapted to the individual by inclusion of specifiers detailing the severity of autistic symptoms and the presence of commonly observed clinical features and comorbidities (APA, 2013). Specifically, the DSM-5 requires diagnosing clinicians to specify the level of support required to manage the severity of impairment displayed by an individual across each of the two diagnostic domains, from those ‘requiring support’ to those ‘requiring very substantial support’. In addition, the identification of co-morbid ID, catatonia or
language disorder is emphasized through the presence of specifiers regarding these areas of functioning. Assessors should also specify whether the ASD diagnosis is associated with a known medical, genetic or environmental condition or where co-morbid neurodevelopmental, mental or behavioural disorder is evident (see Appendix A for the full DSM-5 diagnostic criteria).

2.2. Changing definitions: Asperger, The Autism Spectrum and Diagnostic Modifications

Around the same time as Kanner’s (1943) descriptions of his autistic patients in America, Asperger (1944) published a series of case studies of children in Vienna who presented with socio-communicative deficits and an obsessive pursuit of idiosyncratic interests. Although Kanner and Asperger were (at least initially) unaware of each other’s work, the core impairments described by each author were markedly similar. In particular, both authors identified the social detachment observed amongst their patients as a central feature of their psychopathology and accordingly, both adopted the term ‘autistic’ to describe and classify the phenotype.

In contrast to Kanner’s case reports, which rapidly came to the attention of the international academic and medical community, Asperger’s contributions received little attention outside of the German literature until 1981 when Lorna Wing published an English translation of his observations, augmented with clinical illustrations from her own practice. Although Wing (1981a) emphasized that the phenotypes described by Kanner and Asperger were “more alike than unalike” (p. 122), she asserted that the term ‘Asperger’s syndrome’ possessed clinical utility to classify individuals who were higher functioning and who presented with less severe manifestations of autistic symptomatology. Wing (2000) later reiterated she had not intended for the term “Asperger’s syndrome” to denote a diagnostic entity that was
mutually exclusive from other autistic disorders. Whatever Wing’s (1981a) original intentions, many readers of her work considered Asperger’s syndrome to represent a technically and diagnostically distinct entity and the classification was included as a discrete condition in diagnostic manuals from the 1990s (APA, 1995; World Health Organization, WHO, 1992).

2.2.1. Is Asperger’s syndrome a discrete condition? Prior to the publication of the DSM-5 in May 2013, both major diagnostic systems (i.e. the previous edition of the DSM [DSM-IV-TR, APA, 2000] and the International Classification of Diseases (10th Ed) of the World Health Organization [ICD-10, 2004]) shared common diagnostic criteria that conceptualized Asperger’s syndrome as a unique diagnostic entity. In contrast to those with Kanner’s autism (known variously within diagnostic systems as autism, autistic disorder or childhood autism), individuals with Asperger’s syndrome were considered to possess at least average IQ, age-appropriate (although often idiosyncratic) language and an absence of gross impairments in adaptive behaviour (APA, 2000; Howlin & Moss, 2012; WHO, 2004). However, there was considerable debate regarding the validity of the differential diagnosis of these disorders, with the accumulated evidence suggesting that these diagnostic entities were synonymous (Macintosh & Dissanayake, 2004).

Research has revealed a great deal of overlap and few qualitative differences in presentation between Asperger’s syndrome and other autistic phenotypes (Freeman, Cronin, & Candelam, 2002; Macintosh & Dissanayake, 2004; Szatmari, Bartolucci, & Bremner, 1989). Neuropsychological testing has neither identified a distinct cognitive profile that consistently discriminated between such diagnoses, nor demonstrated different aetiology or developmental courses (Freeman et al., 2002; Ghaziuddin & Mountain-Kimchi, 2004; Miller & Ozonoff, 2000). In addition, reports
from both parents and clinicians have suggested that individuals diagnosed with Asperger’s syndrome often displayed impairments in adaptive behaviour skills that diagnostic criteria indicated should be preserved (Attwood, 2006). Further, studies involving independent review of existing diagnoses have indicated that Asperger’s syndrome can rarely be confirmed on the basis of strict diagnostic criteria (Mayes, Calhoun, & Crites, 2001; Miller & Ozonoff, 1997; Tyron, Mayes, Rhodes, & Waldo, 2006). Specifically, such research has found that many, if not all, individuals diagnosed with Asperger’s syndrome met criteria for Autistic Disorder, suggestive of a failure of assessors to apply hierarchical exclusionary criteria as required by diagnostic manuals (Howlin, 2004; Mayes et al., 2001; Miller & Ozonoff, 1997; Tyron et al., 2006).

On the basis of the empirical evidence, it appears that dissimilarities observed between Asperger’s Syndrome and other autistic disorders were quantitative variations in the severity of impairments rather than qualitative differences between disorders (Macintosh & Dissanayake, 2004). In support of such, several studies have indicated that the expression of autistic traits occurs along a continuum that is approximately normally distributed, ranging from those who are severely impaired at one extreme, to those with less severe manifestations and few adaptive impairments and shading into ‘eccentric normality’ in the general population (Broadbent & Stokes, 2013; Hoekstra, Bartels, Verweij, & Boomsma, 2007; Wing, 1991). Such observations are in line with the view that the autistic phenotype exists along a spectrum, whereby individuals vary in presentation according to the number and severity of traits expressed (Freeman et al., 2002; Tyron et al., 2006; Wing, 1991). The consensus that autistic traits occur along an ‘autism spectrum’ resulted in a reconceptualization of the way in which autistic disorders are defined and identified.
2.2.2. Changes to diagnostic criteria and diagnostic continuity. The previous edition of the Diagnostic and Statistical Manual (APA, 2000) listed a number of discrete disorders associated with the characteristic traits of ASD, under the diagnostic category of ‘pervasive developmental disorders’ (PDDs). With the publication of the DSM-5 came a number of changes to the diagnostic criteria for disorders associated with the autism spectrum, reflecting the current state of knowledge regarding autistic traits and the nature of impairments observed amongst diagnosed individuals (summarized in Table 1).

At present, the International Classification of Diseases (WHO, 2004) continues to classify disorders on the autism spectrum as PDDs and differentiates Asperger’s syndrome from other disorders within this category; however, the uncertain nosological status and striking similarities in presentation between Asperger’s syndrome and other autistic phenotypes are explicitly acknowledged within the ICD-10 diagnostic criteria. Further, at the time of writing, the beta draft for the upcoming edition of the ICD (ICD-11, anticipated for publication in 2017) indicated that the diagnostic criteria regarding disorders on the autism spectrum are likely to be modified to correspond with the DSM-5 nomenclature (WHO, 2015).

3 Childhood autism, Atypical autism, Rett syndrome, Other childhood disintegrative disorder, Overactive disorder associated with mental retardation and stereotyped movements, Pervasive developmental disorder, unspecified.
## Table 1

*DSM-IV-TR and DSM-5 Criteria for Autism Spectrum Disorder*

<table>
<thead>
<tr>
<th>Diagnostic Category</th>
<th>DSM-IV-TR</th>
<th>DSM-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pervasive developmental disorders</td>
<td>Autism spectrum disorder (ASD)</td>
<td></td>
</tr>
</tbody>
</table>

### Diagnostic subcategories

- Autistic disorder
- Asperger’s syndrome
- Childhood disintegrative disorder (CDD)
- Rett’s Syndrome
- Pervasive developmental disorder not otherwise specified (PDD-NOS)

### Diagnostic domains

1: Social Interaction (4 items)
2: Communication (4 items)
3: Restricted repetitive & stereotyped patterns of behavior (4 items)

Category A: Social communication and interaction (3 items)
Category B: Restricted, repetitive behavior, interests and activities (4 items)

### Diagnostic threshold

A total of six (or more) items from 1, 2, and 3, with at least two from 1, and one each from 2 and 3.

Presence of all Category A items and at least two Category B items
Criteria can be met on the basis of historical report

### Specifiers

None

Support level required to manage symptoms
With/without accompanying ID or language impairment
Associated with known medical or genetic condition or environmental factor
Associated with other neuro-developmental, mental, or behavioral disorder.
With catatonia.

### Age of onset

Delay/abnormal functioning evident prior to 3 years

Symptoms present in early developmental period but may not fully manifest until social demands exceed capacities

### Differential Diagnosis

Other pervasive developmental disorders
ADHD
Stereotyped Movement Disorder

ID (intellectual developmental disorder) or global developmental delay.
Social (Pragmatic) Communication Disorder (SCD)**

*Individuals with a well-established DSM-IV diagnosis of autistic disorder, Asperger’s syndrome or PDD-NOS are given a DSM-5 diagnosis of ASD.*

**SCD is a new diagnosis in the DSM-5 for individuals who display socio-communicative impairments but do not meet other criteria for ASD.*
A comprehensive and critical review of the recent and upcoming modifications to the diagnostic criteria for ASD and related disorders is beyond the scope of the current thesis, and has been discussed in detail elsewhere (APA, 2012; Hyman, 2013; Lauritsen, 2013; Lord & Jones, 2012; Mandy, Charman, & Skuse, 2012; Miller, 2014; Nemeroff et al., 2013; Skuse, 2012; Volkmar & Reichow, 2013; Wing, Gould, & Gillberg, 2010). However, it is important to note that the diagnostic modifications have not occurred without some controversy, with several authors expressing concerns regarding the impact of the changes in clinical and academic spheres (e.g. Nemeroff et al., 2013; Volkmar & Reichow, 2013). A limited number of studies exist that have considered the impact of the revision to diagnostic criteria on the validity and continuity of diagnosis, many of which were conducted prior to the publication of the DSM-5, using draft versions of the criteria. The results of pre-publication studies were inconsistent, with some authors demonstrating general continuity in diagnosis according to the two editions of the DSM (Mazefsky, McPartland, Gastgeb, & Minshew, 2013), while others considered the DSM-5 criteria to represent an unwarranted narrowing of the spectrum (Barton, Robins, Jashar, Brennan, & Fein, 2013; Frazier et al., 2012; Gibbs, Aldridge, Chandler, Witzlsperger, & Smith, 2012; Mattila et al., 2011; McPartland, Reichow, & Volkmar, 2012). Some of these studies have suggested that the DSM-5 criteria are biased towards more impaired individuals in terms of intellectual functioning (Mattila et al., 2011; McPartland et al., 2012) or engagement in challenging behaviours (Beighley et al., 2013).

More recently, Kim et al. (2014) compared the prevalence of ASD according to the published DSM-5 and DSM-IV-TR criteria in an epidemiologic sample of South Korean children (n = 55, 266) and concluded that most individuals with DSM-
IV-TR diagnoses of autistic disorder (99%) and Asperger’s syndrome (92%) continued to meet DSM-5 criteria for ASD. However, a significant minority of individuals with DSM-IV-TR diagnoses of PDD-NOS (37%) did not meet DSM-5 criteria for ASD⁴. Similarly, Young and Rodi (2014) found that individuals who met DSM-IV-TR criteria for PDD-NOS were disproportionately unlikely to meet DSM-5 criteria for ASD amongst individuals referred for assessment to an autism-specialist psychological practice in Adelaide, Australia (n = 233). Of concern, none of the 20 individuals who met diagnostic criteria for PDD-NOS within Young and Rodi’s sample were considered to meet DSM-5 criteria for ASD. Further, only 56% of individuals who met diagnostic criteria for Asperger’s syndrome met DSM-5 criteria for ASD.

In response to concerns regarding the continuity of diagnosis and the related issues of identity, advocacy and the provision of services for individuals with existing diagnoses (see for example, Spillers, Sensui, & Linton, 2014), the DSM-5 criteria includes a ‘grandfather clause’ which indicates that a diagnosis of ASD should be extended to any individual with a pre-existing and well-established DSM-IV-TR diagnosis of Asperger’s syndrome or PDD-NOS. However, uncertainty remains regarding the validity and applicability of prior research, which has included participants identified according to earlier diagnostic criteria (Volkmar & Reichow, 2013; Wing et al., 2010). The current thesis adopts the term ASD, in line with the DSM-5 (APA, 2013) nomenclature as it is considered that this most closely reflects the current state of knowledge supported by the research. However, due to the relative

⁴ While 37% of children who met DSM-IV-TR criteria for PDD-NOS did not meet DSM-5 criteria for ASD, 32% of those individuals met criteria for SCD (Kim et al., 2014).
recency of the changes to the diagnostic criteria, it is noted that prior research has not always adopted this definition. Indeed, while the concept of the autism spectrum was widely accepted in both empirical and lay-literature prior to inclusion of ASD in the DSM-5, much of the extant research cited within this volume is focused specifically on individuals diagnosed with Asperger’s syndrome. In recognition of this limitation, the original terminology (e.g. Asperger’s syndrome, infantile autism, autistic disorder, Pervasive Developmental Disorders) has been retained when describing the contributions of other authors throughout this volume.

2.3. The Epidemiology of Autism Spectrum Disorder

An accurate prevalence for ASD within the international population is yet to be established. The DSM-5 (APA, 2013) indicates a prevalence rate of around 1% for ASD; however, significant variation exists between research findings (Williams, Higgings, & Brayne, Saracino, Noseworthy, Steiman, Reisinger, & Fombonne, 2010; 2006). In a review of 133 epidemiological studies published between 1966 and 2013, Tsai (2014) reported prevalence estimates for autistic disorder (and the equivalent diagnosis ‘infantile autism’) that ranged from 0.7 (Treffert, 1970) to 190 (Ghanizadhe, 2008) per 10,000 individuals. Similarly, Tsai (2014) found marked variation in prevalence estimates for the broader autistic phenotype (defined as ASD and/or PDD) with estimated prevalence rates ranging from 1.4 (Al-Farsi et al., 2010) to 264 (Kim et al., 2011) individuals per 10,000. It is generally agreed that variations in prevalence estimates across studies are primarily artefactual in nature and most significantly influenced by methodological variables (Zaroff & Uhm, 2012). Specifically, differences in diagnostic criteria, methods of case identification and evaluation, variations in target population size and characteristics, geographical residence of participants and other methodological disparities between studies appear
likely to have contributed to the vast discrepancies in estimated prevalence rates observed within the extant literature (Elsabbagh et al., 2012; Tsai, 2014; Williams et al., 2006; Williams, Mellis & Peat, 2005).

In Australia, prevalence estimates for ASD have been similarly variable. Williams, MacDermott, Ridley, Glasson and Wray (2008) collected ASD prevalence data for children under 16 years from education, welfare and public health agencies across Australia in 2003/4 and found significant variation in rates reported in each state/territory and between agencies surveyed within the same regions. For example, the reported prevalence of ASD amongst children aged 6-12 years varied from 9.6 to 40.8 individuals per 10,000 with similar discrepancies observed across the 0-5 and 13-16 year age groups. Other research conducted within Australian populations have variously reported estimated ASD prevalence rates per 10,000 individuals of 39.2 in a region of Victoria (Icasiano, Hewson, Machet, Cooper, & Marshall, 2004), 51 in children born between 1994 and 1999 in Western Australia (Parner et al., 2011) and 340 in a youth mental health service in Melbourne, Victoria (Fraser et al., 2011).

In 2014, the Australian Bureau of Statistics (ABS) published ‘Autism in Australia’; an overview of the epidemiology of ASD in Australia with data drawn from the 2012 Survey of Disability, Ageing and Carers (SDAC 2012). The SDAC 2012 was a nation-wide investigation of the self-reported prevalence, etiology and impact of disability with the primary purpose of informing policy and service provision for individuals living with a disability, older individuals (those aged 65 years and over), and their carers. A similar survey was conducted in previous years (1981, 1988, 1993, 1998, 2003 and 2009) and the data-collection for the 2012 survey occurred between 5 August 2012 and 2 March 2013 across approximately 27,400 private dwellings, 500 non-private dwellings, and 1,000 health establishments (ABS,
2013). According to the data collected, an estimated 115,400 Australians (0.5% of the general population) were diagnosed with ASD. However, there are several methodological limitations that reduce confidence in the prevalence rate reported for ASD in the ABS (2014) report.

The SDAC 2012 was not a diagnostic survey and relied upon a self-report methodology whereby disability was identified according to a catalogue of 15 areas of adaptive functioning (e.g. speech impairment, learning difficulties). Respondents were asked to indicate whether such impairments were personally relevant and subsequent questioning identified any diagnosed conditions that resulted in the difficulties that were reported (ABS, 2014). Efforts were not made to confirm the validity of reported diagnoses nor whether an individual met diagnostic criteria for a condition on the basis of reported symptoms (ABS, 2014). In addition, the 15 areas of functioning on which respondents were queried did not include impairments in social interaction, a key aspect and diagnostic feature of the autistic phenotype (ABS, 2014). Accordingly, the survey design may have resulted in limited opportunities for the identification of ASD and self-diagnosed or misdiagnosed conditions may have been included within the prevalence data.

Further, although the SDAC 2012 was a large-scale survey with wide scope, the sample excluded those living in very remote areas, households in some indigenous communities, individuals living in boarding schools, those incarcerated in custodial settings and individuals living with homelessness (ABS, 2014). It is unclear how each of these exclusions may have impacted on prevalence estimates, however given that there is some (equivocal) international evidence of an overrepresentation of ASD amongst those living with homelessness (Evans, 2011) and within secure settings (see Chapter 3) it appears possible that the data may underestimate the
overall prevalence of ASD in Australia. Conversely, the estimated prevalence for ASD reported by the ABS (2014) may be inflated by the inclusion of individuals who would not meet current diagnostic criteria for ASD. As the data collection period for the SDAC 2012 pre-dated the recent DSM update, the adopted definition of ASD was equivalent to the DSM-IV-TR diagnostic category of PDD. Accordingly, individuals who reported a diagnosis of CDD and Rett’s syndrome (both of which are no longer understood to exist on the autism spectrum) were included in analyses regarding ASD. Although the above methodological limitations reduce confidence in the accuracy of the prevalence estimate provided by the ABS (2014), the report provides useful information regarding epidemiological trends for ASD in Australia.

2.3.1. Gender variances in prevalence. Consistent with the results of international research (e.g. Briugha et al., 2009; Centre for Disease Control and Prevention, 2014; Kim et al., 2011), the SDAC 2012 data indicated that ASD diagnoses in Australia were vastly more common amongst males than females (ABS, 2014). Specifically, the SDAC 2012 data demonstrated estimated prevalence rates for ASD amongst males (0.8%) that were 4 times in excess of that reported for females (0.2%). At present, the observed overrepresentation of ASD amongst males is not completely understood, however several authors have hypothesized explanations for this disparity.

2.3.1.1. Gender differences in presentation. Some authors (e.g. Attwood, 2006; Ehlers & Gillberg, 1993; Gould & Ashton-Smith, 2011; Lai et al., 2011) have speculated that the male predominance in ASD prevalence occurs as an artefact of difficulties regarding case identification amongst females. For example, Attwood (2007) suggests a reduced prominence of characteristic impairments associated with Asperger’s syndrome amongst females as a result of a greater ability to mimic others’
behaviour as a means of masking such difficulties. The gender differences in the presentation of ASD may result in fewer females being referred for diagnosis or higher rates of missed or misdiagnosis amongst those females that are referred. Indeed, Dworzynski, Ronald, Bolton, and Happe (2012) found that, in the absence of concomitant intellectual or behavioural problems, girls with equivalent levels of autistic traits were less likely than their male counterparts to be diagnosed with ASD. Such observations may indicate that diagnostic criteria and assessment procedures for ASD are biased towards male presentations (Dworzynski et al., 2012; Gould & Ashton-Smith, 2011).

2.3.1.2. The extreme male brain theory. In contrast, some authors have asserted that exaggerations of personality differences that naturally exist between typically developing males and females may be directly related to the aetiology of ASD, resulting in a true gender disparity in prevalence (Baron-Cohen, 2002; Lawson, Baron-Cohen, & Wheelwright, 2004; Wing, 1981b). This hypothesis, often referred to as the extreme male brain theory of autism (Baron-Cohen, 2002), holds that typically developing males possess a spontaneous preference for systemizing (i.e. mathematical/spatial reasoning and detail-oriented processing), while females are predisposed towards empathizing (i.e. recognising, comprehending and responding to the emotional state of others). On this view, individuals with ASD are considered to be hyper-systemizers and more males meet the diagnostic threshold due to the higher likelihood of such characteristics occurring amongst even typically developing males (Baron-Cohen, 2002).

2.3.2. Upward trend in prevalence over time. Comparison between the SDAC 2012 and the results of earlier SDAC surveys revealed an upward trend in ASD prevalence across time (see Figure 1). Specifically, an estimated 79% increase
in prevalence was noted by the ABS (2014) when comparing current data to that from the 2009 SDAC, which identified a diagnosis of ASD in an estimated 64,400 people (ABS, 2010). This finding is consistent with the results of international research (Isaksen, Diseth, Schjølberg, & Skeldal, 2013; Kim et al., 2014; Matson & Kozlowski, 2011; Reber, 2012; Saracino et al., 2010; Tsai, 2014), in which higher prevalence rates have been observed in more recent studies.

An adequate explanation for the progressive increase in prevalence has not been delineated to date, and it is not possible to rule out the possibility of an actual increase in the incidence of ASD; however, it is generally accepted that the rise in prevalence is at least in part artefactual (Matson & Kozlowski, 2011; McLeer & McNeils; Williams et al., 2014). Specifically, it has been argued that changes in diagnostic criteria, individual-level diagnostic substitutions (i.e. individuals receiving contemporary diagnoses of ASD who had been previously (mis)diagnosed with other disorders), better methods of detection and increased awareness amongst professionals and the general community may be implicated in the apparent increase of prevalence over time (Isaksen et al., 2013; King & Bearman, 2009; Matson & Kozlowski, 2011; Wazana, Bresnahan, & Kline, 2007; Williams et al., 2014).
2.3.3. Variation in prevalence according to age. In contrast to the observed increase in ASD prevalence over time, neither the 2012 nor the 2009 SDAC data indicated a higher prevalence of ASD amongst older respondents. As shown in Figure 1, prevalence rates for ASD rapidly decreased following a peak in the 5-9 year age group and further reductions in prevalence were noted amongst respondents aged over 25 years. This pattern of prevalence across age may be associated with difficulties identifying ASD in adolescents and adults and other diagnostic or methodological issues associated with the SDAC data collection.

2.3.3.1. Difficulties with diagnosis in adulthood. Although ASD is typically diagnosed in childhood, the disorder can go undetected until adolescence or adulthood, particularly amongst higher-functioning individuals who do not display significant cognitive or language impairments (Aggarwal & Angus, 2015; Barnard, Harvey, Potter, & Prior, 2001; Tantam, 2003). However, it has been argued that many mental health workers fail to consider ASD as a potential diagnosis when assessing adults due to a perception that it is a child-bound disorder (Wing, 1991). Even in cases where the diagnosis is considered, the identification of ASD amongst adults
presents some unique challenges, which may result in missed diagnosis or misdiagnosis of such individuals.

The diagnosis of ASD requires careful consideration of current symptomatology and developmental history; however, many adults with ASD display limited insight regarding their functioning, poor language skills and specific reporting impairments that impact on their ability to provide an accurate and sufficiently detailed developmental history (Fombonne, 2012; Lombardo, Barnes, Wheelwright, & Baron-Cohen, 2007). Accordingly, accurate diagnosis frequently relies on corroborative evidence regarding socio-developmental impairments (Royal College of Psychiatrists, 2006). However, appropriate informants may be unavailable at the time that an adult presents for assessment and medical or educational records are frequently absent, contradictory or insufficient for such purposes (Fombonne, 2012; Tantam, 2003; Royal College of Psychiatrists, 2006). In addition, individuals with ASD frequently develop compensatory strategies as they age which may suppress behavioural manifestations of the characteristic impairments associated with ASD (Frith, 1991).

The presence of comorbid psychiatric disorders in adulthood may further complicate the course or presentation of ASD, resulting in a lack of clarity regarding the symptomatic profile of the presenting individual or the aetiology of observable traits (Frith, 1991; APA, 2013; Royal College of Psychiatrists, 2006; Mazzone, et al., 2012). In such cases, deficits may become more apparent in novel contexts, during periods of developmental crisis or in complex social environments where situational

---

5 As a reflection of such difficulties, the DSM-5 (APA, 2013) allows for a diagnosis of ASD in the absence of detailed developmental information on the basis of presentation in adulthood providing that no evidence exists that suggests good social communicative skills in childhood.
demands exceed the individual’s adaptive skill level (Royal College of Psychiatrists, 2006; Tantam, 2003).

2.3.3.2. **Confounding factors and changing diagnostic definitions.** In addition to difficulties regarding the identification of ASD in adulthood, age-group variations in prevalence may be associated with confounding factors or specific methodological issues with the design of the SDAC 2012. For example, it is possible that the variation in prevalence across age groups observed in the SDAC data may be associated with an individual’s contact with the educational system. The ABS (2014) note that 85% of individuals reporting a diagnosis of ASD in the SDAC 2012 were identified on the basis of the presence of learning difficulties. The peak in prevalence within the 5-9 year age group coincides with the time that formal education commences in Australia, at which time learning impairments may become more evident. Conversely, as individuals age out of the education system, learning is no longer a daily focus and learning impairments become less apparent, resulting in a lower likelihood of identification according to the SDAC 2012 methodology (ABS, 2014). Changes to diagnostic criteria for ASD over time accompanied by a reluctance of respondents to report ASD in older individuals due to the stigma of such conditions may also partially account for the variations in ASD prevalence observed across age groups (ABS, 2014).

2.3.3.3. **Remittance of autistic symptomatology.** The age-group variation in prevalence observed in the SDAC 2012 data may also be a reflection of a tendency towards improvement in autistic symptomatology and subsequent increases in adaptive behaviour as an individual ages, such that they no longer meet the threshold for diagnosis (McLeer & McNeils; Tantam, 2003; Williams et al., 2006). In support of such, several studies indicate a modest abatement in autistic symptomatology
(Gray et al., 2012; Schall & McDonough, 2010; Seltzer, Shattuck, Abbeduto, & Greenberg, 2004; Shattuck et al., 2007), decreases in maladaptive behaviours (Anderson, May, & Lord, 2011) and improvements on measures of adaptive functioning (Gillespie-Lynch et al., 2012; McGovern & Sigman, 2005) across the life-span, particularly amongst those with less severe manifestations of ASD. Despite evidence of a general trend towards symptomatic and functional improvement, a worsening of symptoms may occur for a subset of individuals with ASD (Gray et al., 2012), and others experience periods of regression in adaptive functioning, particularly in times of developmental crisis (Kobayashi, Murata, & Yoshinaga, 1992; Périsse et al., 2010; Seltzer et al., 2004; Tantam, 2003).

Although the developmental trajectory for adults and adolescents with ASD is not homogenous, evidence from research suggests that the majority of individuals diagnosed with ASD will continue to meet diagnostic criteria into adulthood (Billstedt et al., 2005; Billstedt, Gillberg, & Gillberg, 2007; Cederlund, Hagberg, Billstedt, Gillberg, & Gillberg, 2008; Howlin, Goode, Hutton, & Rutter, 2004; Lotter, 1978; McGovern & Sigman, 2005). Even in cases where individuals experience improvements in symptom severity and general adaptive functioning, adults with ASD often present with ongoing impairments or difficulties coping with the increasing social demands of adulthood (Anderson et al., 2011; Ballaban-Gil, Rapin, Tuchman, & Shinnar, 1996; Billstedt et al., 2007; Gray et al., 2012; Holwerda, van der Klink, Groothoff, & Brouwer, 2012; Howlin, 2000; Howlin, Mawhood, & Rutter, 2000; Seltzer et al., 2004; Shattuck et al., 2007). These ongoing deficits appear likely to contribute to functional impairment and may consequently impact on psychosocial outcomes for adults with ASD (Seltzer et al., 2004). Indeed, perhaps paradoxically,
psychosocial difficulties may increase with age as an individual’s expected and perceived competence increases (Howlin, 2004).

2.4. Psychosocial Outcomes in Adulthood and Adolescence

Much of what we know about ASD after childhood is anecdotal. Indeed, the personal accounts of diagnosed individuals (e.g. Carpenter, 1992; Fleischmann & Fleischmann, 2012; Grandin, 1992, 2006, 2011; Grandin & Panek, 2013; Lissner, 1992; Sinclair, 1992) and their families (e.g. Akerley, 1992; Dewey, 1992; Fleischmann & Fleischmann, 2012; Happe, 1991; Park, 1992; Sullivan, 1992; Turnbull, 2010) have provided valuable insights into the experiences of adults and adolescents with disorders on the autism spectrum. However, in recent years, increasing academic interest regarding the impact of ASD throughout the life-course has resulted in a proliferation of clinical case reports, longitudinal follow-up studies and cross-sectional research focused on psychosocial outcomes and quality of life in adolescence and adulthood (e.g. Ballaban-Gil et al., 1996; Barnard et al., 2001; Barneveld, Swaab, Fagel, van Engeland, & de Sonneville, 2014; Billstedt et al., 2005; Billstedt et al., 2007; Billstedt, Gillberg, & Gillberg, 2011; Cederlund et al., 2008; Eaves & Ho, 2008; Farley et al., 2009; Green, Gilchrist, Burton, & Cox, 2000; Howlin et al., 2004; Howlin et al., 2000; Marriage, Wolverton, & Marriage, 2009; Orsmond, Shattuck, Cooper, Sterzing, & Anderson, 2013; von Knorring & Hägglof, 1993; Whitehouse, Watt, Line, & Bishop, 2009).

Recent reviews of the available literature (Henninger & Taylor, 2013; Howlin & Moss, 2012; Levy & Perry, 2011; Magiati, Tay, & Howlin, 2014; Seltzer et al., 2004; Tobin, Drager, & Richardson, 2014; Wright, Brooks, D'Astous, & Grandin, 2013) reveal a wide variability in psychosocial outcomes amongst adults with ASD. While case reports and cross-sectional research show that some individuals with ASD
can have positive outcomes in adulthood, including engaging in paid employment and effectively integrating within society (Howlin, 2000), longitudinal follow-up studies have frequently indicated that many are significantly disadvantaged in a range of domains (Barneveld et al., 2014; Billstedt et al., 2007; Gray et al., 2014; Howlin et al., 2004; Howlin et al., 2000; Orsmond et al., 2013; Whitehouse, Watt, et al., 2009). Kanner’s (1973) follow-up study of individuals who were diagnosed with autism in childhood (n = 96) demonstrates the wide range of potential outcomes for this population. As adults, some of these individuals were employed, lived in their own homes and pursued opportunities for social engagement (e.g. membership to social groups or clubs). However, significant numbers did not have close reciprocal relationships and the majority remained highly dependent and resided with parents or in institutions.

Today, more people with ASD are living within the community due to the deinstitutionalisation approach of the 1980s and 1990s, involving moving individuals with mental illness and disabilities out of large state institutions into community-based accommodation (Mayes & Koegel, 2003). The deinstitutionalization of these populations is intended to provide a more enriched life experience and protect individuals from abuse, maltreatment and isolation within institutions (Chowdhury & Benson, 2011; Howard & O'Brien, 2009). However, some argue that deinstitutionalization does not meet these aims due to a lack of appropriate supports for vulnerable individuals within the community (Howard & O'Brien, 2009). As a result, many individuals, including those with ASDs, are now living in the community with inadequate support for successful social integration (Pasterfield, 2009).
2.4.1. Lack of community-based support services for adults with ASD. For many individuals with ASD, adulthood heralds the loss of access to essential resources as they ‘age-out’ of childhood support and intervention services and enter the adult system, where they frequently fall through the gap between existing mental health and disability services (Barkham et al., 2013; Barnard et al., 2001; Berney, 2007; McLeer & McNeils, 2012; Shattuck et al., 2012). Despite increasing availability and accessibility of services for children with ASD, the provision of support for adults remains an underdeveloped area of research and practice (Berney, 2007; Howlin & Moss, 2012; Kuangparichat, 2010; Pasterfield, 2009; Shattuck et al., 2012). The available research indicates that support needs amongst adults with ASD are heterogeneous; some require daily support whereas others only require occasional assistance in specific areas of functioning (Barkham et al., 2013; Wright et al., 2013). However, few options for formal support exist within the community and the support needs of adults with ASD and their families are largely unmet, particularly amongst those who do not possess psychiatric comorbidities or cognitive impairment (APA, 2014; Barkham et al., 2013; Berney, 2007; Kuangparichat, 2010; Magiati et al., 2014; McLeer & McNeils, 2012; Pasterfield, 2009; Shattuck et al., 2012). In the absence of appropriate support and intervention opportunities, families frequently face challenges assisting their relatives with ASD to navigate the social transitions and increasing demands throughout adolescence and adulthood (Howlin & Moss, 2012).

2.4.2. Potential areas of difficulty for adults with ASD. Many adults with ASD, including higher-functioning individuals with intelligence in the average range, experience ongoing challenges across multiple domains associated with the socio-communicative deficits, sensory sensitivities and behavioural and cognitive rigidity that are characteristic of ASD (Billstedt et al., 2007; Howlin et al., 2004; Howlin &
Moss, 2012; Levy & Perry, 2011; Marriage et al., 2009; Mazurek, 2014; Tobin et al., 2014). Few adults with ASD live independently, social participation is typically restricted and low academic and vocational achievement are common amongst the adult ASD population (Billstedt et al., 2005; Cederlund et al., 2008; Eaves & Ho, 2008; Gray et al., 2014; Holwerda et al., 2012; Howlin et al., 2004; Howlin et al., 2000; Marriage et al., 2009). Further, the characteristic features of ASD have been argued to precipitate engagement in socially unacceptable or destructive conduct that, in the absence of appropriate supports, may place adolescents and adults with ASD at greater risk of becoming involved in the CJS (Barry-Walsh & Mullen, 2004; Mouridsen, 2012).

2.4.2.1. Low levels of social participation. International research has consistently indicated that fewer than half of adults with ASD regularly participate in community-based social events or recreational activities that would provide opportunities to establish and maintain positive social relationships (Barnard et al., 2001; Billstedt et al., 2007; Eaves & Ho, 2008; Liptak, Kennedy, & Dosa, 2011). Barnard et al. (2001) found that approximately a third (31%) of adults with autism or Asperger’s syndrome did not participate in any social activities whatsoever. Further, studies comparing social functioning amongst similar-aged peers suggest that adults with ASD are more socially isolated than those with non-spectrum developmental disabilities, learning disorders and emotional disturbances (Anderson et al., 2011; Orsmond et al., 2013).

2.4.2.2. Loneliness and social dissatisfaction. Given that desired levels of social participation may vary substantially between individuals, it is important to consider the subjective experiences of adults with ASD regarding this domain of functioning (Henninger & Taylor, 2013; Tobin et al., 2014). While it is evident that
low levels of social participation are common amongst adults with ASD, the impact of such on the wellbeing and quality of life of this population appears to be variable. The extant research suggests that feelings of loneliness are common amongst adolescents and adults with ASD (Jobe & Williams White, 2007; Mazurek, 2014; Müller, Schuler, & Yates, 2008; Whitehouse, Durkin, Jaquet, & Ziatas, 2009) and depressive and anxious symptomatology in the context of low social connectedness have been reported amongst this population (Mazurek, 2014; Müller et al., 2008). Increasing dissatisfaction and distress have been reported by some individuals with ASD throughout adolescence and adulthood as they become increasingly cognizant of their socio-communicative difficulties and social isolation (Müller et al., 2008). Conversely, some adults with ASD appear indifferent or may embrace their social isolation, for example by identifying as a “lone wolf” (Müller et al., 2008, p. 179).

While the research suggests that some adults with ASD experience loneliness and emotional disturbance in response to social isolation, there are others for whom low levels of social connectedness and participation do not appear to cause distress. For example, in an investigation of social outcomes amongst a group of men (n = 19) who were diagnosed with ASD in childhood, little or no sense of loneliness was reported by informants in a majority of cases (63%) despite an observed lack of friendships amongst these individuals (Howlin et al., 2000). It has been argued that individuals with ASD may be protected from the ill-effects of poor social functioning where they gain a sense of identify and self-worth through achievement in other domains (Attwood, 2007). For example, Temple Grandin, a high-functioning woman with a diagnosis of ASD, reports that her sense of achievement in employment has reduced the impact of her social isolation, stating that:
I know that things are missing in my life but I have an exciting career that occupies my every waking hour. Keeping myself busy keeps my mind off what I may be missing. Sometimes parents and professionals worry too much about the social life of an adult with autism (Grandin, 2006, p. 160).

Having a fulfilling and meaningful work-life may therefore protect some individuals from experiencing psychological distress in response to challenges in social functioning (Attwood, 2007). Unfortunately, the available evidence indicates that adults with ASD frequently face challenges associated with educational engagement and workforce participation.

2.4.2.3. Low academic and vocational achievement. Low levels of educational attainment, alongside inflated rates of unemployment and underemployment have been reported to occur amongst the ASD population (ABS, 2014; Barnard et al., 2001; Eaves & Ho, 2008; Gray et al., 2014; Holwerda et al., 2012; Howlin et al., 2004; Pasterfield, 2009; Tobin et al., 2014). In a UK study of social outcomes amongst more than 400 individuals, employment was identified by more able adults with ASD as the most significant barrier they faced (Barnard et al., 2001). Despite a wide range of general and specific marketable skills amongst adults with ASD, it is estimated that approximately half of this population neither engages in employment nor educational pursuits (Barnard et al., 2001; Eaves & Ho, 2008; Howlin & Moss, 2012; Tobin et al., 2014). As little as 2% of individuals with more severe manifestations of ASD are in any kind of paid employment (Barnard et al., 2001) and those adults who are employed frequently work in menial positions with poor pay rates (Eaves & Ho, 2008). Consequently, individuals with ASD frequently lack the financial resources to support independent living (ABS, 2014; Howlin et al., 2004). Further, given that unemployment is associated with psychological distress in
the general population (Paul & Moser, 2009), it is unlikely that economic instability will be the only significant impact of low vocational engagement amongst adults with ASD.

Vocational and educational disengagement results in fewer opportunities for social integration and interaction alongside a lack of purpose and structured routine within daily life (Paul & Moser, 2009). The loss of these aspects of employment may be of particular concern for individuals with ASD due to difficulties experienced in the social domain, proneness to emotional disturbance and a tendency towards defining self-identity according to vocational achievements (Attwood, 2007). Consequently, the low levels of academic and vocational engagement observed amongst adults with ASD are likely to impact perceptions of self-worth and ability to cope with life stressors amongst this population (Attwood, 2007; ABS, 2014). When coupled with the socio-communicative and behavioural impairments characteristic of ASD, feelings of low self-worth and poor coping skills may increase the likelihood of engagement in self-injurious or disruptive behaviours.

2.4.2.4. Challenging Behaviours and Forensic issues. It is not uncommon for adults with ASD to display a range of challenging behaviours, including self-injurious behaviours as well as aggressive and disruptive behaviour directed towards others (Billstedt et al., 2005; Matson & Adams, 2014; McClintock, Hall, & Oliver, 2003; McNeils & McLeer, 2012; Périsse et al., 2010; Tantam, 2003). Such behaviours appear to occur amongst adults with ASD with high frequency and chronicity and have been cited as one of the most common precursors to psychopharmacological and other specialist intervention throughout the ASD population (Billstedt et al., 2005; Murphy et al., 2005). For example, a meta-analysis regarding challenging behaviours amongst individuals with ID demonstrated that
aggression, property damage and self-injurious behaviours are more prevalent amongst individuals with primary diagnoses of ASD than amongst peers without ASD diagnoses (McClintock et al., 2003). Inappropriate sexual behaviours have also been noted to occur amongst the ASD population (Haracopos & Pedersen, 1992; Ruble & Dalrymple, 1993). Such behaviours may at times result in substantial harm to the self or others and in some circumstances may result in forensic ramifications (King & Murphy, 2014; Raggi et al., 2013).

2.5. Summary of Chapter

Individuals with ASD are a diverse population with marked heterogeneity in socio-communicative and behavioural abilities and idiosyncrasies. The preceding chapter provided an overview of the epidemiology of ASD, with a particular focus on issues related to presentation, support needs and difficulties experienced in adulthood. Although the academic literature regarding ASD in adulthood remains limited, it is clear that significant variations in psychosocial outcomes exist amongst this population. Specifically, while the extant research indicates that most individuals with ASD integrate successfully into the community, some are evidently less successful in doing so and poor outcomes across several important domains are not uncommon. Of particular interest, challenging behaviours are evident amongst those with poorer outcomes, which on some occasions may result in forensic consequences. Although this does not mean that all or most people with ASD will engage in offending behaviours in adulthood, it is important to consider the extent to which offending behaviour may occur amongst the ASD population, and the appropriate forensic response where such behaviours do occur. Offending behaviours and the forensic issues that arise when offending behaviour is perpetrated by adults with ASD
form the primary focus of the current thesis, and are considered in more detail in the
following chapters.
Chapter 3. Autism Spectrum Disorder and Offending Behaviour

Discussed in Chapter 1, in recent years, a concerning trend has arisen whereby individuals who have committed heinous crimes have been reported as being “on the spectrum” within media reports and the academic literature. Such assumptions appear to have led to the perception that individuals with ASD diagnoses are dangerous and possess an elevated propensity towards the perpetration of serious violent offences. In an attempt to address such perceptions, and to provide some context regarding the scope of the forensic relevance of ASD, the current chapter explores the extant academic literature regarding the prevalence and nature of offending behaviour observed amongst the ASD population.

3.1. Case Reports of Offending Perpetrated by Individuals with Autism Spectrum Disorder

Instances of offending behaviour perpetrated by individuals with ASD have been described in case reports throughout the academic literature. Asperger (1944) himself commented on physical aggression and perceived violent tendencies amongst the children he examined; however, Mawson, Grounds, and Tantam (1985) appear to have been the first to explicitly argue the presence of a direct association between an ASD diagnosis and offending behaviour. Mawson et al. (1985) described a 44-year-old man who met diagnostic criteria for Asperger’s syndrome and who possessed an extensive history of engagement in violent behaviours, with ostensibly unusual motivations. For example, it was reported that this individual assaulted, or attempted to assault, several women (including stabbing two with a screwdriver) due to his disapproval of their attire or dislike of women drivers and, on more than one occasion, engaged in assultive behaviour in attempts to silence noisy pets or crying infants and children. It was further noted that he disclosed a series of obsessive...
violent cognitions while incarcerated, for example, an interest in the effects of poisons and fantasies regarding the dissection of infants. On the basis of this single case study, Mawson et al. (1985) speculated that the “association between Asperger’s syndrome and violent behavior is more common than has been recognized and that more such individuals are to be found in long-term care institutions” (p. 569).

A proliferation of case reports describing offending behaviour amongst individuals with autism and Asperger’s syndrome has since corroborated Mawson et al.’s (1985) initial study. Such reports involve adjudicated and non-adjudicated instances of stealing, fire-setting, sexual offending and non-sexualized violent behaviour (including homicide), as well as harm caused to others as a consequence of specialised interests (e.g. with medical experimentation, the mechanisms of paedophilia or the flickering of flames) or poor social decision-making (e.g. Chesterman & Rutter, 1993; Everall & Lecouteur, 1990; Griffin-Shelley, 2010; Haskins & Silva, 2006; Katz & Zemishlany, 2006; Kelbrick & Radley, 2013; Kristiansson & Sörman, 2008; Radley & Shaherbano, 2011; Raja & Azzoni, 2001; Ray, Marks, & Bray-Garretson, 2010; Schwartz-Watts, 2005). However, despite increasing availability, it is not clear that academic case reports describing instances of offending are representative of the larger population of individuals with ASD. Indeed, two large-scale literature reviews exist that provide a challenge to the proposition of a systematic association between ASD and offending behaviour.

Ghaziuddin, Tsai and Ghaziuddin (1991) reviewed 21 studies (primarily case reports) regarding the clinical features of Asperger’s syndrome published between 1944 and 1990 for evidence of violent behaviour amongst the included individuals (n = 132). On the basis of this review, the authors concluded that there was no clear evidence of an association between Asperger’s syndrome and violent crime. More
recently, Mouridsen (2012) provided a narrative review that included 23 empirical studies and case reports regarding the hypothesized relationship between ASD and offending and similarly concluded that there was no clear evidence that individuals with ASD are any more likely than the general population to engage in offending behaviour. However, the methodology employed in these reviews may have skewed results and impacted generalizability of their stated conclusions. For example, narrow inclusion criteria adopted by Ghaziuddin et al. (1991) resulted in the exclusion of a number of studies (e.g. Tantam, 1988) that, if included, would have increased the incidence of violent behaviours within their sample. Mouridsen (2012) did not provide an account of their adopted search strategy nor exclusion criteria, thus limiting the opportunity to evaluate the likely inclusiveness of their review. What follows is an updated overview of the empirical literature that has investigated the prevalence and characteristics of offending behaviour amongst individuals with ASD.

3.2. Prevalence of Offending Behaviour Amongst Individuals with Autism Spectrum Disorder

In order to provide an updated review of the empirical evidence regarding the rate of offending amongst individuals with ASD, a systematic literature search with no date parameters was conducted. Published research that explored the intersect between ASD and offending behaviour was identified by means of a four-stage search process: (1) literature databases (PsycINFO, PubMed, PsycEXTRA) and other online search engines (e.g. Google) were used to identify studies that considered ASD and offending; (2) backwards citation searches were undertaken with literature identified in the first stage of the search process; (3) hand-search of journals likely to include relevant papers (e.g. Journal of Intellectual Disabilities and Offending Special Issue: Autism Spectrum Conditions and Offending); and (4) citation searches of
unpublished theses and online articles on the topic of ASD and crime. Search terms were Autis*, Asperger*, ASD, pervasive developmental disorder, neurodevelopmental and offend*, crim*, violen*, forensic. Each of the ASD-relevant search terms was entered alongside each of the offending-relevant search terms. A full-text copy of one conference paper (Hawes, 2003) identified in stage two of the search procedure was unable to be sourced via online databases and was consequently requested and provided via email by the editor of the conference proceedings.

Inclusion criteria were deliberately wide to allow a more comprehensive overview than previous reviews: all original studies that discussed prevalence or frequency of ASD among offending populations and/or offending behaviour among individuals with a diagnosis or traits of ASD were included for analysis. Articles were excluded if they were descriptive case reports, they were concerned with witnesses or victims with ASD, rather than suspects or offenders, they were focused on treatment or characteristics of offending and did not provide information regarding prevalence or they were literature reviews.

A total of 33 original studies that met inclusion criteria were identified; these comprised research of two kinds: that which investigated the presence of ASD within offending populations (represented in Table 2) and that which considered the rate of offending amongst ASD populations (represented in Table 3). The identified studies lacked consistency in their adopted diagnostic approach, consideration of confounding factors and definitions of offending behaviour. As a consequence of the vast methodological variation between studies, a meta-analysis was not undertaken and the current review was limited to a descriptive synthesis and analysis of results.

3.2.1. Research regarding prevalence of ASD amongst offending populations. As seen in Table 2, prevalence estimates for ASD in forensic settings
varied significantly across the literature, ranging from 0.2% for Asperger’s syndrome in a consecutive series of patients admitted to a secure psychiatric intensive care unit in Italy (Raja & Azzoni, 2001) to 30% for ASD amongst those admitted to an English inpatient forensic intellectual disability service over a 6-year period (Esan, Chester, Gunaratna, Hoare, & Alexander, 2015). Such variation in prevalence estimates may be artefactual, reflecting differences in methodology and sample characteristics between studies. Comparison groups have not been employed consistently across all studies of this nature and without understanding the characteristics of the highly selected and specialized study samples, questions remain regarding the appropriateness of those comparisons that have been made. For example, concerns have been raised regarding the appropriateness of comparison between the prevalence of ASD in secure facilities and the prevalence of ASD reported by Ehlers and Gillberg (1993) amongst school-aged children in mainstream Swedish schools (Hall & Bernal, 1995).

The observed variation in prevalence estimates may also reflect true differences in prevalence rates for ASD across different jurisdictions due to the availability of diversion options or support services and differences in sentencing policies and practices within each jurisdiction. Similarly, differences may exist between settings within the same jurisdiction as a function of the stage of disposition and disparities in the identification and accommodation of psychological disorder. For example, inflated rates of ASD observed within secure psychiatric facilities may, at least in part, be due to the recognition and subsequent diversion of such individuals from prison environments (Robinson et al., 2012). Relatedly, for some of the secure settings surveyed by researchers, admissions were occasionally made on the basis of unmanageable behaviour in less secure settings, rather than for offending behaviour.
per se (e.g. Scragg & Shah, 1994). Nonetheless, when compared to the prevalence rate of 1% for ASD in the general population reported by the DSM-5 (APA, 2013), the cumulative results of the included studies are suggestive of an overrepresentation of ASD within forensic settings (King & Murphy, 2014).

Of note, an overrepresentation of ASD amongst offending populations may not necessarily be reflective of a higher risk of offending amongst individuals with ASD. In contrast, any inflation in ASD rates observed in forensic settings could occur due to systematic vulnerabilities within the CJS, resulting in an increased likelihood that individuals with ASD are detected and/or convicted for involvement in offending behaviours (Mouridsen, 2012). Studies suggest that individuals with ASD are often misinterpreted during police questioning, have a tendency to be overly compliant, are quick to admit guilt and frequently stick rigidly to an account once it has been put forward (Allen et al., 2008; de la Cuesta, 2010; Murrie et al., 2002; North, Russell, & Gudjonsson, 2008). Additionally, due to deficits in understanding social cues, a tendency to be poor historians and difficulty differentiating their actions from those of others, individuals with ASD may not present as credible suspects in court (Hare, Gould, Mills, & Wing, Freckelton & List, 2009; 1999). In light of these considerations, some authors have suggested that the inflated prevalence rates reported in studies that identify ASD in offending populations represent an overestimation of the true rate of offending amongst individuals with ASD.
### Table 2

**Prevalence of ASD within Offending Populations**

<table>
<thead>
<tr>
<th>Study</th>
<th>n</th>
<th>Sample Description</th>
<th>Diagnostic strategy and criteria used</th>
<th>Offending data</th>
<th>Comparison group(s)</th>
<th>Summary of findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scragg and Shah (1994)</td>
<td>392</td>
<td>Individuals incarcerated in Broadmoor (English, high-secure psychiatric facility)</td>
<td>Gillberg’s diagnostic criteria for Asperger’s syndrome:&lt;sup&gt;b&lt;/sup&gt; Clinical interview, review of case notes and results on the Children’s Handicaps, Behaviour and Skills Schedule (Wing &amp; Gould, 1978).</td>
<td>0.36%&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Prevalence of 0.36% for ASD found in a community sample (n = 1401) by Ehlers and Gillberg (1993).</td>
<td>Prevalence rate of 1.5% for Asperger’s syndrome. Three additional equivocal cases, if included, would raise prevalence rate to 2.3%.</td>
</tr>
<tr>
<td>Hare et al. (1999)</td>
<td>1305</td>
<td>Individuals incarcerated across three English high-secure psychiatric units</td>
<td>Diagnosis of PDD according to IDC-10 criteria. An unpublished 9-item screening questionnaire for ASD in psychiatric patients followed by file review and the Children’s Handicaps, Behaviour and Skills Schedule (Wing &amp; Gould, 1978). Individuals with pre-</td>
<td>0.36%&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Prevalence of 0.36% for ASD found in a community sample (n = 1401) by Ehlers and Gillberg (1993).</td>
<td>31 (2.4%) definite cases of ASD identified. 31 additional equivocal cases, if included, would raise prevalence rate to 4.7%.</td>
</tr>
</tbody>
</table>

<sup>a</sup> The term “index offence” refers to the offence or most serious of a cluster of offences for which an individual has most recently come to the attention of the CJS.
<table>
<thead>
<tr>
<th>Study</th>
<th>n</th>
<th>Sample</th>
<th>Diagnostic strategy and criteria used</th>
<th>Offending data</th>
<th>Comparison group(s)</th>
<th>Summary of findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Siponmaa, Kristiansson, Johnson, Nyden, and Gillberg (2001)</td>
<td>126</td>
<td>Young offenders (15-22 years) consecutively referred for pre-sentence forensic psychiatric investigation in Stockholm, Sweden between 1990 and 1995</td>
<td>existing diagnosis of ASD were included. Diagnosis according to DSM-IV criteria. File review by researchers following comprehensive clinical assessment at forensic service.</td>
<td>referral information</td>
<td>Nil</td>
<td>19 (15%) definite cases of ASD identified (15 (12%) PDD-NOS; 3 (4%) Asperger’s syndrome). 15 additional equivocal cases (6 PDD-NOS; 9 Asperger syndrome), if included, would raise prevalence rate for ASD to 27%.</td>
</tr>
<tr>
<td>Raja and Azzoni (2001)</td>
<td>2500</td>
<td>Consecutive series of patients admitted to a secure psychiatric intensive care unit in Rome, Italy.</td>
<td>Diagnosis according to DSM-IV criteria via clinical interview and psychometric testing.</td>
<td>History of aggressive or violent behaviour</td>
<td>Nil</td>
<td>5 individuals (0.2%) received a diagnosis of Asperger’s syndrome, all of whom displayed a history of violent behaviour towards relatives.</td>
</tr>
<tr>
<td>Hawes (2003)</td>
<td>72</td>
<td>Male prisoners who volunteered for assessment by the Dangerous People with Severe Personality Disorders (DSPD) Unit at the maximum-security Whitemore Prison in the U.K.</td>
<td>Diagnostic criteria not specified. Diagnosis made via clinical assessment (including parent interviews where possible) and administration of questionnaires designed by the Cambridge Autism Research Centre.</td>
<td>Nil</td>
<td>Nil</td>
<td>2 individuals (2.7%) received a diagnosis of Asperger’s syndrome. 4 provisional diagnoses of Asperger’s syndrome (where parent report was unavailable to confirm developmental history), if included, would raise prevalence rate to 8.3%. 4 additional individuals displayed autistic traits.</td>
</tr>
<tr>
<td>Study</td>
<td>n</td>
<td>Sample</td>
<td>Diagnostic strategy and criteria used</td>
<td>Offending data</td>
<td>Comparison group(s)</td>
<td>Summary of findings</td>
</tr>
<tr>
<td>-------</td>
<td>-----</td>
<td>----------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>---------------------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Myers (2004)</td>
<td>--</td>
<td>Children, young adults and adults across 57 secure (forensic and specialist) settings in Scotland. Included 16 prisons, 11 state hospital wards, 16 secure learning disability inpatient settings, 8 secure mental-health inpatient settings and 6 secure accommodation services for children.</td>
<td>Staff report of diagnosed or suspected learning disability or ASD (including Asperger’s syndrome).</td>
<td>Staff report of current legal status and offending history amongst 49 individuals selected from sample for more in-depth individual case studies. Of note, only 28 (47%) of these individuals were reported to have been charged or convicted of an offence.</td>
<td>Nil</td>
<td>2 cases of ASD identified within prison settings. 1 case of ASD identified in secure accommodation for children. 8 cases of ASD identified in state hospital wards. 29 cases of ASD identified in secure inpatient units.</td>
</tr>
<tr>
<td>Söderström Anckarsäter (2005)</td>
<td>89</td>
<td>Perpetrators of severe crimes against others referred by court for pre-trial forensic psychiatric investigation at the Department of Forensic Psychiatry, Sweden.</td>
<td>Lifetime file review and structured clinical interview including administration of ASD-specific screening questionnaires and diagnostic interview according to DSM-IV and Gillberg’s diagnostic criteria for Asperger’s syndrome.</td>
<td>File review and referral information.</td>
<td>Nil</td>
<td>18 (20.2%) cases of ASD identified (including 5 cases of ‘autism’, 3 cases of ‘Asperger syndrome’ and 10 cases of ‘atypical autism’).</td>
</tr>
<tr>
<td>Study</td>
<td>n</td>
<td>Sample</td>
<td>Diagnostic strategy and criteria used</td>
<td>Offending data</td>
<td>Comparison group(s)</td>
<td>Summary of findings</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>----</td>
<td>----------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>---------------------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Crocombe (2006)</td>
<td>51</td>
<td>Female population of a special hospital in the UK.</td>
<td>9 question screening questionnaire identified 18 individuals for full clinical assessment. Full clinical assessment included file review, standardized diagnostic interview, Margaret Dewey social scenarios (Dewey, 1991) and completion of ASD-questionnaires.</td>
<td>Inferred from presence in setting. Of note, 6 individuals had no conviction, including 1 identified ASD and 2 equivocal cases.</td>
<td>Nil</td>
<td>6 (11.76%) cases of ASD identified in study sample. 5 (9.8%) further equivocal cases were identified.</td>
</tr>
<tr>
<td>Anckarsäter et al. (2007)</td>
<td>130</td>
<td>Adolescents admitted to youth institution compulsory treatment in 2002.</td>
<td>Diagnosis according to DSM-IV criteria for Autistic Disorder, Asperger syndrome or PDD-NOS. Clinical assessment and administration of autism-specific structured interviews by psychiatric staff, psychologist and a nurse.</td>
<td>Legal status: admission to treatment facility according to the ‘Young Offenders Act’. 29 individuals in sample had been committed due to offending behaviours.</td>
<td>Rate of 1.21% for ASD in the general population reported by Kadesjö, Gillberg, &amp; Hagberg (1999).</td>
<td>Of those who had been institutionalized due to offending behaviours, 3 (10%) cases of PPD-NOS were identified. Two further cases displayed sub-clinical autistic features.</td>
</tr>
<tr>
<td>Anckarsäter, Nilsson, Saury,</td>
<td>42</td>
<td>Case-series of individuals with DSM-IV criteria</td>
<td>Diagnosis according to DSM-IV criteria</td>
<td>Police reports, court sentences and/or</td>
<td>Nil</td>
<td>Overall prevalence of ASD across forensic settings of</td>
</tr>
<tr>
<td>Study</td>
<td>n</td>
<td>Sample</td>
<td>Diagnostic strategy and criteria used</td>
<td>Offending data</td>
<td>Comparison group(s)</td>
<td>Summary of findings</td>
</tr>
<tr>
<td>------------------------------</td>
<td>-------</td>
<td>------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>---------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Råstam, and Gillberg (2008)</td>
<td>2609</td>
<td>ASD who were undergoing pre-trial forensic psychiatric investigation and or who were residing within a special psychiatric hospital or two special institutions for socially maladjusted adolescents.</td>
<td>ascertained through clinical assessment including scoring of the ASDI (Gillberg, Gillberg, Råstam, &amp; Wentz, 2001) and Autism Spectrum Screening Questionnaire (Ehlers, Gillberg, &amp; Wing, 1999).</td>
<td>social files. Four of the adolescents included in the sample were institutionalised on the basis that their behaviour or environment placed them at risk of harm, rather than due to offending behaviour.</td>
<td>Nil</td>
<td>13%</td>
</tr>
<tr>
<td>Enayati, Grann, Lubbe, and Fazel (2008)</td>
<td>214 arson and 2395 violent offender cases drawn from the National Board of Forensic Medicine (Sweden) national register of post-conviction, pre-sentencing inpatient forensic psychiatric investigations. All cases had been referred for assessment during 1997-2001.</td>
<td>Diagnoses recorded on the standardized national register made according to DSM-IV criteria on the basis of multidisciplinary assessment incorporating file review, clinical interview, psychometric assessment and observations made during a 4-week inpatient assessment.</td>
<td>Principal conviction (offence that attracts most severe penalty on the basis of the Swedish Penal Code) recorded for each case on national register.</td>
<td>Nil</td>
<td>11 (0.42%) cases of autism identified in total sample (2 male arsonists, 7 male violent offenders and 2 female violent offenders). 73 (2.7%) cases of Asperger’s syndrome identified in total sample 55 male violent offenders, 11 male arsonists, 2 female arsonists and 5 female violent offenders).</td>
<td></td>
</tr>
<tr>
<td>Study</td>
<td>n</td>
<td>Sample</td>
<td>Diagnostic strategy and criteria used</td>
<td>Offending data</td>
<td>Comparison group(s)</td>
<td>Summary of findings</td>
</tr>
<tr>
<td>------------------------------</td>
<td>-----</td>
<td>------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Kumagami and Matsuura (2009)</td>
<td>428</td>
<td>Juvenile cases (excluding those involving driving offences) in four</td>
<td>Diagnosis according to DSM-IV criteria for PDD. Diagnoses were either existing or provided by court-appointed child psychiatrist.</td>
<td>Data routinely recorded by family court investigators on the basis of semi-structured interview, school records and court records.</td>
<td>Nil</td>
<td>28 (6.5%) cases across all four courts were identified where the perpetrator was diagnosed with a PDD. The prevalence of PDD varied significantly across courts, ranging from 1.3% in the sample of cases from a court in Tokyo to 18.2% in a sample of cases that were examined by the special investigation department dealing with unique crimes in Kyoto.</td>
</tr>
<tr>
<td>'t Hart-Kerkhoffs et al. (2009)</td>
<td>175</td>
<td>Males aged 12-18 years old referred between May 2003-December 2006 to four regional offices of the Child Protection Board (CPB) in the Netherlands due to suspected perpetration of sex offenses.</td>
<td>Parent report of autistic symptoms according to the Dutch version of the Children’s Social Behaviour Questionnaire (VISK, Hartman, Luteijn, Moorlag, De Bildt, &amp; Minderaa, 2007)</td>
<td>Suspected of committing a sexual offence as recorded in police records and CPB files information.</td>
<td>500 age-matched males without ASD diagnosis and 114 age-matched males with DSM-IV diagnoses of PDD-NOS or high-functioning autism.</td>
<td>Suspected juvenile sex offenders displayed more ASD symptoms than healthy controls and fewer ASD symptoms than the ASD diagnosed controls. Higher levels of ASD symptoms found for suspected child molesters and suspected solo offenders than for those suspected of offenses that occurred in a group.</td>
</tr>
<tr>
<td>Fazio et al. (2010)</td>
<td>67</td>
<td>Incarcerated adult males recruited from one jail and</td>
<td>Administration of the Adult Autism Spectrum Quotient</td>
<td>--a</td>
<td>Prevalence rate of 0.6% in the general</td>
<td>4.5% of sample met the AQ’s normed cut-off score of 32c.</td>
</tr>
<tr>
<td>Study</td>
<td>n</td>
<td>Sample</td>
<td>Diagnostic strategy and criteria used</td>
<td>Offending data</td>
<td>Comparison group(s)</td>
<td>Summary of findings</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-----</td>
<td>------------------------------------------------------------------------</td>
<td>----------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Ståhlberg, Anckarsäter, and Nilsson (2010)</td>
<td>100</td>
<td>Adolescents with complete diagnostic records who were committed to specialized youth institutions in a region of Sweden between September 2004- February 2007.</td>
<td>Diagnosis according to DSM-IV criteria for autistic disorder, Asperger syndrome and PDD-NOS. Multi-disciplinary diagnostic procedures already established in services were upheld. Included administration of autism-specific diagnostic tools.</td>
<td>Legal status: admission to treatment according to the ‘Young Offenders Act’. 22 individuals in sample were committed on the basis of offending behaviour.</td>
<td>Population cited by Chakrabarti &amp; Fombonne (2005) in a study of UK preschoolers. 1.2% for ASD in the general population reported by Kadesjö et al. (1999).</td>
<td>Of the subsample of adolescents incarcerated on the basis of offending behaviour, only 1 (4.5%) met criteria for an ASD (PDD-NOS).</td>
</tr>
<tr>
<td>Ogloff, Warren, Tye, Blaher, &amp; Thomas (2011)</td>
<td>614</td>
<td>People detained within police cells over a 3-month period across 9 police stations in Victoria, Australia.</td>
<td>Interviewed on reception into police custody by custody nurses who completed a clinical interview and the Brief Psychiatric Rating Scale. Full histories of contact data for participants were then drawn from the public</td>
<td>Data on offences which lead to each participant’s arrest were categorized according to the most serious offence committed and were drawn from the Law Enforcement Assistance Program (LEAP), a state-wide</td>
<td>Nil</td>
<td>3 (3.4%) of detainees possessed diagnoses from childhood of a pervasive developmental disorder.</td>
</tr>
<tr>
<td>Study</td>
<td>n</td>
<td>Sample</td>
<td>Diagnostic strategy and criteria used</td>
<td>Offending data</td>
<td>Comparison group(s)</td>
<td>Summary of findings</td>
</tr>
<tr>
<td>--------------------</td>
<td>------</td>
<td>----------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>---------------------</td>
<td>-------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Fazio et al. (2012)</td>
<td>431</td>
<td>Male prisoners in a maximum-security prison in the USA.</td>
<td>Scores on the AQ (Baron-Cohen et al., 2001).</td>
<td>Offence history and current sentence information provided by the State Department of Corrections. Most violent offences of sample were coded according to the Violence Rating Scale (M. H. Young, Justice, &amp; Erdberg, 1999).</td>
<td>Nil</td>
<td>19 (4.4%) individuals in sample met the AQ’s normed cut-off score for ASD of 32c.</td>
</tr>
<tr>
<td>Robinson et al. (2012)</td>
<td>2458</td>
<td>Convicted prisoners across all publicly-run prisons in Scotland (n = 12)</td>
<td>Scores on novel screening instrument, scored by prison-officers familiar with each prisoner. Scores on the AQ (Baron-Cohen et al., 2001) also collected for a sub-sample (n = 126). Interviews were conducted with parents.</td>
<td>Nil</td>
<td>27 (21%) individuals in sub-sample that completed the AQ met the normed cut-off score of 32c. No individuals in the sub-sample scored on the ASDI met the cut-off score. 97 (4%) of whole sample scored above the novel instrument’s predetermined cut-off score of 5.</td>
<td></td>
</tr>
<tr>
<td>Study</td>
<td>n</td>
<td>Sample</td>
<td>Diagnostic strategy and criteria used</td>
<td>Offending data</td>
<td>Comparison group(s)</td>
<td>Summary of findings</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-----</td>
<td>------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Lindsay et al. (2014)</td>
<td>477</td>
<td>Individuals referred to 24 intellectual disability offender services due to antisocial or offending behaviour in three health districts in England and Scotland in 2002/3</td>
<td>of a sub-sample (n = 44) to score the ASDI (Gillberg et al., 2001).</td>
<td>Diagnoses reported within clinical case notes.</td>
<td>Rate for ASD amongst general population with an intellectual disability of 7.5% reported by Cooper, Smiley, Morrison, Williamson, and Allan (2007). Offence characteristics compared between referred individuals with ASD (n = 47) and those with no diagnosis of ASD (n= 430).</td>
<td>Similar rate of ASD amongst referrals to forensic intellectual disability services (9.9%) than in general population of individuals with an intellectual disability. Lower rate of index sexual offences and history of drug and alcohol offences amongst ASD group when compared to those in sample with no ASD diagnosis. Increased history of aggressive behaviour amongst ASD group when compared to those in sample with no ASD diagnosis. Lower rate of previous criminal charges amongst ASD group (despite increased history of aggressive behaviour) when compared to those in sample with no ASD diagnosis.</td>
</tr>
<tr>
<td>Study</td>
<td>n</td>
<td>Sample</td>
<td>Diagnostic strategy and criteria used</td>
<td>Offending data</td>
<td>Comparison group(s)</td>
<td>Summary of findings</td>
</tr>
<tr>
<td>-----------------------------------------</td>
<td>-----</td>
<td>------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------</td>
<td>---------------------------------------</td>
<td>---------------------</td>
<td>-----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Søndennaa, Helverschou, Steindal, Rasmussen, and Nilson (2014)</td>
<td>3382</td>
<td>All forensic examination reports filed in the archives of the Norwegian Board of Forensic Medicine between 2001-2011.</td>
<td>Diagnosis according to ICD-10 criteria extracted from information included in reports.</td>
<td>Index offence recorded in report.</td>
<td>Nil</td>
<td>48 (1.4%) reports regarding perpetrator with a diagnosis of ASD were identified.</td>
</tr>
<tr>
<td>Esan et al. (2015)</td>
<td>138</td>
<td>Service evaluation project including all patients treated over a period of 6 years within a nation-wide 64-bed inpatient forensic intellectual disability service in England.</td>
<td>According to ICD-10 criteria. Retrospective file review of diagnoses assigned through established assessment process at service.</td>
<td>Retrospective file review of legal status, conviction history and unadjudicated aggression history.</td>
<td>Comparison of offence characteristics between patients in sample with (n=42) and without (n=96) ASD diagnoses.</td>
<td>42 (30%) individuals with ASD diagnoses identified in sample. No significant differences in prior convictions or history of aggressive behaviour between patients with and without ASD diagnoses. Patients with ASD were comparatively less likely to be subject to criminal sections or restriction orders.</td>
</tr>
</tbody>
</table>

\^Not specified/made explicit and/or inferred from presence in setting.
\^Gillberg’s diagnostic criteria were the first published diagnostic criteria for Asperger’s syndrome (Gillberg & Gillberg, 1989), later revised (Gillberg, 1991). See Appendix B for full Gillberg diagnostic criteria.
\^In the initial validation study for the AQ (Baron-Cohen et al., 2001), 80% of those with ASD scored in this range as opposed to only 2% of the general population.
\^A second study using this sample was identified (O'Brien et al., 2010) but excluded on the basis that more comprehensive information regarding individuals with ASD was included in the included study.
3.2.2. Research regarding prevalence of offending amongst ASD populations. Similar to research regarding ASD amongst offending populations, considerable diversity exists in the methodology and results of studies that have explored offending behaviours amongst those with ASD. As shown in Table 3, prevalence estimates ranged from 0.5% for sexual convictions amongst individuals with ASD admitted to Swedish hospitals (Långström, Grann, Ruchkin, Sjöstedt, & Fazel, 2009) to 48% for self-reported offending amongst a community-based sample of adults with ASD in the UK (Woodbury-Smith, Clare, Holland, & Kearns, 2006) and 52% for public masturbation amongst residents of (non-forensic) supported accommodation services in Denmark (Haracopos & Pedersen, 1992). The method by which studies defined and measured offending behaviour appeared to provide a partial explanation for the variation in reported prevalence estimates. Unsurprisingly, lower prevalence estimates were associated with studies limited to conviction data (e.g. Hippler, Viding, Klicpera, & Happé, 2010; Långström et al., 2009) than those where wider contact with the CJS was considered (e.g. Brookman-Frazee et al., 2009; Cheely et al., 2012). Those studies that took into consideration the self-report or observation of inappropriate, antisocial or offending behaviours (Haracopos & Pedersen, 1992; Tantam, 1988; Woodbury-Smith et al., 2006) yielded the highest prevalence rates.
Table 3

Prevalence of Offending Behaviour Amongst Individuals with ASD

<table>
<thead>
<tr>
<th>Study</th>
<th>n</th>
<th>Sample Description</th>
<th>Diagnostic strategy and criteria used</th>
<th>Offending data</th>
<th>Prevalence comparison group(s)</th>
<th>Summary of findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tantam (1988)</td>
<td>54</td>
<td>Convenience sample of long-term psychiatric patients aged over 16 years who displayed ‘social isolation and eccentricity’</td>
<td>Clinical interview and file review according to (unspecified) criteria developed on the basis of Wing and Gould (1979).</td>
<td>Self-Report/ Psychiatric records</td>
<td>Nil</td>
<td>46 individuals met the study criteria as being “autistic or having an autistic-related disorder such as Asperger’s syndrome”. Of 54 total cases, 24 (44%) displayed history of misdemeanors and antisocial behaviours and 14 (23%) had committed Criminal Damage, Arson, Assault, Indecent Exposure or Attempted Rape.</td>
</tr>
<tr>
<td>Haracopos and Pedersen (1992)</td>
<td>81</td>
<td>Residents of 19 autistic- specific and 1 ID-specific supported accommodation services.</td>
<td>Diagnosis of autistic disorder made in childhood according to DSM-III-R as recorded in case notes.</td>
<td>Questionnaire regarding background information and observed sexual behaviour completed by informants (residential workers)</td>
<td>Nil</td>
<td>29 (52%) masturbated in public and 34 (42%) displayed “definite signs” of sexual behaviour directed towards others, 90% of which was unwanted by target.</td>
</tr>
<tr>
<td>Woodbury-Smith et al. (2006)</td>
<td>25</td>
<td>Adults with ASD in the absence of a cognitive impairment residing in one health district in the UK.</td>
<td>Diagnosis according to ICD-10 criteria. Diagnosis made or confirmed via Autism Diagnostic Interview-</td>
<td>Self-report according to an unpublished questionnaire of 16 offence-types</td>
<td>20 volunteer participants who were employees of a local</td>
<td>Individuals with ASD were less likely to report prior engagement in offending behaviour (48%) than comparison group (80%). 2 (7%) individuals with ASD had</td>
</tr>
<tr>
<td>Study</td>
<td>n</td>
<td>Sample</td>
<td>Diagnostic strategy and criteria used</td>
<td>Offending data</td>
<td>Prevalence comparison group(s)</td>
<td>Summary of findings</td>
</tr>
<tr>
<td>------------------------</td>
<td>----</td>
<td>------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------</td>
<td>-------------------------------</td>
<td>----------------------------------------------------------</td>
</tr>
<tr>
<td>Allen et al. (2008)</td>
<td>126</td>
<td>Recruited through primary care services, mental health services, specialist learning disability services and local media.</td>
<td>Revised (Lord, Rutter, &amp; le Couteur, 1994).</td>
<td>Clinical diagnosis of Asperger syndrome formally documented in case notes. Informants (service staff) completed a questionnaire incorporating the Asperger Syndrome Diagnostic Interview (ASDI; Gillberg et al., 2001) to validate formal diagnoses.</td>
<td>Nil</td>
<td>33 (26%) of individuals identified with ASD had engaged in offending behaviours.</td>
</tr>
<tr>
<td>Cederlund et al. (2008)</td>
<td>140</td>
<td>Prospective follow-up of 70 males with Asperger syndrome and 70 males with autism in Sweden, at least 5 years following diagnosis (aged 16-36 years).</td>
<td>Initial diagnoses according to DSM-III and DSM-III-R criteria for autism or Gillberg’s criteria for Asperger syndrome. Follow-up diagnoses according to DSM-IV/ICD-10 criteria for</td>
<td>Parent report of criminal justice involvement.</td>
<td>Nil</td>
<td>7 (10%) individuals with Asperger’s syndrome diagnoses reported to have been involved with the criminal justice system due to offending behaviour. No reports of criminal justice system involvement for offending behaviours for individuals with autism/atypical autism.</td>
</tr>
<tr>
<td>Study</td>
<td>n</td>
<td>Sample</td>
<td>Diagnostic strategy and criteria used</td>
<td>Offending data</td>
<td>Prevalence comparison group(s)</td>
<td>Summary of findings</td>
</tr>
<tr>
<td>-------</td>
<td>---</td>
<td>--------</td>
<td>--------------------------------------</td>
<td>----------------</td>
<td>-------------------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Mouridsen, Rich, Isager, and Nedergaard (2008)</td>
<td>313</td>
<td>Individuals diagnosed with a PDD who were inpatients at the University Clinics of Child Psychiatry of Copenhagen and Aarhus in Denmark between 1960-1984.</td>
<td>Diagnosis according to ICD-9 criteria.</td>
<td>Court conviction data drawn from the Danish Criminal Register.</td>
<td>933 typically developing individuals matched on demographic variables drawn from the Danish Central Persons Register</td>
<td>Individuals with ASD were less likely to be convicted of an offence (9%) in comparison to matched controls from the general population (18%).</td>
</tr>
<tr>
<td>Tonge, Brereton, and Bull (2008)</td>
<td>44</td>
<td>Individuals aged above 18 years drawn from a larger sample of individuals aged 12-25 years consecutively</td>
<td>According to DSM-IV criteria for autism and Asperger syndrome.</td>
<td>Caregiver endorsement of seven “disturbed behaviour” items (behaviours that may lead to</td>
<td>Nil</td>
<td>27 (61%) of sample were reported to display at least one of the antisocial behaviour problems.</td>
</tr>
<tr>
<td>Study</td>
<td>n</td>
<td>Sample</td>
<td>Diagnostic strategy and criteria used</td>
<td>Offending data</td>
<td>Prevalence comparison group(s)</td>
<td>Summary of findings</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-----</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Brookman-Frazee et al. (2009)</td>
<td>1603</td>
<td>Children aged 6-17 years sourced from a stratified random sample of all children (n = 12662) in receipt of public mental health, special education, child welfare, drug/alcohol and/or juvenile justice services in an urban area of the USA.</td>
<td>Parental response to question: “have you ever been told by a teacher, school official, doctor, nurse or other health professional that your child has any of the following conditions?” Children of parents who endorsed autism and/or mental retardation/developmental delay were included within the ASD/ID study sample (n = 220).</td>
<td>1996/7 fiscal year indicating an open case within juvenile justice services at any time within the previous year.</td>
<td>Children in sample who did not meet criteria for ASD (n = 1561)</td>
<td>42 children in sample were identified as having ASD. Fewer children with ASD/ID were involved in the juvenile justice (11%) system than children without ASD/ID (31%)².</td>
</tr>
<tr>
<td>Study</td>
<td>n</td>
<td>Sample</td>
<td>Diagnostic strategy and criteria used</td>
<td>Offending data</td>
<td>Prevalence comparison group(s)</td>
<td>Summary of findings</td>
</tr>
<tr>
<td>---------------------</td>
<td>-----</td>
<td>------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------</td>
<td>-------------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Långström et al. (2009)</td>
<td>422</td>
<td>Individuals admitted to any general or psychiatric hospital (including secure hospitals) hospitalised with ASD nationwide in Sweden between 1988-2000.</td>
<td>Diagnosis according to ICD-9 (for diagnoses between 1987-1996) or ICD-10 (for post-1996). ASD recorded as a clinical diagnosis on the nationwide hospital discharge register.</td>
<td>Conviction data drawn from the national crime register.</td>
<td>Nil</td>
<td>2 (0.5%) individuals had a conviction for sexual offending. 33 (7%) individuals had convictions for violent offences. A greater proportion of individuals with a diagnosis of Asperger syndrome had offended (20%) when compared to those diagnosed with autistic disorder (3.2%).</td>
</tr>
<tr>
<td>Hippler et al. (2010)</td>
<td>177</td>
<td>Follow-up of patients who were admitted to the remedial pedagogical ward of the Vienna University Children’s Clinic between 1964-1986, or seen in Hans Asperger’s private practice in Vienna between 1951-1980.</td>
<td>Diagnosed by Asperger himself or his colleagues. Archival information from the Vienna University Children’s Clinic and the Institute for Medical History</td>
<td>Conviction data sourced from the Austrian Penal Register (centrally managed register of convictions recorded against Austrian citizens and residents in foreign courts and for all cases in Austrian courts) in 2002. Some convictions, including cases of institutionalization associated with criminal</td>
<td>Average rate of newly registered convictions between 1998-2002 for males over age 14 in the general population. Drawn from publicly available criminal records.</td>
<td>8 (4.5%) individuals in Asperger’s cohort had registered convictions at follow-up. Rate of newly registered convictions between 1998-2002 amongst study sample (1.3%) was similar to comparison group (1.25%).</td>
</tr>
<tr>
<td>Study</td>
<td>n</td>
<td>Sample</td>
<td>Diagnostic strategy and criteria used</td>
<td>Offending data</td>
<td>Prevalence comparison group(s)</td>
<td>Summary of findings</td>
</tr>
<tr>
<td>---------------</td>
<td>-----</td>
<td>------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>--------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Cheely et al. (2012)</td>
<td>609</td>
<td>Epidemiological sample of youth aged 12-18 years in South Carolina, USA.</td>
<td>Diagnosis according to DSM-IV-TR criteria sourced from surveillance data sourced from the South Carolina Autism and Developmental Monitoring Program (funded by the Centre for Disease Control and Prevention).</td>
<td>Frequency, type and outcome of criminal charges according to official criminal justice records sourced from the Department of Juvenile Justice and South Carolina Law Enforcement Division.</td>
<td>99 youths with one or more juvenile justice charges provided a comparison for offence characteristics. Comparison group was demographically matched with members of ASD sample who had offended.</td>
<td>32 (5.24%) individuals in the ASD sample had been charged with at least one offence. 103 offences were recorded overall amongst this population. Fewer charges per person were recorded in ASD sample (Med = 2) than in comparison group (Med = 4).</td>
</tr>
<tr>
<td>Lundström et al. (2014)</td>
<td>3391</td>
<td>All individuals with diagnosed neurodevelopmental disorders born between 1984-1994 who lived in the greater Stockholm area, Sweden at any time.</td>
<td>According to DSM-IV criteria as recorded in the Child and Adolescent Mental Health Services clinical patient information register. Registered diagnoses were validated by</td>
<td>Violent offence convictions for individuals aged 15 and older in Swedish district courts as recorded in the National Crime Register. Violent offences</td>
<td>2301 typically developing full- and 594 half-siblings (born between 1984-1994) of diagnosed sample. Ten random</td>
<td>Childhood diagnosis of ASD not related to later violent offending (OR 1.1-1.3). No increased risk of violent offending amongst full- and half-siblings of individuals with ASD.</td>
</tr>
<tr>
<td>Study</td>
<td>n</td>
<td>Sample</td>
<td>Diagnostic strategy and criteria used</td>
<td>Offending data</td>
<td>Prevalence comparison group(s)</td>
<td>Summary of findings</td>
</tr>
<tr>
<td>-------</td>
<td>---</td>
<td>--------</td>
<td>----------------------------------------</td>
<td>----------------</td>
<td>-------------------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>concordance with diagnoses obtained in a study regarding Swedish-born twins aged 9 and 12 years (CATSS, Anckarsäter et al., 2011).</td>
<td>were defined as homicide, assault, robbery, arson, illegal sexual behaviours, illegal threats and intimidation.</td>
<td>population controls matched with ASD (n=33910) and full- (n=23008) and half- sibling (n=5758) groups</td>
<td></td>
</tr>
</tbody>
</table>

*The diagnostic category of those that committed offences in Tantam’s (1988) sample is unclear.

*Gillberg’s diagnostic criteria were the first published diagnostic criteria for Asperger’s syndrome (Gillberg & Gillberg, 1989), later revised (Gillberg, 1991). See Appendix B for full Gillberg diagnostic criteria.

*Sexual behaviour directed towards others included, for example, sitting on female staff member’s lap while masturbating, touching staff member’s breast and becoming aroused, touching children’s backside while rubbing penis.

*The rate of juvenile justice involvement was not reported separately for children identified with ASD and ID.
Despite the substantial variation in methodology and reported results across the included studies, it is noteworthy that where a comparison group was employed, rates of offending behaviour amongst individuals with ASD were equivalent or lower than that of non-ASD participants (Brookman-Frazee et al., 2009; Cheely et al., 2012; Hippler et al., 2010; Långström et al., 2009; Mouridsen et al., 2008; Woodbury-Smith et al., 2006). Such observations suggest that individuals with ASD are not at increased risk of engagement in offending behaviour and may, in fact, be less likely to offend than those in the general population.

3.2.3. The Contribution of Co-Morbid Conditions. One criticism of the extant literature regarding ASD and offending regards the failure of the research to consider or control for the impact of conditions that co-exist with ASD and which are known to be associated with engagement in offending behaviour. Co-morbidity is common amongst the ASD population (APA, 2013; WHO, 2004) and a number of studies have demonstrated that co-morbid conditions are similarly common among offenders with ASD (Anckarsäter et al., 2008; Newman & Ghaziuddin, 2008). Accordingly, it is important to consider the potential contribution of co-morbid conditions to the numbers of individuals with ASD that have been reported to engage in offending behaviour (Brewer & Young, 2015).

3.2.3.1. Co-morbid Intellectual Disability and offending. Intellectual disability (ID) frequently co-occurs with ASD and is characterized by substantial limitations or deficits in cognitive and adaptive functioning, both of which must be present in the developmental period (APA, 2013; WHO, 2004). Individuals with an ID frequently experience disadvantage on socio-environmental factors known to increase vulnerability for engagement in offending behaviours (e.g. Dickson, Emerson, & Hatton, 2005). It is generally accepted that individuals with ID are over-
represented within the CJS, although there is some debate as to the extent of this over-representation (Hayes, 2006; Howard & O'Brien, 2009; Talbot, 2010). In contrast, offending behaviours appear less common amongst individuals with co-morbid ID within the ASD population, with prior research demonstrating no relationship between IQ and conviction rates, or higher conviction rates amongst individuals with higher intellectual functioning (Hare et al., 1999; Långström et al., 2009; Mouridsen et al., 2008). Such findings may reflect a greater opportunity and capability to engage in offending behaviour amongst higher-functioning ASD individuals (Holland, Clare, & Mukhopadhyay, 2002; Långström et al., 2009), or a reluctance of others to report “challenging behaviours” exhibited by lower functioning individuals that may otherwise have been considered to constitute offending behaviour (see Raggi et al., 2013). They may also result from the application of legal defenses (e.g. mental impairment or fitness to stand trial) in the adjudication of cases where an individual has a comorbid ID (Freckelton & List, 2009).

3.2.3.2. Psychiatric co-morbidity and offending. As with ID, comorbid psychiatric disorder (i.e. mood disorders, behavioural disorders and psychosis) is common amongst the ASD population, with some studies suggesting that up to 84% of adults with ASD possess a co-occurring mental illness (Hofvander et al., 2009; Howlin & Moss, 2012; Tantam, 2000). Internationally, research has indicated the presence of an association between psychiatric disorders, particularly psychotic and substance abuse disorders, and engagement in offending in the general offending population (Arseneault, Moffitt, Caspi, Taylor, & Silva, 2000; Ogloff, Talevski, Lemphers, Wood, & Simmons, 2015; Tiihonen, Isohanni, Räsänen, Koiranen, & Moring, 1997; Volavka, 2013). Some authors have thus argued that problematic
antisocial behaviours observed amongst some individuals with ASD may occur primarily in the context of such comorbid psychiatric diagnoses (Haskins & Silva, 2006; Mazzone et al., 2012; Newman & Ghaziuddin, 2008; Palermo, 2004; Wachtel & Shorter, 2013; Woodbury-Smith et al., 2005).

In their review of 37 case studies of violent offending amongst individuals with Asperger’s syndrome, Newman and Ghaziuddin (2008) identified diagnosable or ‘probable’ co-morbid psychiatric disorder in the majority (83.8%) of cases. Similarly, Bleil Walters et al. (2013) found that adjudicated adolescent sexual offenders with ASD (n = 27) self-reported a significantly higher degree of depressive symptoms than their non-ASD counterparts (n = 16). In contrast, there is evidence that offending observed amongst the ASD population is less likely to be associated with substance use disorders. Specifically, the research has indicated that drug offences, substance abuse histories and intoxication at the time of offending are all less common amongst offenders with ASD when compared with the general offending population (de la Cuesta, 2010; Dein & Woodbury-Smith, 2010; Hippler et al., 2010; Murphy, 2003, 2013; Wahlund & Kristiansson, 2006; Woodbury-Smith et al., 2006). These results have been challenged however by Långström et al. (2009) who found that both psychotic disorder and substance use disorder were risk factors for engagement in violent offending amongst individuals hospitalized with ASD in Sweden between 1988 and 2000 (n = 422).

It appears likely that the results of studies in which inflated rates of psychiatric comorbidity amongst ASD offenders have been demonstrated may have been confounded by the settings in which such research was undertaken. Specifically, the majority of such studies have been conducted within mental health settings, which may be more likely than other dispositional alternatives to accommodate any offender
with a psychiatric diagnosis (King & Murphy, 2014). Further, psychiatric comorbidity does not appear to provide a comprehensive explanation for offending behaviours amongst the whole offending ASD population. As noted by Newman and Ghaziuddin (2008), although many violent offenders with ASD may possess a comorbid diagnosis, there are also a number of individuals who have displayed offending behaviours in the absence of psychiatric disorder. Similarly, in an investigation of risk assessment amongst violent offenders with ASD (n = 20), Murphy (2013) found that historical or active major mental illness and substance abuse histories were not significant risk factors for more than half of the sample.

While it is noted that the influence of co-occurring conditions may increase risk for offending in some individuals with ASD, psychiatric comorbidity does not provide a complete explanation for offences perpetrated by individuals with ASD. A full exploration of the complex interaction between ASD traits, co-occurring symptomatology and offending is beyond the scope of the current thesis, and is available elsewhere (e.g. Brewer & Young, 2015).

3.2.3.3. A double hit? ASD, offending behaviour and psychopathy.

Psychopathy is considered to be a developmental disorder in which an individual manifests antisocial personality traits and behavioural patterns including manipulativeness, callousness, a lack of remorse, extreme egocentricity, and an inability to form meaningful relationships (Aharoni, Antonenko, & Kiehl, 2011; Blair, 2008; Mullen, 1992). Given this psychological and behavioural profile, it is unsurprising that research has consistently demonstrated a strong association between psychopathy and offending behaviour (Anckarsäter, 2005; Glenn, Iyer, Graham, Koleva, & Haidt, 2009; Shoemaker, 2011). Although psychopathy has a prevalence
rate of only 1% in the general population, Hare, Hart, and Harpur (1991) report that the prevalence rate in forensic settings may exceed 20%.

Anecdotal accounts have highlighted a potential overlap in aspects of the clinical presentation of psychopathy and ASD; for example, apparent egocentricity and deficits for some aspects of empathic concern have been described for both conditions (Bjørkly, 2009; Fitzgerald, 2003; Murphy, 2007; Murrie et al., 2002). Accordingly, it has been argued that the seemingly callous behaviour observed in some individuals with ASD is due to co-morbid psychopathy (Damm, 2010; Mazzone et al., 2012; Rogers, Viding, Blair, Frith, & Happe, 2006). As such, Rogers et al. (2006) contend “reports and concerns about ‘chilling’ nasty behaviour in a young person with ASD should not be dismissed as ‘just part of the autism/Asperger syndrome’” but that co-morbid psychopathy should be considered in such cases (p. 1797).

Review of case reports, however, suggests that some individuals with ASD may offend independently of psychopathic status. For example, psychopathy was not indicated in Murphy’s (2010) case study of “AB”, who stabbed to death his employer in response to being made redundant. AB was diagnosed with an ASD but scored a low overall profile of behaviours and traits associated with psychopathy (≈ 9) on the gold standard measure of psychopathy in adults, the Hare Psychopathy Checklist Revised (PCL-R; Hare, 2003). Similarly, in a study investigating the PCL-R profiles of 13 inpatients with Asperger’s syndrome in Broadmoor psychiatric hospital, none reached established cut-off scores for psychopathy (Murphy, 2007). These authors suggest that individuals with ASD may display a lack of awareness of wrongdoing in the absence of psychopathy. For example, despite his low overall score on the PCL-R, AB still scored highly on items that indicate a lack of remorse or guilt, shallow
affect, lack of empathy and a failure to accept responsibility for his actions (Murphy, 2010).

Case reports suggest that the profiles of offenders with ASD differ from those of offenders with elevated levels of psychopathic traits in terms of motivation for offending and the way in which they view their offences. In offences committed by those high in psychopathy, excessive displays of planned and goal-directed violence are common (Bjørkly, 2009). The psychopath is motivated by self-interest and offending behaviour is contingent on positive reinforcement (Freckelton & List, 2009). In contrast, offending behaviour observed amongst individuals with ASD appears better characterized as compulsive, ritualistic or reactive attempts to avoid uncomfortable affective experiences, described in more detail below (Bjørkly, 2009; Freckelton & List, 2009; Murrie et al., 2002). Further, while psychopaths tend to deny accounts of violent acts, individuals with ASD typically immediately confess to illegal acts, despite maintaining that their actions were justified (Bjørkly, 2009). Due to such differences between the profiles of individuals with ASD who offend and offenders with high levels of psychopathy, together with the observation that offending behaviour can occur amongst individuals with ASD who do not exhibit high levels of psychopathy, co-morbid psychopathy is not considered a sufficient explanation for offending behaviour seen amongst some individuals with ASD.

3.2.4. Summary of research findings regarding prevalence of offending and ASD. Whilst there is an emerging literature base investigating a hypothesized association between ASD and engagement in offending behaviour, prevalence estimates remain equivocal, both in regards to unlawful behaviour in this population and the presence of ASD amongst individuals within forensic settings. Studies on this topic differ in their intended aims, adopted diagnostic criteria, consideration of
confounding factors and definitions of offending behaviour; consequently, the results are difficult to compare and may be unreliable (Anckarsäter et al., 2008; de la Cuesta, 2010). Efforts to establish an accurate prevalence rate for offending behaviour amongst individuals with ASD are further hampered by a lack of agreement regarding the prevalence of ASD within the general population (Browning & Caulfield, 2011) and the frequent use of small, highly selective, and therefore potentially biased study samples, raising the possibility that findings are not representative of the whole ASD population (Im, 2016; King & Murphy, 2014).

Recent reviews of the extant literature in this area argue that the nature of forensic involvement amongst the ASD population may be influenced by factors external to those associated with engagement in offending behaviours (Brewer & Young, 2015; King & Murphy, 2014). For example, prevalence estimates may be inflated by systematic vulnerabilities faced by individuals with ASD within the context of the CJS, which may result in an increased likelihood that a person with ASD will admit involvement in illegal acts, be prosecuted for perpetrating a crime, be referred for forensic evaluation or actually receive a conviction. Others have argued that current prevalence estimates derived from official CJS data represent an underestimation of the true prevalence because they do not account for the numbers of individuals who may offend without detection, are subject to diversion, or are not formally charged (King & Murphy, 2014). In support of this contention, it has been suggested that unlawful behaviour amongst individuals with ASD may not always lead to contact with the CJS, particularly where such behaviours are interpreted in the context of ‘challenging behaviour’ rather than as constituting a criminal offense (Raggi et al., 2013). For example, in a study of offending behaviour amongst adults with Asperger’s syndrome, Allen et al. (2008) found that a substantial minority (44%)
of participants did not receive a CJS disposal (i.e. where an incident results in CJS involvement and is resolved through legal proceedings) following engagement in unlawful behaviour. Thus, for many individuals with ASD, disruptive behaviours need to be severe or repeated, and perpetuated in the absence of mitigating circumstances, in order for a conviction to be received for their engagement in behaviours that could otherwise be interpreted as criminal offending.

In sum, the extant research regarding the frequency with which individuals with ASD engage in offending behaviour consists of studies conducted in specialized settings across different jurisdictions, with variations in methodology and criteria for identifying both ASD-status and offending behaviour, and which generally fail to systematically consider the impact of factors unrelated to engagement in offending behaviour that may artificially inflate or suppress commonly used indices of offending. Comparison groups, where they are employed, often appear questionable in their suitability and confounding factors are considered infrequently and inconsistently. In this context, the wide variation in reported prevalence is unsurprising and any conclusions drawn on the basis of the existing literature regarding criminal propensity within the ASD population thus remain tentative. On face value, existing prevalence studies appear to suggest an over-representation of individuals with ASD within offending populations; however, when the methodological flaws of such studies are examined, it is evident that such data are inconclusive. Critically, the majority of the more robust studies in this area have found that individuals with ASD are no more likely to commit offences (Ghaziuddin et al., 1991; Hippler et al., 2010) or in fact, may be less likely to offend (Mouridsen et al., 2008; Woodbury-Smith et al., 2006) when compared to offending rates within the general population. Accordingly, at present, the available literature does not support
the conclusion that individuals with ASD offend at a rate that is disproportionate to that in the general population (King & Murphy, 2014).

Notwithstanding methodological weaknesses, prior research in this area has demonstrated that at least some individuals with ASD engage in offending behaviour and, as a result of such behaviour, are made subject to restrictions imposed through the CJS. Even if the true prevalence of offending behaviour amongst individuals with ASD is equivalent, or indeed, lower than that in the general population, a more important question is whether, and the extent to which, the core features of ASD may drive offending behaviour in this population (Woodbury-Smith & Dein, 2014). This question is critical to considerations at every level of criminal justice involvement, ranging from informing early intervention and prevention efforts and assisting police to appropriately apprehend and interview individuals with ASD in relation to offending behaviours, the application of legislative provisions by the judiciary in the disposition of a guilty defendant, through to determining the most effective and humane options for punishment and rehabilitation of an offender with ASD. Although the available evidence is not supportive of an inevitable link between ASD and criminal behaviours, case reports suggest that some of the characteristic features of ASD may contribute, independently or in concert with other factors, to the engagement in offending behaviour by some individuals with ASD.

3.3. Features of ASD Potentially Associated with Offending Behaviour

While the weight of the current literature indicates that individuals with ASD are largely law abiding, it is suggested from other empirical literature that specific socio-communicative and behavioural deficits inherent to ASD may, under particular provocative circumstances, precipitate offending behaviours (Allen et al., 2008; Barry-Walsh & Mullen, 2004; Browning & Caulfield, 2011; Howlin, 2000; Lerner et
al., 2012). Indeed, a growing number of case studies describe offending behaviours that appear to have occurred in the context of diagnostically relevant features of the disorder (e.g. Barry-Walsh & Mullen, 2004; Kohn, Fahum, Ratzoni, & Apter, 1998; Murrie et al., 2002; Schwartz-Watts, 2005). For example, it has been proposed that socio-communicative deficits associated with ASD may result in maladaptive behaviours due to social naivety, difficulties understanding and responding appropriately to social norms and increased vulnerability to victimization and exploitation by antisocial peers. Simultaneously, the cognitive and behavioural rigidity common amongst individuals with ASD may precipitate offending in the context of the obsessive pursuit of specialized interests, maladaptive responses to sensory overloading, or distress arising from disrupted routines.

Of note, the available literature regarding the nexus between ASD symptomatology and engagement in offending behaviour is limited by the low base rate of such behaviour. Accordingly, the issues discussed below are predominantly drawn from anecdotal data or case reports. Whilst these methods of investigation are vulnerable to bias and limit the extent to which conclusions can be generalised, they nonetheless provide some insight and direction for future empirical exploration.

3.3.1. Socio-communicative impairments. Impairments in social interaction associated with difficulties interpreting and responding to social cues have been described as some of the most significant and enduring features of ASD (Shattuck et al., 2007). As a result of these impairments (e.g. social naivety and deficits in socio-emotional reciprocity), individuals with ASD may experience difficulties interpreting and responding to social situations appropriately, which may precipitate engagement in offending behaviour. An overview of the empirical evidence regarding such factors is provided below.
3.3.1.1. ‘Zero Degrees’ of empathy. Baron-Cohen (2011) coined the phrase “zero degrees of empathy” to describe individuals who lack the ability to demonstrate empathic concern for others. Individuals with ASD are amongst those described as possessing ‘zero degrees’ of empathy, evidenced by “no awareness of how you come across to others, how to interact with others, or how to anticipate their feelings or reactions” (Baron-Cohen, 2011, p. 45). Indeed, individuals with ASD have been shown to commonly demonstrate difficulties identifying others’ mental states, recognizing offending-relevant emotional expressions (e.g. fear or distress), and responding appropriately to the affective cues of others (e.g. Ashwin, Chapman, Colle, & Baron-Cohen, 2006; Harms, Martin & Wallace, 2010; Humphreys, Minshew, Leonard, & Behrmann, 2007). As a consequence of insensitivity to the intentions or emotional state of others, some individuals with ASD may present with an egocentric orientation, associated with a tendency to treat others as objects and occasionally resulting in inappropriate, aggressive or otherwise maladaptive behaviours.

Empathy deficits have been reported to precipitate some instances of offending behaviour perpetrated by individuals with ASD, including violence (Baron-Cohen, 1988; Tantam, 1991; Wing, 1981a); stalking (Stokes, Newton, & Kaur, 2007) and sexual offending (Murrie et al., 2002). According to Mahoney (2009), empathy and perspective-taking deficits may be critical contributing factors to engagement in offences related to child exploitation material amongst individuals with ASD. Specifically, Mahoney (2009) argues that, while the general population may readily understand that the production of child pornographic images involves the abuse of a child, this may not be the case for an individual with Asperger’s syndrome due to impairments in recognizing and processing nonverbal cues:
He cannot detect the abuse – he assumes the child is in the picture because the child desires to be there. But even if he detected the abuse or unhappiness of the depicted child, the individual with AS may not understand why he, a mere observer, should be held responsible for someone else’s abuse of a child. After all, he is simply receiving the images, not producing or further distributing them. And he has probably received them for free, so he has not materially assisted the producer. Not only does the AS individual have difficulty recognizing child sexual abuse and coercion, but he also has difficulty understanding that the law views receiving an already existing image of child abuse as the perpetuation of abuse (Mahoney, 2009, p. 44).

Such was the case for Nick Dubbin, a man with ASD who was convicted of offences relating to child pornography (Attwood, Hénault, & Dubin, 2014). Nick reported that he came across child exploitation materials while using online pornography to explore his sexual identity in the context of uncertainty regarding his sexual preferences. A lack of awareness of the full implications of accessing such materials is evident in Nick’s reflections on these events:

At the time, I didn’t understand that downloading free images on my computer in the privacy of my residence could lead to the severe legal consequences I later experienced. I also didn’t understand at the time that the children in the images had been victimized in the process of creating those images. I honestly had no idea that I was causing harm to anyone. It is very embarrassing to admit that I needed to have this information spelled out for me, as I wasn’t able to make that connection on my own. After my arrest, Dr. Green spent considerable time explaining the issue of victim awareness to me.
I was horrified to learn that these minors had been mistreated and that I had not been able to see that (Attwood et al., 2014, p. 99).

The association between empathy and autism appears to be more complicated than previously believed; it would be inaccurate to suggest that individuals with ASD categorically lack the ability to empathise with others (Blair, 2008). To the contrary, in many cases when individuals with ASD are made aware of the distress of others, they demonstrate empathic concern (Baron-Cohen, 2011; Higgs & Carter, 2015). Simultaneously, although a substantial body of evidence supports an association between low levels of empathy and engagement in offending behaviour (Barnett & Mann, 2013; Barriga, Sullivan-Cosetti, & Gibbs, 2009; Burke, 2001; Geer, Estupinan, & Maguno-Mire, 2000; Jolliffe & Farrington, 2004, 2007), Baron-Cohen (2011) argues that empathy deficits are necessary but insufficient to precipitate engagement in harmful behaviours. Accordingly, “low empathy merely sets the scene for cruelty” (Baron-Cohen, 2011, p.15).

3.3.1.2. **Social naivety and vulnerability to exploitation.** The socio-communicative impairments associated with ASD appear frequently to result in a naïve or superficial understanding of social dynamics and difficulties recognising the intentions of others (Hudson & Nijboer, 2012; Murrie et al., 2002). Such difficulties, alongside strong desires to build friendships in the absence of a sound understanding of what friendship entails, may result in difficulties recognizing malicious motives and place individuals with ASD at risk of exploitation by others (Howlin, 2004). Accordingly, it has been maintained that some individuals with ASD may be directed or convinced by others to commit offenses or act as an accomplice in criminal acts (Bishop, 2008; Howlin, 2000). Individuals with ASD may engage in directed unlawful behaviour unwittingly (Howlin, 2000); alternatively, some may volunteer to
do so, egged on by peers, in attempts to gain or maintain their membership in an antisocial peer-group (Tantam, 2003).

Howlin (2004) cites the example of “Berty,” who was picked up by police after stolen goods were spotted lined up neatly in the window of his front room. It later transpired that a local gang had frequently used Berty as a drug-runner and to store items they had stolen. Similarly, “Darren” was arrested when he was stopped for a vehicle roadworthiness check in a getaway car that was filled with stolen goods from a robbery perpetrated by a local gang; the others had by this time fled the scene (Howlin, 2004).

3.3.1.3. Lack of understanding or misinterpretation of social cues and norms. As a result of poor perspective taking skills and insensitivity to environmental and social cues, individuals with ASD may be “unable to predict or understand other people’s actions” (Strock, 2007, p.7). This may render them unaware of or unable to interpret many of the social rules that most people take for granted (e.g. not looking in windows, not touching other people’s possessions and respecting personal space), resulting in inappropriate social approaches in their interactions with others (Kennedy & Adolphs, 2014; Sinclair, 1992; Travers et al., 2013). For example, they may divulge personal information in inappropriate social settings or stand too close to others (Kennedy & Adolphs, 2014; Travers et al., 2013). Another potential consequence of difficulties understanding social cues may be mistaking social niceties as representative of interpersonal intimacy (Howlin, 2004). For example, polite engagement with a friendly tone may occasionally be interpreted by an individual with ASD as indicative of an enduring friendship or romantic relationship (Howlin, 2004).
Generally, such social faux pas do not cause significant harm, however, cases of offending have been documented amongst individuals with ASD in the context of misunderstanding social norms. An example of such is described in Haskins and Silva’s (2006) case study of “Mr B” - a teacher who was charged with multiple instances of ‘child annoyance’ after he inappropriately touched the shoulders of a number of his female adolescent students. Of note, Mr B’s inappropriate behaviour did not appear driven by sexual motives; in contrast, most instances occurred in the full view of others, suggesting that his behaviour resulted from a lack of appreciation that such interactions were socially unacceptable.

3.3.1.4. Asynchronous development: Inconsistency between socio-communicative (psychosexual) and sexual development. Incongruent developmental profiles are common amongst individuals with ASD, such that an individual may be significantly impaired in one area of functioning whilst displaying age-appropriate development in others (Attwood et al., 2014). Of particular relevance, disparities in socio-communicative and physical sexual development are frequently evident, whereby an individual may possess age-appropriate sexual interest and urges alongside limited sexual knowledge and difficulties performing the complex social skills required to initiate and maintain intimate relationships (Brown-Lavoie, Viecili, & Weiss, 2014; Chappell, 2011; Howlin, 2004; Mahoney, 2009; Ray et al., 2010; Sevlever, Roth, & Gillis, 2013). Such asynchronous development may place some individuals with ASD at risk of sexual offending (Gougeon, 2010; Howlin, 2004; Murrie et al., 2002; Ray et al., 2010).

In a review of research regarding sexuality and ASD, Gougeon (2010) concluded that “individuals with autism are sexual; they are interested in sexuality, have sexual needs, and oftentimes want to develop relationships with others” (p.348).
Unfortunately, characteristic deficits in communication and social skills are commonly significant barriers to successful romantic functioning (Post, Hayes, Storey, Loughrey, & Campbell, 2014; Stokes et al., 2007). Consequently, the attempts of individuals with ASD to acquire sexual partners may be inappropriate, and at times unlawful (Howlin, 2004; Murrie et al., 2002; Stokes et al., 2007). Due to difficulties with perspective-taking, for example, individuals with ASD may fail to recognise when others are not romantically interested and pursue an intimate relationship when it is inappropriate to do so (Post, Hayes, et al., 2014). This was evident in the case of “Mr. Parish”, who was charged with four counts of indecent and unlawful assault after rubbing an unknown woman’s legs, back and buttocks as his way of “trying to get to know her, to see if something would come out of it; a relationship or something” (Freckelton & List, 2009, p. 26).

Previous research has suggested that in comparison to neurotypical peers, individuals with ASD possess incomplete sexual knowledge (Ruble & Dalrymple, 1993; Stokes & Kaur, 2005) and have fewer opportunities to access informal learning opportunities afforded to neurotypical peers through adolescent relationships or peer interactions (Attwood, 2007; Hénault, 2005). In the absence of a peer reference group, some individuals with ASD may restrict or suppress their sexuality (Grandin, 2006); others may develop unusual (and potentially deviant) sexual interests (Tantam, 2003) or seek to explore their sexuality through alternative sources, such as online pornography (Attwood et al., 2014). In this context, some individuals with ASD, possessing a limited understanding of consent and failing to appropriately assimilate contextual cues, may possess an elevated risk for engagement in child sexual offences (Murrie et al., 2002), including accessing child exploitation materials (Attwood, 2007; Attwood et al., 2014).
Difficulties establishing appropriate sexual relationships may also increase risk for sexual offending related to the selection of inappropriate targets for sexual activities. Murrie and colleague’s (2002) case study of “CD” an adult male with Asperger’s syndrome, provides a clear example of sexual offending perpetrated against an underage boy in the context of difficulties initiating relationships with age-appropriate individuals. CD’s attempts at eliciting sex from age-appropriate individuals were passive and naïve, including standing in close proximity to women “until sex happened” (p. 62). While these approaches were generally unsuccessful, CD experienced more success eliciting sexual relationships with male partners, in exchange for accommodation and financial support. CD came to the attention of the CJS following repeated sexual encounters with a teenage boy over the period of several days until CD refused to continue providing financial support for the boy. Notably, CD was arrested for sexual assault of a minor only after he attended a police station to report his stereo stolen by the youth.

3.3.2. Restricted or repetitive patterns of behaviour, interests or activities.

As with socio-communicative deficits, the restrictive and repetitive behaviours, interests and activities associated with ASD appear to have been implicated in some instances of offending behaviour. Specifically, it has been argued that characteristic preoccupation with specialized interests, resistance to change and sensory abnormalities may, in some cases, lead to offending behaviours.

3.3.2.1. Rigidity applying learned social norms. While individuals with ASD can learn and reason according to social rules when these are made explicit, it has been suggested that they may fail to generalize and apply such knowledge to their own behaviour in real life situations (Wing, 1997; Zalla, Machery, & Leboyer, 2008). Alternatively, once a rule is acquired, it may be applied rigidly and inflexibly,
regardless of the social context (Howlin, 2004). Consistent with such, Wing (1997) reports that individuals with ASD can be “literal and pedantic” in their adherence to the law and may reprimand others, even strangers, out of concern that such rules be followed (p. 254). Somewhat paradoxically, this pedantic focus on rules may inadvertently trigger problem behaviour due to frustration when others break the rules. For example, The National Autistic Society (2005) present the case of a man who caused criminal damage to parked cars due to his frustration that the owners of the cars were ignoring parking regulations.

3.3.2.2. Escalation associated with the disruption of routines. A preference for repetition and consistency is a common characteristic amongst individuals with ASD. As a result, they often behave in a ritualized manner, carrying out the same routines every day or for each activity; for example, following planned travel routes and routines in food preparation or personal hygiene (Howlin, 2004). Such tendencies appear related to attempts to reduce anxiety by enhancing predictability often not afforded to individuals with ASD due to their difficulties interpreting the social world (Gunasekaran, 2012). They commonly face difficulties cognitively integrating unexpected changes to routines (e.g. a train running late), potentially leading to heightened levels of anxiety and distress (Gunasekaran, 2012). In such instances, some individuals with ASD have been reported to react with aggressive outbursts. For example, Baron-Cohen (1988) described the case of 21-year-old “John”, who attacked others, including his 71-year-old “girlfriend”, when his routines were disturbed.

The tendency to engage in fixed, repetitive routines may also cause problems when individuals repeatedly engage in activities where inappropriate to do so, and often, despite warnings to cease. For example, Haskins and Silva (2006) describe “Mr
C”, who enjoyed going to computer labs at a local university. As he was not a student at the university, he was informed that he was trespassing and warned on several occasions to discontinue his visits. However, Mr C persisted and was consequently formally charged on two occasions. Similarly, in a case described by Howlin (2004), a young man with ASD, “Joey”, came into contact with the CJS after being found sitting in the middle of a kitchen floor of the house of an elderly pensioner, watching their washing machine in action. Apparently, Joey had started entering the houses of unknown neighbours following the closure of a local Laundromat he had previously attended daily to watch the machines. Further forensic concerns were raised when Joey punched one of the police officers who escorted him back to the home he shared with his parents, apparently outraged at being accused of breaking the law.

3.3.2.3. Preoccupation with special interests. Individuals with ASD often have areas of specialized interest. These interests differ from the interests or hobbies of the general population in their content and by the intensity with which they are pursued (Woodbury-Smith et al., 2010). Individuals with ASD often pursue their specialized interests in such an intense, single-minded manner that they are unaware that their actions may place themselves or others at risk of harm (Chen et al., 2003; The National Autistic Society, 2005; Woodbury-Smith et al., 2010). Additionally, individuals may be driven to engage in criminal acts, such as theft or trespass, in pursuit of their special interests (Archer & Hurley, 2013; Chen et al., 2003; Woodbury-Smith et al., 2010).

Haskins and Silva (2006) present the case of “Mr. A.” a young man with a specialized interest in fire, which appeared to precipitate his engagement in offending behaviour. At the time of his offending behaviour, Mr. A. was a volunteer fireman. After stealing a colleague’s credit card, he purchased and stored fire-fighting
equipment in his apartment where he later lit a fire that caused the death of his young
daughter. Barry-Walsh and Mullen (2004) similarly describe a case where an
individual with Asperger’s syndrome perpetrated an arson offence that appeared
related to his specialized interest. Specifically, the young man demonstrated an
enduring interest in fire, deriving enjoyment from watching the flickering of flames,
including watching the pilot light of his furnace for hours. His offence occurred when
he lit a fire to watch the flickering.

Palermo (2013) argues that the specialized interests of some individuals with
ASD may result in a vulnerability to radicalization, citing as an example, the case of a
13-year old boy with Asperger’s syndrome who possessed a preoccupation with the
autobiographies of historical authoritarian dictators (e.g. Adolf Hitler, Chairman
Mao). This intense interest apparently fostered admiration for contemporary
authoritarian leaders and identification with extreme right-wing views, resulting in
the publication of a personal manifesto where authoritarian regimes, including Nazi
Germany, were idealized.

A preoccupation with weapons, the effects of poisons, witchcraft,
dismemberment, sexual fantasies and death or the act of killing have also been
documented as direct precipitants of offending behaviours amongst the offending
ASD population (Murrie et al., 2002; Radley & Shaherbano, 2011; Wing, 1997).

3.3.2.4. Interpersonal fixations. At times, the social advances of an individual
with ASD may become focused on one person and result in stalking behaviour (Post,
Hayes, et al., 2014; Post, Storey, Haymes, Campbell, & Loughrey, 2014). Stalking is
defined as “focused, repetitive, and persistent following that is unsolicited and
unwanted by the person who becomes the object of attention” (Haskins & Silva,
2006, pg. 381). Among the ASD population, such behaviour may occur as the result
of sexual desire or desire to build an intimate relationship (Stokes et al., 2007), however, stalking behaviours may also occur as a result of or a desire for friendship more generally and a misunderstanding of what friendship entails (Howlin, 2004). Such was evident in the case of “Susie,” who became intrusive in her attempts to establish a friendship with another young woman who regularly greeted Susie during her morning commute to school (Howlin, 2004). Over time, Susie sourced this woman’s phone number and address and would wait for her to return from work and follow her home. While the target of Susie’s attention became increasingly distressed, Susie showed little appreciation of the impact of her behaviour and insisted that this woman was her friend (Howlin, 2004).

Occasionally, an individual with an ASD may develop a sense of entitlement over the person that is the target of their focused attention and feel rejected when the attention is not reciprocated (Beardon, 2008; Haskins & Silva, 2006). These feelings of rejection can lead to aggravation and aggressive outbursts (Haskins & Silva, 2006). For example, Katz and Zemishlany (2006) described a man who became fixated on a woman who had interviewed him for a job and subsequently engaged in aggressive stalking behaviour. He made repeated phone calls to the woman and began showing up at her workplace to stare at her. The woman did not reciprocate his approaches and the man had several angry outbursts in relation to this, including making threats to kill the woman. Other cases of reported stalking behaviour amongst those with ASD have included instances of kidnapping, imprisonment, and attempted murder (Haskins & Silva, 2006).

3.3.2.5. Escalation associated with sensory hypersensitivity. Difficulties integrating and modulating sensory stimuli is common amongst individuals with ASD (Grandin, 1992; Grandin & Panek, 2013; Leekam et al., 2007; Zachor & Ben-Itzhak,
Because ASD impacts the manner in which an individual processes sensory information, some people have an atypical response to stimuli, such as cold or pain. Such sensory oversensitivity can be distressing and even painful for the individual. For example, in describing her own hypersensitivities, Grandin (1992) indicates that “Sudden loud noises hurt my ears like a dentist’s drill hitting a nerve” (p. 107) and “Stimuli that were insignificant to most people were like Chinese water torture” (p. 108). Thus, it has been hypothesized that even seemingly insignificant environmental features may trigger a state of heightened arousal amongst individuals with ASD, resulting in abnormal behaviours, including absconding to familiar places as a way to reduce the presence of unprocessed sensory information or violent outbursts in the context of an acute stress response (Chown, 2010; Health and Social Care Overview and Scrutiny Committee, 2012).

Schwartz-Watts (2005) describes two cases where sensory hypersensitivity was considered relevant in court proceedings related to murder charges perpetrated by individuals with ASD. The first case involved a 22-year-old man who shot an 8-year-old boy after the victim ran over his foot with a bicycle. Post-offence neurological assessment of the offender revealed that he experienced tactile hypersensitivity and as a result, he received a life prison sentence instead of the death penalty. In the second case, a 35-year-old man was acquitted of shooting his neighbour who had struck him on the face, glasses and head during an altercation after the court heard that he experienced oversensitivity associated with his glasses and head.

3.3.2.6. Retaliation for perceived victimization. The social deficits and idiosyncrasies exhibited by individuals with ASD place them at higher risk of victimization through bullying and social rejection (Attwood et al., 2014; Bishop, 2008; Cappadocia, Weiss, & Pepler, 2012; Rieffe, Camodeca, Pouw, Lange,
Additionally, due to their difficulty reading others’ intentions, individuals with ASD may perceive innocuous acts as intentional or threatening (Freckelton & List, 2009; Wing, 1997). Perceived victimization may result in a profound sense of alienation from others and intense feelings of having been wronged (Murphy, 2013). In the absence of effective communication, conflict resolution and adaptive coping skills, such experiences may lead to frustration, embarrassment, anger or fear, and ultimately an assault on the perceived perpetrator (Murphy, 2013; Wing, 1997). Further, given that individuals with ASD tend to ruminate over perceived victimization and may displace feelings of resentment and aggression, such victimization may result in seemingly unprovoked assaults on innocent people (Hare, Freckelton & List, 2009; 1999; Murrie et al., 2002; Tantam, 2003; Wing, 1997).

Such a reaction to perceived victimization is evident in Murrie et al.’s (2002) description of “AB”, a 31-year-old man with ASD who was convicted for arson. In the year leading up to his offences, AB engaged in rumination about his childhood, in particular, about perceived mistreatment by schoolmates:

… AB described the year prior to his offense as a period in which he became increasingly preoccupied with those who had wronged him and increasingly convinced that he needed to avenge himself. He reportedly considered burglary for revenge, but later began to fantasize about fire setting. When AB saw an arson report on the news, he decided that fire setting was the best way to solve his problems (Murrie et al., 2002, p. 62).

AB was charged with 11 counts of arson to houses in his neighbourhood during a two-month period. Of note, the victims had no connection to those AB had
set out to punish other than small similarities between the targeted houses and the childhood homes of those that he perceived had mistreated him. Further, AB was unable to appreciate that the acts of arson had not impacted those that he had intended to punish and maintained that his actions were justified.

Like AB, many others with ASD may feel that offending behaviour is a defensible reaction to perceived mistreatment by others. There are a number of reports of individuals with ASD who justified their offending behaviour as self-defence or justified revenge. Such reports include a man who vandalized seats on a bus because he believed that the bus driver had deliberately failed to stop when he hailed it the day before (Woodbury-Smith et al., 2006) and a man who stabbed to death his boss because he thought she was to blame for his redundancy (Murphy, 2010). When queried, both of these men asserted that their behaviour was a reasonable reaction to the situation.

3.3.3. Summary regarding the potential relevance of ASD traits to offending behaviour. Following the above discussion regarding the potential relevance of ASD traits to offending behaviour, it is pertinent to reiterate that overall, there is no indication of an increased propensity towards criminality among this population. It cannot be automatically assumed that a causal relationship exists between ASD symptomatology and an individuals’ offending behaviour, because precipitating factors identified in the general criminological literature (e.g. poor educational achievement, pro-violent attitudes) are also likely to be relevant to offenders with ASD (Alexander et al., 2016; Woodbury-Smith et al., 2005). Nevertheless, the described literature suggests that diagnostically-relevant traits of ASD may be implicated in some instances of offending. In some instances, such factors appear only peripherally related, as one of multiple interacting causal factors,
while other descriptions highlight traits associated with a diagnosis of ASD as the primary precipitants to offending behaviour (Brewer & Young, 2015). Critically, the conclusions described above represent academic conjecture drawn from descriptive analyses of a small number of cases. In the absence of systematic exploration with larger samples, any attempt to generalise motives and triggers for offending behaviour from the academic literature requires caution (Schwartz-Watts, 2005).

Gaining an understanding of any potential links between the features of ASD and criminality is an essential task, both descriptively and legally, to ensure consistency and integrity in determinations regarding the legal status and forensic response for those individuals amongst this population who engage in offending behaviour (Lerner et al., 2012). While the above-described considerations may assist to guide thinking in these areas, they clearly do not provide a complete picture. Indeed, exponential increases would be expected in offending rates amongst the ASD population if such diagnostically relevant traits provided a sufficient and exhaustive explanation for engagement offending behaviours (Lerner et al., 2012). Inversely, estimates of the prevalence of individuals with ASD who engage in offending behaviour remain relatively low. Accordingly, consideration of other factors that may contribute to engagement in offending behaviour, or which may impact legal implications for such behaviour amongst the ASD population will be necessary to inform service provision and promote effective forensic outcomes.

### 3.4. The Nature of Offending Behaviour Perpetrated by Individuals with ASD

Brewer and Young (2015) propose that a better understanding of offending behaviour perpetrated by individuals with ASD may be gained through examination of the characteristics of offences perpetrated by this population. Several authors have argued that individuals with ASD demonstrate an elevated propensity towards the
commission of certain types of offending, for example, arson (Enayati et al., 2008; Hare et al., 1999; Mouridsen et al., 2008; Siponmaa et al., 2001; Woodbury-Smith et al., 2010), property damage (Hippler et al., 2010; Woodbury-Smith et al., 2006; Woodbury-Smith & Dein, 2014), stalking (Haskins & Silva, 2006; Post, Hayes, et al., 2014; Post, Storey, et al., 2014; Stokes et al., 2007), interpersonal violence (Gook, 2014; Schwartz-Watts, 2005; Wachtel & Shorter, 2013; Woodbury-Smith et al., 2006), sexual offences (Gook, 2014; Kumagami & Matsuura, 2009; Murrie et al., 2002), or computer-related crime (Seigfried, O'Quinn, & Treadway, 2015). However, the evidence is inconsistent and at times contradictory. For example, while Mouridsen et al. (2008) found a significantly elevated rate of arson offences amongst 29 offenders with a diagnosis of PDD when compared to matched controls from the general population, Kumagami and Matsuura (2009) demonstrated no differences in the frequency of arson perpetration between offenders with PDD \((n = 28)\) and without PDD \((n = 289)\) within juvenile courts in Japan. Hippler et al. (2010) found no significant differences when comparing convictions for individuals in Hans Asperger’s original cohort \((n = 177)\) to patterns of offending in the general population.

A more consistent (although not undisputed) finding is that offending amongst individuals with ASD more likely consists of crimes against the person\(^7\) than other offence-types and in comparison to offenders who do not display evidence of ASD (Anckarsäter et al., 2008; Cheely et al., 2012; Gook, 2014; Kumagami & Matsuura, 2009; Woodbury-Smith et al., 2006). For example, in an unpublished thesis in which

\(^7\) Crimes against the person are offences that involve harm or attempted harm towards a specific person(s) (e.g. murder, assault or offences of a sexual nature) as opposed to more general harm caused to an entire community or organization (Pink, 2011).
the presence of ASD traits amongst a prison population in Victoria, Australia was investigated, Gook (2014) reported that individuals with a clinically significant degree of ASD traits were more likely to have an index offence of an interpersonal nature \((n = 9; 88.9\%)\) when compared with those who did not display evidence of ASD traits \((n = 76; 57.9\%)\). Similarly, in a prevalence study of criminal justice system involvement among young Americans with ASD (12-18 years) between 2000 and 2006 \((n = 609)\), Cheely et al. (2012) found higher rates of interpersonal offending amongst individuals with ASD than matched controls. Specifically, of those who had been charged with an offence \((32.5\%)\), crimes against the person were perpetrated significantly more frequently amongst the ASD youth \((n = 40; 38.8\%)\) than in their non-ASD counterparts \((n = 122; 19.8\%)\). Further, youths with ASD were more likely to have been charged with crimes against the person than crimes against property \((20.4\%)\), drug law violations \((3.9\%)\), offences against public order \((30.1\%)\) or status offences (behaviours that are only considered a criminal offence when committed by minors, e.g. truancy; \(5.8\%)\).

In contrast, a large, well-controlled study by Lundström et al. (2014) indicated that individuals with a diagnosis of ASD do not possess a particular propensity towards interpersonal offending. Specifically, Lundström et al. (2014) examined convictions for violent crimes, encompassing actual and attempted homicide, assault, arson, robbery, sexual offending, and threat- and intimidation-related offending, amongst a birth-cohort \((1994-2005)\) of individuals diagnosed with various neurodevelopmental disorders by child and adolescent mental health services in Sweden \((n = 3,391)\). The conviction rates of probands were compared to those of comparisons, including full- \((n = 2301)\) and half-siblings \((n = 594)\) as well as ten (non-related) matched control groups \((n = 33,910)\), and after adjustments for the
impact of potential confounders (parental income and education status) and mediators (for example, drug use, psychotic disorder, alcohol abuse). In contrast to other neurodevelopmental disorders (e.g. ADHD), there was no evidence of an increased propensity for violent criminal behaviour amongst those with a diagnosis of ASD ($n = 954$).

In sum, similar to research regarding prevalence of offending, the limited body of evidence regarding the propensity for individuals with ASD towards the commission of particular offence types is both inconsistent and inconclusive, and marred by methodological limitations (King & Murphy, 2014). Comparisons in this area are further complicated by the small sample sizes that are frequently yielded when data are split by offence type (Brewer & Young, 2015). A number of studies suggest an increased propensity towards interpersonal offending amongst the ASD population, however this has been refuted by others, most notably a large, well-controlled study by Lundström et al. (2014) that suggested no increased prevalence of interpersonally violent offending amongst individuals with ASD. Accordingly, conclusions are limited regarding the typology of offending amongst individuals with ASD.

3.5. Summary of Chapter

This chapter provided an overview of research investigating the frequency and nature of offending behaviours amongst individuals with ASD. While population studies and case reports have highlighted such offending behaviour, the exact frequency and nature of offending amongst this population remains unknown. Despite rapid growth in recent years, empirical research regarding ASD and offending behaviour remains relatively scant. The available findings are both limited and inconsistent, being principally comprised of retrospective case reports and
examinations of narrow populations within secure psychiatric settings. As a result, there is some controversy over whether research to date accurately reflects the prevalence of ASD within the criminal justice system.

On face value, studies revealing an over-representation of ASD in forensic settings alongside several case reports describing criminal behaviour perpetrated by individuals with ASD appear to support the proposition of an association between ASD and offending behaviour (e.g. Allen et al., 2008; Hare et al., 1999; Scragg & Shah, 1994; Siponmaa et al., 2001). Others, however, provide evidence that individuals with ASD are no more likely to offend and may, in fact, be more law-abiding than the general population (Ghaziuddin et al., 1991; e.g. Howlin, 2000; McGeer, 2008b; Wing, 1997). On balance, the available literature base does not provide compelling evidence of an association between ASD and offending behaviour.

Agreement regarding the exact prevalence of offending behaviour amongst the ASD population may never be reached; not only because of methodological flaws within the extant research, but also because prevalence rates are likely to vary throughout the CJS. Specifically, the availability of early intervention and prevention services, legal mandates and diversionary practices are likely to vary between jurisdictions and prevalence rates of ‘special populations’ (such as those with ASD) may differ as research progresses through the different stages of the CJS (Hayes, 2006, 2007). For example, it seems likely that more individuals with ASD may be held in remand settings than in sentenced prisons, due to failures to identify the presence of developmental disorders at this early stage, while individuals may be diverted out of the CJS following diagnosis. For such reasons, Hayes (2006) argued that the issue of prevalence of offending amongst intellectually disabled individuals
is a “red herring” that distracts researchers and policy-makers from considering the real issues faced by the CJS in responding to such individuals. This is undoubtedly also the case amongst other potentially vulnerable groups, such as those with ASD.

Methodological failings aside, the available research confirms that at least some individuals with ASD engage in unlawful behaviours. Even if the prevalence of individuals with ASD engaging in offending behaviour is the same as the prevalence of ASD in the community (approximately 0.5% in Australia, according to the Australian Bureau of Statistics, 2014), a substantial number of cases of offending behaviour would involve individuals with ASD over the course of a year. In Magistrates Courts in Australia, with a turnover of 588,167 finalised defendants per annum (2015-16; Australian Bureau of Statistics, 2016), a prevalence rate of 0.5% would equate to some 2941 cases involving defendants with an ASD diagnosis. This number does not include those individuals who may experience a clinically significant degree of ASD traits, but who have not yet been diagnosed, or those who display sub-clinical ASD traits. The critical issue in regards to individuals with ASD who come into contact with the CJS is the provision of effective services to protect this potentially vulnerable population and to enhance community safety, for example, by addressing factors associated with engagement in offending behaviours. An understanding of the nature and characteristics of offending behaviours perpetrated by individuals with ASD will be vital to inform legal policy and ensure that services are appropriately targeted to aid the management and rehabilitation of those who do appear as defendants within the CJS (Brewer & Young, 2015; Lerner et al., 2012).

Although not unanimously supported, several authors have argued that individuals with ASD may be proportionally more likely than neurotypical peers to engage in interpersonal offending, including sexual and non-sexual violence (Cheely
et al., 2012; Gook, 2014; Kumagami & Matsuura, 2009; Woodbury-Smith et al., 2006). Despite widespread discussion, to date a systematic investigation of the characteristics of offences committed by persons with ASD has not, to the author’s knowledge, been undertaken. Accordingly, much of what is known about the nature and precipitants of offending amongst individuals with ASD is anecdotal or theoretical in nature. Such limited evidence is insufficient to identify the true scale of this issue or inform policy and practice in this area (Woodbury-Smith & Dein, 2014). Consequently, there is scope for further research in this area to inform the prevention, early intervention and management of offending behaviour amongst the ASD population, thus reducing the potential for inappropriate or ineffective distribution of resources within the CJS; an already under-resourced system. In this context, the following chapter describes a study in which the characteristics of self-reported offending according to ASD symptom severity are explored.
Chapter 4. Study 1: Self-Report of Offending and the Autistic Phenotype

4.1. Rationale

Ongoing debate regarding a potential association between ASD and engagement in offending behaviours has resulted in a growing body of academic literature concerning the forensic aspects of ASD. Despite such, our understanding of issues related to prevention, early intervention and forensic responses to offending behaviours perpetrated by individuals with ASD remains limited. Research findings have been inconsistent, primarily drawn from case reports or prevalence studies within narrow and specialized population samples. Whilst highlighting the presence and potential scope of offending behaviours amongst individuals with ASD, these findings have provided little guidance in regards to early intervention, management and rehabilitation of individuals with ASD within the CJS. Thus, there is a need for systematic research exploring issues that directly inform and enhance early intervention, rehabilitation and ultimately, forensic outcomes for individuals with ASD who engage in offending behaviour.

According to Freckelton (2013a), investigating the characteristics of offending behaviour where it occurs within the ASD population, including the identification of any offence typologies and CJS responses to offending and other delinquent behaviour, is a “modest but useful start” to inform policy and provide focus for future academic attention and efforts to address problematic behaviour (p. 431). Such data may assist to direct research and practice in a more targeted manner, ensuring that resources are allocated appropriately to foster positive forensic outcomes for such individuals. For example, should individuals with ASD be found to possess an elevated propensity towards violent crime, with less likelihood of involvement in drug-related offending, this would support the use of resources to explore and
intervene on potential predisposing, precipitating, perpetuating and protective factors in regards to violent offences, and a reduced focus on drug and alcohol related intervention for this population.

As described in Chapter 3, the literature exploring the nature of offending behaviour amongst the ASD population is limited in both quality and quantity; primarily derived from case studies or prevalence studies, that utilise formal indices of offending, and which frequently consider only particular offence-types (Bjørkly, 2009; Haskins & Silva, 2006; Murrie et al., 2002; Woodbury-Smith et al., 2006). The findings from this research have been inconsistent, and at times contradictory. The current study seeks to explore self-reported offence characteristics amongst a sample of individuals living within the community with a view to determining whether the offence patterns of those individuals who report characteristics of ASD differ from those of their neurotypical peers. Specifically, this study aims to identify and explore offending profiles, and the consequent forensic response to such behaviours, as reported by individuals with higher degree of ASD-consistent traits and compared with those with a lower degree of such traits. It is anticipated that the results of this study will provide a broad overview of criminality as it relates to the ASD phenotype and assist to inform future research efforts in this area.

4.1.1. Defining and measuring “offending behaviour”: Official data vs. self-report. Consistent with criminological research more generally, much of the prior research that concerns offending amongst individuals with ASD has relied on formal indices of offending (e.g. conviction data, contact with the CJS, presence within forensic settings) obtained from official statistics to guide conclusions regarding the frequency and nature of offences perpetrated by individuals with ASD (Woodbury-Smith et al., 2006). This is problematic because much illegal behaviour is
undetected and unreported (Theobald, Farrington, Loeber, Pardini, & Piquero, 2014), and the proportion of detected criminal behaviour that results in a criminal conviction following criminal proceedings may be similarly small (Holland et al., 2002; Langdon, Clare, & Murphy, 2011). Additionally, much of the available research has considered a restricted range of offence-types with vague or narrow definitions (e.g. “violence”) and within specialized settings (e.g. secure psychiatric wards). As described in Chapter 3, concerns have been raised regarding the validity and generalisability of such methodological approaches in determining the pattern and nature of offending amongst the ASD population. In this context, Woodbury-Smith et al. (2006) argue a need for more research conducted outside of forensic settings that considers a wide range of ‘commonplace’ offences and which does not rely on criminal convictions to properly explore offending behaviour amongst individuals with ASD.

Critically, the correlation between engagement in illegal behaviours and indices reliant on contact with the CJS is not perfect, with conviction data thought to represent the “tip of the iceberg” of offending behaviours (Farrington, 2001, p. 2). Further, such data may be vulnerable to systematic biases associated with failures to report or detect some offending behaviours, and differences in the operation of legal principles designed to divert vulnerable individuals from the CJS (Juenger-Tas & Marshall, 1999; Thornberry & Krohn, 2000). Accordingly, the focus on official indices of criminal involvement in prior research raises concerns regarding the accuracy and generalizability of findings, particularly within special populations, such as those with ASD (Farrington, 2001; Huizinga & Elliott, 1986; Thornberry & Krohn, 2000; Woodbury-Smith et al., 2006). Further, the self-report methodology provides the opportunity for further exploration regarding the characteristics of
reported offending behaviours, through the consideration of details unlikely to be recorded by formal indices of offending (e.g. whether the offence was planned, and/or the nature and seriousness of unadjudicated delinquent behaviour). In this context, it has been argued that self-reports of offending may provide a more complete picture of criminal involvement than is provided by data derived from official statistics related to contact with the CJS (Farrington, 2001; Junger-Tas & Marshall, 1999; Thornberry & Krohn, 2000).

Acceptable levels of test-retest reliability and content, construct and criterion validity have been consistently demonstrated within recent studies and reviews of self-report approaches to exploring offending behaviours (Dubow, Huesmann, Boxer, & Smith, 2014; Farrington, 2001; Jolliffe et al., 2003; Junger-Tas & Marshall, 1999; Thornberry & Krohn, 2000). Despite such, doubts have been raised regarding the validity of self-reported data, due to concerns that some individuals may conceal, exaggerate or have difficulties accurately recalling their criminal involvement (Farrington, 2001; Huizinga & Elliott, 1986). Further, lower levels of reliability and validity have been found for ethnically or gender diverse populations (Hindelang, Hirschi, & Weis, 1981; Knight, Little, Losoya, & Mulvey, 2004), suggesting that there may be some samples for whom such methodology should be used only with caution (Thornberry & Krohn, 2000). Nonetheless, while self-report methods have potential limitations, it has been argued that this is true of all measures used to explore social behaviour and such measures have become an accepted methodology for cross-sectional research in this field (Farrington, 2001; Junger-Tas & Marshall, 1999).

4.1.2 The Present Study. Using a self-report internet-based survey methodology, the current study explored the nature of offending and other delinquent
behaviour across the autistic phenotype within a community-based sample, recruited with advertisements targeted to agencies likely to have contact with the ASD population. A self-report methodology was chosen in order to address concerns regarding potential biases in official statistics of offending behaviour amongst the ASD population. The primary aim of this study was to investigate whether differences existed in offence-types reported according to the presence of ASD traits amongst a non-clinical community-based sample. On the basis of previous research regarding offending behaviour among individuals with ASD (reviewed in Chapter 3), it was hypothesized that individuals who endorse a clinically significant degree of characteristics indicative of ASD would report a higher frequency of interpersonal offences when compared to respondents who did not display characteristics of ASD.

Contact with the CJS, associated with reported offending, was also considered to determine whether dispositional outcomes may apply differentially for cases of offending behaviour involving individuals displaying ASD traits. Specifically, the current study sought information on whether illegal behaviours attracted the attention of police, whether police contact resulted in forensic sanctions and the nature of any sanctions previously received by respondents. Theoretical and academic conjecture regarding the forensic response to offending behaviour by individuals with ASD has been inconsistent and variously argued in terms of an inflated or reduced risk for detection, conviction and forensic disposition than neurotypical peers (see Chapter 3; also Chapter 5). Accordingly, specific hypotheses were not delineated regarding forensic contact.

4.2. Method

An internet-based cross-sectional survey design was utilised to explore any extant relationships between ASD-trait severity and self-reported offending
characteristics amongst a self-selected community-based sample. Data were analysed using SPSS Statistics 23.0.

4.2.1. Participants. A targeted sampling approach was adopted to promote a broad distribution of ASD trait severity such that both individuals with a high degree of ASD traits and those with few traits would be represented within the study sample. The sample self-selected for participation via advertisements on social media, and targeted advertisement through organizations likely to be in contact with adults with ASD (see Appendix C for a full list of locations contacted by the researcher for the purposes of participant recruitment). Data were provided on an online survey by 172 respondents. The majority of respondents were female (65.7%) and approximately one third were male (32.4%); 2 respondents (1.9%) indicated that they identified as androgynous or did not provide this information. Reported age ranged from 18 to 64 years. Most were Australian (56.5%) or North American (19.4%), with the remainder of respondents reporting British (9.3%), European (5.6%), New Zealand (2.8%), Asian (2.8%), Canadian (1.9%), South American (0.9%), or African (0.9%) heritage.

4.2.2. Measures. Respondents completed an online survey that included measures for autistic symptomatology, self-reported engagement in offending behaviour and a range of demographic variables thought likely to be differentially associated with offending rates (e.g. gender, age). This study was granted approval from the University Human Ethics Committee and participants were informed through a plain-language statement presented prior to commencing the survey that participation was voluntary and that they could chose to withdraw at any time prior to survey submission. Consent was inferred through submission of survey responses, which occurred by participants clicking on a “submit” button on the last page of the survey.
4.2.2.1. Demographic information. A wide variety of socio-environmental factors have been identified within the criminological, sociological and psychological literature as contributing to offending behaviour within the general population (Farrington, 2003; Langdon, Clare, et al., 2011; Morizot & Kazemian, 2014; Thornberry & Krohn, 2003). Such socio-demographic factors almost certainly also contribute to engagement in criminal behaviour either alone, or in combination with other factors, amongst individuals with ASD. Coverage of the vast array of potential influences on engagement in offending behaviour was beyond the scope of this thesis. However, a subset of factors considered likely to contribute to criminal involvement was measured through the collection of data for demographic factors, including respondents’ age, gender and formal educational attainment. In addition, responses provided by respondents on four dichotomous (yes/no) response items were collected, for the purposes of screening for the presence of potential learning disabilities (i.e. *Have you ever received a pension or benefit for a disability? Have you ever been in a special class or school for students with a learning disability? Do you think you are a slow learner? Do you have a learning disability?*).

4.2.2.2. Psychopathic traits. The presence of psychopathic traits was measured according to the Levenson Self Report of Psychopathy (LSRP; Levenson, Kiehl, & Fitzpatrick, 1995, see Appendix D) to determine whether such traits may bias results. The LSRP is a well-validated 26-item self-report screening measure designed to assess psychopathic traits, attitudes and beliefs in non-incarcerated populations. Descriptive and reliability (Cronbach’s alpha) data for the LSRP in the present sample were as follows: $M = 57.51$, $SD = 12.516$, $\alpha = .844$.

4.2.2.3. Autistic traits. The diagnosis of ASD in adulthood is often challenging due to the heterogeneity of presentation and difficulties gaining
information regarding developmental histories and symptom patterns (Allison, Auyeung, & Baron-Cohen, 2012; Fombonne, 2012). However, a number of brief standardized screening tools exist that have been developed to aid the identification of ASD in adults. For the current study, the presence of autistic traits was measured according to the most commonly used screening measure for ASD, the Autism Quotient (AQ; Baron-Cohen et al., 2001).

The AQ is a well validated measure that quantitatively assesses the degree to which adults exhibit autistic traits according to 50 items across five theoretically based sub-scales: Social Skill, Communication, Imagination, Attention to Detail and Attention Switching). Items on the AQ are counterbalanced such that for half, a positive response indicates an autistic-like trait, whereas for the other half, a negative response is indicative. Higher scores indicate the presence of characteristics more similar to those indicated by a diagnosis of ASD. Although not diagnostic, the AQ is well validated and scores have been shown to correlate with validated biological markers for ASD (e.g. testosterone levels and brain activity) and the tool’s psychometric properties have been validated cross-culturally (Allison et al., 2012; Baron-Cohen et al., 2001; Wouters & Spek, 2011). Prior research has demonstrated that scores on the AQ reliably differentiate between adults with a diagnosis of autism and their neurotypical counterparts (Allison et al., 2012; Baron-Cohen et al., 2001; Wouters & Spek, 2011), as well as those with psychiatric conditions, such as schizophrenia (Wouters & Spek, 2011). In the current study, the Cronbach alpha coefficient was high (α = 0.934), suggesting excellent internal reliability.

Baron-Cohen and colleagues (2001) have recommended a cut-off score of 32 as providing a good indicator of the likelihood that an individual would meet the diagnostic criteria for ASD, with 80% of adults with ASD and only 2% of those
without ASD recording a score at or above this cut-off. However, there is evidence of some variation in cut-off scores dependent on population samples. For example, in a validation study of the AQ in an Australian sample, Broadbent and Stokes (2013) reported that a cut-off score of 29 on the AQ most reliably differentiated individuals with a diagnosis of ASD from neurotypical peers (1% false-positive rate). Given the suggestion from prior research that cut-off scores may vary according to population, and the high number of respondents in the current study who reported Australian heritage ($n = 60$; 55%), a median-split was utilized to allocate respondents to comparison groups on the basis of their total AQ scores (High vs. Low).

**4.2.2.4. Engagement in offending behaviour.** An adapted version of The Self-Report of Offending Questionnaire (SRO; Huizinga, Esbenson, & Weihar, 1991) was used in the current study to elicit self-report of involvement in antisocial or criminal behaviour (See Appendix E for the adapted SRO survey completed by participants in the current study). The SRO was designed for use amongst community samples of individuals aged 7 years to adulthood and asks respondents to indicate whether they have engaged in 24 delinquent and criminal behaviours (i.e. behaviours which could lead to arrest by the police, prosecution and conviction by a court) in the past year. For each item endorsed by a respondent, a set of follow-up questions were asked to elicit further information regarding the self-reported behaviour (e.g. “Thinking of the last time you did this, were you alone or with others?”). Due to an insufficient sample size and the low frequency of self-reported engagement in delinquent behaviours amongst the current sample, comparisons at this level were not undertaken.

According to standard reporting procedures in criminology, self-reported offending can be explored in two ways: a variety score (the number of different types
of criminal acts in which the person engages) and frequency scores (the total number of unique criminal acts committed, regardless of type). Variety and frequency scores are generally very highly correlated and have been used interchangeably for analysis throughout the criminological literature (Hindelang et al., 1981). Offending variety scores are considered to overcome several potential difficulties that may arise where frequency scores are used (Brame, Paternoster, & Bushway, 2004; Monahan & Piquero, 2009). Specifically, variety scores ensure that criminality is not overestimated due to the impact of multiple instances of minor delinquent behaviours, are more likely than frequency scores to possess properties better suited for analysis (i.e. more likely to conform to an approximately normal distribution) and may be more accurate and reliable than frequency scores due to the increased likelihood of inaccuracies in recall and count processes for repeated events (Moffitt, Caspi, Rutter, & Silva, 2001; Monahan & Piquero, 2009; Schwarz, 2005). For the current study, both frequency and variety scores were utilized to explore self-reported delinquency within the study sample. An annual offending variety score was created and was the number of discrete delinquent acts endorsed on the SRO as occurring within the previous year. Frequency of offending was calculated for the last year by summing responses to the question “How many times have you done this in the past 12 months?” for each delinquent act endorsed.

Delinquent behaviours on the SRO were grouped into offence-type categories for further analysis of typologies of offending amongst the study sample. Categories were defined according to the Crimes Statistics Agency Offence Classification (Crime Statistics Agency, 2015), with offences represented across five categories included within the classification system (Crimes Against The Person; Property Offences, Public Order and Security Offences, Disorderly and Offensive Conduct,
Traffic and Vehicle Offences and Drug Selling Offences; see Appendix F for full list of offence categories within the Offence Classification).

4.3. Results

4.3.1. Missing Data. Initial inspection of the data revealed that missing data points constituted 1.07% of the data overall. A non-significant Little’s MCAR test, $\chi^2(14046) = 7630.83, p = 1.0$, provided evidence that the data were missing completely at random (Little, 1988). Given that missing data were minimal and appeared to be missing at random, it was considered that a complete case analysis strategy was unlikely to introduce unjustified bias to the data. Missing data were present for 64 respondents; only complete cases were included for subsequent analyses. Thus, the sample for the current study’s analysis was reduced to 108.

4.3.2. Annual Engagement in Offending and Other Delinquent Behaviours. Of the 108 respondents to the survey, 37 reported engagement in one or more delinquent behaviours included on the SRO within the previous year. The number of delinquent behaviours endorsed ranged from 1 to 9, with a mean of 1.95 (SD = 1.60) delinquent behaviours reported per respondent (median = 1). The subsample of respondents who endorsed committing delinquent acts in the past year did not differ from those who reported no past-year delinquency in regards to demographic variables, including age, gender and indicators of potential learning disabilities. Further, total AQ scores did not differ significantly between individuals who reported delinquency ($n = 37, M = 28.41, SD = 11.38$) and those that denied engagement in delinquent acts included on the SRO ($n = 71, M = 28.83, SD = 11.69$) within the last year, $t(106) = .181, p = .857$. LSRP scores were higher amongst respondents who reported engagement in one or more delinquent acts within the past year ($M = 61.97, SD = 15.54$) when compared to respondents who did not report
engagement in delinquent acts according to the SRO (M = 55.15, SD = 10.06), Welch’s $t(52.18) = -2.42, p = .019$. This difference was consistent with prior research that has demonstrated an association between psychopathy and engagement in antisocial behaviours (see Chapter 3).

Within the subsample of 37 respondents who reported past-year engagement in delinquent behaviours, total AQ scores ranged from 8 to 46, with a mean of 28.41 (SD = 11.38) and a median of 31. Skewness and kurtosis statistics for total AQ scores within this sample did not fall outside of the acceptable ranges of ±2 and ±7 respectively, indicating that data approximated a normal distribution (Tabachnick & Fidell, 2013). Participants scoring less than the median AQ score (31) were allocated to the ‘Low AQ’ group ($n = 17$, $M = 17.41$, $SD = 5.39$), while those scoring 31 or above were allocated to the ‘High AQ’ group ($n = 20$, $M = 37.75$, $SD = 4.59$). Demographic variables, including age, gender and responses on the learning disability items, did not differ significantly between respondents within the High vs. Low AQ groups. However, LSRP scores were significantly higher amongst respondents within the High AQ group ($M = 66.95$, $SD = 12.14$) when compared to LSRP scores within the Low AQ group ($M = 56.12$, $SD = 17.35$), indicating a higher degree of self-reported psychopathic traits amongst those within the delinquent subsample who reported a higher degree of ASD traits, $t(35) = 2.23, p = .033$.

**4.3.2.1. Overall annual frequency and variety of engagement in offending and other delinquent behaviours.** Annual offence variety scores did not differ between respondents within the High AQ group ($n = 20$, $M = 1.9$, $SD = 1.21$) and those within the Low AQ group ($n = 17$, $M = 2.0$, $SD = 2.0$), $t(35) = -.187, p = .853$. Similar to variety scores, the reported annual frequency of engagement in any delinquent behaviour did not vary significantly between respondents within the High
AQ group \((M = 20.9, SD = 55.4)\) and those within the Low AQ group \((M = 7, SD = 9.26)\), Welch’s \(t(20.24) = 1.104, p = .283\).

4.3.2.2. Offence-types endorsed. Table 4 provides details regarding the proportion of respondents who endorsed past-year engagement in offence-like behaviour and the reported frequency with which such behaviours were committed, according to offence categories defined within the Crimes Statistics Agency Offence Classification (2015). A greater proportion of respondents within the Low AQ group reported engagement in traffic-and-driving-related offences within the last year, when compared with those within the High AQ group, \(\chi^2(1) = 7.619, p = .006\). No other significant differences were found between respondents within the High vs. Low AQ groups for endorsement or self-reported frequency of engagement in delinquent behaviour types included for analysis.

4.3.3. Adjudication and dispositional outcomes. Self-report of the lifetime frequency of contact with the CJS and adjudication outcomes were explored amongst respondents to determine the extent to which AQ scores predicted the applicability of discretionary and diversionary legal provisions. Within the total sample \((n = 108)\), AQ scores ranged from 7 to 47, with a mean of 28.69 (SD = 11.53) and a median of 31.5. Participants scoring less than the median AQ score (31.5) were allocated to the ‘Low AQ’ group \((n = 54, M = 18.5, SD = 6.31)\), while those scoring 31.5 or above were allocated to the ‘High AQ’ group \((n = 54, M = 38.87, SD = 4.16)\).
Table 4
Annual frequency and nature of offence-like behaviours amongst respondents reporting engagement in delinquent acts (High AQ group, \( n = 20 \); Low AQ group, \( n = 17 \)).

<table>
<thead>
<tr>
<th>SRO Item Endorsement</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High AQ</td>
</tr>
<tr>
<td></td>
<td>( n (%) )</td>
</tr>
<tr>
<td>Crimes Against the Person</td>
<td>8 (40.0)</td>
</tr>
<tr>
<td>Property Damage and Deception</td>
<td>10 (50.0)</td>
</tr>
<tr>
<td>Public Order and Security</td>
<td>5 (25.0)</td>
</tr>
<tr>
<td>Drug Offences</td>
<td>4 (20.0)</td>
</tr>
<tr>
<td>Traffic Offences</td>
<td>4 (20.0)</td>
</tr>
</tbody>
</table>

Some respondents reported multiple offence-types within past year and accordingly appear in multiple categories

Respondents did not differ in regards to age according to AQ group.

However, the High AQ group had significantly more male respondents \( (n = 24) \) when compared to the Low AQ group \( (n = 11) \), \( \chi^2(1) = 7.144, p = .008 \). Significant differences were also evident in regards to respondents’ endorsement on learning disability identifiers. Specifically, individuals within the High AQ group were more likely to report having received disability support payments, \( \chi^2(1) = 5.36, p = .021 \), or to have a diagnosed learning disability, \( \chi^2(1) = 5.36, p = .21 \), than those within the Low AQ group. LSRP scores were also significantly higher amongst respondents within the High AQ group \( (M = 60.43, SD = 11.66) \) when compared to LSRP scores within the Low AQ group \( (M = 56.12, SD = 17.35) \), indicating a higher degree of self-reported psychopathic traits amongst those who reported a higher degree of ASD traits, \( t(35) = 2.23, p = .033 \).
4.3.3.1. **Lifetime frequency of charges and arrests.** No significant differences were found in the number of self-reported lifetime charges or arrests between respondents in the High AQ group \( (M = .19, SD = .48) \) when compared to the responses of the Low AQ group \( (M = .07, SD = .33) \), Welch’s \( t(93.78) = -1.407, p = .163 \).

4.3.3.2. **Lifetime disposition and application of discretionary and diversionary alternatives.** Respondents’ self-report of the application of various diversionary and dispositional outcomes following police contact (lifetime) also did not differ on the basis of AQ group. Specifically, no significant differences were found in the proportion of respondents reporting that prior police contact had resulted in being warned and released, \( \chi^2(1) = 1.93, p = .165 \), held in jail, Fisher’s \( \chi^2(1) = 4.86, p = .06 \), mandated to participate in a treatment program, \( \chi^2(1) = 4.86, p = .06 \), referred for counselling, Fisher’s \( \chi^2(1) = .21, p = .65 \), court appearances, \( \chi^2(1) = .787, p = .375 \), probation, Fisher’s \( \chi^2(1) = .343, p = .558 \), the imposition of fines, \( \chi^2(1) = 2.42, p = .120 \), restitution payments, Fisher’s \( \chi^2(1) = .343, p = 1.0 \), community service, Fisher’s \( \chi^2(1) = 2.16, p = .27 \), and incarceration in a secure hospital or correctional facility, Fisher’s \( \chi^2(1) = 2.04, p = .495 \).

4.4. Discussion

The overarching aim of this study was to explore the nature of offending and other delinquent behaviour, and the CJS response to such, across the breadth of the ASD phenotype. Specifically, data drawn from a self-report survey regarding delinquency were analysed to determine whether offence typologies and the legal response to delinquent behaviours differ according to ASD trait severity within a self-selected community sample. These aims represent a departure from the preponderance of previous academic literature regarding ASD and offending.
behaviour, which has primarily aimed to identify ASD within forensic samples or determine the prevalence of offending behaviour amongst the ASD population. It is hoped that the results of the current study may go some way to directing future research efforts to inform the provision of services to enhance forensic outcomes for individuals with ASD.

4.4.1. Self-reported engagement in offending behaviour. The current study was not designed to estimate prevalence of offending amongst individuals with ASD and several aspects of the study design presented as barriers for accurate estimates of such (e.g. the study sample did not consist of a whole population or cohort, and efforts were not made to ensure that the sample was wholly representative of such). Despite this caveat, it was noted that, within the sample, the self-reported annual frequency of engagement in delinquent behaviours did not significantly vary according to ASD trait severity. Similarly, the frequency of lifetime charges or arrests for offending behaviour did not vary according to the degree of ASD consistent traits reported by respondents, suggesting that propensity towards engagement in offending behaviour amongst the ASD population does not differ from that in the general population.

4.4.2. Offence typologies across the autistic phenotype. Contrary to the hypothesis, the suggestion that individuals with ASD possess an increased propensity towards engagement in offences resulting in interpersonal harm was not supported. Specifically, there were no differences between respondents with higher ASD trait severity and those reporting few or no ASD traits in past-year engagement in behaviours causing interpersonal harm. Indeed, within the current sample, no differences were revealed in regards to reported engagement and frequency of engagement in delinquent behaviours that constituted crimes against the person,
property damage and deception, public order and security, and drug-related offending. Similarly, the reported annual variety of delinquent behaviours did not differ on the basis of AQ group (High vs. Low), suggesting that offence diversity does not vary according to the autistic phenotype.

Traffic offences constituted the only offence-type that significantly differed between respondents within the high AQ and low AQ comparison groups. Specifically, individuals endorsing a clinically significant degree of ASD consistent traits were less likely to report engagement in traffic and driving related offences than those reporting fewer ASD traits. Such results may suggest that individuals with ASD are more likely to adhere to legal requirements associated with being a road-user. However, it should be considered whether this result is artefactual; it may be the case that the lower rate of past-year driving violations amongst those with more ASD traits occurred as an artefact of a lower base-rate and reduced frequency of driving amongst those respondents.

Given that the current study did not measure and control for respondents’ driving status, it is not possible to determine whether differences in the frequency with which respondents drove may explain the lower rate of reported traffic violations amongst respondents with higher ASD traits; however, it appears likely that this may be the case. Prior research has demonstrated that individuals with ASD experience significant difficulties learning to drive, are delayed in comparison to neurotypical peers in obtaining a drivers’ license and, once licensed, drive less frequently than non-ASD drivers (Chee et al., 2015; Cox, Reeve, Cox, & Cox, 2012; Daly, Nicholls, Patrick, Brinckman, & Schultheis, 2014; Falkmer et al., 2015). For example, in a recent Australian study regarding the viewpoints of individuals with ASD in regards to driving, a significantly smaller proportion of participants with
ASD (n = 50) reported possessing a drivers’ license (34%) when compared with non-ASD counterparts (68%; n = 57) (Chee et al., 2015). Further, in a recent study of driving behaviours amongst ASD drivers (where only those who hold a driver’s license were included in the sample) ASD drivers were significantly more likely to report problem driving behaviours, including intentional violations, mistakes, and lapses in concentration, within a 2 year period, when compared to neurotypical peers (Daly et al., 2014). Future research could examine this relationship further, including exploration of factors likely to assist individuals with ASD to drive within the bounds of legislative requirements if it is established that traffic violations are more common amongst this population once driving status is taken into consideration.

4.4.3. Forensic response to delinquent behaviour. A second aim of the current study was to explore whether differences existed in the application of dispositional alternatives according to ASD trait severity. Results demonstrated that those with clinically significant degrees of ASD symptoms had been made subject to a similar range of diversionary and dispositional alternatives as the result of police contact as those who reported few, or no, ASD traits. On face value, such results suggested that individuals with ASD are not systemically disadvantaged in regards to the forensic response to delinquent behaviour. However, a narrow focus on the equality of forensic outcome (in regards to, for example, the application of diversionary and dispositional outcomes) may overlook the different needs of diverse cohorts (Glanfield, 1999). Accordingly, equal application of dispositional and diversionary alternatives is not necessarily indicative of equity within the context of criminal law.

Although the results of the current study indicated equality in regards to the application of diversionary and dispositional alternatives across the autistic
phenotype, it is unclear whether equivalence in regards to the application of such alternatives constitutes equitable treatment in regards to the legal process. In determining whether such results reflect equitable application of legal protections related to mental impairment, consideration must be given to the legal status of individuals with ASD. Later chapters will explore the legal status of individuals with ASD in further detail; for now, it will suffice to alert the reader that a body of academic literature exists that argues the relevance and potential significance of ASD traits to forensic decision-making related to the disposition of cases involving delinquent behaviours perpetrated by individuals with ASD (e.g. Archer & Hurley, 2013; Barry-Walsh & Mullen, 2004; Brewer & Young, 2015; Freckelton, 2011, 2012b, 2013b; Freckelton & List, 2009).

4.4.4. Limitations. The current study possessed several limitations. First, the small sample size prevented a comprehensive statistical analysis of the data. Larger samples would be required to model data to determine the manner in which specific factors of ASD may contribute to offending behaviour. Further, the use of a targeted sampling approach within the current study, including convenience and targeted recruitment techniques, raise the likelihood that the sample may not be representative of the general population. Thus, while it is possible that individuals with ASD offend with similar frequency and offence-variation than those who do not present with ASD, this result may be artefactual; occurring as the result of methodological weaknesses, including sample biases, systematic differences in recall or idiosyncrasies in responding on the SRO.

Nonetheless, the sampling methods employed in the current sample ensured that both individuals with very few ASD traits and those who would be likely to display clinically significant severity of ASD symptomatology self-selected for
participation. Indeed, half of the study sample \((n=108)\) possessed AQ scores above 32; the cut-off recommended by the authors of the screening tool. It should be noted that respondents were assigned to the Low or High AQ group on the basis of their AQ score, relative to the scores of the rest of the sample. Accordingly, the recommended cut-off scores on the AQ were not employed to differentiate those reporting a clinically significant degree of ASD traits. Nonetheless, 18 respondents in the High AQ group for annual delinquency analyses \((n = 20; 90\%)\), and 54 respondents in the High AQ group for lifetime analyses \((n = 54; 100\%)\) scored in the range of clinical levels for traits associated with ASD, according to the cut-off score of 32 recommended by the authors of the AQ (Baron-Cohen et al., 2001).

Critically, the AQ is not diagnostic and independent verification of ASD diagnoses was not undertaken in the current study, thus AQ scores can only be taken to identify ‘the degree to which an adult has autistic traits’ (Baron-Cohen et al. 2001, p.6) for respondents within the current sample. Thus, although individuals within the “High AQ” group reported ASD trait severity within the range considered clinically significant, it is unclear which, if any, respondents would meet formal diagnostic criteria for ASD. Moreover, given that the current study did not query the presence or impact of potential comorbid psychiatric or medical conditions, it is not possible to determine whether features of these conditions confounded self-reports regarding delinquency and the forensic response to such amongst respondents.

The self-report methodology of the current study also presents potential concerns regarding the validity of results. While the limitations of using official indices of offending (e.g. criminal convictions) are well known, support for the use of self-report measures, such as the SRO Questionnaire utilized in this study, is also far from universal. Critically, the SRO does not represent an exhaustive list of delinquent
behaviours, is skewed towards less serious delinquent behaviours and, given the international sample of the current study, it is possible that the delinquent behaviours included may not constitute criminal behaviours across each jurisdiction represented within the sample. Further, the cross-sectional nature of the study resulted in data that only provides ‘snapshots’ of offending behaviour, which is unable to explore the full trajectory of onset, career length and progression, escalation, offence switching or changes in specialization and desistance. Given that patterns of offending behaviour have been shown to change across criminal careers (e.g. Gilman et al., 2014), this may not provide a full picture of offending behaviour amongst individuals with ASD.

The use of a self-report methodology may be particularly problematic when considering the intended population sample of individuals with ASD. Of note, the SRO has not been validated for use with the ASD population and there is some evidence of systematic biases in regards to the manner in which individuals with ASD interpret and respond to survey items (Daly et al., 2014; Howlin et al., 2015; Williams, 2010). Such biases, if present, would have the potential to significantly impact the results of the current study. For example, an increased tendency towards admission of delinquency amongst individuals with ASD (Allen et al., 2008; de la Cuesta, 2010; Murrie et al., 2002; North et al., 2008) may have resulted in a lower threshold amongst individuals with higher degrees of ASD traits to endorse items on the SRO. In this context, it is possible that the results of the current study were inflated and individuals with ASD are in fact less likely to engage in offending behaviour than their neurotypical peers. Conversely, it may be the case that literal and pedantic interpretations of SRO items may have masked an increased frequency of delinquent behaviours amongst individuals with ASD (e.g. failing to endorse the item “In the last 12 months have you hit someone you lived with, with the idea of hurting
them?” due to a perception that their actions constituted a “punch” or “smack” rather than a “hit”). Further, given that the survey from which the data were drawn was only available for completion online, only individuals who were computer literate and had access to an Internet connection could participate. It is noteworthy, however, that issues with generalizability are prevalent throughout the literature involving adults with ASD (Howlin et al., 2015). Specifically, the voluntary nature of research participation, alongside the likelihood that individuals with certain ASD-consistent traits may be unwilling to take part in unfamiliar activities are considered to reduce the external validity of research involving adults with ASD (Falkmer et al., 2015; Howlin et al., 2015). As a result of such limitations, conclusions regarding delinquency amongst individuals with ASD drawn from the current study remain tentative.

4.4.5. Implications and directions for future research. Whether individuals with ASD possess a particular propensity towards particular offending behaviours has been vigorously debated. In light of the growing prevalence of ASD within the community, it is imperative that researchers explore such issues in attempts to identify and address potential vulnerabilities in regards to the involvement by some people with ASD in antisocial behaviours. Such efforts are vital to inform efforts directed towards prevention and early intervention for delinquent behaviours amongst the ASD population. Methodological limitations aside, the current study is one of the first, to the authors’ knowledge, that set out to systematically investigate these issues.

Given the preliminary nature of the results, this is an area that most certainly warrants additional empirical investigation. Future research in this area should be directed towards examining the nature of offending behaviours amongst a larger, more representative sample of the ASD population. Another potential direction for
future research is to investigate whether specific neurocognitive impairments associated with ASD are associated with vulnerabilities in regards to engagement in particular offence types. Ultimately, this type of research will assist to inform the nature of supports and interventions geared to prevent and respond to offending behaviours amongst the ASD population.

Questions of prevalence and propensity towards particular offence-types need not be resolved, however, in order to address issues related to responding to offending behaviours amongst the ASD population or the management of such individuals within the CJS. At present, there are no clear dispositional pathways for individuals with ASD who are convicted of a criminal offence (Freckelton, 2013b; Murrie et al., 2002). As demonstrated by the responses provided in the current study, individuals with ASD may variously be made subject to a community disposal or attract the application of diversionary alternatives (such as referral for a treatment program or admission to a secure psychiatric facility), whilst others find themselves sentenced to a term of incarceration within a prison. This variation in forensic outcome may be appropriate, given that a similar variation was noted for neurotypical peers. A critical question is whether the presence and impact of an ASD diagnosis are appropriately considered in the disposition of cases involving defendants with ASD (Woodbury-Smith & Dein, 2014). This issue is explored in further detail in succeeding chapters.
Chapter 5. The Legal Response: Legal Considerations and CJS

Awareness Regarding ASD

As emphasised in earlier chapters, the vast majority of individuals with ASD are law abiding; however, at least some may come into contact with the CJS due to engagement in criminal behaviours. Such individuals raise challenges for the CJS in determining and enacting an appropriate forensic response. Specifically, the presence of individuals with ASD within the CJS raises questions regarding criminal responsibility and competence and, relatedly, the application of legal provisions in the disposition of such cases. Despite the potential for significant negative ramifications following inappropriate forensic responses to offending behaviour (miscarriages of justice and reduced community safety, for example), little research exists that has systematically explored issues related to the disposition of cases involving defendants with ASD. In this chapter, the limited extant literature regarding such issues is examined, with a particular emphasis on the applicability to individuals with ASD of legislation and case law that guide judicial decision-making regarding the disposition of mentally disordered defendants. To provide context for such a discussion, the chapter commences with a description of the legal frameworks in Australia regarding mentally disordered offenders, with special reference to the legislative landscape in the state of Victoria.

5.1. Legislation and Common Law Regarding Defendants with Mental Disorders

Legal provisions exist in most jurisdictions internationally, to moderate punishment for individuals who lacked the mental capacity to fully appreciate the nature or moral quality of their criminal behaviour (Loughnan, 2012). Such provisions exist in recognition that punishment is not an appropriate response to criminal behaviours amongst individuals without the mental capacity to understand
the immoral nature or legal ramifications of their actions (Victorian Law Reform Commission, 2013). Substantively, a defendant’s mental functioning bares relevance to the determination of their fitness to stand trial, the applicability of defences related to their criminal responsibility and the nature and severity of the sentence imposed in response to the offending behaviour. Legislation and common law principles exist in most jurisdictions internationally that explicitly outline the conditions by which fitness and culpability are determined, with minor variations existing between Australian jurisdictions. As a means by which to anchor later comments regarding the disposition of offenders with ASD, the relevant law in Victoria, Australia, is briefly outlined below.

5.1.1. **Fitness to stand trial.** The issue of fitness to stand trial pertains to the ability of an accused person to understand and effectively participate in a legal trial (Loughnan, 2012). Fitness is defined similarly across Australian jurisdictions; in Victoria the conditions applicable to fitness are codified in section 6 of the *Crimes (Mental Impairment and Unfitness to be Tried) Act 1997* (Vic) (CMIA), as follows:

1) A person is unfit to stand trial for an offence if, because the person’s mental processes are disordered or impaired, the person is or, at some time during the trial will be-

   a. unable to understand the nature of the charge; or

   b. unable to enter a plea to the charge and to exercise the right to challenge jurors or the jury; or

   c. unable to understand the nature of the trial (namely that it is an inquiry as to whether the person committed the offence); or

   d. unable to follow the course of the trial; or
e. unable to understand the substantial effect of any evidence that may be given in support of the prosecution; or

f. unable to give instructions to his or her legal practitioner.

2) A person is not unfit to stand trial only because he or she is suffering from memory loss. (s6, CMIA).

An accused person who is deemed by a jury to meet any of the criteria outlined above may be found unfit to stand trial (s7(1), CMIA). If a defendant is found not capable to stand trial, the trial may be postponed until such time that the person is deemed fit, however, if the person is unlikely to become fit to stand trial in the foreseeable future or remains unfit after a period of adjournment, a special hearing is conducted to resolve the criminal case. The special hearing is heard before a jury and adopts a modified criminal procedure that takes into account the inability of the defendant to participate fully in the trial with three possible outcomes: the defendant may be found criminally responsible for committing the offence (or another relevant offence), charges may be dropped, or the defendant found not guilty by reason of mental impairment (Victorian Law Reform Commission, 2013).

5.1.2. The Mental Impairment defence. The defence of Mental Impairment generally serves to excuse an accused offender from criminal responsibility due to an inability to understand that their conduct was wrong. In order to establish criminal responsibility for an act (i.e. guilt), two aspects must be proven: actus reus and mens rea (Denney, 2012; Erickson & Felthous, 2009; Ferguson & Ogloff, 2011; Morse, 1999). Actus reus refers to the commission of the prohibited act while mens rea refers to a state of mind when committing the act, that is, the intent to commit the act (Denney, 2012; Ferguson & Ogloff, 2011). In law, a person is held criminally responsible for their offenses if it can be proved that they committed an offence
(actus reus) and that they did so intentionally (mens rea) (Morse, 1999). In contrast, if, due to mental disorder or disability, an individual does not have the capacity to form intent, they may be excused from criminal responsibility on the grounds of mental impairment (Ferguson & Ogloff, 2011; Levy, 2011; Morse, 1999).

Central to the Mental Impairment defence is the assumption that punishment is not an appropriate response in cases where an individual cannot understand the legal ramifications of their behaviour, because they cannot be deterred or influenced by mere punishment from repeating such behaviours (Victorian Law Reform Commission, 2013). Simultaneously, the courts are charged with the responsibility to protect the community from those who pose an unacceptable risk of harm to themselves, or others (Victorian Law Reform Commission, 2013). Thus, the Mental Impairment defence serves to protect a potentially vulnerable group of individuals (i.e. the “mentally impaired”) from undue punishment, while still recognising that measures may be required to mitigate the risk such individuals may pose to the community (Victorian Law Reform Commission, 2013).

As with the legislation regarding fitness to stand trial, the precise standards by which Mental Impairment is determined vary across Australian jurisdictions. In Victoria, the conditions required to establish the defence of mental impairment are codified in section 20 of the CMIA as follows:

1) The defence of mental impairment is established for a person charged with an offence if, at the time of engaging in conduct constituting the offence, the person was suffering from a mental impairment that had the effect that—
   a. he or she did not know the nature and quality of the conduct; or
   b. he or she did not know that the conduct was wrong (that is, he or she could not reason with a moderate degree of sense and composure
about whether the conduct, as perceived by reasonable people, was wrong).

2) If the defence of mental impairment is established, the person must be found not guilty because of mental impairment (s20, CMIA)

The critical issue in determining the applicability of the Mental Impairment defence is in regards to the cognitive, moral and volitional capacities of the offender in question. Essentially, if, as the result of a diagnosable mental condition, an individual does not possess an understanding that they were ‘wrong’ in engaging in the offending behaviour, was unable to control their behaviour, or held a false belief that their behaviour was appropriate, they could be deemed ‘not guilty because of mental impairment, and will not be considered criminally culpable for their behaviour. Defendants found ‘not guilty because of mental impairment’ become subject to the special powers of the court, under which they may be released unconditionally, under supervision, or detained for appropriate treatment (Victorian Law Reform Commission, 2013).

5.1.3. Mental disorder as a mitigating factor during sentencing. The sentencing of an offender found to be guilty is frequently described as the most demanding task faced by the judiciary; requiring judicial officers to weigh issues related to community safety against mitigating factors, such as an offender’s perceived moral blameworthiness and the likely impact of any punishment imposed (Edgely, 2009; Edney & Bagaric, 2007; Freckelton, 2007; Potas, 1981; Walvisch, 2010). Over the last 20 years, provisions have been enacted to govern the sentencing process and in most Australian jurisdictions dedicated sentencing legislation exists (Edney & Bagaric, 2007; Mackenzie, Stobbs, & O'Leary, 2010). In Victoria, the purposes of sentencing, the hierarchy of sentencing courts and a range of aggravating
and mitigating factors to which sentencing judges may turn their mind are codified in the *Sentencing Act 1991 (Vic)*. However, Australian legislation provides little guidance in regards to the practical application of such factors, including which ought to take precedence where competing principles are evident in a single case (Edgely, 2009; Ritchie, Hudson, Kenny, & Darby, 2016). Nor does the legislation specifically address the issue of sentencing offenders with impaired mental functioning (Edney & Bagaric, 2007; Freiberg, 2010; Mackenzie et al., 2010). Thus, in Australia, the act of sentencing, and particularly the sentencing of mentally disordered offenders, is largely driven by judicial discretion.

It is nonetheless expected that sentencing decisions adhere to common law mandates, set out in previous court decisions (Potas, 1981). In most jurisdictions in Australia, deliberations regarding the sentencing of offenders with a mental impairment are primarily guided by the consideration of a range of mitigating factors set out in the Victorian Court of Appeal’s decision in *R v Verdins, Buckley and Vo* (2007) (Freckelton, 2007, 2012a; Walvisch, 2010). The Verdins’ decision, described by Freckelton (2007) as “Australia’s most sophisticated and subtle analysis of the relationship between impaired mental functioning and sentencing” (p. 1), expanded on previous court decisions (in particular, *Tziaras v The Queen [1996]*), in considering whether ‘mental impairments’ possessed by an offender would impact their response to dispositional alternatives such that the purposes of sentencing – namely general and specific deterrence, just punishment and denunciation – would not be served by imposing such a sentence.

The Verdins decision set out a (non-exhaustive) list of six ways in which the mental functioning of an offender may render it appropriate to moderate moral culpability, and accordingly, the type and severity of punishment imposed during
sentencing. Specifically, the Court of Appeal held that the following factors ought to be taken into account when imposing a sentence for any offender “…shown to have been suffering at the time of the offence (and/or to be suffering at the time of sentencing) from a mental disorder or abnormality or an impairment of the mental function.” (R v Verdins [n 7] 271):

1) The condition may reduce the moral culpability of the offending conduct, as distinct from the offender’s legal responsibility. Where that is so, the condition affects the punishment that is just in all the circumstances; and denunciation is less likely to be a relevant sentencing objective.

2) The condition may have a bearing on the kind of sentence that is imposed and the conditions in which it should be served.

3) Whether general deterrence should be moderated or eliminated as a sentencing consideration depends upon the nature and severity of the symptoms exhibited by the offender, and the effect of the condition on the mental capacity of the offender, whether at the time of the offending or at the date of sentence or both.

4) Whether specific deterrence should be moderated or eliminated as a sentencing consideration likewise depends upon the nature and severity of the symptoms of the condition as exhibited by the offender, and the effect of the condition on the mental capacity of the offender, whether at the time of the offending or at the date of the sentence or both.

5) The existence of the condition at the date of sentencing (or its foreseeable recurrence) may mean that a given sentence will weigh more heavily on the offender than it would on a person in normal health.
6) Where there is a serious risk of imprisonment having a significant adverse effect on the offender’s mental health, this will be a factor tending to mitigate punishment” (*R v Verdins* (2007) 16 VR 269 at 32).

A thorough analysis of the practical application of these factors is beyond the scope of this thesis, and is available elsewhere (e.g. Freckelton, 2007; Gee & Ogloff, 2014; Walvisch, 2010). Critically, the considerations delineated in *R v Verdins*, *Buckly and Vo* (2007) pertain to the moral culpability of an offender, rather than legal responsibility. This distinction is important; in contrast to dichotomous determinations of the impact of mental impairment according to the abovementioned legislation (i.e. an offender is either fit- or unfit-; criminally responsible or not criminally responsible), moral culpability can be conceptualised as a “continuum of blameworthiness” informed by the “extent to which the background and circumstances of the defendant influenced, predisposed, or diminished the defendant’s moral sensibilities and the exercise of volition or free will” (Cunningham, 2012, p.108). It follows that any sanction imposed on an offender should similarly be moderated in line with the nature and severity of any extant symptomatology; such that offenders with mental impairments are not punished as harshly as other (non-impaired) offenders (Cunningham, 2012; Walvisch, 2010). Thus, in regards to the application of Verdins’ principles, the pertinent consideration is *the degree to which* a mental impairment may have influenced a defendant’s moral understanding at the time of offending, or would be likely to impact on their experience of the available dispositional alternatives (Walvisch, 2010).

The court is explicit that the application of the principles delineated in *R v Verdins*, *Buckly and Vo* (2007) may apply “whether or not the condition in question would properly be described as a (serious) mental illness” (*Verdins* [n 7] 271,
emphasis added), and is therefore not restricted to cases of severe psychiatric illness. This definition for ‘mental impairment’ is deliberately broad; more so than in the Crimes (Mental Impairment and Unfitness to be Tried) Act 1996 and prior court decisions concerning mental impairment (e.g. Veen v The Queen [No.1] (1979) 143 CLR 458). Thus, the impact of impaired mental functioning can now be considered amongst a vastly wider group of offenders than was permitted in legislation or common law preceding the Verdins’ decision. However, it is clear that the considerations raised in R v Verdins, Buckley and Vo (2007) are not intended to act as a form of automatic leniency for offenders with such impairments (Freckelton, 2007). As Justice Cavanough iterated in R v Oznek [2007] VSC 192 at [22]:

There is a need for identification in the evidence of the type of mental impairment from which it is asserted that the offender was suffering at the time; and secondly (and more importantly), there is a need for clear evidence that any such condition had any of the effects which tend to reduce moral culpability.

Thus, where an offender is identified as possessing a mental impairment, as defined by Verdins, this represents only the beginning of the sentencing court’s enquiry to determine whether this impairment ought to be considered as mitigating for the purposes of sentencing. Specifically, the court must determine how the particular impairment may have impacted the offender’s mental state and behavioural control in the context of the precipitating circumstances to their offending, at the time of the offending, or how it is likely to impact functioning in the future (Freckelton, 2007).
5.2. The Legal Status of Defendants with Autism Spectrum Disorder

Criminal responsibility and criminal culpability among offenders with ASD began to receive attention in Australia following the finding that Martin Bryant, who in 1996 murdered 37 people at Port Arthur in Tasmania, had a diagnosis of Asperger Syndrome\(^8\) (Freckelton, 2011; Mullen, 1996). Since that time, ASD diagnoses have been raised with increasing frequency during criminal proceedings in international and Australian jurisdictions (Freckelton, 2011, 2013a, 2013b). These cases raise a complex set of issues for the judiciary, who are required to make decisions related to criminal intent, legal responsibility and the likely impact of any legal sanctions imposed in responding to illegal behaviours (Baron-Cohen, et al., 2001; Freckelton, 2011; Hare et al., 1999; Royal College of Psychiatrists, 2006).

5.2.1. Legislative considerations: Fitness to Stand Trial and the Mental Impairment Defence. Notably, the mere presence of a diagnosable condition does not automatically provide grounds for the operation of legislative provisions designed to protect vulnerable individuals from unduly harsh outcomes within the CJS (Walvisch, 2010). While establishing the presence of an impairment, through a DSM-5 diagnosis or otherwise, is a necessary initial task for the operation of such legal provisions, the diagnosis of a mental disorder is not, on its own, sufficient to call into operation the protections for mentally disorder defendants. Establishing the nexus between any extant condition and the defendant’s engagement in offending behaviour (and, in the case of sentencing, the likely impact of punishment) is the primary consideration (Freckelton & List, 2009; Lerner et al., 2012; Walvisch, 2010). While such determinations take place on a case-by-case basis, a reasonable place to start such deliberations is in the consideration of the nexus between the characteristic

\(^8\) This finding was later disputed and regarded a misdiagnosis (Mullen, 1996).
symptomatology of a particular condition and the affected individual’s mental state and behaviour at the time of offending.

**5.2.1.1 Fitness to stand trial.** Several of the core features of ASD could be expected to complicate participation in the legal process, potentially impacting on comprehension and giving rise to communication problems within the context of criminal proceedings (Allen et al., 2008; Freckleton, 2013b; Hall, Godwin, Wright, & Abramson, 2007; Taylor, Mesibov, & Debbautd, 2009). For example, literalness and rigidity in thought and difficulties integrating verbal information may result in difficulties for defendants with ASD in interpreting the meaning and implications of questions put to them by legal representatives during examinations (Hall, Godwin, Wright, & Abramson, 2007; Taylor et al., 2009). Further, a tendency towards detailed-oriented processing and strong preference for routine and familiarity may evoke confusion and agitation amongst individuals with ASD, increasing their vulnerability to decompensation in the unfamiliar environment of the courtroom (Health and Social Care Overview and Scrutiny Committee, 2012).

In such circumstances, a defendant with ASD may be reluctant to communicate and may engage in maladaptive coping behaviours, thus impacting their ability to appropriately and meaningfully participate in court processes or instruct their lawyer on relevant matters (Health and Social Care Overview and Scrutiny Committee, 2012). Consistent with such, in a study by Allen and colleagues (2008) regarding the experiences of defendants with Asperger’s syndrome, participants self-reported a range of specific difficulties experienced during court proceedings, including problems with comprehending the court processes and difficulties communicating with legal representation (e.g. “My barrister made things really
confusing. He wasn’t telling me what was going on or what was gonna happen next […] I was just really confused and annoyed”; p. 754).

In a recent study in which the impact of ASD on fitness to stand trial was systematically investigated, Brewer, Davies, and Blackwood (2016) revealed a significantly poorer understanding of concepts related to competency amongst adult offenders with a diagnosis of ASD (n = 15) when compared to (non-offender) adults with no diagnosis of ASD (n = 15). Specifically, participants viewed portions of a 15-minute filmed vignette of typical court proceedings and then responded to items relevant to the excerpt on a novel measure designed to assess fitness to stand trial according to the legislation in England and Wales. Whilst no differences were revealed in overall scores on the fitness to stand trial measure, the responses of individuals with ASD indicated a poorer understanding of issues related to understanding the evidence and case presented in the vignette, the process and implications of entering a plea, and in regards to the roles of CJS personnel and courtroom processes represented in the fitness to stand trial measure. Thus, it was evident that under certain circumstances, defendants with ASD may be negatively impacted in regards to their ability to understand and follow the judicial process and the nature of the charges brought against them.

Of note, despite their poorer understanding of a range of concepts vital to understanding court processes, participants with ASD in Brewer and colleagues’ (2016) study considered themselves to be more familiar with courtroom procedures than the control group of non-ASD non-offenders. In this context, Brewer et al.

---

9 Although this measure was designed for use in England and Wales, a great deal of overlap exists between the legal criteria to assess fitness to stand trial in Australia. Thus, while some caution is required in generalising the results of Brewer et al.’s (2016) study, the results of such may inform issues in Australian jurisdictions.
cautioned that both individuals with ASD and CJS professionals alike may overestimate competency amongst offenders with ASD, resulting in the inadequate provision of support, and potentially, unjust forensic outcomes. Indeed, several authors have agreed that the difficulties that individuals with ASD face in navigating the demands of the courtroom are often overlooked, particularly amongst those with normative or above-average intellectual functioning, because they may not immediately present with clear evidence of impairment (Allen et al., 2008; Brewer et al., 2016; Freckelton, 2013b; Hare et al., 1999). Despite such, studies that have reviewed court outcomes involving such defendants suggest that most are considered fit to stand trial. For example, in five cases of offenders with Asperger’s syndrome reviewed by Barry-Walsh and Mullen (2004) the individuals were found fit to stand trial in all cases. Similarly, all but one of Allen et al.’s (2008) participants that had been processed through the CJS were deemed fit to plea (n = 9).

It has been argued that the majority of individuals with ASD can be appropriately accommodated within court proceedings through the provision of relatively modest special measures, such as familiarizing the defendant with the courtroom setting prior to appearing, removal of formal attire such as wigs and gowns, simplifying language used during questioning, or the presence of an intermediary during examinations (Cutler, 2014; Health and Social Care Overview and Scrutiny Committee, 2012; Talbot, 2012). Of note, despite describing various difficulties with participation in court proceedings, two of the participants in Allen et al.’s (2008) study reported that their awareness and comprehension of the trial was aided by effective communication with support persons and legal representatives (e.g. "I had a good barrister...he explained the court process to me, and the other couple of guys who saw me...they explained everything to me"); Allen et al., 2008, p. 755).
Consistent with such reports, Brewer et al. (2016) found no differences between individuals with ASD and the control group in regards to their understanding of instructing legal representatives. This suggests that, in some cases, the aforementioned difficulties faced by individuals with ASD when appearing in court may be ameliorated through appropriate support and effective communication.

5.2.1.2. The Mental Impairment defence. As outlined in Chapter 3, a range of diagnostically-relevant features of ASD (e.g. narrowed focus, cognitive rigidity, limited perspective-taking capacities and deficits in consequential thinking) have been argued, under certain circumstances, to contribute causatively to engagement offending behaviour. These features result in difficulties for individuals with ASD in interpreting and understanding the behaviour of others, and in predicting and appreciating the impact of their own behaviour on others (Freckelton, 2011). Taylor et al. (2009) argues that by virtue of such socio-communicative impairments, individuals with ASD may unwittingly become involved in offending behaviours, bringing the Mental Impairment defence into consideration:

Persons with ASD often get into trouble without even realizing that they have committed an offense. Offenses such as making threatening statements; personal, telephone, or internet stalking; inappropriate sexual advances; downloading child pornography; accomplice crime with false friends; and making physical outbursts at school or in the community, would certainly strike most of society as offenses which demand some sort of punishment. This assumption, though valid at face value, may not take into account the particular issues that challenge the ASD individual […] what appears as anti-
social behaviour to the “regular” world is often simply the manifestation of the ASD person’s misunderstandings (Taylor et al., 2009, p.3).

Indeed, in many cases of offending behaviour amongst individuals with ASD described in the academic literature, there was a demonstrable nexus between the offending behaviour and symptomatology of ASD, such that the Mental Impairment defence could be argued to apply (e.g. Barry-Walsh & Mullen, 2004; Beardon, 2008). Further, a number of case reports have highlighted offenders with ASD who maintain a view that their offending behaviour was justified, and refute others’ suggestions to the contrary with great indignation (Wing, 1997). Other reports suggest that by virtue of socio-communicative or cognitive/behavioural eccentricities, individuals with ASD may be unable to appreciate that such conduct is ‘wrong’ (Freckelton, 2013a; Freckelton & List, 2009; Katz & Zemishlany, 2006; Mayes & Koegel, 2003). Such appears relevant to the case of “M”, a man who was arrested following a “high degree of violence towards another person/perso...ns” (undisclosed details; Beardon, 2008, p.72). M reportedly demonstrated awareness that others viewed his offending behaviour to be “bad”, however he refuted such by stating that his behaviour was simply an “unfortunate event” (Beardon, 2008, p. 70).

The socio-communicative and behavioural impairments associated with ASD may also increase propensity towards provocation amongst the ASD population which, in the context of behavioural rigidity and underdeveloped emotional regulation skills, may lead to maladaptive responses, including the perpetration of violence. For example, Schwartz-Watts (2005) detail a case where a defendant shot and killed a neighbour who had struck his face, and knocked his glasses, following an argument. The defendant reportedly retrieved two guns from his bedroom, shooting
the victim repeatedly until death. Such violence was formulated in the context of the defendant’s hypersensitivity to having his glasses touched, thus resulting in a perception of greater harm than was caused physically during the altercation. Of particular relevance to Mental Impairment determinations, the defendant reportedly “was unable to appreciate the ‘overkill’ of his victim”, due to his misperception (gleaned from watching “America’s Most Wanted” and horror movies) that people are able to continue attacking after being shot (p. 392).

In summary, at least some individuals with ASD may engage in offending behaviour in the absence of volitional control or appreciation of the moral implications of their actions, raising questions in regards to whether such individuals ought to be considered criminally responsible for their offending behaviour (Barry-Walsh & Mullen, 2004; de la Cuesta, 2010; Freckelton, 2011; Freckelton & List, 2009; Hall et al., 2007; Murrie et al., 2002). Nonetheless, in many cases, exculpatory defences are not pursued in such cases, raising questions as to the practical relevance of such defences to criminal proceedings with offenders with ASD.

5.2.1.3. Theory in practice: The practical relevance of Fitness and mental Impairment legislation to ASD. A critical issue to the operation of legislative provisions for offenders with mental disorders is the determination of which conditions ought to be specified as constituting a ‘mental impairment’ for the purposes of such processes (Robertson, 2013). The term is not explicitly defined in the legislation in Victoria, Australia and adopted definitions vary across other Australian jurisdictions (White, Day, & Hackett, 2007). Accordingly, the debate continues across Australian jurisdictions regarding the conditions that ought to attract such special consideration (see, for example, Robertson, 2013). Similarly, opinion varies as to the relevance of such legislation to defendants with ASD.
Of note, the available research suggests that where offending behaviour occurs amongst the ASD population, this is more commonly perpetrated by higher-functioning individuals whose ASD symptomatology may be less severe (Gunasekaran & Chaplin, 2012). Conversely, the threshold for determining an offender as ‘mentally impaired’ as defined in the Australian legislation is high (Freckelton & Selby, 2013; Victorian Law Reform Commission, 2013). Thus, in most cases, the impairments displayed amongst defendants with ASD may not be deemed sufficiently severe as to evoke the operation of such legislative protections. Further, even in cases where it appears that an offender with ASD would meet threshold requirements of severity, legal representatives may be reluctant to pursue such defences.

It should be noted that being found ‘unfit to stand trial’ or ‘not guilty because of mental impairment’ does not result in the automatic release of an offender. Indeed, in such cases, offenders may be ordered to supervision or detention for compulsory treatment within a secure facility until their symptomatology has dissipated sufficiently to satisfy the courts that they no longer pose an unacceptable risk to the community. Because ASD is a neurodevelopmental disorder with core symptomatology that is relatively resistant to intervention, offenders with ASD who are deemed ‘unfit to plea’ or ‘not guilty because of mental impairment’ are likely to face substantial difficulties in satisfying the courts that they have sufficiently addressed the precipitants of their offending behaviour and may be subject to court-ordered restrictions for lengthier periods than would be imposed if they are held fully criminally responsible (Freckelton, 2011). Indeed, given that ASD is a lifelong disorder, it is feasible that in some cases, such restrictions may apply on an effectively indefinite basis. Thus, legal representatives may be reticent to raise the
legislative protections afforded for mentally disordered offenders, particularly where charges are not serious (Freckelton, 2011).

Due to the likelihood that many defendants with ASD will not meet severity thresholds to be deemed ‘mentally impaired’, and the potential for somewhat draconian consequences should Fitness to Stand Trial or Mental Impairment legislation be enacted, such legislation appears of limited practical relevance in most cases of offending behaviour amongst the ASD population (Woodbury-Smith & Dein, 2014). Nonetheless, any impairments that impact a defendant’s moral or volitional capacities ought to be taken into account when dealing with offending behaviour, such that the forensic response is measured and effective. As described above, the Verdins’ principles adopt a deliberately broad conceptualisation of ‘mental impairment’ in consideration of the moral culpability of a guilty offender. Accordingly, thresholds for the applicability of such considerations are lower and more likely to bear relevance to offenders with ASD when compared to the operation of the legislative provisions described above. As a result, a diagnosis of ASD may be of greater relevance during the sentencing of a guilty offender (Attwood, 2007).

5.2.2. ASD as a mitigating factor during sentencing: The relevance of Verdins’ principles. In recent years, ASD diagnoses have most frequently been raised in Australian jurisdictions at the sentencing stage of criminal proceedings, with diagnostically-relevant features of ASD argued to both mitigate the moral blameworthiness of an offender and/or increase the burden of incarceration for such individuals (Freckelton, 2013a; Freckelton & List, 2009).

Issues related to moral processing amongst individuals with ASD are explored in greater detail in later chapters (see Chapter 7 and 8); however, it is pertinent to note at this stage that case reports suggest that whilst many individuals with ASD will
recognise that their offending behaviour was ‘wrong’, they may nonetheless lack a complete understanding of what ‘wrong’ entails in regards to the social and emotional implications of their behaviour (Hare et al., 1999; Wing, 1997). This lack of socio-emotional understanding of ‘wrongness’ is evident in a case study by Beardon (2008) of “E”, a woman who was arrested after letters she wrote to her college tutors over a period of several months (initially in search of friendship) became threatening. Beardon (2008) notes that E clearly demonstrated a lack of perspective-taking in her persistent attempts to establish friendships despite a lack of interest from her tutors and several cautions from police. Although E reportedly demonstrated an appreciation that her behaviour was ‘wrong’, such that she knew not to repeat this behaviour, her reports indicated that her motivation to desist was in relation to her fear of future police contact, rather than in any appreciation of the impact of her behaviour on the victims (her tutors). Thus, individuals with ASD may have a basic understanding that a behaviour is unacceptable with reference to learned socio-conventional ‘rules’ or legal implications, without having an appreciation of the socio-emotional impact of such behaviour on victims.

Also of relevance to Verdins’ principles, it has been increasingly argued that individuals with ASD may face particular difficulties in a prison environment that render incarceration more burdensome than for prisoners without ASD (Freckelton, 2013a). The socio-communicative difficulties associated with ASD have been argued to result in increased vulnerability to victimisation, manipulation, exploitation or retribution within the prison setting; for example, due to misinterpreting, failing to recognise or disregarding the somewhat rigid and paradoxical nature of the unwritten rules for co-existing with other prisoners (Cashin & Newman, 2009; English & Heil, 2005; Mbuba, 2012). A thorough examination of potential difficulties faced by
individuals with ASD within a custodial environment is beyond the scope of the
current thesis, however, the author has published a recent review on this topic during
the course of the current doctoral candidature (Robertson & McGillivray, 2015).

Recent examination of court decisions in cases involving defendants with
ASD has revealed a lack of coherence in the way in which judicial officers have
applied Verdins’ principles during sentencing and “something of a backlash” in ASD
being considered significantly mitigating in recent years (Freckelton, 2013a). In the
context of such observations, Freckelton (2013a) argued that “there is a significant
forensic distance to travel and many challenges […] before courts are enabled
meaningfully to appreciate for any given defendant the impact likely to have been
exercised on offending behaviour by an ASD” (p.1). One such challenge to
overcome pertains to unawareness and misunderstandings of ASD held amongst CJS
workers, including judicial officers (Freckelton, 2013a).

5.3. Judicial Awareness and Perceptions of ASD

Freckelton (2013a) argues that the marked inconsistency in Australian court
decisions involving defendants with ASD exposes a significant degree of
unawareness and misunderstanding amongst judicial officers as to the forensic
significance of ASD. If true, the potential nexus between features of ASD and an
individual’s engagement in offending behaviour and prospects for rehabilitation may
be overlooked during the disposition of a case, impacting the effective management
of such individuals within the CJS (Barry-Walsh & Mullen, 2004; Browning &
Caulfield, 2011; Katz & Zemishlany, 2006; Murrie et al., 2002; Woodbury-Smith &
Dein, 2014). Further, in the absence of an adequate understanding of ASD, any
unusual or maladaptive behaviours demonstrated by a defendant with ASD may be
misinterpreted by the judiciary, with the potential to unfairly impact dispositional
outcomes (Freckelton, 2013a; Murrie et al., 2002). For example, the socio-communicative impairments displayed by some defendants with ASD (e.g. reduced eye contact, a tendency to misinterpret questioning, difficulties with temporal relationships, slowed verbal processing, echolalia, and other unusual mannerisms) may be misinterpreted as indicative of dishonesty or contempt, or as demonstrative of guilt and a lack of remorse (Freckelton, 2013b; Haskins & Silva, 2006; Health and Social Care Overview and Scrutiny Committee, 2012; Ingram, Lyons, Lee, & Bowron, 2012; Mahoney, 2009; Murrie et al., 2002; Taylor et al., 2009). In this context, misinformed impressions regarding ASD amongst the judiciary may be highly prejudicial where such individuals are being tried for a criminal offence (Allen et al., 2008; Freckelton, 2013b).

Despite the potential impact on issues of justice, human rights and community safety, judicial awareness of ASD is an issue that has received limited academic attention. The only published research that has empirically explored judicial attitudes regarding the sentencing of individuals with ASD is described in a series of papers by Berryessa (2014a, 2014b, 2016a, 2016b). Utilising a mixed-methods approach, Berryessa surveyed and interviewed 21 Californian Superior Court judges to ascertain their views on a range of issues pertinent to forensic decision-making involving individuals with High Functioning Autism (HFA), including their personal experiences and perceptions on media portrayals. Of note, all 21 judges reported some prior exposure to ASD, and 18 indicated personal experiences with individuals with the disorder (e.g. friends or family members who had a diagnosis of ASD) (Berryessa, 2014b). In this context, it is thus highly likely that participating judges possessed a greater understanding of ASD, when compared with other members of the judiciary.
Overall, the judges viewed HFA as relevant to criminal proceedings and reported a recognition of the potential stigmatising effect of misperceptions regarding the disorder, particularly in regards to negative portrayals in the media (Berryessa, 2014a, 2016a, 2016b). However, inconsistencies were noted in regards to their understanding of the particular impact of HFA on sentencing and participants expressed uncertainty in regards to the disposition of cases where offenders possessed a diagnosis. According to Berryessa (2016a), whilst some of the interviewed judges did not view HFA as relevant to the sentencing process, the majority (n = 15) reported that an awareness of a defendant’s diagnosis would be relevant to assist the judiciary in determining whether the offending behaviour was a consequence of symptomatology associated with the disorder (Berryessa, 2016a).

Twelve of the 21 judges specifically referred to the mitigating or aggravating effect of a HFA diagnosis when sentencing a guilty offender (Berryessa, 2016a). Specifically, nine judges viewed HFA as a potential mitigating factor in sentencing, with a reported majority of these indicating the particular relevance to the issue of *Mens Rea*; that is, the extent to which an offender with HFA could be considered to have wilfully and intentionally committed the offence in question (Berryessa, 2014b). In contrast, three judges described HFA as a potentially aggravating, because of a view that a diagnosed individual may pose a significant risk to personal and public safety. For example, one judge was reported to opine, “I think it would be a detriment to [offenders] in future cases. Judges are going to be concerned because they’re more likely to re-offend” (Berryessa, 2016a; p. 2772).

In regards to selecting appropriate sanctions for offenders with HFA, Berryessa (2016a) reported a prevailing view amongst participating judges that they were responsible for ensuring that individuals with HFA are provided opportunities to
receive the support and intervention required to assist them to establish and maintain an offence-free lifestyle. It was reported that the majority of participants viewed the imposition of a custodial sentence as ineffective for such objectives, and potentially damaging for an offender with HFA, with discontent expressed at the lack of suitable dispositional alternatives (Berryessa, 2016a). One participating judge reported “[…] When they’re placed in a jail or a prison cell, they’re basically being warehoused because we don’t have a better way of dealing with it…My concern is that we don’t have an effective way…” (Berryessa, 2016a; p. 2772).

Of note, the judges who participated in Berryessa’s (2014a, 2014b, 2016a, 2016b) study expressed differing views as to the way in which HFA may impact sentencing deliberations. As noted by Berryessa (2016a), the divergent views expressed by judges suggest that offenders with ASD may receive differential treatment within the course of criminal proceedings, and particularly during sentencing, dependant on the particular views and opinions of the presiding judge. Such observations are consistent with prior academic literature that identified substantial inconsistencies in the way in which ASD has been considered in recent court decisions (Freckelton, 2011, 2013a, 2013b; Freckelton & List, 2009).

5.4. Chapter Summary

While much of the current literature refutes a direct causal relationship between ASD and engagement offending behaviour, several authors have argued that in many cases where an individual with ASD has perpetrated an offence, they have done so in the context of ASD traits and symptomatology. Although there is no agreement in regards to the prevalence of offending behaviour within the ASD population, there is a general consensus that offending behaviour occurs more frequently amongst higher functioning individuals and that amongst such individuals,
ASD symptomatology may contribute to a complex constellation of environmental, situational, and personality factors to precipitate offending behaviour. Thus, in the absence of comorbid conditions, the legislated criminal defences for mentally disordered offenders (e.g. Fitness to Stand Trial, Mental Impairment), whilst theoretically applicable, may bear little practical relevance to defendants with ASD. However, the recognition of ASD as a contributory factor to offending behaviour raises the relevance of such to mitigation during sentencing, as seen in Australian courts (Freckelton, 2013a).

Despite the increasing frequency with which such issues are raised in criminal proceedings, the sentencing of offenders with mental illnesses, including those with ASD, remains an underdeveloped topic of study (Goodman-Delahunty, Forsterleee, & Forsterlee, 2005; Walvisch, 2010). The limited research regarding the sentencing of offenders with ASD suggests that judges experience uncertainty in determining the forensic relevance and impact of ASD and that this contributes to variability in regards to the imposition of sanctions in response to offending behaviour amongst this population (Berryessa, 2014a, 2014b, 2016a; Freckelton, 2011, 2013a, 2013b; Freckelton & List, 2009). Such concerns are paired with calls for better training on ASD for all CJS personnel (Browning & Caulfield, 2011), and for increased availability of accurate, effective and unbiased expert evidence to guide the judiciary in their deliberations during the course of criminal proceedings (Berryessa, 2016a; Freckelton & List, 2009). Given that sentencing impacts on the freedom, future and treatment of individuals found guilty of an offence, it is important that such issues are examined further.

Strong recommendations have been made for additional research into the characteristics and needs of individuals with ASD within the CJS (Bleil Walters et
al., 2013; Cheely et al., 2012; Dein & Woodbury-Smith, 2010; Woodbury-Smith et al., 2006). The aim of succeeding chapters is to contribute to the evidence base through an investigation of the views and perceptions of the judiciary in an Australian context, and the potential impact of ASD traits on moral processing (relevant to criminal responsibility and moral culpability). Specifically, preliminary evidence regarding judicial awareness and perceptions of ASD amongst an Australian sample of judicial officers is presented in Chapter 6, the question of morality amongst individuals with ASD is explored in Chapter 7, with new data presented in Chapter 8 from a self-report survey exploring the relationship between ASD- consistent traits and domains of moral concern.

6.1. Rationale

In recent years, the presence of ASD has been raised in the context of court proceedings with increasing frequency and the available academic literature has highlighted the potential relevance of ASD at all stages of CJS involvement (Allen et al., 2008; Freckelton, 2011, 2013b; Hall et al., 2007). Individuals with ASD may present with unique precipitants to their offending behaviour, associated with divergent risk profiles and forensic needs, requiring specialized support to enable them to successfully navigate and benefit from forensic intervention (Allen et al., 2008; Browning & Caulfield, 2011). Due to the potential prejudicial impact of such difficulties, the identification and awareness of the potential impact of ASD amongst CJS personnel is critical to promote fair and effective responses to offending behaviour amongst this population (Allen et al., 2008; Browning & Caulfield, 2011).

Much of the literature is critical of the criminal justice response to offenders with ASD, with several authors expressing concerns regarding the potential deleterious impact of interactions between individuals with ASD and CJS personnel who are uninformed or misinformed regarding the nature and potential forensic significance of the disorder (e.g. Allen et al., 2008; Archer & Hurley, 2013; Browning & Caulfield, 2011; Debbaudt & Rothman, 2001; Haskins & Silva, 2006; Mayes & Koegel, 2003; McAdam, 2012; Murrie et al., 2002; Teagardin, Dixon, Smith, & Granpeesheh, 2012). Given the substantial legal and social consequences inherent in court decisions, concerns regarding the prejudicial impact of ASD may be particularly pertinent when considering interactions with the judiciary. The aim of the study reported in this chapter is to augment the findings from Berryessa’s study
through an investigation of the manner in which members of the Australian judiciary understand and perceive ASD and how this may impact on decision-making, and in particular the imposition of sanctions during the disposition of cases where a defendant possesses an ASD diagnosis.

6.1.1. How do judges decide? In their role as legal adjudicators, judicial officers play a crucial role in the administration of justice and imposition of the legal response to offending behaviour (Attwood et al., 2014; Vidmar, 2011). Judges act as the sole fact-finder and ultimate decision-maker in the vast majority of criminal and civil proceedings (Guthrie, Rachlinski, & Wistrich, 2001) and are charged with a responsibility of ensuring that forensic responses to offending behaviour are sufficient to protect and punish, but not overly punitive or otherwise detrimental to the offender, victims of crime or the wider community. Even in cases where juries are involved, judicial officers preside; acting as both gatekeepers for testimony admitted into evidence and advisors, instructing jury members on relevant legal matters (Gatowski et al., 2001). Consequently, in the course of a single case a judge may make numerous important decisions related to the interpretation of legislation or application of legal precedents and principles established under common law.

In making such decisions, judicial officers are expected to put aside their own attitudes and dispassionately consider only the information brought before them that is relevant to the interpretation of the facts of a case and application of relevant legislation and principles derived from case law (Wrightsman, 1999). However, decision-making is a highly complex psychological process and a substantial body of literature drawn from decades of lay-person research has demonstrated that extraneous variables, including schemas associated with labels, alongside other personal attitudes, values and beliefs, may impact interpretation of facts and produce
systematic errors in judgment and legal decision-making (e.g. Guthrie et al., 2001; MacCoun, 1989; Wrightsman, 1999). Legal realists assert that decisions made by members of the judiciary are similarly influenced by socio-political factors, personal attitudes, moods and perceptions\textsuperscript{10} held in regards to those who appear before them (Danziger et al., 2011; Frank, 1930, 1931; Wistrich, Rachlinski, & Guthrie, 2015).

Prior research has confirmed that judicial decisions may indeed be influenced by a range of extra-legal factors, providing support to the view that members of the judiciary are vulnerable to psychological biases despite their experience and training in adjudicating legal matters (Cappon & Laenen, 2013; Cunliffe, 2014; Curry & Miller, 2015; Danziger et al., 2011; Korkman, Svanbäck, Finnilä, & Santtila, 2014; Redding & Brooke Hensl, 2011; Vidmar, 2011; Wistrich et al., 2015; Zaykowsk, Kleinstuber, & McDonough, 2014). In a study of the role of emotions in judicial decision-making, Wistrich et al. (2015) demonstrated that the decisions of North American federal trial judges (n = 1800) more frequently favoured parties who elicited positive affective responses, when compared to those to whom they were unsympathetic, across a range of hypothetical cases where the legal facts did not differ. Other research has specifically demonstrated that judicial knowledge and perceptions regarding mental illness and disability can impact deliberation and disposition in cases involving individuals possessing such conditions (Parry, 2005; Perlin & Gould, 1995; Wrightsman, 1999). Anecdotal evidence suggests that the same is true in Australian jurisdictions; for example Freiberg (2010) reported that “[…] from years of using hypothetical sentencing scenarios with judicial officers as part of a training exercise, my personal experience is that judges differ substantially

\textsuperscript{10}Humorously characterised by the trope “what the judge ate for breakfast” (Danziger, Levav, & Avnaim-Pesso, 2011).
when considering exactly the same facts” (p. 206). Together, such findings suggest that personal views and attitudes held by the judiciary, including feelings of enmity or empathy, may unduly influence the disposition of cases and, correspondingly, forensic outcomes for defendants (Wistrich et al., 2015).

6.1.2. Forensic Decision-Making and ASD. As described in the previous chapter, the extant research regarding judicial awareness of ASD has demonstrated limited ASD knowledge and awareness amongst judicial officers internationally (Freckelton, 2011; Freckelton & List, 2009). The basis of claims of incomplete ASD knowledge in judicial officers, however, is largely extrapolated from inconsistencies in court decisions (e.g. Freckelton, 2013b; Freckelton & List, 2009), with relatively little empirical attention given to the reported views of judicial officers regarding defendants with ASD. The current study was undertaken to specifically explore the knowledge base and underlying perceptions of members of the Australian judiciary regarding the forensic relevance and appropriate management of ASD within the CJS.

Although some cases, including serious indictable offences may be heard in higher courts, the majority of criminal cases heard across Australian jurisdictions commence and are finalised in the Magistrate’s Court (93% in 2014/15; Australian Bureau of Statistics, 2015). Due to the large volume of cases heard and evidence that individuals with ASD were more likely to engage in minor offences, it was expected that judicial decision-makers sitting within Australian Magistrates’ Courts were likely to encounter defendants with ASD more frequently than judges sitting within other courts. Accordingly, the current study focused on the views of the magistracy. In view of the incomplete knowledge base demonstrated by other key personnel within the Australian CJS (Gook, 2014) and the inconsistencies noted in Australian court decisions regarding defendants with ASD (Freckelton, 2013b), it was expected that
the responses from participating magistrates would demonstrate some inconsistencies in ASD knowledge and awareness.

In recognition that it is often the legal representatives who will first raise a defendant’s mental impairment in Australian jurisdictions, efforts were made to include the views of lawyers by distribution of a similar survey amongst legal firms in Australia. Legal firms were located within each jurisdiction where Magistrates were surveyed through publicly available search engines (i.e. Google). Hard-copy surveys were sent to the identified firms, with the number sent being equivalent to the number of lawyers advertised within the firm and the number of magistrates surveyed within the jurisdiction. Only one response was received and accordingly, the perceptions of lawyers have not been included in the current chapter. The responses of the single respondent from this group are included in Appendix G.

6.2. Method

6.2.1. Aim. The aim of the current study was to investigate the knowledge and understanding of ASD among magistrates sitting within Australian jurisdictions, in order to gain a better understanding of the way in which legislation and case law may be applied for individuals with ASD when facing legal ramifications for offending behaviours. Also explored were magistrates perceptions and attitudes of the role of psychologists in informing legal decisions involving persons with ASD with the hope that this may inform future efforts of psychological science to assist the legal response to offending behaviour amongst the ASD population.

6.2.2. Participants. Participants were Magistrates presiding in Australian courts in 2014. Initial contact was made via the Chief Magistrate or their administrative staff in each Australian jurisdiction via publicly available contact details, seeking their support for the research to proceed within their jurisdiction. A
total of 221 surveys were distributed to magistrates in hard copy with assistance of the office of the Chief Magistrate or other administrative assistants in those jurisdictions where in principle support was provided.

6.2.3. Materials. A free-response pencil-and-paper questionnaire was conducted in order to map the perceptions and attitudes held by members of the Australian magistracy in regard to persons with ASD who appear in their courts. Review of the literature identified two prior survey studies exploring the understanding of ASD and other disabilities amongst police services in the United States (Roach Anleu & Mack, 2007) and the United Kingdom (Modell & Mak, 2008). The question set included in the survey for the current study was adapted from those used in these earlier studies to be applicable to the judiciary. In addition, an item was added to elicit judicial perceptions regarding the role of forensic psychologists in advising courts on the forensic significance of an ASD diagnosis. The full survey is provided in Appendix H.

6.3. Results

6.3.1. Response Rates. A total of 21 responses were received out of 221 surveys mailed to magistrates, a response rate of 10.5%. Low response rates are not unusual for surveys targeted at the judiciary; a cohort that has been traditionally characterized as a difficult population to engage in social science research (Dobbin et al., 2001). The nature of the data and the small sample size precluded tests of statistical significance and formal qualitative analysis; nonetheless, the responses summarized descriptively below provide a preliminary insight of judicial perceptions, attitudes and decision-making involving defendants with ASD.

6.3.2. Magistrates’ understanding of ASD. Respondents’ understanding of the nature of ASD was evaluated by the question: What does the term Autism
Spectrum Disorder mean to you? In analysing the accuracy and completeness of responses to the question, ASD was defined as a life-long developmental disorder, existing along a spectrum of severity and characterized by impairments in socio-communicative and behavioural domains.

Responses to this item revealed significant variability in the understanding of the nature of ASD amongst Australian magistrates. The majority of respondents demonstrated some insight regarding the nature of ASD; five respondents referenced socio-communicative deficits; nine recognized that individuals with a diagnosis of ASD may relate to others or the environment in impaired or unusual ways and nine respondents referred to a range in severity of symptomatology in their response. One respondent expressed concern regarding the validity and potential over-diagnosis of the disorder, viewing ASD as “A vague imprecise term resorted to by psychologists and widely over-diagnosed by them to explain any aberrant behaviour” (Participant; P15). Two respondents (incorrectly) described ASD to be defined according to intellectual ability (“a form of intellectual disability” [P2] or “an intellectual and behavioral disorder” [P9]).

Responses to a second question, What difference do you see, if any, between Autism Spectrum Disorder and intellectual disability?, confirmed that inconsistencies existed amongst members of the Australian magistracy in regards to recognizing ASD as distinct from ID, suggesting a potential lack of awareness of high-functioning ASD presentations. Specifically, while the majority of respondents identified that intellectual disability and ASD were distinct disorders (66%), four reported that they were unsure of any differences and three respondents (incorrectly) viewed that there was no difference between ASD and ID.
6.3.3. Magistrates self-assessed competence with regards to ASD in the CJS. Magistrates reported a moderate level of understanding in regards to issues relating to ASD within the CJS. The average self-assessment competency rating (1 = least competent; 5 = most competent) was approximately 2.5 (n = 20), however there was significant variation in competency ratings across respondents. One respondent (whose response was excluded in calculating the self-assessed competency average) rated their level of understanding as “-10” (P8). The self-assessed competence ratings provided by respondents appeared generally consistent with the level of reported personal experience with ASD and the understanding demonstrated by respondents in their responses to other items on the survey.

6.3.4. Perceived propensity towards offending and victimization. The majority of respondents were either unsure/unable to respond or of the opinion that individuals with ASD were no more likely to be perpetrators or victims of offending behaviour (61.9%). Of those who responded, however, a greater proportion viewed individuals with ASD as more likely to be perpetrators of crime than victims (23% and 14.3% respectively).

6.3.5. Magistrates’ perceptions of the potential forensic relevance of ASD. Three questions assessed magistrates’ perceptions of the potential forensic relevance of ASD; “Why do you think it could be important to understand Autism Spectrum Disorder to allow you to do your job effectively?”, “During sentencing, would a diagnosis of Autism Spectrum Disorder be an important consideration? Why/Why not?”, and “In your opinion, should individuals with Autism Spectrum Disorder receive different treatment in the CJS?”

Responses to the latter of these questions suggested that participating magistrates generally viewed that the impact of ASD could be appropriately
accounted for under existing discretionary powers available to the judiciary. For example, one magistrate responded “Only in the sense that anyone with a recognized condition is treated differently- i.e. that condition is taken into account” (P10). Similarly, another respondent remarked, “No. All are equal before the law however, those with special needs can be catered for within discretion” (P13).

The majority (n= 16) of respondents indicated a willingness to utilize diversionary options or otherwise moderate sentences imposed for defendants with ASD (e.g. “…Deterrence, particularly general deterrence which I think is a concept of little/no relevance to an ASD offender […] If pleading guilty an ASD offender should be diverted to a mental health court (where available)” [P20]). In contrast, one respondent expressed concern that differential treatment of individuals with ASD within the CJS may lead to inflated levels of ASD diagnosis: “All should be equal before the law. Favouring people with alleged ASD would only lead to ridiculous levels of diagnosis, as is already the case with PTSD” (P15).

Only one respondent indicated that they did not view an understanding of ASD to be relevant to their work as a judicial officer. Overall, respondents’ views on the ways in which an ASD diagnosis may be forensically relevant fell into three main themes: enhancing communication and understanding, determining the likely response to dispositional alternatives, and to inform considerations related to the legal status of offenders with ASD.

6.3.5.1. Enhancing communication and understanding. The importance of enhancing effective communication and understanding of court processes for defendants with ASD was highlighted by a number of respondents. For example, one noted “ASD affects a range of ways in which people present and communicate-essential elements of court process e.g. getting their/my point across…” (P7). It was
noteworthy that one magistrate specifically addressed the potentially prejudicial impact of atypical courtroom responses for those with higher functioning manifestations of ASD, specifying that an understanding of ASD was important “Particularly with those having a mild condition [such that] the court can properly assess responses given to determine the impact of demeanour in weighing evidence” (P13).

6.3.5.2. Likely response to dispositional alternatives. Several respondents (n = 12) referenced the importance of considering whether the features of ASD may decrease the likelihood that the individual will be able to comply with and benefit from rehabilitative efforts (e.g. [P1]; “…it may affect such matters as suspension of sentence or not and/or conditions in a bond” [P18]). In order to inform such decisions, it was highlighted that “…I need to know how they may respond to, particularly to imprisonment, or community service or a bond or supervision and counselling” (P14). In this context, responses emphasized that the court should be certain that any order imposed in response to offending behaviour “…is not setting up the accused to fail” (P13). Respondents also referred specifically to concerns regarding the ability of an offender to adhere to the conditions of community orders (e.g. “as a magistrate I need to understand the extent to which a person with ASD is able to comply with any orders that I make” [P3]; “…Important consideration in terms of whether offender could comply with a community order or similar” [P9]); or the likely response to rehabilitative efforts (“…it may explain a reason for offending and have relevance to issues of rehabilitation” [P21]; “…An understanding may inform treatment and rehabilitation options” [P17]); and whether imprisonment may be more burdensome for the individual (“…Imprisonment may be more difficult for them” [P5]).
6.3.5.3. **Consideration of the legal status of offenders with ASD.** A number (n = 10) of respondents indicated that an ASD diagnosis was relevant to considerations regarding the application of legislation and case law relevant to criminal responsibility and culpability. One respondent aptly summarized these issues (in response to the question Why do you think it could be important to understand Autism Spectrum Disorder to allow you to do your job effectively?) as follows: “In assessing guilt and innocence there is a mental element and so you need to understand how the mind of an accused function. In sentencing this understanding helps assess the criminality of the offence and the appropriate sentence” (P10).

Three respondents indicated that an ASD diagnosis was likely to impact an individual’s criminal responsibility (e.g. “Understanding offenders’ perceptions and ability to control their behaviour is important when assessing levels of responsibility” [P18]). A greater number of respondents (n= 8) identified ASD as particularly relevant to sentencing, with two specifically referring to the invocation of Verdins principles in sentencing decisions involving offenders with ASD (e.g. “…would lead to consideration of Verdins’ factors in sentencing” [P8]).

6.3.6. **Importance of the court being made aware of ASD.** The participating Magistrates’ responses emphasized the importance of the court being appropriately informed of the presence and likely impact of ASD for an offender, such that discretionary powers could be employed during decision-making. Several examples of such responses are presented below:

“…The personal characteristics e.g. drug addiction, mental health condition, intellectual disability, etc. are always considered (if known)” (P17).
“…If their particular qualities are made known to the court then I consider the “system” has the capacity to take them into account in an appropriate way” (P7).

“…I stress this is an uninformed answer. I need to know more about ASD and its effects” (P14).

To further explore magistrates’ perceptions regarding available sources of information, respondents’ views were sought regarding the provision of ASD-specific treatment and the role of forensic psychologists in informing courts on such issues.

6.3.6.1. ASD Training Amongst Australian Magistrates. Participation in specific ASD training was seldom reported among respondents. None of the respondents had undertaken formalized training in the context of their roles within the magistracy, although two reported seeking information regarding ASD via requests for psychological or psychiatric court reports. Two respondents indicated that they had obtained an understanding of ASD through working in mental health or specialist courts where information was readily available and one respondent indicated that they had benefitted from education in dealing with defendants with ASD through consultation with a court psychiatric liaison officer. Other reported sources of information about ASD included personal experience with close family members (n = 2) and personal reading (n=2).

All but one respondent expressed current interest in undertaking professional training related to ASD; the participant without current interest (P15) indicated “doubt if training would be of benefit”, although they expressed a willingness to consider participation in training in the instance that they were advised by a psychiatrist that this could be of use (“None from a psychologist. Might be worthwhile if psychiatrists say training required”).
Amongst those who expressed interest in professional training, specific areas of interest included: basic information regarding characteristic features and the impact on behaviour (particularly in regards to offending behaviour); strategies to enhance effective communication and management within court; and advice regarding the likely response to various sentence-types (including the likely impact of incarceration and treatment within the prison system). Other respondents were broader in their expressed training interests, indicating that they would be interested in attending “whatever is available” (P12) or “Training which would improve understanding of criminal justice issues as they relate to people with ASD” (P1). It was suggested by respondents that presentations could occur at annual training days or conferences provided by the magistracy and that the effectiveness would be enhanced if such training were delivered by “an expert who also understands the court system.” (P10).

6.3.6.2. The role of forensic psychologists in informing courts regarding ASD. The views of participating magistrates on the value of forensic psychologists in informing the court regarding ASD were diverse. Specifically, responses to the question, “What role do you see for forensic psychologists in informing the court regarding Autism Spectrum Disorder?” varied from indications that such evidence was “Highly relevant. I would have significant regard to any such report” (P5) to the significantly less favourable “Nil role. Psychiatric opinion should be the only mental health evidence allowed.” (P15).

The majority of participating magistrates (n=19) expressed in principle support for the admission of psychological reports to inform courts regarding ASD, however, the importance of the report writer’s expertise was emphasised (e.g. “They need to be an expert…” [P17]). Respondents reported that the relevant issues on
which psychologists may inform the court were primarily associated with considerations relevant to understanding the nexus between the features of the disorder and offending behaviour (e.g. “Explaining nature of the disorder and whether there is any connection between the condition and criminal offending” [P8]), or the likely response of an individual with ASD to dispositional alternatives (e.g. “To make the person’s particular qualities (given the range of impacts) known to a court and identify issues going to the tailoring of outcomes thereby enhancing rehabilitative and other outcomes” [P7]). One participant’s response on this item revealed dissatisfaction with the dispositional alternatives available to courts when considering offenders with ASD: “…none of this is much use when there seems to be no funded support for these people” (P16).

6.4. Discussion

At present, there is a dearth of research exploring issues relating to the sentencing of offenders with ASD. The current study aimed to contribute to this underdeveloped area, with an empirical focus on views and perceptions amongst the Australian magistracy regarding ASD, and the pertinent issues associated with sentencing offenders from this population. The (limited) prior literature in this area has been largely speculative, inferred from past legal decisions (e.g. Freckelton, 2013b), or has been undertaken in international jurisdictions (e.g. Berryessa, 2014b), where the legal provisions for mentally impaired offenders may differ from Australian contexts. Such research has revealed unawareness and uncertainty regarding ASD amongst the judiciary, raising concerns that judicial officers may not adequately consider the unique habilitative needs of offenders with ASD when enacting a forensic response to their offending behaviours. If judges fail to consider
such factors, the forensic response may be ineffective at best, or, at worst highly
detrimental to both the offender and the future safety of the community.

A second reason to emphasise the forensic response to ASD is that there is no
clear dispositional pathway for offenders with this disorder (Murrie et al., 2002). As
identified by a respondent in the current study, there is little in the way of targeted
programs or funding for the forensic ASD population, and it is unclear whether the
available service alternatives have sufficient expertise to support and (re)habilitate
such individuals (Woodbury-Smith & Dein, 2014). It is hoped that research into
current dispositional pathways for offenders with ASD, such as provided in the
current study, may act as an impetus for further research and for action in regards to
service provision to assist such individuals to establish and maintain a pro-social
lifestyle.

The findings of the current study confirm the speculation made in previous
literature that a gap exists in the knowledge and views of the judiciary regarding
ASD, and that such disparity may result in differential treatment in cases where an
individual with ASD faces legal disposition due to offending behaviour. Overall,
participating magistrates demonstrated a general awareness of the presentation and
symptomatology of ASD; however, responses evidenced significant variation in
regards to views of the forensic relevance of such. Further, one magistrate expressed
a strong view that there was a risk that ASD would be over-diagnosed in an attempt
to excuse criminal behaviour, and thus would not be considered relevant during
criminal proceedings over which they presided.

It is important to recognize that respondents self-selected for participation in
this study, thus rendering it likely that they would generally possess greater interest,
and a corresponding greater awareness of ASD than would be expected for the wider
cohort of Australian judicial officers. Consistent with such, three respondents indicated personal experience with an individual with a diagnosis of ASD and a further three indicated that they had presided over mental health courts or worked in close consultation with a mental health professional with whom they consulted on cases where an individual may possess a psychological disorder. In this context, the self-reported knowledge and competence ratings of participating magistrates are considered likely to be an over-estimation of the knowledge base within the broader judiciary. As such, it would appear that there may well be considerable room for improvement in awareness and understanding of ASD amongst the Australian magistracy more generally.

6.4.1. A coherent and consistent approach? The major finding of the current study was that significant variation exists across Australian magistrates in regard to their understanding of and attitudes toward ASD, and in particular the forensic relevance of ASD. This variation, alongside prior research indicating that extraneous factors can impact on decisions made by judicial officers, raises concerns regarding the consistency with which offenders with ASD are processed and managed within Australian Magistrates’ courts.

Consistency in sentencing is a fundamental tenet of Australian law, and is crucial to promote equal access to justice within the CJS (Freiberg, 2014; Krasnostein & Freiberg, 2013; Mackenzie, 2002). Essentially, Australian legal principles hold that all legally relevant factors remaining stable, cases with similar facts ought to attract similar dispositional outcomes (Krasnostein & Freiberg, 2013). The critical consideration is consistency in the approach with which a judicial officer considers a case, rather than consistency in the particular sanction(s) imposed (Freiberg, 2010; Krasnostein & Freiberg, 2013; Ritchie et al., 2016). Indeed, disparity in sanctions
imposed may well be justified, on the grounds of the seriousness of the offending behaviour, or the personal history and vulnerabilities of the offender, and other situational factors relevant to the legal facts of a case (Krasnostein & Freiberg, 2013; Mackenzie, 2002). Disparity in sentencing is justifiable where this occurs as the result of legally relevant factors, but is unjustifiable when such disparity occurs due to extraneous variables, for example, differences between judges (Krasnostein & Freiberg, 2013). Unjustifiable disparity presents as a legitimate concern for the promotion of a fair and just CJS, impacting on both the human and legal rights of offenders and public confidence in the administration of justice (Krasnostein & Freiberg, 2013).

Australian courts have recognised the potential deleterious impact that unjustifiable disparity poses for the administration of justice. Specifically, in *Lowe v The Queen* (1984) 154 CLR 606, at 610, it was held that:

> Just as consistency in punishment — a reflection of the notion of equal justice — is a fundamental element in any rational and fair system of criminal justice, so inconsistency in punishment, because it is regarded as a badge of unfairness and unequal treatment under the law, is calculated to lead to an erosion of public confidence in the integrity of the administration of justice. It is for this reason that the avoidance and elimination of unjustifiable discrepancy in sentencing is a matter of abiding importance to the administration of justice and to the community.

Despite this recognition, Field (2012) describes criminal sentencing in Australia as a “geographical lottery”, whereby “[...] punishment actually received for any given crime in Australia is as much the product of the precise geographical
location in which it is committed as it is the mood of the judicial officer passing sentence” (p. 1). While all unwarranted sentencing disparities are cause for alarm, evidence of disparities disadvantaging a potentially vulnerable population, such as those with ASD, may be especially troubling. In this context, the responses provided in the current study were both encouraging and alarming. It was encouraging that the majority of magistrates were able to identify key characteristics of ASD, but alarming that their attitudes regarding the proper allowances and considerations during sentencing differed so markedly.

Whilst there are some early signs of progress towards increased awareness and understanding of ASD within Australian courts, inconsistencies appear to remain in the knowledgebase and attitudes of judicial officers. The incomplete knowledgebase and disparity in attitudes regarding the relevance of ASD to criminal proceedings identified amongst the Australian magistracy raises concerns that judicial officers may not be sufficiently informed and prepared to engage meaningfully in deliberation of the potential impacts of a diagnosis of ASD on an individuals’ behaviour and support needs. Consequently, offenders with ASD may be subject to differential treatment during the course of criminal proceedings in Australian courts, not on the basis of legally relevant factors (i.e. the nature of their offence or the manner in which their disorder impacted on their offending or capacity to cope with disposal options), but due to the attitudes of the presiding magistrate. In this context, expert advice and testimony from mental health professionals, including forensic psychologists, appear invaluable to assist the court to understand the features of ASD, and to integrate such information to inform their decision-making during sentencing (Freckelton & List, 2009).
6.4.2. The role of psychologists in assisting courts. Freckelton (2011, 2013a, 2013b) proposed that mental health professionals are critical allies to the courts in informing of the potential forensic significance of ASD and correcting misperceptions that may otherwise lead to unjust and ineffective responses to criminal behaviour amongst the ASD population. Indeed, it is becoming increasingly common for mental health professionals (namely psychiatrists and psychologists) to be called by courts to provide evidence to assist in deliberations as to the disposition of cases involving individuals with ASD (Freckelton, 2013a). Forensic psychologists, who possess expertise in both psychological disorders and the psychological determinants of offending behaviour, appear well-placed to enact this role; however, given that judicial officers act as gatekeepers regarding the expert testimony that is allowed in court proceedings, the extent to which psychologists provide evidence may be determined by the judiciaries’ perceptions of psychologists’ role and expertise in regards to ASD and the law.

In contrast to such views, the findings of the current study identified some uncertainty in regards to the expertise of forensic psychologists amongst the Australian magistracy. On the whole, magistrates who responded to the current study expressed favourable opinions regarding the role of forensic psychologists in advising courts on such matters. However, one magistrate indicated their view that only psychiatric evidence ought to be admitted in regards to mental impairment. This respondent went further to report a disinterest in attending any training or workshops regarding ASD, unless a psychiatrist recommended this. In the context of a historical preference towards psychiatric testimony for matters related to mental state (see for example, R v MacKenny, 1981) and uncertainty regarding the expertise of psychologists amongst the Australian judiciary (see Day et al., 2000), these views
may reflect a continued attitude within the Australian magistracy that psychologists
may not be as qualified or knowledgeable as psychiatrists on matters relevant to legal
decision-making.

6.4.3. Limitations of the current study. The conclusions that can be drawn
from this study are limited by concerns regarding the generalizability of results to
real-world legal decision-making by magistrates across Australia. Specifically, the
findings are based on the responses of a small sample of Magistrates, and the extent
to which they are representative of the entire Australian magistracy is unclear. Efforts
were made to maximise participation rates, through seeking in principle support from
the Chief Magistrate in each jurisdiction and communicating this to potential
participants in the Plain Language Statement provided with the survey. Further, the
survey was designed to be brief, requiring minimum effort to complete and return
(i.e. did not require the use of technology, was printed on a single, double-sided sheet
of paper, and accompanied by an addressed, postage-paid envelope for returning the
survey to the researchers). It is recognized, however, that judicial officers are a
difficult cohort to engage in social research and low response rates to surveys appear
to be the norm (e.g. Berryessa, 2014a, 2014b; Dobbin et al., 2001; Robinson, 2012).
Although the sample size concords with that obtained in other studies with similar
scope and methodology, the low response rate and potential bias necessitates caution
in interpreting results.

In some Australian jurisdictions there are specialised liaison, dispositional and
diversionary options, including specialised mental health courts, to which individuals
with mental impairments may be referred (Davidson, 2015; Richardson & McSherry,
2010). However, the diversionary and dispositional alternatives available are largely
dependent on funding, and availability of such services differs substantially across
jurisdictions (Richardson & McSherry, 2010). Participants in the current study referred to their past involvement with such services and it appeared likely that such experiences and the availability of alternative dispositional options might impact on attitudes and decision-making for cases where offenders were displaying traits indicative of ASD. In order to conserve the brevity of the survey and protect anonymity amongst respondents, demographic and other contextual data were not collected for the current study. It is thus unknown whether participants sat in jurisdictions where such specialist services, or other diversionary options, are available. Furthermore, due to the high level of personal experience and interest in the subject matter amongst the study participants, the opinions stated in response to the current survey may differ to that of the larger population of magistrates in Australia, who chose not to participate. As such, caution is warranted in any attempts to generalise the findings of the current study to the knowledge and attitudes of the Australian magistracy more generally. It appears likely, however, that a wider sample, particularly one that included magistrates with less personal experience and/or interest in ASD would result in further deviation in views expressed.

Perhaps a greater concern regarding the generalizability of results is in relation to the limited ecological validity of the current study. Specifically, participants were not asked to make a legal determination in relation to a real or even hypothetical case involving an individual with ASD. Further, the survey provided no information regarding ASD to magistrates, in contrast to usual court proceedings, whereby magistrates are provided with information by legal representatives and aided by experts in the field to determine any aspects of an offender’s situation that may bear relevance to their decision-making. Thus, although past research has demonstrated that preconceived notions can impact judicial decision-making
regarding offenders with serious mental illness, the current study cannot definitively answer the question of whether the same results would be found in regards to offenders with ASD in real-world situations in Australian jurisdictions.

Despite the above-described limitations, the findings of the current study are significant in that they identify substantial diversity in judicial awareness and personal attitudes regarding ASD, as well as the forensic relevance of ASD across Australian jurisdictions. These findings thus enable recommendations regarding direction of future research in the field.

6.4.4. Implications of findings and directions for future research. The results of the present study provide a preliminary assessment of the beliefs held by judges about ASD, however, further research is clearly needed. Indeed, the lack of research regarding the legal response to offending behaviour amongst the ASD population in Australia makes the area ripe for further study. Examples of topics for further research in this area include: more detailed and formalised exploration of knowledge and perceptions of ASD amongst the judiciary, perhaps utilising validated questionnaires (e.g. the AKQ and PANQ-F; Gook, 2014); investigating how judges assess defendants with ASD in real cases, particularly whether disparity in knowledge and attitudes do in fact precipitate inconsistencies in the approach to disposal; exploration of the knowledge and management of offenders with ASD in other branches of the CJS; and research on the availability and use of diversionary options suitable to this population, including comparison of the impact of different dispositional and diversionary options on forensic outcomes, including the offenders’ wellbeing and recidivism rates. Future research efforts could also investigate the reasons behind the apparent reluctance of some judicial officers to utilise expert testimony from psychologists and drivers for attitudinal change, both in regards to the
potential forensic relevance of ASD, and the role of forensic psychologists in assisting courts to make decisions in regards to offenders with ASD.

Findings from the current study strongly suggest that a greater understanding of potentially relevant aspects of ASD is needed to assist the judiciary to respond consistently and effectively to offending behaviour amongst this population. Magistrates do not need to be experts in ASD. In fact, as long as the relevant legal facts are identified and accurately communicated by legal representatives and expert witnesses (if allowed by the presiding judicial officer), the nature of the legal response will in most cases be self-evident (Richardson, 1991). In some cases, however, it is clear that divergent responses are possible; and this appears to be the case in regards to judicial understanding of whether and how legal principles ought to apply to offenders with ASD. Thus, a basic understanding of communication needs and social problem-solving capacities amongst individuals with ASD, alongside exploration of other factors relevant to sentencing appears likely to enhance the consistency and effectiveness of the forensic response to defendants with ASD in Australia. In this regard, it was promising that the majority of magistrates who participated in the current study expressed a willingness to attend professional training designed to inform them of the potential forensic significance of ASD.

The nature and availability of professional development programs varies across jurisdictions, however most Australian magistrates have regular opportunities to participate in formalised training (Roper, 2006). As suggested by the magistrates who participated in the current study, an efficient and effective means of mainstreaming ASD awareness training for the judiciary would be to embed such training within existing professional development and training days, rather than developing and delivering stand-alone courses. The views provided by respondents in
the current study may go some way towards assisting practitioners who design and deliver judicial professional development programmes to identify pertinent information to include in training curricula. Consultation with existing judicial training providers and judicial representatives will be critical to ensure that training objectives do not overextend to inappropriate topics (e.g. comments of legal culpability in individual cases), thus impacting on judicial independence.

In addition, there is a need for effective and unbiased testimony from experts on ASD to assist in informing courts on relevant matters during criminal proceedings (Freckelton, 2013a; Freckelton & List, 2009). However, there are indications arising from court decisions that mental health experts in the forensic area have not consistently demonstrated sufficient knowledge and awareness of forensically-relevant aspects of ASD to ensure that the courts are adequately supported to make informed and fair decisions in regards to procedural and dispositional issues in cases involving defendants with ASD (Freckelton, 2013b). It is vital that psychologists seeking to provide expert evidence regarding offending behaviour amongst the ASD population are sufficiently prepared to comment accurately and meaningfully on matters identified by legal practitioners as relevant to criminal deliberation and disposition. The findings of the current study can assist experts, such as forensic psychologists, to identify the areas in which magistrates require information to disabuse them of misperceptions and thus better prepare testimony for cases involving individuals with ASD. Simultaneously, there is a need for additional research into the characteristics and needs of individuals with ASD within the CJS to inform practice, including the provision of expert testimony, with the aim to enhance forensic outcomes for this population (Cheely et al., 2012; Dein & Woodbury-Smith, 2010; Freckelton, 2013a, 2013b; Woodbury-Smith et al., 2006).
One issue that was identified by the magistrates in the current study as relevant to sentencing offenders with ASD was the extent to which such individuals possess a moral understanding of their offending behaviour. This issue is explored in detail in the chapters that follow.
Chapter 7. Questions of Morality Amongst Individuals with ASD

As described in Chapter 5, case reports suggest that individuals with ASD who come into contact with the CJS due to engagement in offending behaviour often do not recognise that their offending behaviour was morally wrong (Barry-Walsh & Mullen, 2004). This suggests that divergent moral reasoning may constitute an underlying factor for offending in some people with ASD, bearing relevance to judicial deliberations and decision-making, in particular regarding criminal responsibility and proportionate sentencing (Lerner et al., 2012). Any evidence of impaired or unusual moral reasoning amongst offenders with ASD also provides a potential direction for the development of early intervention and treatment programs for this population. Information on the way in which individuals with ASD understand and make moral judgments is thus essential to inform policy and practice in regards to the prevention of future offending by people with ASD, as well as the appropriate management and intervention for those who do offend.

The growing and increasingly complex field of philosophical and psychological exploration of human morality is beyond the scope of this thesis, and is described elsewhere (e.g. Baril & Wright, 2012; Haidt, 2007, 2008; Haidt & Kesebir, 2010; Jaarsma, 2013; Kagan, 2008; Palmer, 2003). Importantly, it has been demonstrated that moral reasoning ability is closely associated with socio-cognitive and socio-affective skills, particularly those associated with emotion recognition, perspective-taking and empathy (Bzdok et al., 2012; Cushman, Young, & Greene, 2010; Kretschmer, Lampmann, & Altgassen, 2014). Consequently, it has been argued that individuals who possess mental disorders involving deficits in these areas are likely to display associated impairments in moral decision-making (Schneider et al., 2013).
Critically, individuals with ASD have been reported to possess difficulties in recognising and regulating emotions (e.g. Ashwin, Chapman, Colle, & Baron-Cohen, 2006; Bird & Cook, 2013; Hill, Berthoz, & Frith, 2004; Ketelaars, 2016; Rieffe et al., 2012), understanding the perspectives and mental states of others (e.g. Baron-Cohen, 1995; Kretschmer et al., 2014), and empathizing (e.g. Blair, 2008; Golan & Baron-Cohen, 2006; Lombardo et al., 2007). These related deficits suggest that impairments in morality may also be prevalent amongst individuals with ASD. Because ASD is characterised by problems with reciprocal social interaction, impaired communication, repetitive behaviours/narrow interests and impairments in the very aspects of social cognition and emotional processing held necessary for moral reasoning, a growing body of work has focused on moral reasoning in individuals with ASD. Although these studies have involved a range of methodologies and assessment tools, many have assessed morality according to a classical moral reasoning task - the moral/conventional distinction task.

7.1. The Moral/Conventional Distinction

The moral/conventional distinction is generally regarded as a major breakthrough in the study of morality (Shoemaker, 2011). Originally developed in 1978 by Larry Nucci and Elliot Turiel, the moral/conventional task asks participants to distinguish transgressions that are of a moral nature from those that are merely conventional. The ability to distinguish between these domains is generally considered to be representative of an intact moral sense. In the literature concerning the moral/conventional distinction, moral transgressions are defined as acts that result in harm or injustices to others, while conventional transgressions are defined by their consequences for social order (Blair, 1996). Prototypical examples of moral transgressions include stealing, breaking promises and killing or injuring other
people, while prototypical examples of conventional transgressions include wearing gender- or context- inappropriate clothing (e.g. men wearing dresses or wearing pyjamas to school), or licking the plate at the dinner table (Kelly, Stich, Haley, Eng, & Fessler, 2007).

The distinction between moral and conventional transgressions is measured according to participants’ judgments across three dimensions; permissibility (Was it right or wrong for X to do Y?), seriousness (On a scale of one to ten, how right [or wrong, depending on the first answer] was it for X to do Y?) and contingency on authority consent (Would it be OK for X to Y if the teacher says X can?) (Blair, 1995). Studies have shown that children as young as 39 months, across different cultures and nationalities, systematically differentiate moral and conventional transgressions according to these dimensions (Lisciandra, Postma, & Colombo, 2012; Smetana, 1993; Vignemont & Frith, 2008).

Generally, moral transgressions are judged to be more serious and less permissible than conventional transgressions (Smetana, 1993). Additionally, the permissibility of conventional transgressions is judged to be contingent on the prohibition of the act by an authority figure while moral transgressions are judged as non-permissible even when there is no explicit rule prohibiting the act (Blair, 1996; Smetana, 1993). This pattern has been observed in many populations, and has also been argued to hold true amongst individuals with ASD (Blair, 1996; Grant, Boucher, Riggs, & Grayson, 2005; Shulman, Guberman, Shilling, & Bauminger, 2012; Zalla, Barlassina, Buon, & Leboyer, 2011).

7.2. Studies Investigating Moral Processing amongst Individuals with ASD

Blair (1996) was the first to investigate moral processing amongst children with autism using the moral/conventional distinction task. Blair compared
performance on the task between children with autism \((n = 20)\), children with learning disabilities \((n = 10)\) and typically developing children \((n = 10)\). The children were able to distinguish between moral and conventional transgressions equally, leading to the conclusion that moral processing abilities amongst individuals with autism remain intact.

Subsequent research has confirmed Blair’s original finding that children with ASD can distinguish between conventional rule violations and immoral acts along a range of dimensions (Grant et al., 2005; Kretschmer et al., 2014; Leslie, Mallon, & DiCorcia, 2006; Li, Zhu, & Gummerum, 2014; Shulman et al., 2012). For example, Grant et al. (2005) demonstrated that children with autism or Asperger’s syndrome \((n = 19)\) were as likely as both children with learning disabilities \((n = 17)\) and typically developing children \((n = 20)\) to base their judgments of the “naughtiness” of characters in vignettes involving harmful behaviours on the character’s motive (accidental vs. deliberate). They also viewed harm to people as more serious than damage to property. Similarly, Leslie et al. (2006) found that both typically developing pre-schoolers \((n = 15)\) and same-aged children with a diagnosis of autism or PDD (NOS) \((n=17)\) were able to distinguish “good” acts (e.g. sharing) from “bad” acts (e.g. hitting) described in moral stories. Further, the children with autism/PDD(NOS) demonstrated intact ability to distinguish between the distress of a victim of a moral transgression (e.g. a child pulling their hair) and that of a “cry-baby”, whose distress was not related to another’s transgression (e.g. a child who became upset because he was not permitted to eat both his and another child’s cookie). These previous studies thus indicate that children with ASD are generally able to distinguish between moral violations (that involve a suffering victim whose personal rights are violated, e.g. hitting others) and conventional transgressions
(characterised by infraction of normative prohibitions but with no consequence for others’ welfare; e.g. talking out of turn), according to the dimensions of permissibility, seriousness and authority dependence.

In contrast, however, Takeda, Kasai, and Kato (2007) found that children with high functioning Pervasive Developmental Disorder (HF PDD; \( n = 23 \)) scored significantly lower than typically developing peers (\( n = 23 \)) on the Japanese Human External Action and Internal Reasoning Type (HEART), a standardized test for evaluating moral judgement in school children. The HEART presents a moral dilemma through a short story and a cartoon, and asks participants to endorse one of four responses corresponding to a 4-stage hierarchy of moral reasoning (i.e. from “amoral”, to “pre-conventional”, “conventional”, and “autonomous”; see Table 5). According to Takeda et al. while both children with HF PDD and typically developing children demonstrated moral reasoning at the “conventional” level, more of the typically developing children demonstrated “autonomous” moral reasoning. On the basis of an assumption that morality develops in a hierarchical, stage-like manner (as defined by Takeda et al., 2007), these results were interpreted as suggesting that children with HF ASD possess less advanced moral reasoning than same age peers.
Table 5
*Moral reasoning stages as defined by the Japanese Human External Action and Internal Reasoning Type (HEART) (Takeda et al., 2007)*

<table>
<thead>
<tr>
<th>Moral Reasoning Level</th>
<th>Characteristics of Moral Reasoning at this Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level I (amoral-egocentric)</td>
<td>Focus on satisfying one’s own needs or pursuing one’s own interest, rarely thinking of others. Behaviour is typically temperamental, impulsive; moral behaviour is primarily based on personal interest.</td>
</tr>
<tr>
<td>Level II (heteronomous-pre-conventional)</td>
<td>Focus on following rules set out by authorities (e.g. parents, teachers, or friends) such that disapproval or punishment is avoided. May behave immorally in the absence of such authorities.</td>
</tr>
<tr>
<td>Level III (conventional)</td>
<td>Some standards of “right” vs. “wrong” and “good” vs. evil” have been internalised, and social rules are constructed to guide moral behaviour. May apply rules inflexibly.</td>
</tr>
<tr>
<td>Level IV (autonomous-altruistic)</td>
<td>Focus moves beyond unquestioning support for social rules, such that these rules are applied flexibly, dependent on situational variables. Consider their own and other’s happiness in morally salient scenarios.</td>
</tr>
</tbody>
</table>

Other research has demonstrated subtle differences between individuals with ASD and their neurotypical peers in regards to the information and factors considered during moral decision-making (e.g. Barnes, Lombardo, Wheelwright, & Baron-Cohen, 2009; R. Brewer et al., 2015; Buon, Dupoux, Joacob, et al., 2013; Gleichgerrcht et al., 2013; Li et al., 2014; Moran et al., 2011; Senland & Higgins-D'Alessandro, 2013; Zalla et al., 2008). It has subsequently been argued that the moral judgments of individuals with ASD appear to be not well connected to an appreciation of the reasons why certain transgressions are morally reprehensible (de Vignemont & Frith, 2008; Maibom, 2008). For example, Buon, Dupoux, Jacob, et al. (2013) found that in comparison to typically developing peers \(n = 16\), adults with high-functioning autism or Asperger’s syndrome \(n = 16\) demonstrated difficulties in regards to assessment of a non-verbal cartoon character’s intentions to cause harm and in attributing moral culpability (i.e. determinations of responsibility and just
punishment) on the basis of this information. Specifically, participants with HFA/AS deemed accidental acts of harm and harm that was merely coincidental to the actions of the protagonist as more intentional, when compared to the responses of a neurotypical control group. Further, in comparison to neurotypical peers, participants with HFA/AS attributed a higher degree of moral responsibility for the victim’s suffering to the protagonist when such harm was accidental or where the actions of the protagonist were coincidental to the harm caused. Relatedly, participants with HFA/AS deemed the protagonist as deserving greater punishment for accidental acts of harm, than did the neurotypical control group. Moran et al. (2011) similarly concluded: “In judging accidental harms, ASD participants appeared to show an under-reliance on information about a person’s innocent intention and, as a direct result, an over-reliance on the action’s negative outcome” (p. 2688).

In addition to an apparent insensitivity to issues of intentionality in moral reasoning, it has been argued that individuals with ASD tend to present with difficulties translating morally salient emotional cues (i.e. feelings of empathy) into their moral judgements (Brewer et al., 2015; Fan, Chen, Chen, Decety, & Cheng, 2014; Patil, Melsbach, Henning-Fast, & Silani, 2016; Senland & Higgins-D’Alessandro, 2013; Zalla et al., 2011). For example, Zalla et al. (2011) asked participants to distinguish between two moral transgressions (a child hitting another child/pulling another child’s hair), two conventional transgressions (child wearing pyjamas to school/adult drinking tomato soup straight out of the bowl) and two conventional transgressions that were intended to invoke disgust (child puts her finger in her nose/person spits in their drink before consuming it). The results showed that participants with high-functioning autism or Asperger’s syndrome (n=20) judged conventional and conventional-disgust transgressions to be significantly more serious
when compared with their neurotypical counterparts \((n = 33)\) and failed to distinguish between conventional-disgust transgressions and moral transgressions in terms of seriousness. Similarly, adolescents with ASD in a study by Senland and Higgins-D'Alessandro (2013) self-reported difficulties integrating empathic responses to support their daily behavioural choices in morally salient interpersonal interactions \((n = 32)\). A neuroimaging study by Schneider et al. (2013) confirmed that, compared to non-clinical samples, individuals with ASD \((n=28)\) demonstrate significantly reduced activation of empathy-related regions in the brain when engaging in reasoning about moral dilemma scenarios. In the context of such evidence and with regards to moral processing, it has been argued that “individuals with ASD may rely on learnt social norms rather than emotional information” (Brewer et al., 2015, p.593).

7.3. True Moral Processing or Rule Following for Rule Following’s Sake?

Typical adult moral development allows for flexibility in applying moralistic rules; in contrast, anecdotal evidence suggests that individuals with ASD may apply rigid social rules to navigate their interpersonal interactions (Howlin, 2004; Jaarsma, 2013). Further, on the basis of the previous literature, it appears that the moral judgments of individuals with ASD may be not well connected to an appreciation of the reasons why certain transgressions are morally reprehensible (Maibom, 2008). To what extent then do the actions that have been identified as manifesting an intact moral processing ability amongst individuals with ASD represent a genuine moral sense as opposed to simple rule following?

McGeer (2008b) hypothesised that individuals with ASD are highly motivated to follow rules and deeply concerned that others do so too, not out of a genuine sense of morality, but stemming from strong logical reasoning skills, alongside a need for predictability in the order of the social world. Due to the difficulties individuals with
ASD have in understanding and responding to social cues, other people’s behaviour can be seen to be wholly unpredictable and overwhelming, producing anxiety and fear (McGeer, 2008b). Rules and routines may help to keep things the same, making the world more predictable and more approachable.

Consistent with this idea, there is evidence that individuals with ASD demonstrate a tendency to justify moral judgements according to the concrete application of rules, or the expected negative reactions of authority figures. For example, when children in Grant’s (2005) study were asked to explain their judgments of culpability (‘Why do you think X was naughtier?’), the justifications offered by children with autism or Asperger’s syndrome were deemed to be of poorer quality (often just reiterations of the storyline) than those provided by typically developing children. Similarly, in a study by Shulman et al. (2012), preadolescents and adolescents with ASD provided poor justifications for (generally accurate) moral/conventional distinctions. Specifically, individuals with ASD (n = 18) tended to provide justifications that included more extraneous information than those of typically developing counterparts (n = 18). Additionally, the justifications offered by individuals with ASD typically aligned to simplistic and concrete rules (e.g. “that’s bad” or “you can’t do that”) or on the expectation of negative appraisals of authority figures (e.g. “the teacher will get mad”). They were also less able to apply these rules flexibly in different contexts. Research investigating moral processing amongst adult participants with ASD has similarly uncovered a tendency towards rule-based approaches to moral reasoning tasks. For example, in a study by Zalla et al. (2011), participants with high-functioning autism or Asperger’s syndrome (n=20) were most likely to justify decisions about moral culpability on a moral/conventional distinction
task according to the contravention of “rules” while neurotypical peers \((n = 20)\) were most likely to appeal to others’ welfare.

The view that individuals with ASD rigidly follow learned rules to guide their behaviour is reflected in the personal accounts of high functioning individuals with ASD. For example:

…I had a strict moral upbringing, and I learned as a child that stealing, lying and hurting other people were wrong. As I grew older I observed that it was alright to break certain rules but not others. I constructed a decision-making program for whether rules could be broken by classifying wrongdoing into three categories: “really bad,” “sins of the system,” and “illegal but not bad.” Rules classified as really bad must never be broken. Stealing, destroying property, and injuring other people are in this category, and they were easy to understand. The “illegal but not bad” rules can often be broken with little consequence. Examples would be slight speeding on the freeway and illegal parking. The “sins of the system” category covers rules that have very stiff penalties for seemingly illogical reasons.” (Grandin, 2006, pp. 108-109).

Further research using measures that investigate the factors or rules that are salient for individuals when making moral judgments (rather than those that simply measure the moral judgments made) are needed to gain a better understanding of moral processing amongst individuals with ASD. Simultaneously, it is necessary to consider whether the extant literature in this area has investigated a sufficiently broad range of concerns on which to base conclusions regarding issues of morality amongst individuals with ASD.
7.4. The Breadth of the Moral Domain

Researchers in moral psychology have typically adopted a definition of morality that pertains to matters of harm, rights and justice (Haidt & Graham, 2007). Consequently, the prior research regarding morality amongst individuals with ASD centers on a definition of morality that centers on concerns of justice or the prevention of harm. According to a justice/care concept of morality adopted in the moral/conventional distinction literature, it is the presence of a person that suffers (a victim) that distinguishes moral from conventional transgressions (Blair, 1996). This view has some empirical support. Specifically, it has been shown that whether an individual considers abortion to be a moral or conventional transgression may be determined by whether they judge the act to involve a victim or not (Smetana, 1982). Further, Smetana (1985) showed that unknown transgressions (represented by nonsense words) are considered immoral if they are associated with the suffering of another.

However, recent investigations suggest that the moral domain should not be limited to concerns about the welfare of others (Haidt, 2001, 2007). Harm to another is neither a necessary nor sufficient quality for a transgression to be considered moral rather than merely conventional (Aharoni et al., 2011; Haidt, 2001). Consider, for example, a hypothetical situation proposed by Haidt (2001) involving a brother and sister who privately and willingly consent to having sex with each other and take proper precautions in terms of birth control. Individuals tend to have a very strong intuition that it is wrong for the siblings to have sex, despite the fact that there is not an identifiable victim (Haidt, 2001). Having sex with a dead chicken, wiping a toilet with a national flag and cannibalism of a dead person who has agreed to be a tissue donor are examples of other acts that tend to be judged as morally wrong, despite
difficulty in determining a victim (Haidt, 2001). Similarly, not all instances of harm are considered a moral violation (Nichols, 2002). Indeed, many acts that cause suffering to identifiable ‘victims’, for example, visits to the dentist or natural disasters, are not typically considered to be morally wrong (Aharoni et al., 2011). If some acts that cause suffering in others are not immoral, and other acts that do not cause suffering to others are considered immoral, there must be concerns other than concerns about others’ welfare that are morally relevant (McGeer, 2008a).

To more fully describe such nuances in moral reasoning, recent work in moral psychology has defined models of morality according to a broader domain, including but not limited to concerns regarding harm and welfare of others (Graham et al., 2011; Haidt & Graham, 2007, 2009; Haidt & Joseph, 2008; Rozin, Lowery, Imada, & Haidt, 1999). One theory that encompasses the multi-faceted nature of morality is Haidt and colleagues’ Moral Foundations Theory (Graham et al., 2011; Haidt, 2012; Haidt & Graham, 2009).

7.5. Moral Foundations Theory

Haidt, Graham, and their colleagues developed Moral Foundations Theory (MFT) on the basis of anthropological, sociological, and evolutionary evidence that the moral domain is broader than issues of harm, rights and justice (Graham, Haidt, & Nosek, 2009; Graham et al., 2011; Haidt, 2008, 2012; Haidt & Graham, 2007; Haidt, Graham, & Joseph, 2009). According to MFT, morality is driven by intuition, accomplished by rapid, automatic and unconscious psychological processes, and organized according to five universal moral “foundations”, each with their own evolutionary and cultural explanations (Graham et al., 2009; Graham et al., 2011; Haidt, 2012; Haidt & Joseph, 2004). Consistent with earlier theoretical perspectives (Gibbs, 1979; Kohlberg, 1969; Turiel, 1983), the moral foundations identified
included concerns regarding the wellbeing of others (“Care/Harm” and
“Fairness/Cheating”); however, MFT argues that human moral reasoning is not
limited to these concerns, identifying three additional areas of moral concern:
“Loyalty/Betrayal”, “Authority/Subversion” and “Sanctity/Degradation” (Haidt,
2012):

7.5.1. Care/Harm. MFT, consistent with more traditional models of morality,
recognises concerns regarding the minimisation of harm and suffering as a central
component of morality. Humans, like other mammals, have developed a sensitivity to
the distress of others in response to the evolutionary need to protect and care for the
young, vulnerable or injured (Haidt & Graham, 2007; Haidt & Joseph, 2008). As
such, we feel approval for compassion and kindness and other acts that reduce
distress in others and view acts that lead to suffering as immoral (Haidt & Graham,
2007). According to MFT, however, cultures vary in the degree to which the
prevention of harm, and related virtues (such as kindness and compassion) are valued,
dependent on the relative prioritization of other moral foundations (Haidt & Graham,
2007).

7.5.2. Fairness/Cheating. Co-operation with ‘non-kin’ others and reciprocal
altruism have held many evolutionary benefits for human cultures throughout history
(Haidt & Joseph, 2008). As such, humans are primed towards collaboration and to
value ideas that support alliances, including fairness and justice, with a corresponding
sensitivity to signs of cheating and deception in others (Haidt & Graham, 2007; Haidt
& Joseph, 2004). Simultaneously, some cultures have identified autonomy, equality
and respect for individual rights as virtuous in response to participation in reciprocal
interactions within such alliances (Haidt & Graham, 2007).
7.5.3. **Loyalty/Betrayal.** Belonging to a group has several evolutionary benefits, particularly in regards to identity formation, co-operation and physical protection (Haidt & Joseph, 2008). Humans thus possess a long evolutionary history of living in groups, resulting in the development of specialised socio-cognitive and socio-affective systems that support cooperation with in-group members, and preparing for, recognising and responding to threats to group cohesion, particularly those from external sources (Haidt & Graham, 2007). Consequently, loyalty and patriotism have become regarded as virtues, whilst acts that threaten the in-group, such as treason and cowardice, can be seen as immoral (Haidt & Joseph, 2008).

7.5.4. **Authority/Subversion.** Historically, the groups that have formed amongst humans have been hierarchically structured, whereby certain members assert dominance (Haidt & Graham, 2007; Haidt & Joseph, 2008). As a result, psychological systems have evolved that allow humans to expertly navigate and benefit from coexistence within hierarchical communities (Haidt & Graham, 2007). While many psychological accounts of hierarchies indicate that all forms of inequality involve oppression, Haidt and Joseph (2008) hold that the development and maintenance of stable hierarchies can have evolutionary merit. While subordinates must show respect and defer to superiors, they can expect in return to be protected from disorder within the group and external threats (Haidt & Joseph, 2008). As such, according to MFT, subversion or the disrespect of authority figures may be seen as immoral.

7.5.5. **Sanctity/Degradation.** The foundation of purity/sanctity is based on the emotion of disgust (Haidt & Graham, 2007). In evolutionary terms, disgust protects the body from contamination from bacteria and other harmful contagions; however, in many cultures disgust has generalised to the social realm and extends to
judgements of potential (physical or social) contamination by others on the basis of appearance, social standing, or other individual differences (Haidt & Graham, 2007). In many cultures, the concept of moral disgust has generalised further, particularly in regards to religious practices, and includes promotion or condemnation of activities, for example, chastity and piousness or hedonism and carnal gratification (Haidt & Graham, 2007).

7.5.6. What can Moral Foundations Theory reveal about moral reasoning in ASD? The results of prior research investigating moral reasoning amongst individuals with ASD have been somewhat mixed. Overall, it appears that, when compared to typically developing peers, individuals with ASD do not possess gross impairments in recognising and distinguishing moral harms from transgressions that are merely conventional. However, there do appear to be some discrepancies in the manner in which at least some individuals with ASD approach moral judgements, including difficulties in integrating salient information such as intentionality and morally salient emotional responses. Such characteristics could lead to difficulties for ASD individuals in navigating morally salient interpersonal interactions in everyday life (Moran et al., 2011). Of note, however, the investigations of moral reasoning amongst individuals with ASD from which such conclusions are drawn have typically adopted a definition of morality limited to considerations of justice and harm, which MFT holds as only a subset of human morality.

According to MFT, the five moral foundations can be used to describe differences in mature moral ideologies cross-culturally and between groups within larger cultures (Haidt & Joseph, 2004). That is, all humans possess the same innate array of moral intuitions, whilst these are endorsed and expressed differentially, dependent on individual differences (i.e. cultural, political, developmental, or
temperamental factors; Haidt & Graham, 2007). For example, individuals with liberal political orientations typically present with moral concerns based upon issues of Care/Harm and Fairness/Cheating only, whilst politically conservative individuals rely upon all five moral foundations in their assessment and navigation of morally salient situations (Haidt & Graham, 2007). MFT thus provides a conceptual organization for measuring and describing differences in moral concerns across individuals, social groups, and cultures (Graham et al., 2011).

With reference to differences in moral foundation endorsement between political and religious liberals and conservatives, Haidt and Graham (2007) describe how a failure to recognise that moral concern can extend past issues related to justice, equality and victimisation may result in difficulties understanding the views of others who hold differing moral foundations to one’s own. Specifically, Haidt and Graham argue that conservatives hold a range of moral concerns, some of which individuals with more liberal political orientations do not consider relevant, resulting in an “invisible wall separating liberal and conservative moralities” (p. 111). This “wall” renders it difficult, if not impossible, for religious and political liberals to understand why their conservative peers might hold views they perceive as unjust (e.g. views against marriage equality). Haidt and Graham (2007) further hold that recognising the broader range of moral foundations as moral concerns, rather than amoral, immoral or otherwise abnormal, may provide “a doorway through the wall”, allowing individuals with liberal orientations to “step (briefly) beyond their moral comfort zone and see issues from the perspective of others” (p.111).

It follows that the narrow definition of morality adopted in the evidence base regarding moral reasoning amongst individuals with ASD may similarly impact our understanding and conclusions in regards to the moral agency of individuals within
the ASD population. For example, on the basis of the failure of individuals with ASD to prioritise scenarios involving harm from those involving disgust, Zalla et al. (2011) concluded that such individuals present with impairments in moral reasoning. However, the categorisation of scenarios evoking disgust as moral does not present a challenge to the conceptualisation of the moral domain according to MFT. Thus, exploring the innate moral concerns of individuals with ASD may be a modest, but informative start to understanding morality amongst this population. In this light, the next chapter describes a study undertaken to explore the association between ASD trait severity and moral foundation endorsement according to MFT.
Chapter 8. Study 3: Disparities in moral intuitions and the autistic phenotype

8.1. Rationale

Throughout the literature, case examples of peculiar moral sensibilities amongst individuals with ASD are prevalent. In contrast, a review of the empirical literature revealed that individuals with ASD perform similarly to neurotypical peers on some measures of moral reasoning, suggesting that such abilities are largely intact amongst the ASD population. Questions remain, however, regarding the validity and applicability of such conclusions, given that prior research in this area has predominantly relied on the performance of children on a traditional moral recognition task that adopts a unitary definition of morality according to the presence (or absence) of harm. As described in the previous chapter, recent theoretical and empirical contributions challenge such unitary conceptualizations, suggesting that the moral domain should not be limited to concerns regarding the welfare of others (Haidt, 2001, 2007).

Contemporary models of morality have been developed which consider harm and welfare as only one of multiple morally relevant domains. Such theoretical models provide an opportunity to explore inconsistencies in moral judgments that have been observed amongst individuals with ASD. Haidt’s (2012) MFT is one such contemporary model of morality that delineates five empirically substantiated domains of human moral concern (care/harm, fairness/cheating, loyalty/betrayal, sanctity/degradation and authority/subversion\footnote{MFT and each of the five moral domains were described in more detail in the preceding chapter}), originally drawn from anthropological and evolutionary evidence. The current chapter describes a study that
investigates whether the presence of autistic traits impacts on morality according to MFT.

Describing MFT as “a valuable analysis of morality”, Baron-Cohen (2013) argued that individuals with ASD often display behaviours consistent with each of the five moral domains (p. 212). Specifically, Baron-Cohen asserted that individuals with ASD have been observed to provide care for their aging parents, pets and children (care/harm domain), are politically engaged in campaigns for social justice (fairness/cheating domain), are loyal employees and group members (loyalty/betrayal domain), are keenly aware of social hierarchies, demanding consistency, honesty and ethical behaviour from leaders (authority/subversion domain), and are “as picky as anyone” regarding purity of body and mind (sanctity/degradation domain) (p. 213). Of note, Baron-Cohen’s argument is theoretical in nature, relying largely on anecdotal behavioural observations of individuals with ASD. The current study aims to test these claims using Graham, Haidt, and Nosek’s (2008) Moral Foundations Questionnaire (MFQ); a self-report tool developed to provide a quantitative measure of moral intuitions as per MFT.

It should be emphasized at the outset that MFT is descriptive in nature, providing a model by which disparities in moral thought and behaviour can be explored and understood (Graham et al., 2013). Relatedly, the MFQ only aims to measure respondents’ subjective intuitions regarding moral matters and does not speak to objective abilities (Aharoni et al., 2011). In this context, the current study does not attempt to make inferences regarding moral deficits nor superiorities and aims only to describe disparities in moral concerns, if any, that exist dependent on reported ASD traits.
8.2. Aims and Hypotheses

Adopting a dimensional approach to the construct of ASD (in line with the conceptualisation of the autistic phenotype existing along a continuum), the aim of the current study was to investigate how MFT may apply to individuals with higher levels of autistic traits, and whether there is differentiation between the responses of individuals with differing levels of autistic traits. Specifically, the question investigated was whether moral intuitions, as measured on the 30-item MFQ, differ across the ASD phenotype (i.e. whether high levels of ASD traits experience or process morality differently to those with lower levels, who are therefore less likely to meet the diagnostic criteria for ASD).

In contrast to Baron-Cohen (2013), it was predicted on the basis of empirical and anecdotal evidence that moral foundation endorsement would vary according to the degree of self-reported autistic traits. Separate hypotheses were made regarding endorsement of each MFQ domain, as presented below:

8.2.1. Care/Harm. As discussed in Chapter 7, children with ASD have been shown to perform similarly to neurotypical peers on moral recognition tasks that emphasise a harm/welfare conceptualization of morality (Blair, 1999; Grant et al., 2005). Indeed, research has suggested that individuals with ASD consider harm caused to others as immoral and worthy of punishment, even in circumstances where the harm caused was recognised as unintentional (Buon, Dupoux, Jacob, et al., 2013; Koster-Hale, Saxe, Dungan, & Young, 2013; Moran et al., 2011). Further, Li, Zhu and Gummerum (2014) demonstrated that when making moral judgments of a protagonist’s behaviour in social stories, children with high-functioning autism appeared more sensitive to harm caused to others, judging acts resulting in harm as less permissible than their neurotypical peers. With respect to Haidt’s taxonomy,
these results suggest that the care/harm moral foundation is well developed amongst individuals with ASD. Accordingly, it was hypothesised that individuals with higher degrees of traits consistent with ASD would exhibit higher endorsement for the care/harm foundation than individuals with lower levels of such traits.

8.2.2. Fairness/Cheating. Results of research relevant to the endorsement of the fairness/cheating moral foundation amongst individuals with ASD are mixed. In Sally and Hill’s (2006) study of children’s behaviour during participation in an economic cooperation game, children with ASD were more likely than typically developing counterparts to refuse fair proposals or accept (unfair) low initial offers, suggesting a poor understanding or low sensitivity to unfair treatment. In contrast, Rutherford and Ray (2009) found that adults with ASD demonstrated preserved abilities to detect and distinguish cheaters from those who committed social faux pas on the basis of an honest mistake.

More recently, Schmitz, Banerjee, Pouw, Stockmann, and Rieffe (2015) revealed that, in comparison to typically developing peers, children with ASD displayed lower prioritization of equality in situations where no obvious harm is caused (to the self or another) during participation in an economic social decision-making game. Specifically, compared to neurotypical peers, children with ASD were less likely to favour an equal distribution of coins during a computerised allocation task (adapted from Fehr, Bernhard, & Rockenbach, 2008) in cases where the distribution represented a relative gain (albeit unequal) for both players (i.e. one participant received two coins while the other received one) but not where explicit harm could be identified (i.e. one participant gets no coins). If egalitarianism is taken to represent a more general orientation to concerns of fairness, these results suggest that cooperative behaviour observed amongst individuals with ASD may be aligned
with the care/harm moral foundation, rather than motivated by concerns of fairness. On this basis, it was hypothesized for the current study that individuals with a higher degree of traits indicative of ASD would be less likely to endorse the Fairness/Cheating moral foundation when compared to respondents who displayed fewer autistic traits.

**8.2.3. Loyalty/Betrayal.** There is little research available that directly informs hypotheses regarding the importance of the Loyalty/Betrayal foundation amongst the ASD population. The available research suggests that individuals with ASD often experience poor quality relationships, resulting in low levels of social connectedness and a significant degree of social isolation (Liptak et al., 2011; Müller et al., 2008; Orsmond et al., 2013). A significant majority of the adult ASD population do not experience close reciprocal friendships (Eaves & Ho, 2008; Howlin et al., 2004; Liptak et al., 2011; Whitehouse, Durkin, et al., 2009) and report a lack of skills required to initiate such relationships (Müller et al., 2008). Conclusions regarding the longevity of established friendships amongst the ASD population are mixed, with some prior research suggesting that friendships are shorter than those of typically developing peers (Bauminger & Shulman, 2003), whilst others have described relationships of significant duration, suggesting a degree of commitment to such relationships (Potter, 2014; Rosetti, 2011).

Despite inconsistent findings in regards to the nature of in-group relationships amongst the ASD population, individuals with ASD have been characterised as exceedingly honest and loyal within the context of their employment (The National Autistic Society, 2013) and personal relationships (Chappell, 2011). Co-operative behaviour is also evident amongst individuals with ASD, with Downs and Smith (2004) reporting no differences in cooperative behaviour between children with
autism and typically developing children during participation in a social decision-making game. There is some evidence that children with ASD may prioritise co-operative behaviour to a greater degree than typically developing children in their interactions with others. Specifically, Li et al. (2014) found that 6-12 year old children with High-Functioning Autism \((n=38)\) demonstrated a similar degree of cooperative behaviour when playing a moral dilemma game with “morally nice”, “morally naughty” or stranger opponents, whilst typically developing children \((n = 31)\) showed higher co-operation when interacting with “morally nice” children than with “morally naughty” opponents or strangers.

Although there is some experimental evidence for cooperative play among children with ASD, case studies suggest that intense attachments experienced by individuals with ASD may result in problematic behaviours such as stalking or antisocial acts perpetrated at the directive of those that they consider as friends (see Chapter 3). These instances suggest that individuals with ASD may experience “friendship” differently to the typically developing population, and it is unclear to what extent such ‘loyal’ or co-operative behaviours observed amongst individuals with ASD are motivated by moral concern as opposed to reflecting socio-communicative impairments (e.g. social naivety) or behavioural rigidity (i.e. a preference against change in social circumstances). Accordingly, insufficient evidence exists regarding the Loyalty/Betrayal moral foundation to inform predictions about the impact of autistic traits in either direction.

**8.2.4. Authority/Subversion.** As discussed in Chapter 7, evidence exists that individuals with ASD may base their moral judgments on learned rules and expectations, or the expected negative reactions of authority figures (Shulman et al., 2012; Takeda et al., 2007). For example, on discussing his engagement in antisocial
behaviours, a young man with Asperger’s syndrome was reported by Beardon (2008) to remark, “I know what’s right and wrong because Mum and Dad have taught me” (p. 137). As noted by Beardon (2008), this statement suggests that the young man’s moral understanding derived from his parent’s instruction, rather than his own moral intuition. Similarly, Takeda et al. (2007) argued that when children with high-functioning pervasive developmental disorder approached a test of moral judgment they appeared to “choose the answer that is closest to what they have been taught (by their parents or teachers) in previous similar conditions” (p. 412). On the basis of such evidence, it was hypothesised for the current study that individuals with higher degrees of ASD traits would exhibit higher endorsement for the authority/subversion foundation than individuals with lower levels of such traits.

8.2.5. Sanctity/Degradation. As explained in the previous chapter, the sanctity/degradation foundation encompasses concerns regarding social and religious practices and stems from the affective experience of disgust. Although prior research suggests that individuals with ASD are unlikely to subscribe to religious beliefs (Caldwell-Harris, Murphy, Velazquez, & McNamara, 2011), there is some evidence that disgust constitutes a salient moral cue amongst the ASD population. Specifically, Zalla et al. (2011) found that, in contrast to typically-developing peers, adults with ASD did not differentiate between disgust-invoking transgressions and transgressions resulting in harm to another in terms of perceived seriousness. Accordingly, for the current study, it was expected that individuals with higher levels of traits consistent with ASD would indicate higher endorsement of the sanctity/degradation foundation when compared to those reporting lower levels of such traits.
8.3. Method

The current study utilised an online questionnaire to explore relationships between self-reported ASD trait severity and moral foundation endorsement, controlling for psychopathic trait severity, amongst a community-based sample who self-selected for participation.

8.3.1. Participants. Respondents consisted of 172 individuals (aged 18-77 years) who self-selected for participation in an online survey study. Respondents were recruited via online advertisements on social media, research-related webpages and through organisations thought likely to be in contact with adults with ASD (see Appendix C for a full list of advertisement locations). This study was granted approval from the University Human Ethics Committee and participants were informed through a plain-language statement presented prior to commencing the survey that participation was voluntary and that they could choose to withdraw at any time prior to survey submission. Consent was inferred through submission of survey responses, which occurred by participants clicking on a “submit” button on the last page of the survey.

The majority of participants were female (68%), while 4 (2.3%) participants identified as androgynous or chose not to respond to this item. A majority of respondents reported Australian/New Zealander (57%), Northern American/Canadian (19.8%), British (11.6%) or European (7.6%) heritage. The remaining respondents (4.1%) reported other non-Western cultural backgrounds (i.e. South American, African or Asian). The majority of respondents had completed secondary education (30.2%) or some degree of tertiary study, including those who had completed an undergraduate university degree or diploma (32.6%), a postgraduate degree (23.8%) or an apprenticeship or trade qualification (3.5%). The remaining respondents (9.9%)
had not completed secondary education. Cases with more than 10% missing data were considered incomplete and excluded from subsequent analyses (n = 4).

8.3.2. Materials. Respondents completed an online survey that included measures for autistic symptomatology, psychopathy, moral foundation endorsement and a range of demographic variables likely to influence responses on the MFQ.

8.3.2.1. Demographic information. Data were collected for a range of demographic factors, specifically, age, formal educational attainment and nationality. In addition, participants’ responses on four dichotomous (yes = 2/no = 1) response items were collected, for the purposes of screening for the presence of an identified or potential learning disability (i.e. *Have you ever received a pension or benefit for a disability?* *Have you ever been in a special class or school for students with a learning disability?* *Do you think you are a slow learner?* *Do you have a learning disability?*). These four items were coded as dichotomous variables (yes = 1; no = 2; see Table 6 for a summary of participants’ responses on these items) and summed to create a composite score for analysis, with higher scores indicating greater likelihood that the respondent possessed a learning disability or cognitive impairment. Cronbach’s Alpha for the composite score was low (0.56), indicating low internal reliability.

Reliability analyses indicated that removal of the item “*Have you ever received a pension or benefit for a disability?*” would improve the internal reliability of the learning disability composite score. Given that disability pensions and benefits can be provided for a range of physical, psychological and cognitive impairments, it was considered that this item measured a broader range of impairment than was intended for the current purposes and this item was removed from the composite
score. Although internal reliability was improved by removal of this item, Cronbach’s alpha for the composite score remained low (0.58).

Table 6
Participant responses on learning disability screening items (n = 168).

<table>
<thead>
<tr>
<th>Item</th>
<th>Yes</th>
<th>No</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you ever received a pension or benefit for a disability?</td>
<td>36</td>
<td>132</td>
<td>168</td>
</tr>
<tr>
<td>Have you ever been in a special class or school for students with a learning disability?</td>
<td>16</td>
<td>152</td>
<td>168</td>
</tr>
<tr>
<td>Do you think you are a slow learner?</td>
<td>26</td>
<td>142</td>
<td>168</td>
</tr>
<tr>
<td>Do you have a learning disability?</td>
<td>34</td>
<td>134</td>
<td>168</td>
</tr>
</tbody>
</table>

8.3.2.2. Psychopathic traits. As described in Chapter 3, some authors have suggested that immoral behaviour displayed by individuals with ASD is the result of co-morbid psychopathy (Rogers et al., 2006). Additionally, moral processing deficits are evident and have been associated with offending amongst this population (Aharoni et al., 2011; Aharoni, Sinnott-Armstrong, & Kiehl, 2012). Consistent with such, prior research has demonstrated that responses on the MFQ vary as a function of the degree of psychopathic traits displayed by an individual (Aharoni et al., 2011; Glenn et al., 2009). Accordingly, the current study included a measure of psychopathic traits in order to control for the impact of such on moral foundation endorsement during hypothesis testing.

The presence of traits commonly associated with psychopathy were evaluated according to the items of the Levenson Self-Report Psychopathy Scale (LSRP; Levenson et al., 1995); a self-report tool based on “gold-standard” clinical interview assessment tools for psychopathy. The LSRP was developed for use in non-institutionalised settings and consists of 26-items evaluating the presence of behavioural and personality traits consistent with empirical descriptions of
psychopathy. Participants indicated endorsement for each of the 26 items of the LSRP according to a 5-point likert-like scale (“disagree strongly”, “disagree”, “neither agree nor disagree”, “agree”, “agree strongly”). Following reverse scoring for 7 negatively weighted items, item responses were summed to create a continuous total LSRP score. Internal reliability for the LSRP was assessed using Cronbach’s alpha with results suggesting good internal reliability ($\alpha = 0.86$).

8.3.2.3. Autistic traits. The presence of autistic traits was measured according to the Autism Quotient (AQ; Baron-Cohen et al., 2001). The AQ is an empirically based self-report questionnaire developed to assess the presence of traits associated with a diagnosis of ASD amongst adults with normal intelligence (Baron-Cohen et al., 2001). The AQ has been used to explore relationships between ASD symptomatology and a wide range of psychological constructs relevant to morality, including personality characteristics, affective processing and empathy (Austin, 2005; Lassalle & Itier, 2014; Lombardo et al., 2007; Wheelwright et al., 2006) and the tool’s psychometric properties have been validated cross-culturally (Allison et al., 2012; Baron-Cohen et al., 2001; Wakabayashi, Baron-Cohen, Wheelwright, & Tojo, 2006; Wouters & Spek, 2011). In the current study, the Cronbach alpha coefficient was high ($\alpha = 0.95$), suggesting excellent internal reliability.

Each item of the AQ describes a characteristic associated with the ASD phenotype and the extent to which respondents agree with the item is measured according to a four-point likert-like scale: “definitely agree”, “slightly agree”, “slightly disagree” and “definitely disagree”). According to the original scoring system delineated by Baron-Cohen et al. (2001), total AQ scores are determined by summing item responses according to a dichotomous scale, where ‘autistic’ responses are scored as one and ‘non-autistic’ responses are scored a zero. The current study
preserved the four-point response scale in scoring; combining each item response to
determine total AQ scores, reverse keying where necessary. Higher AQ total scores
represented the presence of a greater degree of ASD-like traits, with the minimum
score (50) indicating an absence of such traits and the maximum score (200) full
endorsement of all autistic traits measured on the AQ. This scoring approach has been
adopted in other recent research utilizing the AQ and allows for greater
differentiation among responses, retaining valuable information regarding the degree
of respondent endorsement for traits consistent with ASD (Austin, 2005; Auyeung,
Baron-Cohen, Wheelwright, & Allison, 2008; Hoekstra et al., 2007; Jobe & Williams
White, 2007).

8.3.2.4. Moral intuitions. Moral intuitions were measured according to the
30-item Moral Foundations Questionnaire (MFQ; Graham et al., 2008). The MFQ is
a self-report measure that consists of two sections rated on a 6-point scale (zero to
five), with 16 items evaluating the extent to which participants endorse statements as
relevant to decision-making regarding “right or wrong”, and 16 items regarding the
extent of participants’ agreement with “moral rules” related to each of five moral
domains outlined by MFT (see Table 7 for example of MFQ items). Scoring of the
MFQ was facilitated by SPSS syntax made available by the authors at
www.moralfoundations.org.
The full MFQ is replicated in Appendix I. Prior research utilizing the MFQ has confirmed the five-factor structure of MFT and has demonstrated that the MFQ is reliable and valid measure of moral foundation endorsement for participants across multiple world regions (Graham et al., 2011). Three of the MFQ foundations (Sanctity/Degradation, Loyalty/Betrayal, Care/Harm yielded low Cronbach’s alpha coefficients indicating low internal consistency reliability for the current sample (see Table 8; below). This potential limitation should be considered in the interpretation of results pertaining to endorsement on these foundations.

**8.4. Results**

A series of two-stage hierarchical multiple regression analyses were undertaken to predict endorsement on each of the MFQ moral foundations (Care/Harm, Fairness/Cheating, Loyalty/Betrayal, Sanctity/Degradation and

---

**Table 7**

*Example items for each MFQ domain*

<table>
<thead>
<tr>
<th>Moral Domain</th>
<th>Example MFQ “relevance” items</th>
<th>Example MFQ “moral rule” items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Care/Harm</td>
<td>Whether or not someone was cruel</td>
<td>Compassion for those who are suffering is the most crucial virtue</td>
</tr>
<tr>
<td>Fairness/Cheating</td>
<td>Whether or not someone acted fairly</td>
<td>Justice is the most important requirement for a society</td>
</tr>
<tr>
<td>Loyalty/Betrayal</td>
<td>Whether or not someone showed a lack of loyalty</td>
<td>It is more important to be a team player than to express oneself</td>
</tr>
<tr>
<td>Authority/Subversion</td>
<td>Whether or not someone conformed to the traditions of society</td>
<td>If I were a soldier and disagreed with my commanding officer’s orders, I would obey anyway because that is my duty</td>
</tr>
<tr>
<td>Sanctity/Degradation</td>
<td>Whether or not someone did something disgusting</td>
<td>I would call some acts wrong on the grounds that they are unnatural</td>
</tr>
</tbody>
</table>

*The full MFQ is replicated in Appendix I.*
Authority/Subversion) according to AQ scores. Demographic data and total LSRP scores were entered at stage one of the regression to control for the impact of such variables on foundation endorsement. AQ scores were entered at the second step.

**8.4.1. Missing data.** Following exclusion of incomplete responses (n = 4), missing data points constituted 0.27% of the data overall. A non-significant Little’s MCAR test, $\chi^2(4433) = 4472.93, p = .334$, provided evidence that the data were missing completely at random (Little, 1988). Missing data were replaced at the item level for each scale separately using expectation maximization based imputation.

**8.4.2. Contribution of demographic variables.** Demographic variables (i.e. age, gender, nationality, formal educational attainment and learning disability indicator composite score) were differentially related to scores on the AQ and the MFQ. AQ scores did not differ systematically according to the age or highest level of formal educational attainment reported by participants. The learning disability composite score was significantly correlated to AQ scores, $r = .301, p < .001$, but was not significantly related to endorsement for any of the moral foundations. Accordingly, age, formal educational attainment and learning disability composite scores were not included as covariates and were excluded from subsequent analyses.

An analysis of variance (ANOVA) indicated that a significant relationship existed between AQ scores and nationality, $F(4, 163) = 6.748, p < .001$. Similarly, AQ scores were significantly related to respondents’ reported gender, $F(2, 165) = 6.881, p = .001$. Consistent with prior research (Graham et al., 2011), significant gender and cultural/regional differences existed in moral foundation endorsement. Specifically, in the current study, nationality was significantly related to endorsement of the Authority/Subversion, $F(4, 163) = 3.520, p = .009$, and Sanctity/Degradation,
$F(4, 163) = 3.413, p = .01$, moral foundations and gender was significantly related to endorsement of the Care/Harm domain on the MFQ, $F (2, 165) = 4.805, p = .009$.

No a priori predictions were made regarding the effect of demographic variables on the relationship between AQ scores and moral foundation endorsement; accordingly, gender and nationality were entered as covariates during hypothesis testing. Nationality was represented in the regression analyses as four dummy variables with Australian/New Zealander respondents serving as the reference group. Given the small number of individuals who indicated androgyny or chose not to respond to the “gender” item of the survey ($n = 4$), the responses of these individuals were excluded pairwise from further analyses, and gender was entered as a dichotomous variable (i.e. male/female).

**8.4.3. Assumption testing.** Prior to hypothesis testing, the relevant assumptions for hierarchical multiple regression were assessed.

**8.4.3.1. Sample size.** Tabachnick and Fidell (2013) provide a formula for calculating sample size requirements for multiple regression, taking into account the number of variables that you wish to use: $N > 50 + 8m$ (where $m =$ number of independent variables). According to this formula, a sample size of 106 was deemed adequate, given seven independent variables entered for regression analysis.

Following exclusion of cases due to incomplete responses, the sample size for the current study was 164. Data screening revealed a further 14 respondents who responded to one or both consistency check items on the MFQ in a manner suggestive of a response set. These cases were excluded from subsequent analyses, resulting in a

---

12 Independent variables entered: gender, four nationality dummy variables, LSRP total score, and AQ total score.
total included sample of 150 respondents. Accordingly, the sample size for the current study was considered sufficient.

**8.4.3.2. Outlying data.** Scans of the complete data after scale scoring revealed three univariate outliers\(^\text{13}\) using a z-score criterion of ±3.29 (Tabachnick & Fidell, 2013). Univariate outliers were winzorised to reduce bias due to extreme values during analysis. No multivariate outliers were identified following screening using Mahalanobis distance scores; (p < 0.001).

**8.4.3.3. Normality of residuals.** To confirm that the assumption of normality was met, the standardized residuals for each regression analysis were assessed according to the Sharipo-Wilk statistic and absolute skew and kurtosis scores. The Sharipo-Wilk statistic was non-significant for standardized residuals associated with the analyses predicting endorsement of the purity (p = .226), in-group (p = .526) and authority (p = .384) foundations, providing evidence that the assumption of normality was satisfied for these analyses. A significant Sharipo-Wilk statistic was obtained for the standardized residuals associated with the prediction of endorsement of the Care/Harm (p = .001) and Fairness/Cheating (p = .009) foundations, indicating a distribution that deviated from normality. Despite this, skewness and kurtosis statistics did not fall outside of the acceptable ranges of ±2 and ±7 respectively (Curran, West, & Finch, 1996). Accordingly, whilst the residuals on these analyses appeared to depart from a strict Gaussian distribution, this departure was not extreme and transformations were not undertaken to correct the distribution.

**8.4.3.4. Multicollinearity/Singularity.** An examination of correlations revealed that no independent variables were highly correlated, indicating that

\(^{13}\) Variables for which univariate outliers were identified were age (x1) and LSRP total score (x2).
assumptions of singularity and multicollinearity were not violated (see Table 8). Further, the collinearity statistics (i.e. tolerance and VIF) for each regression analysis were examined and all fell within accepted limits (Hair, Anderson, Tatham, & Black, 1995; Menard, 1995). Accordingly, the assumption of multicollinearity was deemed to have been met.
Table 8
Means, alpha reliability coefficients, and zero-order Pearson correlations reflecting the associations between AQ scores, LSRP scores, Age, learning disability composite scores and MFQ foundations (n = 153)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Mean (SD)</th>
<th>α</th>
<th>AQ (r)</th>
<th>Care (r)</th>
<th>Fairness (r)</th>
<th>Loyalty (r)</th>
<th>Authority (r)</th>
<th>Sanctity (r)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AQ</td>
<td>134.04 (10.56)</td>
<td>0.95</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>MFQ Scales</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Care</td>
<td>3.83 (.72)</td>
<td>0.58</td>
<td>-.262**</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Fairness</td>
<td>3.74 (.69)</td>
<td>0.71</td>
<td>.028</td>
<td>.476**</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Loyalty</td>
<td>2.16 (.84)</td>
<td>0.60</td>
<td>-.442**</td>
<td>.227**</td>
<td>.078</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Authority</td>
<td>2.37(1.00)</td>
<td>0.70</td>
<td>-.321**</td>
<td>.140</td>
<td>.073</td>
<td>.592**</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sanctity</td>
<td>1.97 (1.13)</td>
<td>0.62</td>
<td>-.195*</td>
<td>.215**</td>
<td>.120</td>
<td>.456**</td>
<td>.640**</td>
<td>-</td>
</tr>
<tr>
<td>LSRP</td>
<td>57.34 (13.18)</td>
<td>0.86</td>
<td>.117</td>
<td>-.411**</td>
<td>-.371**</td>
<td>-.075</td>
<td>-.117</td>
<td>-.175*</td>
</tr>
<tr>
<td>Learning Disability</td>
<td>3.45 (.80)</td>
<td>0.58</td>
<td>.290**</td>
<td>.003</td>
<td>-.154</td>
<td>-.015</td>
<td>-.072</td>
<td>-.043</td>
</tr>
<tr>
<td>Age</td>
<td>31.02 (10.56)</td>
<td>-</td>
<td>.136</td>
<td>.038</td>
<td>.063</td>
<td>-.042</td>
<td>.203*</td>
<td>.289**</td>
</tr>
</tbody>
</table>

*p < .05; **p < .01.
8.4.3.5. Independence of residuals. The Durbin-Watson statistics for each of the regression analyses were used to test for autocorrelation. The Durbin-Watson statistics for the regression analyses ranged from 1.654 and 1.855, which were considered within the acceptable range of 1.5 – 2.5.

8.4.3.6. Homoscedasticity. The Breusch-Pagan (1979) and Koenker (1981) tests for heteroscedasticity were used to statistically evaluate the assumption of homoscedasticity of residuals for each hierarchical regression undertaken during hypothesis testing. The more robust Koenker test was used where the Sharipo-Wilks statistic had revealed deviations from normality. These tests were significant for analyses pertaining to the Fairness/Cheating, Loyalty/Betrayal, Sanctity/Degradation and Authority/Subversion foundations, indicating evidence of heteroscedasticity for these regression analyses. A robust (heteroscedasticity-consistent) standard error estimator was employed to estimate accurate standard errors and p-values for regression analyses where the assumption of homoscedasticity was violated. The HC3 method was adopted, as recommended by Long and Ervin (2000) for sample sizes less than 250.

8.4.4. Regression Analyses: AQ scores and foundation endorsement. To test the hypotheses, the extent to which total AQ score predicted endorsement on each of the five moral foundations was assessed, controlling for gender, nationality and

---

14 SPSS syntax macro by Marta Garcia-Granero for the Breusch-Pagan and Koenker test was downloaded from http://spsstools.net/de/syntax/442/. The syntax was edited to allow for missing data and is presented in Appendix K.

15 Use of the robust (heteroscedasticity-consistent) estimator of standard errors was facilitated by SPSS macro and syntax taken from Hayes and Cai (2007). This macro, presented in Appendix L, includes an optional “setwise test” that tests the effect of a chosen variable (or set of variables) after controlling for all other variables entered into the macro.
Using separate linear regressions, each of the five moral foundations were regressed on total AQ score (see Figure 2). Regression statistics for the analyses predicting foundation endorsement are reported in Appendix J.

Figure 2. Linear relationship between AQ scores and mean ratings on each of the five moral foundations. After controlling for the effects of demographic variables and LSRP scores, AQ scores were negatively associated with endorsement of the Loyalty/Betrayal and Authority/Subversion foundations, *p < .001; **p = .005.

After controlling for the influence of demographic variables and LSRP scores, AQ scores significantly predicted endorsement for the Loyalty/Betrayal, $F_{\Delta}(1, 142) = 32.01, p < .001$, and Authority/Subversion foundations, $F_{\Delta}(1, 142) = 8.29, p = .005$. Contrary to the hypothesis, individuals with higher AQ scores reported lower endorsement of the Authority/Subversion subscale than those with lower AQ scores. Similarly, higher AQ scores were associated with lower endorsement of the Loyalty/Betrayal foundation. Also contrary to the hypotheses, AQ scores did not
significantly predict endorsement of the Care/Harm, $F_{\Delta}(1, 142) = 3.565$, $p = .061$, Fairness/Cheating, $F_{\Delta}(1, 142) = 0.392$, $p = .532$, or Sanctity/Degradation, $F_{\Delta}(1, 142) = 1.02$, $p = .313$, moral foundations, after controlling for demographic variables and LSRP scores.

**8.5. Discussion**

The current study examines morality and ASD traits through the lens of MFT in an attempt to better understand anecdotal reports of peculiar moral concerns amongst the ASD population. Specifically, it aimed to explore any extant associations between moral foundation endorsement and ASD-trait severity, as measured by AQ scores, amongst a sample of 164 individuals who self-selected for participation following targeted advertising for recruitment of both neurotypical individuals and persons likely to possess a diagnosis of ASD. As hypothesised, ASD trait severity (as measured by scores on the AQ) predicted differential moral foundation endorsement on the MFQ. Specifically, individuals with higher degrees of ASD-consistent traits demonstrated a narrower range of moral concerns; individuals reporting experiencing a higher degree of ASD consistent traits were significantly less likely to consider moral principles of Authority/Subversion and Loyalty/Betrayal when making moral judgements in their daily lives. Contrary to the hypotheses, increased ASD trait severity was did not predict with endorsement of the Care/Harm, Fairness/Cheating or Sanctity/Degradation moral foundations, however, there was a trend towards lower endorsement of the Harm/Care foundations as AQ scores increased.

The Authority/Subversion and Loyalty/Betrayal foundations, along with the Sanctity/Degradation foundation, have been labelled as “binding” foundations; hypothesised to promote moral behaviour by binding individuals into pro-social roles and duties within groups and institutions, thus limiting selfish, hedonistic and anarchical tendencies (Graham et al., 2013). In contrast, the “individualising”
foundations of Care/Harm and Fairness/Cheating emphasise respect for the rights of others above all other considerations (Graham et al., 2013). Impairments in social interaction is a diagnostic feature of ASD, resulting in difficulties navigating social groups and institutions, and low levels of social engagement amongst adults with ASD (see Chapter 2). In this context, it is unsurprising that individuals who reported greater ASD trait severity would be less likely to prioritise the binding foundations, which emphasise community participation and social interaction; that is, due to the neurocognitive impairments and behavioural tendencies characteristic of ASD, the psychological systems underpinning moral intuitions in the “binding” sphere may not fully develop. Alternatively, individuals with ASD may possess moral intuitions for binding foundations, but be unable to effectively process such, due to their socio-cognitive and affective difficulties.

Of note, research with non-ASD populations (Wright & Baril, 2011), has found that cognitively taxing participants, using cognitive load and ego depletion tasks, results in reduced endorsement of the binding moral foundations. Given that ASD appears to be associated with cognitive inflexibility and reduced information processing efficiency, individuals who possess a greater degree of ASD traits appear likely to be particularly vulnerable to the effects of an increased cognitive load (see for example, Mackie & Fan, 2016). Thus, the negative association between self-reported ASD trait severity and endorsement of the Authority/Subversion and Loyalty/Betrayal foundations may be reflective of an increased cognitive load and/or difficulties with self-regulation amongst individuals with a higher levels of self-reported ASD traits, due to a mismatch between their socio-cognitive and socio-affective abilities and the highly complex social skills required for moral reasoning. This view would be consistent with the self-report of adolescents with ASD, who considered they possessed intact empathic responses, but difficulties integrating such
into moral decision-making during challenging social interactions
(Senland & Higgins-D'Alessandro, 2013). Alternatively, participation in the current study may have been more cognitively taxing on respondents with higher degrees of ASD traits, resulting in a temporary deprioritisation of the “binding” foundations. A temporary deprioritisation would explain the lack of an association between ASD trait severity and endorsement of the Sanctity/Degradation foundation in the current study, despite prior research indicating that individuals with ASD, unlike neurotypical counterparts, judge disgust-evoking acts as similar to harmful acts in regard to seriousness and moral culpability (Zalla et al., 2011).

While the MFQ has been extensively validated (Graham et al., 2013; Graham et al., 2011), the psychometric properties have not been established in regards to use with the ASD population. Critically, completing the MFQ relies on both an individual’s linguistic skills and their ability to engage in metacognition. Of note, the ability of individuals with ASD to engage in self-reflection regarding their own mental states has been questioned, with Williams (2010) arguing that individuals with ASD are “at least as impaired at recognising their own mental states as at recognising mental states in other people” (p.474). Further, because the MFQ involves respondents’ rating of abstract principles, rather than judgment of concrete scenarios, it is unclear to what extent foundation endorsement translate to moral judgement or behaviour (Clifford, Iyengar, Cabeza, & Sinnott-Armstrong, 2015). Future research could seek to validate the MFQ with the ASD population or, alternatively, explore moral foundations amongst this population through alternative methodology. For example, future research could explore morality amongst individuals with ASD utilising one of a growing number of MFT assessment measures have been recently developed (Graham et al., 2013). Given the likely difficulties for individuals with ASD in hypothesising about their own moral intuitions with reference to somewhat
abstract concepts (as in the MFQ), the use of a measure that includes more concrete examples of moral foundations may be a substantial improvement to the current study. One option of this nature is the Moral Foundations Vignettes, a measure recently developed by Clifford et al. (2015) to assess moral judgment according to a standardised set of carefully constructed and diverse scenarios that represent concrete moral violations according to MFT.

Other methodological limitations are also present for the current study. It should be noted that the study sample was relatively small and self-selected from a non-clinical population for participation in the internet-based study. Whilst a targeted advertising approach was utilised to increase the likelihood of recruiting individuals with a diagnosis of ASD, such diagnoses were not confirmed, and consequently, the current study relies on AQ scores to provide an indication of ASD trait severity. It remains unknown whether individuals who meet the formal diagnostic criteria for ASD would judge the moral scenarios in the same manner as the individuals who participated in the current study. Further, the current study was unable to take into account the full range of factors that may be related to the development and maintenance of moral intuitions, which may include personality factors, social experiences, and critically, political orientation.

Notwithstanding these limitations, this study provides some initial evidence that ASD trait severity may predict the moral intuitions as defined by MFT. Specifically the results demonstrated some disparity in moral foundation endorsement on the MFQ, associated with self-reported ASD trait severity. These results expand on previous research in the area of morality and ASD, which has been limited to considerations of issues of justice and harm, by considering a broader moral domain. Ongoing work will be required to confirm the findings of this preliminary study with a larger, more representative sample and more stringent methodology.

In the introductory chapter of this thesis, several forensic issues pertaining to individuals ASD were identified as requiring further investigation, including those related to the prevalence and nature of offending behaviour perpetrated by this population, awareness of ASD amongst key stakeholders within the CJS, and the relevance of ASD to legal issues involved in the forensic response to offending behaviours. These issues have formed the focus of the current thesis, with particular attention dedicated to exploring the prevalence and nature of offending behaviour amongst the ASD population, perceptions regarding ASD amongst the Australian magistracy and the association between ASD trait severity and issues of morality (a factor often important to forensic decision-making during the disposition of a case).

While a growing number of studies have investigated forensic issues in this population (reviewed in Chapter 3), significant methodological flaws limit the conclusions that can be drawn from such research. While the literature does not support the presence of an increased risk of engaging in offending behaviour for individuals with ASD, it is nonetheless apparent that some individuals with ASD do engage in offending behaviour, with resulting contact with the CJS. Indeed, a novel empirical study described in Chapter 4 suggested that individuals with ASD may come into contact with the CJS at a similar rate, and for a similar range of offending behaviours, as the neurotypical population. While the growing literature base regarding prevalence of offending amongst the ASD population provides some information regarding the scale and nature of this issue, it has not addressed important questions pertaining to the disposition of cases involving offenders with ASD, the provision of intervention services and their overall management within the CJS.
In some cases, it appears likely that an offender’s diagnosis of ASD will not bear direct relevance to criminal proceedings; clearly, some individuals with ASD may engage in offending behaviour for reasons quite beyond the specific characteristics of ASD. However, for others, impairments associated with a diagnosis of ASD will bear relevance to their ability to participate in criminal proceedings, their moral culpability, or likely response to sanctions, with direct implications for the imposition of a proportionate sentence (see Chapter 5). Accordingly, a sound understating of the nature, and potential forensic implications of ASD, is essential amongst CJS personnel, and particularly judicial officers, to promote consistent and effective responses for offending behaviour amongst this population. Novel research presented in Chapter 6 revealed significant variation in awareness and perceptions regarding the forensic relevance of ASD amongst Australian magistrates, with such variation likely to precipitate inconsistencies in the consideration of ASD during criminal proceedings.

Mental health workers, including forensic psychologists, may assist to address such inconsistencies, through the development and delivery of training for judicial officers, and the provision of expert testimony. The extent to which such educative efforts are helpful, however, will depend on the accuracy and relevance of information provided therein. To that end, Chapter 7 explored the extant literature in regards to moral reasoning amongst individuals with ASD, a factor that was identified in preceding chapters as bearing significant relevance to proportionate sentencing and other legal decision-making involving defendants with ASD. It became clear that the extant research in this area has thus far failed to provide a full account of morality amongst the ASD population, due to a narrowed focus on the subset of moral concern associated with the prevention of harm and promotion of justice. Chapter 8 presented an original study that explored the association between
ASD trait severity and MFT, a contemporary model of morality that considers a wider moral domain. The findings of this study suggested that some subtle differences may exist in regards to the factors individuals with ASD consider morally relevant, when compared with neurotypical peers. Further research with larger sample sizes and more stringent methodology is required to confirm these findings.

9.1. Limitations of the Current Thesis

As with the preceding evidence base regarding ASD and offending behaviour, the studies presented in this thesis have several limitations that require acknowledgement. Many of these limitations have been discussed in the preceding chapters, however, some apply across the whole of this thesis, and thus warrant further comment. First, the quantitative data presented within this thesis is correlational, limiting discussion of causal direction. Further, ASD diagnoses were not confirmed amongst participants in these studies, thus, conclusions are limited to discussions of individuals with elevated levels of self-reported ASD-consistent traits. Such factors are present for much of the literature concerning the forensic aspects of ASD, and are likely to be difficult (although not impossible) to address, given ethical considerations and the low base rate of offending behaviour amongst the ASD population, as well as the general population as a whole.

A more immediate concern for the generalizability of the findings is that the impact of co-morbid conditions on offending and morality was not sufficiently accounted for in the studies presented within this thesis. It is well documented that forensic populations have higher rates of mental illness when compared to individuals in the community (e.g. Dudeck et al., 2011; Hatwell, 2004; Lamb et al., 2004; Morrison, 1991; Mullen, 2001; Ogloff et al., 2015; Ogloff et al., 2011; Skeem, Manchak, & Peterson, 2011). Similarly, psychiatric co-morbidity is common for
individuals with ASD (see Chapter 2). It has thus been suggested that co-morbid psychiatric conditions may contribute causatively to offending behaviour among individuals with ASD (Chown, 2010; Newman & Ghaziuddin, 2008). Similarly, it is feasible that co-morbid psychiatric conditions, particularly those that may interfere with emotional or cognitive processing, may impact on moral sensitivity and agency. Given the particular relevance of psychopathy for both morality and engagement in offending behaviour, a measure of psychopathic traits was included in the studies within this thesis; however, other conditions which may influence moral foundation endorsement and/or risk of offending for individuals with ASD were not considered. Further investigation into the role and effects of co-existing conditions, including mental illness, ID and personality traits among this population is clearly needed.

An additional limitation is that the data reported in this thesis consists entirely of self-report measurements of traits, attributes, behaviours, and judgments. It has been argued that the use of self-report measures may be particularly problematic with individuals with ASD, because they may present with different response patterns to neurotypical peers (Daly et al., 2014; Schwarz, 2005). For example, the responses of individuals with higher degrees of ASD traits may be impacted by limitations in self-awareness (Williams, 2010). Findings from prior research regarding the use of self-report measures with the ASD population are mixed, with some studies suggesting that individuals with ASD provide accurate reports of their internal experiences and behaviour, for example emotional disturbance (Ozsivadjian, Hibberd, & Hollocks, 2013), and eating behaviours (Karlsson, Råstam, & Wentz, 2013), while other research has suggested a trend towards underreporting on measures of symptom severity (Bishop & Seltzer, 2012; Mazefsky et al., 2013). Other than the AQ, the measures utilised in this thesis have not been validated for use with the ASD
population. Future research is needed to confirm the psychometric properties of such measures when used with individuals with ASD.

9.2. Nexus Between ASD, Moral Reasoning and Engagement in Offending Behaviour

Whilst the research presented in this thesis suggests that a diagnosis of ASD may be relevant to issues of competence and moral responsibility, the mere presence of a diagnosis, on its own, is not sufficient to exculpate, or even moderate responsibility for offending behaviours (Lerner et al., 2012; Mayes & Koegel, 2003). As described in Chapter 2, there is significant variation in presentation amongst individuals with ASD, with this variability arguably more pronounced in regards to symptomatology, behavioural adaptation, and overall functioning amongst adults with ASD. The enormous variation in the ASD phenotype creates some uncertainty regarding the generalizability of the research regarding forensic issues, and recommendations as to the applicability of legislation and case law related to the disposition of offending behaviour perpetrated by an individual with ASD. A defendant’s diagnosis of ASD can thus be highly exculpatory, or largely irrelevant during criminal proceedings; as with all mental impairments, the crucial issue is the determination of a nexus between the disorder and their engagement in offending behaviour.

The relevance of a diagnosis of ASD to the legal status of an offender was discussed in Chapter 5. Here it was argued that while the presence of a diagnosis may be relevant to the application of both legislative and common law provisions, in practice, ASD is primarily relevant during the sentencing stage of criminal proceedings. In regards to proportionate sentencing for this population, the critical issue is the impact of an ASD diagnosis in legally relevant areas. Should it be considered that a defendant’s offending behaviour occurred in the context of traits
associated with an ASD diagnosis (i.e. the ASD traits played a causal or contributory role in the offending, or the defendant’s moral appreciation of the offending), or that the presence of ASD would be likely to render sanctions more burdensome than would be the case in the absence of such, the extent to which the offender ought to be considered morally responsible for his behaviour should be considered and dealt with appropriately during disposition. In contrast, in cases where an offender’s impairment is not shown to impact in legally relevant ways (i.e. significantly impacting their ability to comprehend legal processes, precipitating their engagement in offending behaviour, or have bearing in regards to their management and rehabilitation), the offender will be held fully culpable for their conduct, irrespective of the severity of the diagnosed condition (Walvisch, 2010). Thus, in any case involving an offender with ASD, the nexus between symptomatology associated with the disorder and the offender’s cognitive, moral or volitional capacities, and likely experience of available sanctions requires consideration. The current thesis aimed to provide some initial insights regarding such nexus, with a particular focus on issues of morality amongst individuals with ASD.

Despite speculation in the literature, there is no definitive evidence that suggests that moral reasoning is related to behavioural problems, such as offending behaviour, for individuals with ASD. Within the psychological literature there is a substantial body of work that considers the relationship between moral reasoning and engagement in offending behaviours (e.g. Barriga et al., 2009; Brooks, Bock, & Nrvaez, 2013; Erickson & Felthous, 2009; Langdon, Clare, et al., 2011; Langdon, Murphy, Clare, Steverson, & Palmer, 2011; Palmer, 2003; Palmer & Hollin, 1999; Raine & Yang, 2006). Meta-analytic studies have demonstrated a robust relationship between moral reasoning and engagement in offending behaviour amongst juveniles, such that immature moral reasoning was associated with offending within juvenile
The results of studies investigating moral reasoning amongst adult offender populations are mixed, with some suggesting no significant deficits in moral orientation and reasoning abilities between convicted offenders and the non-offending population (Griffore & Samuels, 1978), whilst others have found significantly lower level socio-moral reasoning amongst adult convicted offenders when compared with non-offenders (Stevenson, Hall, & Innes, 2003; Thornton & Reid, 1982; Valliant, Gauthier, Pottier, & Kosmyna, 2000). Somewhat counter-intuitively, evidence regarding moral competency and engagement in offending behaviour amongst offenders with an ID has suggested that offenders with ID may present with more mature moral reasoning, when compared to non-offenders with an ID (Langdon, Clare, et al., 2011; Langdon, Murphy, et al., 2011; McDermott & Langdon, 2016).

This finding underlies the complexity of the relationship between morality and engagement in offending behaviour, warranting exploration of this relationship in other clinical groups, including individuals with ASD.

Of note, similar to the literature regarding morality amongst individuals with ASD, much of the literature that investigates the relationship between moral reasoning and engagement in offending behaviours does not include adult samples and relies on traditional conceptualisations of morality, those which emphasise a moral domain centered on issues of victimization and harm. Consideration of a broader moral domain is warranted, given that legal principles may not always be based on issues of victimization. Consider again Haidt’s (2001) hypothetical scenario regarding consensual sexual contact between siblings. There are laws prohibiting Incest (i.e. penetrative sexual contact between a person and their direct lineal family member) in every Australian jurisdiction, and consent is not considered a defence for such behaviour in any Australian state or territory (Crimes Act 1900s 78A [NSW];
Crimes Act 1958 s 44 [Vic]; Criminal Code s 222 [Qld]; Criminal Law Consolidation Act 1935 s 72 [SA]; Criminal Code s 329 [WA]; Criminal Code s 133 [Tas]; Crimes Act 1900 s 62 [ACT]; Criminal Code s134 [NT]). Accordingly, certain behaviours may be considered both immoral and illegal, even in cases where no obvious transgressor/victim dyad can be identified.

Recent research has begun to investigate the relationship between the moral foundations in MFT and engagement in offending behaviour. For example, Vecina (2014) revealed that, after controlling for gender and political orientation, endorsement of the Authority/Subversion and Sanctity/Degradation foundations significantly discriminated between non-offenders ($n = 260$) and convicted domestic violence offenders ($n = 317$). The relationship between moral foundation endorsement and psychopathy has also been explored, with results suggesting that the moral deficits that drive much of the offending behaviour observed in psychopathy are concentrated to the domains of Care/Harm and Fairness/Cheating, whilst other moral intuitions remain intact (Aharoni et al., 2011; Glenn et al., 2009). What such findings mean in regards to the legal status of such individuals remains unclear.

The findings discussed within this thesis provide an initial insight that ASD trait severity may be related to disparities in moral foundation endorsement, according to the MFQ. The problem remains however, that there is little evidence that moral reasoning is predictive of moral behaviour among individuals with ASD. Thus, further research is needed to a) confirm whether disparities exist in the moral foundations of individuals with a formal diagnosis of ASD, b) explore whether disparities in moral foundations are related to behavioural outcomes within the ASD population and c) notwithstanding the results of these prior investigations, determine whether disparities in moral foundations may discriminate between offenders and non-offenders with ASD. Later, longitudinal research that examines changes in an
individual’s moral foundations following educational interventions, the imposition of sanctions and relocation (for example, to a secure setting) may provide evidence for whether moral foundation alteration may present as a potential target for prevention, early intervention and habilitation with the ASD population.
References


doi:10.1037/abn0000076


doi:10.1155/2013/984205


doi:10.1080/19315860902741542


Chown, N. (2010). 'Do you have any difficulties that I may not be aware of?' A study of autism awareness and understanding in the UK police service. *International


Criminal Code 1924 (Tas). Available from:

Criminal Code 1913 (WA). Available from:

Criminal Law Consolidation Act 1935 (SA). Available from

http://www.crimestatistics.vic.gov.au/home/about+the+data/classifications/offence+classification


Farrington, D. P. (2001). *What has been learned from self-reports about criminal careers and the causes of offending?* Retrieved from Cambridge:


literature using a social-relational model of disability. *American Journal of
Sexuality Education, 5*, 328-361. doi:10.1080/15546128.2010.527237


version, July 2008).*

1029-1046. doi:10.1037/a0015141


Vintage Books.


doi:10.1093/acprof:oso/9780195332834.001.0001


doi:10.1186/1471-244X-9-35


doi:10.3109/13668250.2015.1064343


doi:10.1007/s10803-012-1510-3


doi:10.1542/aapnews.20130604-1

doi:10.1097/HRP.0000000000000087


doi:10.1080/17449642.2013.878514


doi:10.1016/j.avb.2003.03.001


with high functioning autism spectrum conditions. *PLoS ONE, 6*(6), e20835. doi:10.1371/journal.pone.0020835


McDermott, E., & Langdon, P. E. (2016). The moral reasoning abilities of men and women with intellectual disabilities who have a history of criminal offending

doi:10.1111/lcrp.12051


Mullen, P. (2001). *A Review of the Relationship Between Mental Disorders and Offending Behaviours and on the Management of Mentally Anormal Offenders in*


*Advances in Mental Health and Intellectual Disabilities, 5*(6), 32-36. doi:10.1108/20441281111187171


*General Hospital Psychiatry, 23*(5), 285-293. doi:10.1016/s0163-8343(01)00155-4


Robertson, C. E. (2013). *The Operation of the Mental Impairment Defence in South Australia: Submission from the Australian Psychological Society's College of Forensic Psychology (SA Section)*. Retrieved from Report prepared on behalf of the Australian Psychological Society's College of Forensic Psychology for submission to the Sentencing Advisory Council:

doi:10.1371/journal.pone.0036078


doi:10.1007/BF01541768


*R v Oznek* [2007] VSC 192.


*Veen v R [No.1] (1979) 143 CLR 458*


doi:10.1016/j.mehy.2013.05.032


Appendices
APPENDIX A
DSM-5 Diagnostic Criteria for Autism Spectrum Disorder

A. Persistent deficits in social communication and social interaction across multiple contexts, as manifested by the following, currently or by history (examples are illustrative, not exhaustive):
   1. Deficits in social-emotional reciprocity, ranging, for example, from abnormal social approach and failure of normal back-and-forth conversation; to reduced sharing of interests, emotions, or affect; to failure to initiate or respond to social interactions.
   2. Deficits in nonverbal communicative behaviors used for social interaction, ranging, for example, from poorly integrated verbal and nonverbal communication; to abnormalities in eye contact and body language or deficits in understanding and use of gestures; to a total lack of facial expressions and nonverbal communication.
   3. Deficits in developing, maintaining, and understanding relationships, ranging, for example, from difficulties adjusting behavior to suit various social contexts; to difficulties in sharing imaginative play or in making friends; to absence of interest in peers.

Specify current severity:

Severity is based on social communication impairments and restricted, repetitive patterns of behavior (see Table below).

B. Restricted, repetitive patterns of behavior, interests, or activities, as manifested by at least two of the following, currently or by history (examples are illustrative, not exhaustive):
   1. Stereotyped or repetitive motor movements, use of objects, or speech (e.g., simple motor stereotypies, lining up toys or flipping objects, echolalia, idiosyncratic phrases).
   2. Insistence on sameness, inflexible adherence to routines, or ritualized patterns of verbal or nonverbal behavior (e.g., extreme distress at small changes, difficulties with transitions, rigid thinking patterns, greeting rituals, need to take same route or eat same food every day).
   3. Highly restricted, fixated interests that are abnormal in intensity or focus (e.g., strong attachment to or preoccupation with unusual objects, excessively circumscribed or perseverative interests).
   4. Hyper- or hyporeactivity to sensory input or unusual interest in sensory aspects of the environment (e.g., apparent indifference to pain/temperature, adverse response to specific sounds or textures, excessive smelling or touching of objects, visual fascination with lights or movement).
Specify current severity:

Severity is based on social communication impairments and restricted, repetitive patterns of behavior (see Table below).

C. Symptoms must be present in the early developmental period (but may not become fully manifest until social demands exceed limited capacities, or may be masked by learned strategies in later life).

D. Symptoms cause clinically significant impairment in social, occupational, or other important areas of current functioning.

E. These disturbances are not better explained by intellectual disability (intellectual developmental disorder) or global developmental delay. Intellectual disability and autism spectrum disorder frequently co-occur; to make comorbid diagnoses of autism spectrum disorder and intellectual disability, social communication should be below that expected for general developmental level.

Note: Individuals with a well-established DSM-IV diagnosis of autistic disorder, Asperger’s disorder, or pervasive developmental disorder not otherwise specified should be given the diagnosis of autism spectrum disorder. Individuals who have marked deficits in social communication, but whose symptoms do not otherwise meet criteria for autism spectrum disorder, should be evaluated for social (pragmatic) communication disorder.

Specify if:

With or without accompanying intellectual impairment
With or without accompanying language impairment
Associated with a known medical or genetic condition or environmental factor
Associated with another neurodevelopmental, mental, or behavioral disorder
With catatonia
### DSM-5 Severity Levels for Autism Spectrum Disorder

<table>
<thead>
<tr>
<th>Severity Level</th>
<th>Social communication</th>
<th>Restricted, repetitive behaviours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 3 “Requiring very</td>
<td>Severe deficits in verbal and nonverbal social communication skills cause severe</td>
<td>Inflexibility of behaviour, extreme difficulty coping with change, or other restricted/repetitive</td>
</tr>
<tr>
<td>substantial support”</td>
<td>impairments in functioning, very limited initiation of social interactions, and</td>
<td>behaviours markedly interfere with functioning in all spheres. Great distress/difficulty changing</td>
</tr>
<tr>
<td></td>
<td>minimal response to social overtures from others. For example, a person with few</td>
<td>focus or action.</td>
</tr>
<tr>
<td></td>
<td>words of intelligible speech who rarely initiates interaction and, when he or she</td>
<td></td>
</tr>
<tr>
<td></td>
<td>does, makes unusual approaches to meet needs only and responds to only very direct</td>
<td></td>
</tr>
<tr>
<td></td>
<td>social approaches</td>
<td></td>
</tr>
<tr>
<td>Level 2 “Requiring</td>
<td>Marked deficits in verbal and nonverbal social communication skills; social</td>
<td>Inflexibility of behaviour, difficulty coping with change, or other restricted/repetitive behaviours</td>
</tr>
<tr>
<td>substantial support”</td>
<td>impairments apparent even with supports in place; limited initiation of social</td>
<td>appear frequently enough to be obvious to the casual observer and interfere with functioning in a</td>
</tr>
<tr>
<td></td>
<td>interactions; and reduced or abnormal responses to social overtures from others. For</td>
<td>variety of contexts. Distress and/or difficulty changing focus or action.</td>
</tr>
<tr>
<td></td>
<td>example, a person who speaks simple sentences, whose interaction is limited to narrow</td>
<td></td>
</tr>
<tr>
<td></td>
<td>special interests, and how has markedly odd nonverbal communication.</td>
<td></td>
</tr>
<tr>
<td>Level 1 “Requiring</td>
<td>Without supports in place, deficits in social communication cause noticeable</td>
<td>Inflexibility of behaviour causes significant interference with functioning in one or more contexts.</td>
</tr>
<tr>
<td>support”</td>
<td>impairments. Difficulty initiating social interactions, and clear examples of atypical</td>
<td>Difficulty switching between activities. Problems of organization and planning hamper independence.</td>
</tr>
<tr>
<td></td>
<td>or unsuccessful response to social overtures of others. May appear to have decreased</td>
<td></td>
</tr>
<tr>
<td></td>
<td>interest in social interactions. For example, a person who is able to speak in full</td>
<td></td>
</tr>
<tr>
<td></td>
<td>sentences and engages in communication but whose to- and-fro conversation with others</td>
<td></td>
</tr>
<tr>
<td></td>
<td>fails, and whose attempts to make friends are odd and typically unsuccessful.</td>
<td></td>
</tr>
</tbody>
</table>

Taken from American Psychiatric Association (2013)
APPENDIX B

The Gillberg diagnostic criteria for Asperger’s syndrome (Gillberg, 1991)

1. Social impairment (extreme egocentricity) (at least two of the following):
   a. Difficulties interacting with peers
   b. Indifference to peer contacts
   c. Difficulties interpreting social cues
   d. Socially and emotionally inappropriate behaviour

2. Narrow interest (at least one of the following):
   a. Exclusion of other activities
   b. Repetitive adherence
   c. More rote than meaning

3. Compulsive need for introducing routines and interests (at least one of the following):
   a. Which affect the individual’s every aspect of everyday life
   b. Which affect others

4. Speech and language peculiarities (at least three of the following):
   a. Delayed speech development
   b. Superficially perfect expressive language
   c. Formal pedantic language
   d. Odd prosody, peculiar voice characteristics
   e. Impairment of comprehension including misinterpretations of literal/implied meanings

5. Non-verbal communication problems (at least one of the following):
   a. Limited use of gestures
   b. Clumsy/gauche body language
   c. Limited facial expression
   d. Inappropriate facial expression
   e. Peculiar, stiff gaze

6. Motor clumsiness:
   a. Poor performance in neurodevelopmental tests
APPENDIX C

List of Locations Contacted for Participant Recruitment

<table>
<thead>
<tr>
<th>Location</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A4.org.au</td>
<td>Autism Support</td>
</tr>
<tr>
<td>AASS Newsletter</td>
<td>Autism Tasmania</td>
</tr>
<tr>
<td>Aspect</td>
<td>Autism Victoria</td>
</tr>
<tr>
<td>Asperger Services Australia</td>
<td>Autism Western Australia</td>
</tr>
<tr>
<td>ASSN</td>
<td>Autistic Association (Singapore)</td>
</tr>
<tr>
<td>Autism After 21</td>
<td>Autistic Citizens Residential &amp; Resources Society of Victoria</td>
</tr>
<tr>
<td>Autism Asperger ACT</td>
<td></td>
</tr>
<tr>
<td>Autism Awareness</td>
<td>Canadian National Autism Foundation</td>
</tr>
<tr>
<td>Autism Cymru</td>
<td>Deakin University Research Participation Webpage</td>
</tr>
<tr>
<td>Autism Northern Ireland</td>
<td></td>
</tr>
<tr>
<td>Autism Northwest Territories</td>
<td>Institute for Child Health Research</td>
</tr>
<tr>
<td>Autism NZ</td>
<td>International Autism Foundation Canada</td>
</tr>
<tr>
<td>Autism Online</td>
<td>International Society for Autism Research</td>
</tr>
<tr>
<td>Autism Queensland</td>
<td></td>
</tr>
<tr>
<td>Autism SA</td>
<td>Irish Autism Action</td>
</tr>
<tr>
<td>Autism Science Foundation</td>
<td>Irish Progressive Association for Autism</td>
</tr>
<tr>
<td>Autism Society America</td>
<td>Irish Society for Autism</td>
</tr>
<tr>
<td>Autism Society Canada</td>
<td>National Autistic Society UK</td>
</tr>
<tr>
<td>Autism Society Manitoba</td>
<td>OASIS</td>
</tr>
<tr>
<td>Autism Society of British Columbia</td>
<td>Research Autism</td>
</tr>
<tr>
<td>Autism Society Ontario</td>
<td>Scottish Society for Autism</td>
</tr>
<tr>
<td>Autism Source</td>
<td>Social Media (Facebook and Reddit)</td>
</tr>
<tr>
<td>Autism South Africa</td>
<td>World Autism Organisation</td>
</tr>
</tbody>
</table>
APPENDIX D

Levenson Self-Report Psychopathy Scale (LSRP; Levinson, 1995)

Please answer the following questions using the scale below:

1= Disagree strongly  
2= Disagree somewhat  
3= Agree somewhat  
4= Agree strongly

Primary Psychopathy

____ 1. Success is based on survival of the fittest; I am not concerned about the losers.
____ 2. For me, what’s right is whatever I can get away with.
____ 3. In today’s world, I feel justified in doing anything I can get away with to succeed.
____ 4. My main purpose in life is getting as many goodies as I can.
____ 5. Making a lot of money is my most important goal.
____ 6. I let others worry about higher values; my main concern is with the bottom line.
____ 7. People who are stupid enough to get ripped off usually deserve it.
____ 8. Looking out for myself is my top priority.
____ 9. I tell other people what they want to hear so that they will do what I want them to do.
____ 10. I would be upset if my success came at someone else’s expense. RS
____ 11. I often admire a really clever scam.
____ 12. I make a point of trying not to hurt others in pursuit of my goals. RS
____ 13. I enjoy manipulating other people’s feelings.
____ 14. I feel bad if my words or actions cause someone to feel emotional pain. RS
____ 15. Even if I were trying very hard to sell something, I wouldn’t lie about it. RS
____ 16. Cheating is not justified because it is unfair to others. RS
Secondary Psychopathy

_____ 1. I find myself in the same kinds of trouble, time after time.
_____ 2. I am often bored.
_____ 3. I find that I am able to pursue one goal for a long time. **RS**
_____ 4. I don’t plan anything very far in advance.
_____ 5. I quickly lose interest in tasks I start.
_____ 6. Most of my problems are due to the fact that other people just don’t understand me.
_____ 7. Before I do anything, I carefully consider the possible consequences. **RS**
_____ 8. I have been in a lot of shouting matches with other people.
_____ 9. When I get frustrated, I often “let off steam” by blowing my top.
_____ 10. Love is overrated.

**RS** denotes reverse score items
APPENDIX E


Please remember, all of your responses on this survey are anonymous. This means that no one will be able identify your individual responses or that you participated in this project. In this section, there will be descriptions of some things that people do. For each one, please indicate if you have done any of these things in the last 12 months. Just give your best guess or estimate.

Part One

In the last 12 months have you... (forced choice; yes/no)

1. ...carried a hidden weapon?
2. ...caused trouble in a public place so that people complained about it?
   This includes being loud and disorderly
3. ...purposely damaged or destroyed property that did not belong to you?
   Like breaking, cutting, or marking up something?
4. ...purposely set fire to a house, building, car, or vacant lot?
5. ...entered or broken into a building to steal something?
6. ...stolen something from a store?
7. ...stolen something from any member of your household?
8. ...stolen something from your place of work or your employer?
9. ...snatched someone’s purse or wallet or picked someone’s pocket?
10. ...stolen something from a car?
11. ...knowingly bought or sold stole goods
12. ...stolen a car or motorcycle or any other vehicle to keep or sell?
13. ...used checks illegally to pay for something
14. ...used credit or bank cards without the owner’s permission
15. ...sold marijuana or pot?
16. ...sold cocaine or crack?
17. ...sold heroin?
18. ...hit someone you live with, with the idea of hurting them?
19. ...hit someone you DID NOT live with, with the idea of hurting them?
20. ...attacked someone with a weapon?
21. …used a weapon or physical force to get money or things from people?

22. ...thrown objects like rocks or bottles at people - other than what you have already told me about?

23. ...chased someone to scare or hurt them?

24. …shot someone with a gun?

25. …shot at someone with a gun?

26. ...been in a gang fight in which someone was hurt or threatened with harm?

27. …threatened to physically hurt someone - other than what you have already told me about?

28. …had or TRIED to have sexual relations with someone against their will?

29. ...been paid by someone for having sexual relations with them?

30. ...been given a ticket for a driving offense?

31. …driven a motor vehicle when you did not have a driver’s license or after your driver’s license had been suspended?

For each item where the response is in the affirmative, participants were directed to the following questions:

You have indicated that you have [relevant item] in the past year...

How many times have you done this in the PAST 12 MONTHS?

How old were you the FIRST time you did this?

When was the LAST time you did this?

Thinking of this LAST time you did this.

Were you alone or with others?

Did the police talk to you about this?

For items 18, 19 and 20, participants responding in the affirmative were also asked the following (multiple choice) questions:

Who did you hit/attack?

Sibling

Mother

Father
Friend
Partner
Partner’s child
Roommate
Neighbour
Acquaintance
Stranger
Other

Was anyone you hit hurt seriously enough to see a doctor?

For item 21, participants responding in the affirmative were also asked:
Where did this happen?

School
Playground
Street
Business
Bar
Car
Other (please specify)

For item 28, participants responding in the affirmative were also asked:
Did you know this person?
Was the person the opposite or same sex?
Did you physically harm or threaten to hurt this person to get them to have sex with you?

Part Two.
I would now like you to think about any time that you have had contact with the police. As a result of contact with the police, have any of the following things happened?

Forced Choice (yes/no)
Were you warned and released?
Were you held in jail for some time?
Were you sent to a treatment program?
Were you referred for counselling?
Have you gone to court for something you have done?
Have you been on probation?
Have you been fined money?
Have you had to make restitution or pay someone back?
Have you had to do community service?
Have you been sent to live in a secure hospital or correctional facility?
Have you been arrested or charge with an offense?

String Variable
How many times have you ever been arrested or charged with an offence?
APPENDIX F


Division A - Crimes against the person

A10 *Homicide and related offences*
A11 Murder
A12 Attempted murder
A13 Accessory or conspiracy to murder
A14 Manslaughter
A15 Driving causing death

A20 *Assault and related offences*
A21 Serious assault
A22 Assault police, emergency services or other authorised officer
A23 Common assault

A30 *Sexual offences*
A31 Rape
A32 Indecent assault
A33 Incest
A34 Sexual offences against children
A39 Other sexual offences

A40 *Abduction and related offences*
A41 Abduction
A42 False imprisonment
A43 Slavery and sexual servitude offences

A50 *Robbery*
A51 Aggravated robbery
A52 Non-Aggravated robbery

A60 *Blackmail and extortion*
A61 Blackmail
A62 Extortion

A70 *Stalking, harassment and threatening behaviour*
A71 Stalking
A72 Harassment & private nuisance
A73 Threatening behaviour

A80 *Dangerous and negligent acts endangering people*
A81 Dangerous driving
A82 Neglect or ill treatment of people
A83 Throw or discharge object endangering people
A89 Other dangerous or negligent acts endangering people
### Division B - Property and deception offences

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>B10</td>
<td>Arson</td>
</tr>
<tr>
<td>B11</td>
<td>Cause damage by fire</td>
</tr>
<tr>
<td>B12</td>
<td>Cause a bushfire</td>
</tr>
<tr>
<td>B19</td>
<td>Other fire related offences</td>
</tr>
<tr>
<td>B20</td>
<td>Property damage</td>
</tr>
<tr>
<td>B21</td>
<td>Criminal damage</td>
</tr>
<tr>
<td>B22</td>
<td>Graffiti</td>
</tr>
<tr>
<td>B29</td>
<td>Other property damage offences</td>
</tr>
<tr>
<td>B30</td>
<td>Burglary/Break and enter</td>
</tr>
<tr>
<td>B31</td>
<td>Aggravated burglary</td>
</tr>
<tr>
<td>B32</td>
<td>Non-aggravated burglary</td>
</tr>
<tr>
<td>B40</td>
<td>Theft</td>
</tr>
<tr>
<td>B41</td>
<td>Motor vehicle theft</td>
</tr>
<tr>
<td>B42</td>
<td>Steal from a motor vehicle</td>
</tr>
<tr>
<td>B43</td>
<td>Steal from a retail store</td>
</tr>
<tr>
<td>B44</td>
<td>Theft of a bicycle</td>
</tr>
<tr>
<td>B45</td>
<td>Receiving or handling stolen goods</td>
</tr>
<tr>
<td>B46</td>
<td>Fare evasion</td>
</tr>
<tr>
<td>B49</td>
<td>Other theft</td>
</tr>
<tr>
<td>B50</td>
<td>Deception</td>
</tr>
<tr>
<td>B51</td>
<td>Forgery and counterfeiting</td>
</tr>
<tr>
<td>B52</td>
<td>Possess equipment to make false instrument</td>
</tr>
<tr>
<td>B53</td>
<td>Obtain benefit by deception</td>
</tr>
<tr>
<td>B54</td>
<td>State false information</td>
</tr>
<tr>
<td>B55</td>
<td>Deceptive business practices</td>
</tr>
<tr>
<td>B56</td>
<td>Professional malpractice and misrepresentation</td>
</tr>
<tr>
<td>B59</td>
<td>Other deception offences</td>
</tr>
<tr>
<td>B60</td>
<td>Bribery</td>
</tr>
<tr>
<td>B61</td>
<td>Bribery of officials</td>
</tr>
</tbody>
</table>

### Division C - Drug offences

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C10</td>
<td>Drug dealing and trafficking</td>
</tr>
<tr>
<td>C11</td>
<td>Drug dealing</td>
</tr>
<tr>
<td>C12</td>
<td>Drug trafficking</td>
</tr>
<tr>
<td>C20</td>
<td>Cultivate or manufacture drugs</td>
</tr>
<tr>
<td>C21</td>
<td>Cultivate drugs</td>
</tr>
<tr>
<td>C22</td>
<td>Manufacture drugs</td>
</tr>
<tr>
<td>C23</td>
<td>Possess drug manufacturing equipment or precursor</td>
</tr>
</tbody>
</table>
C30 Drug use and possession
  C31 Drug use
  C32 Drug possession
C90 Other drug offences
  C99 Other drug offences

Division D - Public order and security offences

D10 Weapons and explosives offences
  D11 Firearms offences
  D12 Prohibited and controlled weapons offences
  D13 Explosives offences
D20 Disorderly and offensive conduct
  D21 Riot and affray
  D22 Drunk and disorderly in public
  D23 Offensive conduct
  D24 Offensive language
  D25 Criminal intent
  D26 Disorderly conduct
D30 Public nuisance offences
  D31 Privacy offences
  D32 Hoaxes
  D33 Begging
  D34 Defamation and libel
  D35 Improper movement on public or private space
  D36 Other public nuisance offences
D40 Public security offences
  D41 Immigration offences
  D42 Sabotage
  D43 Hacking
  D44 Terrorism offences
  D49 Other public security offences

Division E - Justice procedures offences

E10 Justice procedures
  E11 Escape custody
  E12 Fail to appear
  E13 Resist or hinder officer
  E14 Pervert the course of justice or commit perjury
  E15 Prison regulation offences
E19 Other justice procedures offences
E20 Breaches of orders
   E21 Breach family violence order
   E22 Breach intervention order
   E23 Breach bail conditions
   E29 Breach of other orders

Division F - Other offences

F10 Regulatory driving offences
   F11 Drink driving
   F12 Drug driving
   F13 Speeding offences
   F14 Parking offences
   F15 Licensing offences
   F16 Registration and roadworthiness offences
   F19 Other regulatory driving offences

F20 Transport regulation offences
   F21 Public transport
   F22 Aviation regulations offences
   F23 Maritime regulations offences
   F24 Pedestrian offences
   F29 Other transport regulation offences

F30 Other government regulatory offences
   F31 Betting and gaming offences
   F32 Commercial regulation offences
   F33 Liquor & tobacco licensing offences
   F34 Pornography and censorship offences
   F35 Intellectual property
   F36 Prostitution offences
   F39 Other government regulatory offences

F90 Miscellaneous offences
   F91 Environmental offences
   F92 Public health and safety offences
   F93 Cruelty to animals
   F94 Dangerous substance offences
   F99 Other miscellaneous offences
APPENDIX G

Autism Spectrum Disorder and the Courts Lawyer Response \((n = 1)\).
AUTISM SPECTRUM DISORDER AND THE COURTS

Should you wish to participate in this research, please provide your responses in the space provided below. If you require more space for your responses, please attach additional pages.

1. What does the term Autism Spectrum Disorder mean to you?

That a person has difficulty with emotional communication and understanding social cues.

2. What difference do you see, if any, between Autism Spectrum Disorder and intellectual disability?

Plenty. ASD is in my understanding related to emotional intelligence rather than cognitive function.

3. Why do you think it could be important to understand Autism Spectrum Disorder to allow you to do your job effectively?

To give us insight into offending behaviour and relating to clients.

4. On a scale of 1 to 5 (with 5 being the most competent) how do you perceive your understanding of issues relating to criminal justice and individuals with ASD?

3

5. What training on Autism Spectrum Disorder have you received/would you like to receive?

None but would be welcomed.
6. How would you determine whether Autism Spectrum Disorder might be an important consideration for a particular client?

Specialist neuropsych report.

7. In your experience, are persons with Autism Spectrum Disorder more often victims of crimes or perpetrators of crimes?

Outside of my experience to say.

8. At what stage and for what purpose might you raise a diagnosis of Autism Spectrum Disorder in the context of a criminal trial?

Early on; to explore whether or not the person had an understanding of right/wrong. So, the relationship w/ legal culpability.

9. In your opinion, should individuals with an Autism Spectrum Disorder receive different treatment in the Criminal Justice System? Why/Why not?

Yes. The court must/should take into consideration a person’s needs to ensure the process is fair.

10. What role do you see for forensic psychologists in informing the court regarding Autism Spectrum Disorder?

Very important. Reports are crucial to the court’s understanding of the individual.

Thank you for your participation. Please return your completed survey via the included reply-paid envelope as soon as possible and by 30 May 2014. If you require further information concerning this project you can contact the researchers responsible at (caitlinr@deakin.edu.au) or (jane.mcgillivray@deakin.edu.au); or by phone on (03) 92446426.
APPENDIX H

Autism Spectrum Disorder and the Courts: Survey Distributed to Magistrates.
AUTISM SPECTRUM DISORDER AND THE COURTS

Should you wish to participate in this research, please provide your responses in the space provided below. If you require more space for your responses, please attach additional pages.

1. What does the term Autism Spectrum Disorder mean to you?

2. What difference do you see, if any, between Autism Spectrum Disorder and intellectual disability?

3. Why do you think it could be important to understand Autism Spectrum Disorder to allow you to do your job effectively?

4. On a scale of 1 to 5 (with 5 being the most competent) how do you perceive your understanding of issues relating to criminal justice and individuals with ASD?

5. What training have you received on dealing with people with Autism Spectrum Disorder?
6. What training on dealing with people with Autism Spectrum Disorder would you like to receive?

7. In your experience, are persons with Autism Spectrum Disorder more often victims of crimes, or perpetrators of crimes?

8. During sentencing, would a diagnosis of Autism Spectrum Disorder be an important consideration? Why/Why not?

9. In your opinion, should individuals with an Autism Spectrum Disorder receive different treatment in the Criminal Justice System? Why/Why not?

10. What role do you see for forensic psychologists in informing the court regarding Autism Spectrum Disorder?

Thankyou for your participation. Please return your completed survey via the included reply-paid envelope as soon as possible and by 30 May 2014. If you require further information concerning this project you can contact the researchers responsible at (caitlinr@deakin.edu.au) or (jane.mcgillivray@deakin.edu.au; or by phone on (03) 92446426).
APPENDIX I

Moral Foundations Questionnaire (MFQ; Graham, Haidt & Nosek, 2008).

Part 1.

When you decide whether something is right or wrong, to what extent are the following considerations relevant to your thinking? Please rate each statement using this scale:

[0] = not at all relevant (This consideration has nothing to do with my judgments of right and wrong)

[1] = not very relevant

[2] = slightly relevant

[3] = somewhat relevant

[4] = very relevant

[5] = extremely relevant (This is one of the most important factors when I judge right and wrong)

_____Whether or not someone suffered emotionally
_____Whether or not some people were treated differently than others
_____Whether or not someone’s action showed love for his or her country
_____Whether or not someone showed a lack of respect for authority
_____Whether or not someone violated standards of purity and decency
_____Whether or not someone was good at math
_____Whether or not someone cared for someone weak or vulnerable
_____Whether or not someone acted unfairly
_____Whether or not someone did something to betray his or her group
_____Whether or not someone conformed to the traditions of society
_____Whether or not someone did something disgusting
Whether or not someone was cruel
Whether or not someone was denied his or her rights
Whether or not someone showed a lack of loyalty
Whether or not an action caused chaos or disorder
Whether or not someone acted in a way that God would approve of

Part 2.

Please read the following sentences and indicate your agreement or disagreement:

<table>
<thead>
<tr>
<th>[0]</th>
<th>[1]</th>
<th>[2]</th>
<th>[3]</th>
<th>[4]</th>
<th>[5]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>Moderately disagree</td>
<td>Slightly disagree</td>
<td>Slightly agree</td>
<td>Moderately agree</td>
<td>Strongly agree</td>
</tr>
</tbody>
</table>

Compassion for those who are suffering is the most crucial virtue.
When the government makes laws, the number one principle should be ensuring that everyone is treated fairly.
I am proud of my country’s history.
Respect for authority is something all children need to learn.
People should not do things that are disgusting, even if no one is harmed.
It is better to do good than to do bad.
One of the worst things a person could do is hurt a defenseless animal.
Justice is the most important requirement for a society.
People should be loyal to their family members, even when they have done something wrong.
Men and women each have different roles to play in society.
I would call some acts wrong on the grounds that they are unnatural.
It can never be right to kill a human being.
I think it’s morally wrong that rich children inherit a lot of money while poor children inherit nothing.

It is more important to be a team player than to express oneself.

If I were a soldier and disagreed with my commanding officer’s orders, I would obey anyway because that is my duty.

Chastity is an important and valuable virtue.

For more information about Moral Foundations Theory and scoring this form, see: www.MoralFoundations.org
## APPENDIX J

Regression Statistics for Hierarchical Regression Analyses predicting Moral Foundation Endorsement from AQ Scores.

Table 1

*Summary of Hierarchical Regression Analysis Predicting Endorsement of the Care/Harm Moral Foundation.*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Stage 1</th>
<th></th>
<th></th>
<th>Stage 2</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>SE</td>
<td>β</td>
<td>B</td>
<td>SE B</td>
<td>β</td>
</tr>
<tr>
<td>LSRP Score</td>
<td>-.022</td>
<td>.004</td>
<td>-.406**</td>
<td>-.021</td>
<td>.004</td>
<td>-.390**</td>
</tr>
<tr>
<td>Gender</td>
<td>.317</td>
<td>.120</td>
<td>.198**</td>
<td>.265</td>
<td>.122</td>
<td>.165*</td>
</tr>
<tr>
<td>Nationality</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nth American/Canadian vs. Australian/NZ</td>
<td>.073</td>
<td>.138</td>
<td>.040</td>
<td>.128</td>
<td>.140</td>
<td>.071</td>
</tr>
<tr>
<td>British vs. Australian/NZ</td>
<td>-.288</td>
<td>.171</td>
<td>-.127</td>
<td>-.173</td>
<td>.180</td>
<td>-.076</td>
</tr>
<tr>
<td>European vs. Australian/NZ</td>
<td>.124</td>
<td>.199</td>
<td>.047</td>
<td>.153</td>
<td>.198</td>
<td>.058</td>
</tr>
<tr>
<td>Non-Western vs. Australian NZ</td>
<td>.296</td>
<td>.298</td>
<td>.074</td>
<td>.257</td>
<td>.296</td>
<td>.064</td>
</tr>
<tr>
<td>AQ Score</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-.004</td>
<td>.002</td>
<td>-.153</td>
</tr>
<tr>
<td>R²</td>
<td></td>
<td>.238</td>
<td></td>
<td>.257</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note: Nationality was represented as four dummy variables with Australian/New Zealanders serving as a reference group.

*p < .05; **p < .01.
Table 2

Summary of Hierarchical Regression Analysis Predicting Endorsement of the Fairness/Cheating Moral Foundation.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Stage 1</th>
<th>Stage 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>SE (HC)</td>
</tr>
<tr>
<td>LSRP Score</td>
<td>-.019</td>
<td>.005</td>
</tr>
<tr>
<td>Gender</td>
<td>-.064</td>
<td>.124</td>
</tr>
<tr>
<td>Nationality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nth American/Canadian vs. Australian/NZ</td>
<td>.123</td>
<td>.1451</td>
</tr>
<tr>
<td>British vs. Australian/NZ</td>
<td>.222</td>
<td>.160</td>
</tr>
<tr>
<td>European vs. Australian/NZ</td>
<td>.107</td>
<td>.272</td>
</tr>
<tr>
<td>Non-Western vs. Australian NZ</td>
<td>.692</td>
<td>.284</td>
</tr>
<tr>
<td>AQ Score</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>R²</td>
<td></td>
<td>.175</td>
</tr>
</tbody>
</table>

Note: Nationality was represented as four dummy variables with Australian/New Zealanders serving as a reference group.

*p < .05; **p < .01.
Table 3

Summary of Hierarchical Regression Analysis Predicting Endorsement of the Loyalty/Betrayal Moral Foundation.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Stage 1</th>
<th></th>
<th>Stage 2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>SE (HC)</td>
<td>β</td>
<td>B</td>
</tr>
<tr>
<td>LSRP Score</td>
<td>-.005</td>
<td>.006</td>
<td>-.079</td>
<td>-.002</td>
</tr>
<tr>
<td>Gender</td>
<td>-.096</td>
<td>.167</td>
<td>-.051</td>
<td>-.281</td>
</tr>
<tr>
<td>Nationality</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nth American/Canadian vs. Australian/NZ</td>
<td>-.159</td>
<td>.192</td>
<td>-.076</td>
<td>.036</td>
</tr>
<tr>
<td>British vs. Australian/NZ</td>
<td>-.427</td>
<td>.252</td>
<td>-.161</td>
<td>-.022</td>
</tr>
<tr>
<td>European vs. Australian/NZ</td>
<td>-.143</td>
<td>.224</td>
<td>-.046</td>
<td>-.040</td>
</tr>
<tr>
<td>Non-Western vs. Australian NZ</td>
<td>.539</td>
<td>.674</td>
<td>.115</td>
<td>.403</td>
</tr>
<tr>
<td>AQ Score</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-.015</td>
</tr>
<tr>
<td>R²</td>
<td></td>
<td>.052</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Nationality was represented as four dummy variables with Australian/New Zealanders serving as a reference group.

*p< .05; **p<.01.
Table 4

**Summary of Hierarchical Regression Analysis Predicting Endorsement of the Authority/Subversion Moral Foundation.**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Stage 1</th>
<th></th>
<th></th>
<th>Stage 2</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>SE (HC)</td>
<td>β</td>
<td>B</td>
<td>SE (HC)</td>
<td>β</td>
</tr>
<tr>
<td>LSRP Score</td>
<td>-.009</td>
<td>.007</td>
<td>-.119</td>
<td>-.007</td>
<td>.006</td>
<td>-.089</td>
</tr>
<tr>
<td>Gender</td>
<td>-.184</td>
<td>.157</td>
<td>-.083</td>
<td>-.314</td>
<td>.167</td>
<td>-.143</td>
</tr>
<tr>
<td>Nationality</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nth American/Canadian vs. NZ</td>
<td>-.644</td>
<td>.210</td>
<td>-.261**</td>
<td>-.506</td>
<td>.213</td>
<td>-.205*</td>
</tr>
<tr>
<td>British vs. NZ</td>
<td>-.505</td>
<td>.281</td>
<td>-.162</td>
<td>-.219</td>
<td>.303</td>
<td>-.070</td>
</tr>
<tr>
<td>European vs. NZ</td>
<td>-.431</td>
<td>.306</td>
<td>-.118</td>
<td>-.358</td>
<td>.286</td>
<td>-.098</td>
</tr>
<tr>
<td>Non-Western vs. NZ</td>
<td>.209</td>
<td>.720</td>
<td>.038</td>
<td>.112</td>
<td>.625</td>
<td>.020</td>
</tr>
<tr>
<td>AQ Score</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-.010</td>
<td>.004</td>
<td>-.277*</td>
</tr>
<tr>
<td>R²</td>
<td>.100</td>
<td></td>
<td></td>
<td>.162</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Nationality was represented as four dummy variables with Australian/New Zealanders serving as a reference group.

*p < .05; **p < .01.
Table 5

Summary of Hierarchical Regression Analysis Predicting Endorsement of the Sanctity/Degradation Moral Foundation.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Stage 1</th>
<th></th>
<th>Stage 2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>SE (HC)</td>
<td>B</td>
<td>SE (HC)</td>
</tr>
<tr>
<td>LSRP Score</td>
<td>-.014</td>
<td>.008</td>
<td>-.013</td>
<td>.008</td>
</tr>
<tr>
<td>Gender</td>
<td>.115</td>
<td>.180</td>
<td>.056</td>
<td>.189</td>
</tr>
<tr>
<td>Nationality</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nth American/Canadian vs. Australian/NZ</td>
<td>-.711</td>
<td>.2434</td>
<td>-.648</td>
<td>.254</td>
</tr>
<tr>
<td>British vs. Australian/NZ</td>
<td>-.245</td>
<td>.360</td>
<td>-.114</td>
<td>.404</td>
</tr>
<tr>
<td>European vs. Australian/NZ</td>
<td>-.616</td>
<td>.279</td>
<td>-.582</td>
<td>.272</td>
</tr>
<tr>
<td>Non-Western vs. Australian NZ</td>
<td>.043</td>
<td>.831</td>
<td>-.002</td>
<td>.804</td>
</tr>
<tr>
<td>AQ Score</td>
<td>-</td>
<td>-</td>
<td>-.005</td>
<td>.005</td>
</tr>
<tr>
<td>R^2</td>
<td></td>
<td></td>
<td>.110</td>
<td></td>
</tr>
</tbody>
</table>

Note: Nationality was represented as four dummy variables with Australian/New Zealanders serving as a reference group.

*p < .05; **p < .01.
APPENDIX K

Breusch-Pagan and Koenker Test Macro (Garcia-Granero, 2002).

*BREUSCH-PAGAN & KOENKER TEST MACRO*
*See 'Heteroscedasticity: Testing and correcting in SPSS'*
*by Gwilym Pryce, for technical details.*

* The MACRO needs 3 arguments:
  * the dependent, the number of predictors and the list of predictors
  * (if they are consecutive, the keyword TO can be used).

* (1) MACRO definition (select an run just ONCE).

DEFINE bpktest(!POSITIONAL !TOKENS(1) /!POSITIONAL !TOKENS(1) /!POSITIONAL !CMDEND).
* Regression to get the residuals and residual plots.
REGRESSION
/STATISTICS R ANOVA
/DEPENDENT !1
/METHOD=ENTER !3
/SCATTERPLOT=(ZRESID,ZPRED)
/RESIDUALS HIST(ZRESID) NORM(ZRESID)
/SAVE RESID(residual).
do if $casenum=1.
print /"Examine the scatter plot of the residuals to detect"
/"model misspecification and/or heteroscedasticity"
/"
/"Also, check the histogram and np plot of residuals "
/"to detect non normality of residuals "
/"Skewness and kurtosis more than twice their SE indicate non-normality ".
end if.
* Checking normality of residuals.
DESCRIPTIVES
VARIABLES=residual
/STATISTICS=KURTOSIS SKEWNESS .
* New dependent variable (g) creation.
COMPUTE sq_res=residual**2.
compute constant=1.
AGGREGATE
/OUTFILE='tempdata.sav'
/BREAK=constant
/rss = SUM(sq_res)
/N=N.
MATCH FILES /FILE=*
/FILE='tempdata.sav'.
EXECUTE.
if missing(rss) rss=lag(rss,1).
if missing(n) n=lag(n,1).
compute g=sq_res/(rss/n).
execute.
* BP&K tests.
* Regression of g on the predictors.
REGRESSION
/STATISTICS R ANOVA
/DEPENDENT g
/METHOD=ENTER !3
/SAVE RESID(resid) .
*Final report.
do if $casenum=1.
print */" BP&K TESTS" */" ==========".
end if.
* Routine adapted from Gwilym Pryce.
matrix.
compute p=!2.
get g /variables=g.
get resid /variables=resid.
compute sq_res2=resid&**2.
compute n=nrow(g).
compute rss=msum(sq_res2).
compute ii_1=make(n,n,1).
compute i=ident(n).
compute m0=i-((1/n)*ii_1).
compute tss=transpos(g)*m0*g.
compute regss=tss-rss.
print regss /
/format="f8.4"
/title="Regression SS".
print rss /
/format="f8.4"
/title="Residual SS".
print tss /
/format="f8.4"
/title="Total SS".
compute r_sq=1-(rss/tss).
print r_sq /
/format="f8.4"
/title="R-squared".
print n /
/format="f4.0"
/title="Sample size (N)".
print p /
/format="f4.0"
/title="Number of predictors (P)".
compute bp_test=0.5*regss.
print bp_test /
/format="f8.3"
/title="Breusch-Pagan test for Heteroscedasticity"
+ " (CHI-SQUARE df=P)".
compute sig=1-chicdf(bp_test,p).
print sig
/format="f8.4"
/title="Significance level of Chi-square df=P (H0:"
+ "homoscedasticity)".
compute k_test=n*r_sq.
print k_test
/format="f8.3"
/title="Koenker test for Heteroscedasticity"
+ " (CHI-SQUARE df=P)".
compute sig=1-chicdf(k_test,p).
print sig
/format="f8.4"
/title="Significance level of Chi-square df=P (H0:"
+ "homoscedasticity)"
end matrix.
!ENDDEFINE.

* (2) Sample data (replace by your own)*.

INPUT PROGRAM.
- VECTOR x(20).
- LOOP #I = 1 TO 50.
  - LOOP #J = 1 TO 20.
  - COMPUTE x(#J) = NORMAL(1).
- END LOOP.
- END CASE.
- END LOOP.
- END FILE.
END INPUT PROGRAM.
execute.

* x1 is the dependent and x2 TO x20 the predictors.

* (3) MACRO CALL (select and run).

COUNT WMTMiss = x1 TO x20 (missing).
TEMPORARY.
SELECT IF WMTMiss=0.
BPKTEST x1 19 x2 TO x19.
APPENDIX L

Heteroskedasticity Adjusted Standard Errors Macro (Hayes and Cai, 2007).

```
DEFINE hcreg (dv = !charend('/')) /iv = !charend('/') /test = !charend('/') /default (0)
/const = !charend('/') /default(1) /method = !charend('/') /default (3) /covmat = !charend('/') /default(0). PRESERVE. set length = none. SET MXLOOP = 100000000.

MATRIX. GET x/file = */variables = !dv !iv /names = dv/missing = omit. compute y=x(:,1).
compute iv5 = x. compute nrow = nrow(x). compute pr = ncol(x). compute tss = cssq(y).
compute con = make(n,1,1). compute x={con,x}. compute df2 = n-pr. compute L1 = make(1,pr,0). compute L = {L1;L}.
compute x(:,i) = (resid&/(1-h)&**(ex/2))&*x(:,i). end loop. do if (!method <> 5). compute mn = make(n,2,4). compute pr3 = n-pr. compute mn(:,2) = (n*h)/pr3. compute ex=rmin(mn).
compute x(:,i) = (resid&/(1-h)&**(ex/2))&*x(:,i). end loop. do if (!method <> 5). print !method/title = 'HC Method'/format F1.0. else if (!method = 5). print !method/title = 'OLS Regression Results Assuming Homoscedasticity'/clabels = "Coeff" "SE" "t" "P>|t|" /rnames = iv/format fl0.4. end if. print !method/title = "Variables in Set"/format A8. end if. END MATRIX. RESTORE. !END DEFINE.
```

```
HCREG dv = "variable_name"
/iv = "variable_name1" "variable_name2", etc.
/const = 1
/method = 3
/covmat = 1
/test = 1
```