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Detecting Serial Rape The Role of Offence Behaviours in Case Linkage

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**BOND
UNIVERSITY**

**Detecting Serial Rape
The Role of Offence Behaviours in Case Linkage**

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Submitted in total fulfillment of the requirements of the degree of
Doctor of Philosophy

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Faculty of Society and Design

Associate Professor Wayne Petherick
and Associate Professor Terry Goldsworthy

Abstract

Rape is an underreported and under-researched issue within Australia, causing serious harm to victims and society, with serial stranger rape presenting unique investigative challenges. Behavioural investigative tools and techniques such as case linkage have been developed to assist proactive policing in the early identification of serial offenders. Case linkage is based upon the principles of offender consistency and distinctiveness, which state that a serial offender will remain relatively consistent across his or her offences, yet distinct compared to other serial and non-serial offenders. However, the understanding of serial versus non-serial rapist behaviours generally and within Australia specifically is limited.

This thesis examined the behaviours of both serial and non-serial offenders across 250 stranger rapes extracted from Queensland Police Service databases. The purpose of this examination was threefold. First, to determine whether serial rapists engage in behaviours that are distinct to non-serial rapists. Second, to contribute to practical rape investigation by examining whether offence behaviours can be used to discriminate between serial and non-serial rape offences. Finally, to test case linkage theory by exploring whether serial rapists display offender consistency and distinctiveness.

Chi square analysed offence behaviours of both serial and non-serial rapists. Twenty-four significant variables were then included in a binary logistic regression to determine whether serial and non-serial offences could be distinguished. To examine case linkage theory and practice, all possible crime pairings were created, and cross-crime similarity was assessed using Jaccard's coefficient. Receiver Operating Characteristics (ROC) analysis was used to examine the ability to distinguish between linked and un-linked offence pairs.

Sixty-seven variables were found to be significantly different between serial and non-serial rape offences. Of those, 24 were included in the logistic regression, chosen based on phi values and previous research. Eight variables contributed significantly to the model, which correctly classified 87.8% of offences. Through an examination of cross-crime similarity coefficients between serial linked, non-serial unlinked, and serial unlinked offence pairs, serial linked offences were found to have the highest Jaccard's coefficient ($M = .46$, $SD = .14$). Two ROC analyses were run on serial-only offence pairs and all offenders' offence pairs, resulting in an AUC of .919 and .913, respectively. This indicates an excellent level of accurate discrimination between linked and unlinked cases based on Jaccard's coefficient.

These findings have both academic and practical implications. By supporting case linkage theory, this thesis contributes to the growing body of knowledge and evidence highlighting the usefulness of case linkage as an investigative tool. Furthermore, by identifying unique and predictive behaviours of serial rapists, these findings have positive implications for investigations. The early identification of serial rapists can contribute to jurisdictional collaboration and the minimisation of further victimisation.

Declaration

This thesis is submitted to Bond University in fulfilment of the requirements of the Doctor of Philosophy. This thesis represents my original work towards this doctorate and contains no material which has previously been submitted for a degree or diploma at this university or any other institution, except where due acknowledgement is made.

Disclaimer

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Ethics

The research associated with this thesis received ethics approval from the Bond University Human Research Ethics Committee. Ethics application number 15434.

No Copyright Declaration

No published manuscripts were included for publication within this thesis.

Serena Davidson

2020

Research Outputs and Publications

Peer-Reviewed Publications:

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Davidson, S. (2018, December). *Can crime scene behaviours differentiate between and predict serial versus non-serial rapists?* Presented at the Australia and New Zealand Society of Criminology Conference, Melbourne, Australia.

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Introduction

Although most rape occurs between acquaintances (Greenfeld, 1997), of particular concern is the phenomenon of stranger rape. Rates of stranger rape vary across countries, although on average, it is estimated that between 15 – 20% rapes are committed by strangers (Office for National Statistics, 2018; Planty, Langton, Krebs, Berzofsky, & Smiley-McDonald, 2016; Queensland Police Service, 2017; Rape Abuse & Incest National Network, 2019). Stranger rapes may involve a higher risk of weapon use and physical injury, culminating in a higher level of violence (Abrahams et al., 2014; Bownes, O’Gorman, & Sayers, 1991; Jones, Wynn, Kroeze, Dunnuck, & Rossman, 2006), thus posing more significant risks to victims and society. However, there is limited and mixed evidence on this point (Koss, Dinero, Seibel, & Cox, 1988; World Health Organization [WHO], 2013), and victims of all sexual assaults suffer greatly. Stranger rapes also present investigative challenges due to the lack of an identified suspect.

An additional subset of rapists is the serial rapist, who offends against multiple victims over an extended period. Although it is difficult to accurately determine the number of serial rapists in operation at any given time, self-report studies indicate the prevalence is higher than previously thought (Groth, Longo, & McFadin, 1982; Lisak & Miller, 2002; Weinrott & Saylor, 1991). Serial rapists are more likely to complete the act of rape than non-serial rapists and are most often strangers to their victims (Park, Schlesinger, Pinizzotto, & Davis, 2008). Even though serial rapists constitute a minority of sexual offenders, they result in higher costs to victims and society compared to non-serial rapists, highlighting the need to reduce the prevalence of serial rape.

Sexual violence draws a fascination within popular media and public opinion, especially in the portrayal of the serial stranger rapist. These portrayals reinforce the “real

rape” stereotype; the notion that only rapes by strangers wielding a weapon, threatening or using physical violence, and completing sexual intercourse are considered real rapes (Estrich, 1986). Dedicated television series such as *Law and Order: Special Victims Unit* and *Criminal Minds* specialise in the portrayal of the unique and disturbing personas of serial rapists and murderers. The dramatisation of the lone attacker who jumps out from dark alleys at night to grab victims may be the popular opinion held by media and the general public, but the reality is much less clear.

Research of rape has flourished in the past five decades. Researchers have examined the behaviours of rapists, including serial rapists, assessing both individual behaviours and underlying themes of behaviour. While numerous studies acknowledge and discuss differences between serial and non-serial rapists (Baltieri & Andrade, 2007; Dale, Davies & Wei, 1997; de Wet, Potgieter, & Labuschagne; 2010; Grubin, Kelly, & Brunson, 2001; LeBeau, 1987; Lovell et al., 2017; Marsh, 2018; Miller, 2014; Woodhams & Labuschagne, 2012a), a search resulted in only three studies that have explicitly and thoroughly explored differences between serial and non-serial rape offence behaviours (Corovic, Christianson, & Bergman, 2012; Park et al., 2008; Slater, Woodhams, & Hamilton-Giachritsis, 2014). The paucity of research in Australia is a concern as using case linkage in the investigation of serial rape is reliant on the un-validated assumption that serial rapists are consistent and distinct in their behaviours.

Another field that has developed substantially over the past few decades is that of investigations and policing, which continue to become more proactive. The investigation of sexual violence poses particular challenges for law enforcement. Rape is a highly underreported offence, with estimates ranging from 60-95% of offences going unreported (Domenech del Rio & Garcia del Valle, 2016; Holmes & Holmes, 2009; Maier, 2014), with

many cultural and social factors underpinning the victim's decisions to report. Furthermore, roughly 80% of incidents reported to the police do not result in criminal proceedings (Australian Institute of Criminology, 2007). As the more traditional forms of evidence, such as DNA and fingerprints, are often missing during a rape investigation, relying on behavioural elements can provide insight into the psychology of the offender and further aid in linking multiple offences to form a series. As the importance of criminal behaviour is acknowledged, traditional methods of investigation using hard evidence have been complemented by psychological and behavioural approaches. The development and advancement of rapist typologies have not only increased understanding of rapist personality and motivation but have also provided guidance and methodological support for investigations. Serial rape investigation should rely on all available physical and behavioural evidence, as well as an examination of situational elements. Because every offender has unique motivations and patterns of behaviour, investigators should understand the high-frequency behaviours common in rape and explore individual behaviours within the context of the offence.

Case linkage analysis is a fast-growing field in both academia and practice which uses behavioural evidence to link offences to form series to assist in the investigation and identification of serial offenders. Case linkage is based on the assumptions of behavioural consistency and distinctiveness. Together these theories state that a serial offender will behave relatively consistently across his or her offences, yet distinct compared to other offenders, enough so to be identifiable (Woodhams, Bull, & Hollin, 2007). Specialised databases have been created to assist in the case linkage process, such as the Canadian Violent Crime Linkage Analysis System (ViCLAS), the United States of America's Violent Criminal Apprehension Program (ViCAP), and Australia's Violent and Sexual Crimes Database

(VSCD). The past 15-20 years have seen case linkage research flourish, with support for linkage practice found across high-volume offences such as burglary and car theft and interpersonal offences such as sexual assault and homicide. Furthermore, behavioural linking methods have continued to develop and become more automated with the use of statistical prediction tools and analyses to identify potential links with minimal analyst involvement.

Rationale

The rationale for the current project is multifaceted. Although the research and understanding of rape behaviour have increased over the past 40 years, there is a dearth of research specific to the Australian context. Previous research on serial stranger rape behaviour has been conducted across different countries, and there have been similarities and differences across research projects. For example research in Canada (Beauregard & Leclerc, 2007) and South Africa (Woodhams & Labuschagne, 2012a) found that offenders were more likely to use a con to approach their victim, whereas it was found in the United States of America (USA) (Park et al., 2008) and Sweden (Corovic et al., 2012) that offenders generally used a surprise approach. Serial rapists in Sweden and the United Kingdom often force their victim to perform fellatio (Corovic et al, 2012; Slater et al., 2014), but in the USA this was more common among non-serial rapists (Park et al., 2008). There are other differences between serial and non-serial offender behaviours, which will be discussed in detail throughout this thesis. Therefore, any findings cannot be assumed to be generalisable to Australia. Relying on research from other countries to influence legislative and investigative decisions in Australia poses the risk of relying on results which do not translate to Australia, which can have negative consequences such as the inappropriate distribution of resources, missed information, wrong offender identification, or even miscarriages of

justice. Thus, it is crucial to examine and understand serial and non-serial rape within the Australian context. The current research compares the offence behaviours and characteristics of 250 serial and non-serial stranger rapists within Queensland, Australia to determine whether serial rapists behave distinctly.

Furthermore, the investigative challenges and reactive process of identifying serial rapists highlight a need for improvement. Although policing has become increasingly proactive, the identification and apprehension of serial rapists still rely on the occurrence of multiple offences in order to examine and compare offence behaviours and establish series. Early identification of potential serial offenders can increase the efficient allocation of resources and guide investigative collaboration between jurisdictions. Therefore, it is prudent to single out any behaviours or offence variables that can distinguish serial rapists and potentially lead to their earlier identification. Even though this thesis does not examine the early identification of serial rapists, this is the underlying motivation and ultimate goal of this project.

Lastly, although the foundational concepts of consistency and distinctiveness and the practice of case linkage have received increasing empirical attention and support globally, they have yet to be examined in Australia. The use of ROC analysis has become the gold standard for case linkage research (Bennell & Jones, 2005). The growing body of support for case linkage has identified previous methodological shortcomings within sexual assault case linkage research, such as the lack of ecological validity, the use of limited sample sizes, and the use of only serial offender samples to examine linkage (Bennell, Mugford, Ellingwood, & Woodhams, 2014; Tonkin & Woodhams, 2017; Woodhams, Bull, & Hollin, 2007). Ecological validity refers to the relationship between the manifestation of a phenomenon in the real world compared to experimental settings, or how well the experiment represents and

predicts the real world (Gouvier, Barker, & Musso, 2019). Recent work has begun to address the noted criticism and increase the ecological validity of the case linkage field (Slater, Woodhams, & Hamilton-Giachritsis, 2015; Tonkin & Woodhams, 2017; Woodhams et al., 2018). Following the best practices of previous research and addressing the noted methodological shortcomings, this project tests offender consistency and distinctiveness and examines case linkage practice within an Australian sample using ROC analysis with both serial and non-serial offences to increase ecological validity.

Thesis Overview

The literature review portion of this thesis consists of the first four chapters and provides a comprehensive overview of rape, including prevalence of rape, classification of rapists, rape behaviour, and investigation of rape. Chapter One presents an understanding of the global phenomenon of rape, beginning with an overview of normal sexual behaviour. The cultural elements and rape myths that contribute to the high rates of rape are then examined. Chapter One also provides the working definition of rape and other important concepts used within this thesis. The prevalence of rape, both globally and within Queensland, is then reviewed. Chapter One concludes with an examination of the characteristics of sexual assault offenders and victims and an overview of serial rape.

Chapter Two focuses on the various methods of categorising rapists. This chapter starts with an overview of the biological, psychological, and social theories of rape and discussing theories of serial offending, as these form the foundation upon which classification methods are formed. This chapter highlights the role of motivation then provides an explanation of the role of the victim and the importance of the person-situation interaction. Chapter Two then discusses the different ways of classifying rapists, beginning with the rapist typologies based upon the offender's psychological motivation. As the

Behavioural Specialist Unit of the Queensland Police Service uses the Groth typology as a basis for distinguishing offenders, conducting case linkage, and analysing behaviour, they are the main focus of this section. Chapter Two concludes with a description of the additional methods of categorising rapists.

As rape is a conscious decision to engage in a sexually violent act, Chapter Three analyses behaviour. The influence of personality psychology and Cognitive-Affective Personality Systems theory are reviewed first. This theory forms the foundation on which the assumptions of consistency and distinctiveness developed, so it is important to understand within the context of case linkage research. This chapter then discusses habitual and conscientious behaviour before describing the overlapping concepts between rape and addiction. These are all important topics because habitual and addictive behaviours, as well as conscientious deception, can alter and influence rape behaviour in a way that impacts investigations. Thus, the understanding of these behavioural mechanisms is useful for case linkage. Furthermore, case linkage is reliant on repetition of behaviours to connect offences. Chapter Three then introduces the foundational assumptions of case linkage: behavioural consistency and distinctiveness. The research and support for consistency and distinctiveness within rape is discussed. Finally, the third chapter describes the current understanding of rape behaviour, including an introduction to the distinction between serial and non-serial rapists.

After an understanding of the scope of rape, the classification of rapists, and the behaviours of rape, this thesis addresses the practical investigation of rape in Chapter Four. This chapter begins with a brief overview of the use of logic and the scientific method, followed by the importance and use of both physical and behavioural evidence. Modern rape investigations are then outlined, including the verifying of rape complaints. This

chapter then reviews criminal profiling and the development of modern profiling methods and behavioural investigations. As case linkage is an increasingly popular and empirically supported investigative tool, it is examined in depth within this chapter. This includes research on the reliability of case linkage databases (such as ViCLAS, ViCAP, and the VSCD), the role of experience and training, and the accuracy of case linkage. Chapter Four concludes with a discussion of the noted limitations of consistency, distinctiveness, and case linkage research.

This thesis then shifts to the current quantitative analysis of serial and non-serial rape within Queensland. The current research is an Australian first, as an examination of the distinctiveness of serial rape behaviour and the process of case linkage of rape has not yet been conducted in this country. This research analyses behaviours of both serial and non-serial rapists within Queensland, Australia, using Queensland Police Service files. There are three overarching questions this research aims to answer:

1. Do serial rapists (as a group) display behaviours that are distinct from non-serial rapists?
2. Can offence behaviours be used to discriminate between serial and non-serial rapists?
3. Are the principles of offender consistency and distinctiveness and the practice of case linkage supported within this sample of Australian rapists?

Chapter Five highlights the methodological approach of this project, beginning with an overview of the VSCD entry process and interrater reliability. This chapter then presents the data collection process for the sample of 250 offences used within this project, including the inclusion and exclusion criteria applied to collect the final data set. Following this, the data coding and variable analysis procedures for this research are detailed. This chapter

then details the chi-square, logistic regression, cross-crime similarity coefficient, and receiver operating characteristics (ROC) analyses used to examine the data. Finally, a discussion of expected results concludes Chapter Five.

Chapter Six then presents the results of the statistical analyses and mirrors the layout of Chapter Five. Chapter Six presents offender and victim demographic information, then discusses the frequencies of offence variables. This chapter then reviews the results of the statistical analyses. Chi-square and logistic regression analyses provide insight into the first and second research questions, while an analysis of similarity coefficients and ROC analysis explores the third research question.

Finally, the contextualisation and implications of these findings are discussed in Chapter Seven, placing this research project within the context of previous research and the current knowledge base. This chapter also highlights the limitations of this project. Chapter Seven concludes by presenting possible directions for future research, including the long-term goals of the author with regard to this research project.

A few caveats are in order before the commencement of this thesis. Throughout this thesis, the terms rape and sexual assault are generally used interchangeably, unless expressly noted. This is to avoid the over-reliance of the word rape and because these terms may be used interchangeably in the literature and the popular nomenclature. The author acknowledges that there are differences in the legal characteristics of rape and sexual assault, which are defined in Chapter One. Additionally, it is worth reiterating that the focus of this thesis is stranger rape, although acquaintance rape (or rape without distinguishing victim and offender relationship) may be discussed. Finally, because sexual assault offenders and rapists are mostly male with female victims, they are referred to as such in this thesis. Indeed, within the quantitative analysis, no female offenders were found, so the sample of

offenders is purely male. The decision to assign these genders to victims and offenders throughout this thesis is in no way an attempt to minimise the suffering of male victims or the harm perpetrated by female offenders.

Chapter 1 – Understanding Rape

Sexual violence against women and children, and in some instances men, in its many forms is prevalent across all societies. No society is free from rape (Dartnall & Jewkes, 2013, p. 11).

Introduction

Before any understanding of sexually deviant behaviours can be explored, indeed before any examination of deviance, the concept of normality must be addressed. The understanding and acceptance of normal sexual behaviour has changed with time and has been dictated by social and cultural norms. As such, this chapter begins by discussing the common elements of sex. It then examines culture and rape, including the elements of different cultures that result in rape-prone societies, including an emphasis on rape myths.

It is also important to acknowledge the changing vocabulary around sexual deviance and rape as the nature and understanding of this phenomenon has changed. Historically, *sexual deviation* and *sexual perversion* were common terms, with the first referring to a divergence from the norm and the second a wilful choice of wrongdoing (Aggrawal, 2009). However, sexual perversion has been recognised as judgemental and removed from the nomenclature, being replaced with sexual assault and rape. The acknowledgement of sexual violence has grown significantly and has reached a level of global agreement as to the definition. However, the definition of rape still varies between legal and policing jurisdictions. Thus, the definition of rape used within this thesis, as well as any other necessary definitions, are clarified.

This chapter then examines the global context of sexual violence against women, focusing on rape, including the prevalence of rape both worldwide and within Queensland, Australia, where this project's data were collected. This discussion includes factors that

influence prevalence rates of rape. It discusses recent research on rape across the globe and introduces stranger rape.

This chapter then provides an overview on the victims of sexual assault and the impact that rape has on victims and society and introduces rape offenders, including significant characteristics and basic offender types. Finally, as the focus of this thesis is serial stranger rape, this chapter concludes with a brief discussion of serial offenders, including the definition of serial offending, and prefaces the understanding of serial rapists in general as the research in this field continues to grow.

Elements of Sex

All human sexual drive contains biological, physiological, and psychosexual components. The biological component includes the underlying instinctual urge to engage in sex, whereas the physiological element includes the body's arousal and response to sexual stimuli (Hazelwood & Warren, 2009). Finally, the psychosexual factor incorporates the biological and physiological components with individual cognition and personality to produce unique sexual development and experience (Simon & Gagnon, 1998). Through the psychosocial process, an individual develops their preferences and fantasies around their sexual experiences. This development occurs through learning and the formation of sexual scripts, which assign erotic abilities and content to one's self, others, and situations (Simon & Gagnon, 1998). Sexual scripts are dictated by established cultural norms about the appropriate expression of sexuality and sexual behaviour, which are learned through social interactions and can evolve during a lifetime (Morrison et al., 2015). As dictated by modern Western culture, male sexual scripts mandate that males desire sex, are responsible for instigating sex and should show sexual prowess, whereas female sexual scripts are more indirect and reactive, highlighting the importance of emotional ties and commitment, and

pushing strategies to avoid intercourse (Murray, 2017). However, as attitudes towards sex progress, it has been acknowledged that sexual scripts are more complex and heterogeneous than previously assumed, with males showing trends of interpersonal and intimate scripting and fantasy (Morrison et al., 2015).

Sexual behaviour contains the elements of fantasy, symbolism, ritualism, and compulsion, which all sexually active people engage in to some degree (Holmes & Holmes, 2009). Fantasies are necessary for sexual behaviour and vary in complexity and scope from person to person. There are also often noted gender differences in sexual fantasies, which begin to develop in childhood and adolescence. Male adolescent fantasy involves visual and auditory stimuli centred around actions leading to intercourse, whereas adolescent females report sexual arousal and fantasy related to romantic words and actions (Simon & Gagnon, 1998). As adolescents transition into adulthood, fantasies grow in complexity. Males report having more fantasies which are more active, showing themes of impersonal and exploratory sexual activities compared to the interpersonal fantasies of women (Wilson, 1988). Impersonal and exploratory fantasies include having sex with a stranger, sex with or watching multiple people, sex with animals, arousal by material or clothing, using sex objects, and watching pornography. For many individuals, however, fantasy often does not cross over into physical behaviour as the fantasy itself fulfils psychosexual needs (Hazelwood & Warren, 2009).

Symbolism is present in all sexual behaviour simply because sex is a visual as well as a physical act, and different visual and symbolic cues influence arousal and behaviour. Sexual symbolism refers to the broader, subjective, sexual meaning of different words, acts, or tangible objects (Haynes, 2013). Additionally, symbolism is seen through the preferences related to fetishisms and partialisms, as some people are sexually aroused by non-sexual

objects such as shoes and underwear (fetishism) and most are sexually aroused by particular body parts (partialism) (Holmes & Holmes, 2009). Fetishisms are more prevalent in males compared to females, although females may be more prone to partialisms (Holmes, 1997). Ritualism and compulsion are seen in the scripting of fantasies and the generally consistent order and method of sexual interactions. If sexual encounters do not fulfil the rituals and expectations of the parties involved, the behaviour may become more compulsive as the desire for satisfaction increases (Holmes, 1997).

In distinguishing normal and deviant sexual behaviour, the difference lies in the degree and nature of fantasy, symbolism, ritualism, and compulsion. For example, although normal sexual behaviour includes masturbation, deviant masturbation may be compulsive. Deviant and compulsive sexual behaviours are also seen through frequent use of pornography, frequent or constant seeking of new sexual partners, and engaging in unprotected sex (Weinstein, Katz, Eberhardt, Cohen, & Lejoyeux, 2015). Sexually normal behaviours are generally motivated by attraction, affection, and tenderness and result in the giving and receiving of pleasure, whereas sexually deviant behaviours may be motivated by discomfort or compulsion and result in the discharge of anxiety, hostility, or guilt (Paulauskas, 2015).

While the average sexual fantasy generally centres around consensual interactions, the deviant and criminal fantasies generally revolve around control and power, sometimes interlaced with dehumanising and torture elements (Holmes & Holmes, 2009). By examining all behavioural data within rape investigations and assessing the consistency and distinctiveness of behaviours, a greater understanding of the base rates and prevalence of deviant sexual behaviours can be achieved. This knowledge can contribute to case linkage efforts and the identification of potential serial rapists. Furthermore, an understanding of

those behaviours which may give insight into an offender's motivation and fantasy can not only help direct an investigation but can also influence prevention and treatment measures.

Culture and Rape

Culture plays an essential role in shaping individual beliefs, identity, attitudes and roles in society. The culture in which people are raised, whether societal, religious, or familial, dictates how individuals interact with the world and people around them. The cultural segregation of the sexes provides an important social context for sexual deviance. Through play and development, children learn the behaviours expected of their sex as well as how to interact with members of the other sex (Holmes & Holmes, 2009). This development influences adult interpersonal and sexual practices. Furthermore, cultural and social norms provide many cues for arousal as well as define sexually appropriate behaviour, masculinity and femininity, and consequences of sexual deviance (Sanday, 2003). There are no universal standards of normal sexual behaviour, as each culture and society shapes norms and beliefs.

The distinction between normative, deviant, and criminal sexual behaviours often falls to the cultural and social standards and acceptance and the statistical frequency of behaviours. Some African countries approve of homosexual paedophilic relationships while others punish homosexuality with the death penalty; some Islamic societies allow polygamy and marriage between adult men and pre-pubescent girls, yet condone homosexuality; while many Western cultures abhor any sexual contact between adults and children, but allow for homosexual and bisexual practices (Paulauskas, 2015). Although the attitudes around sexuality, gender, and normative sexual behaviour have shifted and become increasingly progressive, there is still a high degree of inequality between genders and the sexual double-standard is still present.

The prominent view of a sexual double standard indicates that men are allowed, and even encouraged, to be sexually permissive, whereas the same behaviour in women is not tolerated and can lead to damaged reputations (Kreager & Staff, 2009). Modern views on sex and sexuality are hedonistic, and the notions of chastity are believed to be outdated by many. In many parts of the world, societies have become more liberal in their views of and control over recreational sex, homosexuality, birth control, and abortion, and the normative approach to sexual behaviour is within the context of love and commitment. This shift can be seen through the changing laws around sexual relations during the 20th and 21st centuries. Homosexuality was removed from the Diagnostic and Statistical Manual of Mental Disorders, 3rd edition (DSM-III), indicating the changing norms around sexuality and sexual behaviour (Paulauskas, 2015). In many countries, sodomy (anal penetration) is no longer a crime if it occurs between consenting adults in the privacy of their home, and definitions around acceptable sexual behaviour and victimisation have changed to include non-heterosexuals, non-binary genders, and other previously marginalised persons (Hayes, Carpenter, & Dwyer, 2012).

Rape is a phenomenon that occurs globally. Although the perceptions of rape, sexuality, and women have changed considerably over the last few decades, many developed nations, such as the USA and Australia, are still considered to be rape-prone societies in which rape frequently occurs (Maier, 2014). A culture of rape condones, institutionalises, normalises, and encourages sexual violence, engages in victim-blaming, rationalises misogynistic and sexist practices, and has low rates of prosecution and conviction of sexual offenders (Messina-Dysert, 2015; Miller & Schwartz, 1995). Furthermore, a rape culture equates masculinity with power, control, and superiority; men are expected to be aggressive and viewed as predators concerning sex (Messina-Dysert,

2015). Patriarchal societies that favour or place higher importance on men, devalue and subjugate women, and accept wife-beating and male control of women, as well as violence in general, often have higher rates of sexual as well as physical violence against women (Guedes, Bott, Garcia-Moreno, & Colombini, 2016; Krahé, 2018; Sanday, 2003). Indeed, violence against women is both a result of and contributes to the inequality of power between men and women (Watts & Zimmerman, 2002).

Rape culture is created in part by a variety of rape myths; which are untrue, yet believed, statements about rape, rape offenders, and rape victims based on prejudice and stereotypes (Burt, 1980; Maier, 2014). The presence of rape myths serves to legitimise and excuse male sexual aggressors while placing the blame and responsibility on the victim (Holmes & Holmes, 2009). They also allow a separation between the victim and the rest of society, as people distance themselves from a victim and highlight their differences rather than admit to the risks of being a victim that are present for most (Burt, 1980; Maier, 2014).

Rape myths include attitudes towards sex, women, and masculinity that enable the justification of the act of rape: for example, rape is an uncontrollable lust, women 'ask for it', like to be overpowered or have rape fantasies, and women dress promiscuously because they want to be raped (Hegeman & Meikle, 1980). Other common rape myths include the belief that women cannot be raped against their will, when they say 'no' they actually mean 'yes,' and that the lack of physical resistance during a rape and not immediately reporting the offence are evidence that the sex was consensual (Burgess & Marchetti, 2009).

Additional rape myths include the belief that rape is less severe if the offender is known to the victim, that real victims of rape sustain injuries, that the world is just and bad things only happen to people who deserve it, and that sexual assault offenders are all mentally ill and unable to control their sexual urges (Maier, 2014).

Some rape myths are unique to specific groups, such as the myth that prostitutes or sexually liberal women cannot be raped because they are 'fair game' (Miller & Schwartz, 1995). Although most rape myths pertain to female victims, there are rape myths specific to male victims as well. These include the myths that men cannot be forced to have sex against their will, that both perpetrators and victims of male rape must be gay, that male rape will turn a victim gay, and that if a man experiences an erection or ejaculation during a rape, it indicates consent (King, 2014).

Perhaps the most pervasive rape myth is the belief that rape is a violent offence committed primarily by strangers (Holmes & Holmes, 2009). The media play a significant role in perpetuating this myth because the repetitive reporting of stranger rape results in the rates of sexual assault perceived as being higher than they are (Gormley & Petherick, 2015). This myth is further perpetuated within popular media by shows such as *Law and Order: Special Victim's Unit* and *Criminal Minds*, in which many dramatised rape offences conform to several rape myths. The growing prevalence and influence of social media further reinforce rape myths. The normalisation of violence against women through popular culture, advertisements, video games, and even the use of social media to post and re-post photos, videos, or live streams of sexual violence perpetuate rape myths and support rape culture (Messina-Dysert, 2015).

Rape myth acceptance is linked to the pervasive attitudes of sex-role stereotyping and distrust of the other sex, with acceptance of interpersonal violence being the strongest predictor of rape myth acceptance (Burt, 1980). In general, males tend to accept rape myths more than females and have more negative opinions of rape victims (Maier, 2014). Adherence to rape myths allows for the normalisation of sexual aggression, and rape myth acceptance has been explicitly noted in college males and male clients of prostitutes (Lisak

& Miller, 2002; Miller & Schwartz, 1995; Monto & Hotaling, 2001). Men convicted of rape also support rape myths and may often claim a lack of control and overwhelming urge to offend as a means of minimising culpability, although there is no empirical evidence to support these claims (Holmes & Holmes, 2009; Messina-Dysert, 2015). Furthermore, sexual offenders who threatened or used physical force during rape are more likely to believe rape myths compared to offenders who are verbally coercive (Koss, Leonard, Beezley, & Oros, 1985). On the other hand, general and sexual self-assurance, more education, and higher levels of occupational status are associated with more liberal attitudes around sex and less acceptance of rape myths (Burt, 1980).

Despite many cultures struggle with high rates of rape, matrilineal cultures place greater importance on the protection and equality of women and have lower rates of rape (Amar & Burgess, 2009). One modern example of a rape-free society (a society in which rape is rare or absent) is the Minangkabau society of West Sumatra, studied by Sanday (2003). This society is matrilineal; land passes from mother to daughter, women choose husbands for their daughters, and husbands move in with their wives after marriage, all for the equality and protection of women and children (Sanday, 2003). The most important bond within the Minangkabau is that between a mother and child, and nurturing the vulnerable members of society, such as women and children, is a priority. Furthermore, the cultural norms of the Minangkabau are exemplified from nature, such that nurturing is the natural law that will result in the flowering and growth of people and emotions (Sanday, 2003). The Minangkabau society has low levels of machismo, low rates of interpersonal violence, and practically no instances of rape. The conscious decisions to admonish aggression and violence while emphasising nurturing and respectful relationships, paired with the almost

non-existence of rape, shows how much influence social and cultural norms and practices can have on interpersonal relationships.

Many cultural factors shape the prevalence and acceptance of rape. Although there have been societal advances that have increased protections and support for women, encouraged reporting, and reduced rape myth acceptance, rape is still a prevalent issue, and there is still much to be done. The advice of Burt (1980) still holds today.

Rape is the logical and psychological extension of a dominant-submissive, competitive, sex role stereotyped culture...Only by promoting the idea of sex as a mutually undertaken, free chosen, full conscious interaction, in contradistinction to the too often held view that it is a battlefield in which each side tries to exploit the other while avoiding exploitation in turn, can society create an atmosphere free of the threat of rape (p. 229).

In comparing the target selection patterns of rapists in Canada and Portugal, Beauregard, Rebocho, and Rossmo (2010) highlight the importance of cultural and environmental factors. Portuguese society has stronger bonds with their neighbours, knowing their daily habits, and takes a more active role in the security of their communities compared to their Canadian counterparts (Beauregard et al., 2010). Furthermore, the layout of the cities is different, with major Canadian cities built on a grid layout, providing easier access to and escape from potential crime sites as compared to the winding and organic street layouts of Portugal. These cultural and environmental differences were seen through the rapist behaviours, such that Canadian rapists were more likely to be opportunistic, targeting victims either in their own home or at social events, whereas Portuguese rapists engaged in more premeditated attacks in specifically chosen locations (Beauregard et al., 2010). The active community involvement and organic street layout of Portugal are not

conducive to an opportunistic and impulsive offender, so it is logical that rapists in Portugal would act according to the environmental and cultural standards. Other cultural differences can be seen in target selection methods. Canadian (Beauregard & Leclerc, 2007) and South African (Woodhams & Labuschagne, 2012a) rapists frequently use a con style to approach their victims, whereas American (Park et al., 2008) and Swedish (Corovic et al., 2012) rapists generally use a surprise approach.

Another way in which different cultural factors can impact rape can be seen through the use of weapons in sexual offending, although sexual offenders use weapons less than other violent offenders (La Fond, 2005). The different cultures and laws around gun use in the United States of America (USA) and Australia contribute to different rates of weapon used during a rape. A weapon was used in about 11% of all sexual violence in the USA, with a firearm used in half of the offences which included a weapon (La Fond, 2005; Planty et al., 2016). The use of a firearm was more common among stranger offenders, who incorporated firearms in about 10% of offences (La Fond, 2005). These rates are higher than in Australia, where weapon use was seen in 7.6% of offences, and the weapon of choice was a knife in 55.9% of those offences, compared to a firearm in 14.7% of offences (Moran, 1993). Firearm ownership and use in the USA is much higher than Australia (Karp, 2018), so it would be expected that this cultural trend would be mirrored in sexual offending.

The differences across countries in culture, religion, norms and laws directly impacts the behaviours of rapists. As most countries have a unique blend of culture, laws, norms, and religions, any research on rape cannot be assumed to be generalisable to other countries. Relying on research findings outside of Australia to influence legislative and investigative decisions in Australia poses the risk of relying on results which do not translate to Australia. This can have negative consequences, such as the inappropriate distribution of

resources, missed information, wrong offender identification, or even miscarriages of justice. Thus, it is crucial to examine and understand serial and non-serial rape within the unique culture of Australia.

Defining Rape

Defining rape and sexual offending is a difficult task, mainly due to the varying legal classifications around the world, as well as the complex nature of sexual offending. Because of the wide variety in the types of sexual acts, types of victims targeted, and types of relationships between victim and offender, the definitions and descriptions of sexual offending need to include enough diversity to account for the various potential combinations (Durrant, 2013). As a baseline, the World Health Organization (WHO) defines sexual violence as:

Any sexual act, attempt to obtain a sexual act, unwanted sexual comments or advances, or acts to traffic, or otherwise directed, against a person's sexuality using coercion, by any person regardless of their relationship to the victim, in any setting, including but not limited to home and work (Krug, Dahlberg, Mercy, Zwi, & Lozano, 2002, p. 167).

As this definition shows, sexual violence and subsequently assault can range from non-contact offences and sexual harassment to contact offences that do not include penetration to full penetration offences such as rape and incest (Holmes & Holmes, 2009). Furthermore, sexual assault can include verbal threats of sexual violence without acting on the threats (Planty et al., 2016). Building on the WHO's definition, there are definitions for multiple sub-types of sexual violence and offending based upon behaviours, victims, and offenders involved, and the jurisdiction in which the offence occurs. Because this research

uses data on completed stranger rapes, rape is the offence that will be defined and discussed.

Although the terms rape and sexual assault may be used interchangeably in popular discourse, and, indeed, are used interchangeably throughout this thesis, the legal and criminal distinction between the two needs to be made clear. In the most basic terms, *rape* (sometimes known as *aggravated sexual assault*) is often used to describe a sexual assault in which penetration of a bodily orifice (oral, vaginal, or anal) has occurred, whereas *sexual assault* (sometimes referred to as *indecent assault*) refers to any unwanted sexual contact, not necessarily at the level of penetration. Sexual assault can include groping and grabbing breasts and buttocks or rubbing or pressing genitals against a victim, even through clothing (Maier, 2014). Sexual assault can also include non-contact offences such as flashing genitalia at a victim (exhibitionism), watching a victim in a private setting (voyeurism), taking photos of unknowing victims in private settings, or exposing victims to pornography. Different jurisdictions and countries will have their own terminology and an exact threshold for when a behaviour crosses from non-contact sexual assault to rape, but often penetration is necessary for the threshold of rape to be met.

One commonly agreed-upon feature of rape is that it is a crime of violence, where the weapon of choice is sex (Holmes & Holmes, 2009). Historically, a degree of force (physical force or threat of force), was necessary for an offence to be labelled as rape, although this is no longer the case in many countries as it is understood that sexual assault can occur due to psychological coercion (Planty et al., 2016). Currently, the primary determination as to whether an offence occurred is lack of consent. Presence or absence of consent can be the only distinction between normal sexual behaviour and the criminal offence of rape. However, there is no explicit agreement as to the definition of consent

through the literature or in practice. Furthermore, different relationships between victim and offender may have the effect of subjectively influencing an outsider's interpretation of consent (Burgess & Marchetti, 2009). Additionally, different cultures and jurisdictions may have different thresholds for and definitions of consent, mainly based on the local legal definitions of sexual assault.

Often, the definition of consent is assumed using a common-sense attitude of "I will know it when I see it." The variety in the literature as to the definition of consent includes arguments that consent can only be freely given, that consent should be ascertained based upon behaviours, that agreement in any form, even if coerced, is consent, and even that consent transforms an immoral act into a moral one (Beres, 2007). There is a clarification between attitudinal consent and expressive consent, which primarily has jurisdictional implications. Attitudinal consent is the subjective choice on the part of the victim, whereas expressive consent is the objective, often verbal, agreement (Westen, 2004). Assessing both attitudinal and expressive consent within a rape can provide insight into both victim and offender motives and be used to determine sentencing length based upon the level of harm. Westen (2016) further discusses prescriptive consent, in which a woman consents to intercourse with the appropriate freedom, knowledge, and motivation to do so. Consent can be influenced by coercion or motivation to avoid what the victim believes to be a worse alternative to rape. Thus, the determination of consent within sexual assault cases is not a clear-cut assessment of whether a victim agreed to the intercourse, but rather involves a thorough examination of the situational factors around the offence.

Establishing consent may be further complicated by the legal definition of rape, in situations in which the victim is a prostitute, or where the conditions under which consent was obtained no longer apply to the interaction. When legal definitions refer to females as

victims and males as offenders, it is assumed that consent is something that a woman gives to a man in a heterosexual situation and does not account for male consent or same-sex relationships (Beres, 2007). Fortunately, many legal definitions have been updated to reflect the variety of offenders and victims. Historically, women who worked in the sex industry were considered as always consenting to sexual activities and were thus legally unable to be raped (Miller & Schwartz, 1995; Sullivan, 2007). Not only did this increase the risks of rape for sex workers, even in countries in which prostitution was legal, but also provided a potential defence for men accused of rape, and undermined legitimate rape complaints. Improvements to rape laws and changing social attitudes around rape have resulted in prostitutes being recognised as an at-risk and vulnerable group capable of giving and withholding consent (Sullivan, 2007).

A recent topic of discussion is that of conditional consent, and the trend of 'stealthing,' in which a man removes a condom during sex without the woman's knowledge or consent. Stealthing and other deceitful acts break the boundaries of the initial consent and violate the rights of the victim, and cases of conditional consent violation have recently come to the attention of law enforcement and media (Clough, 2018). Determining conditional or mistaken consent within the context of sexual assault is difficult as it requires an understanding of the intentions of both parties as well as the capacity to which the victim understood to what they were consenting (Herring, 2005). However, much like force, intentional deceit, whether in the form of misleading or clouding another's judgement or in the form of the breaking conditions of the initial agreement, negates consent and should be considered within the scope of sexual assault. "Indeed, in one sense a deception can be regarded as worse than a threat in that the deception uses the victim's own decision-making

powers against herself: rendering her an instrument of harm against herself” (Herring, 2005, p. 515).

Age is often a contributing factor regarding consent. Although there is no universal age of consent, it generally ranges from 14 to 18 years old, although in Nigeria it is 11, in Bahrain and Portugal it is 21, and a number of countries in Asia and Africa require individuals to be married before they may legally engage in sexual intercourse (World Population Review, 2019). It is, however, generally agreed that if an individual is under the local jurisdiction’s age of consent, they are incapable of giving consent, regardless of whether the sexual act was entered into through agreement of both parties (Durrant, 2013). Thus, the act automatically meets the criteria for rape. Often the offender is charged with a lesser offence such as statutory rape or unlawful carnal knowledge. Other factors which influence consent include mental age or maturity and situational factors such as alcohol and drug use, such that individuals with reduced mental capacity are not able to give consent. For example, in Sweden the legal age of a child is under 15; however, if the offender is in a position of trust or power over that child, the legal age is raised to 18 (Langstrom, Babchishin, Fazel, Lichtenstein, & Frisell, 2015). In Queensland, the legal age of consent for a victim is 16. However, if the victim was at least 12 years old, there is a potential defence if the adult can prove they believed on reasonable grounds that the child was at least 16 years old (Queensland Government, 2015).

As the understanding of sexual assault as well as the advancement of human rights has grown and evolved, so too has the definition of rape. The traditional definition of rape as vaginal penetration by a penis by force without a woman’s consent is no longer valid in many countries. The narrow scope of this definition excludes male victims, female offenders, penetration of other orifices (oral and anal), and penetration with any object

except a penis (Maier, 2014). Because of these exclusions, there have been significant shifts to the definition of rape, including the removal of the requirement of force, as rape can occur without force or threat of force.

It should be noted that there are differences in definitions depending on the context, such that research definitions and legal definitions have unique elements to them. A prime example of this can be seen in the inclusion of *aggravating circumstances* within rape charges. In the USA, aggravating circumstances are present if the victim is pre-pubescent, there is a pre-existing power dynamic between victim and offender, the victim and offender are blood relatives, the rape occurs during the commission of another offence, or there is severe injury to the victim (Maier, 2014). Of course, aggravating circumstances change depending on the jurisdiction and country. From a research perspective, the chosen definition of rape depends on a variety of factors, such as the age of victims, the physical acts involved, and the relationship between victim and offender. As recent research has increased ecological validity, researchers often match their definitions with those definitions in use by judicial systems. However, research often poses limits to definitions and data sets by restricting data to solved offences, specific victim or offender categories, and more to allow for accurate data analysis. Regardless, the inclusion of legal definitions in research has allowed for greater crossover between academia and practice.

As this research uses Queensland Police Service (QPS) case files, the Queensland definition of rape is used. According to section 349 of the Criminal Code Act 1899 (Queensland Government, 2015):

A person rapes another person if the person has carnal knowledge with or of the other person without the other person's consent; or the person penetrates the vulva, vagina or anus of the other person to any extent with a thing or a part of the person's

body that is not a penis without the other person's consent; or the person penetrates the mouth of the other person to any extent with the person's penis without the other person's consent.

Queensland's definition of rape is comprehensive. It does not require a level of force or threat of force, and it allows for penetration of any bodily orifice not only of other body parts, such as digits or tongue, but also penetration by foreign objects. The language choice of *person* to describe a victim or offender allows for both male and female victims and offenders. The only penetrative sexual act that could occur that is not included as a form of rape under this definition is that in which an offender performs non-consensual fellatio on a male victim.

Another definition that must be addressed within this thesis is that of a stranger. The determination of when a relationship between two people evolves from strangers to acquaintances is subjective but must be defined within research and investigative contexts. Furthermore, the rise of the internet and social media has allowed for an expansion of identities and given individuals greater control over the projection of their personality (Zhao, Grasmuck, & Martin, 2008). For sexual offenders, online means allow for the projection of an idealised individual, regardless of how accurately this reflects their real personality.

Within the Queensland offence reporting, acquaintance rape has been defined as when the attacker was known to the victim before the attack, even if only for an hour (Moran, 1993). This definition is problematic because the first interaction between strangers can occur over more than an hour. Using this definition, they would no longer be classified as strangers after an hour, although they can still be considered strangers by more subjective measure. Furthermore, this definition allows for that interaction to occur over

the phone or internet. The Behavioural Specialist Unit (BSU) of the QPS defines acquaintance as whether the attacker and victim had at least one physical interaction at least a day before the offence (J. Keith, personal communication, March 28, 2016). Because of the increasing anonymity and the freedom to portray any persona via the internet, in-person interactions must be used to distinguish between acquaintances and strangers. The BSU's definition of a stranger is in line with that used in the United Kingdom (UK), where stranger offences:

Are those where the victims have no previous knowledge of the offender, had not knowingly met them before and would, therefore, be unable to name them or provide information about their identity. This would also include cases in which there had been a brief, or single, encounter within a short period, but only to such an extent that a victim might be able to identify the offender but would not describe him as an acquaintance (Criminal Justice Joint Inspection, 2012, p. 29).

As consistency of definitions across jurisdictions aids in the understanding and comparison of rape, the agreement in the definition of stranger between the UK and the BSU is encouraging. Incorporating this definition into additional jurisdictions around Australia and other countries will further increase the cohesion within the criminology field. As this research uses QPS files, the BSU definition of a stranger was adopted within this thesis.

Statistical Obstacles

Before exploring the rates of rape around the world, it is necessary to be aware that collecting and comparing statistics of rape is a complicated task. Many factors regulate the way that data are collected, analysed, and reported, and there are difficulties in comparing data across collection methods, between jurisdictions, and across countries. Although there

are a growing number of worldwide projects dedicated to researching, understanding, and preventing violence against women, statistics on sexual assault are gathered within each country by different organisations using different collection methods and based on different definitions of rape. For example, within the USA, statistics on sexual offences are collected through the Federal Bureau of Investigation (FBI) Uniform Crime Report (UCR), the Bureau of Justice Statistics National Crime Victimization Survey (NCVS), and the Center for Disease Control National Intimate Partner and Sexual Violence Survey. Within Australia, sexual offence data are gathered by the Australian Institute of Criminology (AIC) and the Australian Federal Police (AFP), as well as each state's police force, such as the QPS. Lack of representative samples, methodological differences, missing or imbalanced information, and cultural differences make the comparison of statistics across countries difficult (Winzer, Krahe, & Guest, 2017). Crime statistics can further be affected by statistical, legal, and substantive factors.

Statistical factors include whether and how crime data are collected at the time of reporting or later in the investigative process, data coding methods, how multiple crimes during a single offence are counted, and differences in thresholds and definitions of sexual offences (Von Hofer, 2000). Additionally, the threshold for classifying an offender as an acquaintance or stranger varies. Thus, there is likely an overlap in which offences categorised as between acquaintances by one reporting body are classified as between strangers by another, further complicating the comparison of results. Some police departments have classified rape as a lesser offence to present the image of a safer community or strengthen clearance rates (Maier, 2014). A similar trend has been noted in universities underreporting rates of rape to police departments and statistical collection agencies (Lisak & Miller, 2002).

Legal factors include those elements related to the judicial system. Various legal definitions of rape may or may not include marital rape, homosexual rape, male and female victims and perpetrators, and may have different ages of consent. The prosecution of rape may depend on whether or not the victim intends to pursue legal action and whether the legal system employs the principle of legality, in which all offences are prosecuted or expediency, in which offence classification is negotiable due to plea bargaining (Von Hofer, 2000).

Substantive factors relate to the culture in which the data are collected, such as whether there is a taboo or shame culture around sex (and, specifically, rape), the culture's relationship with the police force, and the confidence in the police and judicial systems. Additionally, the legal and social position of women in society influences rape statistics because a society with a higher value of women may have better protection of women, resulting in higher rates of reporting (Messina-Dysert, 2015). For example, in 1996, the number of registered rape offences in Sweden was about three times higher than the average across 35 European countries (Von Hofer, 2000). However, Sweden is a society that has a broad definition of rape, frequently collects data on rape, attempted rape, and planning and conspiring to rape, and has a culture which supports victim reporting (Von Hofer, 2000). All these factors combined to lead to a higher number of reported rapes in Sweden compared to the other European countries, not necessarily higher rates of rape.

Another issue with collecting evidence about sexual violence is that sexual violence is rarely assessed as a distinct category. Data on sexual violence is typically collected as an aggregate set with physical and emotional violence (Kuo, Mathews, & Abrahams, 2018). The bundling of data in this way makes it difficult to understand sexual violence fully.

Furthermore, the analysis of non-partner sexual violence generally includes sexual violence

by a family member, stranger, or acquaintance (Dartnall & Jewkes, 2013). Thus, finding the exact rates of stranger rape is challenging and generally the result of police reporting databases, specialised research practices, or the legal outcome of cases.

Perhaps the biggest challenge with collecting and analysing rates of rape is the issue of underreporting. Regardless of social standing, rape offences are one of the most underreported offences, with estimates ranging from 60-95% of offences going unreported (AIC, 2017; Domenech del Rio & Garcia del Valle, 2016; Holmes & Holmes, 2009; Maier, 2014). Some research has even shown a recent decline in the percentage of offences reported to the police (Planty et al., 2016). Reporting rates of vulnerable populations, such as prostitutes, are even lower as they face additional challenges of being believed or fear of arrest (Miller & Schwartz, 1995). Furthermore, reporting rates in institutions, such as the military, are thought to be even lower because of the internal structure of investigation and punishment compared to an independent jurisdictional system (Maier, 2014).

Some of the main reasons victims do not report being raped include knowing the offender, not wanting to get the offender in trouble, no obvious signs of physical injury, no additional proof or evidence of the offence aside from the victim's statement, disbelief in the police's ability to help, the offence not following a stereotypical rape, fear of retribution by the offender, fear of the court process, fear of psychological harm, and lack of encouragement and support regarding disclosing the offence (Burgess & Marchetti, 2009; Durrant, 2013; Holmes & Holmes, 2009; Maier, 2014; Planty et al., 2016). As rape is a unique offence in the amount of blame typically attributed to the victim and the view of rape as defiling, shame and stigma arise for victims of sexual assault, impacting their willingness to report (Dartnall & Jewkes, 2013). Due to the prevalence of rape myths, many victims do not identify as victims of rape, even if the encounter meets the jurisdiction's definition of rape.

Along with the issues of underreporting for women, male victims of rape may face additional challenges and stigma around reporting victimisation, and higher levels of fear of not being believed or being shamed, as rape has historically been thought of as exclusive to female victims (Amar & Burgess, 2009).

The interview process can influence a victim's willingness to report, especially regarding the word choice and framing of questions. Questions that relate more to specific behavioural elements of the offence, such as asking if a victim was forced into sex against her will, show higher rates of response compared to questions that use the highly subjective words of rape, abuse, and violation (Dartnall & Jewkes, 2013). Additionally, the growing availability of technology facilitates reporting as mobile reporting strategies can be used where traditional methods of interviewing are particularly challenging, such as in conflict-prone societies, and allow victims the opportunity to avoid face-to-face interviews (Dartnall & Jewkes, 2013; Kuo et al., 2018). These advances and the process of victim interviewing can help ensure the quality of information that is gathered, assisting in the collection of comparable data for research.

Although there are many obstacles to comparing rates of rape across jurisdictions and countries, it is still necessary to gain an overarching understanding of rape. By examining the prevalence of rape in different countries, along with the unique social and cultural backdrop, risk and protective factors can be identified. Furthermore, countries can learn from one another regarding elements that may work to combat sexual violence against women.

Prevalence of Sexual Violence

Violence against women is a global problem, with more than one in five women experiencing sexual violence within their lifetime (WHO, 2013). There is a growing body of

research on the rates of sexual violence against women around the world. The rates of sexual violence against women vary widely between and within countries. In Australia, approximately 20% of women have experienced sexual violence in their lifetime, with one in 17 experiences multiple incidences of sexual assault by different male perpetrators (VicHealth, 2017). A review of studies across Southeast Asia revealed lifetime prevalence of sexual victimisation (both intimate and non-intimate partner) ranging from 1.7% to 64.6% for women (Winzer et al., 2017), while a systematic review of sexual aggression research in Chile revealed similar lifetime prevalence rates: ranging from 1.0% to 51.9% (Shuster & Krahe, 2019). In Germany, the lifetime prevalence of sexual violence victimisation for women was 5.4% (Hellmann, Kinninger, & Kliem, 2018).

Recent research also differentiates between intimate partner sexual violence and non-partner sexual violence, which includes sexual violence by a family member, stranger, or acquaintance (Dartnall & Jewkes, 2013). The research on non-partner sexual violence is more limited and is often drawn from police records and rape crisis centres (Watts & Zimmerman, 2002). However, it has been estimated that the worldwide prevalence rate of women who have been exposed to non-partner sexual violence at some point in their life is 7.2 per cent (Abrahams et al., 2014; WHO, 2013).

The WHO (2013) found the highest lifetime prevalence rate (12.6%) of non-partner sexual violence in high income regions (including the USA, Canada, much of Western and Northern Europe, Japan, and Australasia), followed by the low and middle income regions of Africa (11.9%), the Americas (10.7%), the Western Pacific (6.8%), Europe (5.2%), and finally South-East Asia (4.9%). An additional global examination shows the rates of non-partner sexual violence ranging from 3.3% in South Asia to 21% in central sub-Saharan Africa (Abrahams et al., 2014). In Kenya, 19.1% of women aged 15-24 were sexually victimised by

intimate partners and 21.4% by non-intimate partners in the previous year, while in Zambia the rates were 22.8% and 16.9%, respectively (Mathur et al., 2018). In 2015 in Spain, for the first time, the Spanish Survey on Violence against Women included questions specifically on violence by a non-partner, finding a lifetime prevalence of non-partner sexual violence of 7.2% (Domenech del Rio & Garcia del Valle, 2016), which is in line with the 2014 worldwide study by Abrahams and colleagues. Furthermore, Domenech del Rio and Garcia del Valle (2016) found that 4.2% of the women in their sample reported a completed or attempted rape by a non-partner. Rates of completed rape are more difficult to collect as the majority of research on sexual violence includes any form of unwanted sexual contact (regardless of penetration). Australasia (reported as Australia and New Zealand), has an estimated non-partner sexual violence prevalence rate of 16.4 per cent, more than double the global average and second only to Sub-Saharan African samples (Abrahams et al., 2014).

The majority of rape offences are committed by perpetrators who are known to the victim, either as an acquaintance, friend, or family member (Greenfeld, 1997). However, stranger rape is still a problem. Estimates of the rates of stranger rape vary; in the USA it is estimated that between one in seven and one in five rapes occurs between strangers (Greenfeld, 1997; Moran, 1993; Planty et al., 2016; Rape Abuse & Incest National Network, 2019), in the UK, 13% of rape and attempted rape reports involved a stranger offender (Office for National Statistics, 2018), while in Australia about 20% of reported rapes occur between strangers (Queensland Police Service, 2017). Of those women who reported rape in Spain, 18.8% reported the perpetrator was a stranger, while 30% of attempted rapes and 50.5% of other sexual violence had a stranger as the offender (Domenech del Rio & Garcia del Valle, 2016). Across a few studies in Turkey, the rates of sexual victimisation by a stranger ranged from 56% for any form of sexual victimisation (compared to 42% by a

boyfriend, relative, or co-worker) to 0.3% of completed rapes (compared to 0.6% by a partner, relative, or friend) (Schuster & Krahe, 2017). In a systematic review of the prevalence of sexual violence in Chile, Schuster and Krahe (2019) found the percentage of sexual aggression by a stranger to range from 5.1% to 25.5% across their studies.

The prevalence rates of rape fluctuate over time and are tracked through government reporting databases. In the USA, the rate of completed rape and sexual assault declined from 3.6 per 1,000 in 1995 to 1.1 per 1,000 in 2010 (Planty et al., 2016). In the UK, the number of rapes recorded by the police increased by 26% from 2009 to 2012 (Criminal Justice Joint Inspection, 2012). Within Queensland, Australia, the rate of sexual offences reported to police declined steadily from 2007 to 2011, then increased from 2011 to 2017, although there was a decrease from 2015 to 2016 (Queensland Police Service, 2015, 2016, 2017). The differences in prevalence rates may be deceiving due to the abovementioned factors which affect statistical collection and contribute to low reporting levels. On the other hand, the broadening of definitions of rape across different countries results in the capture of offences not previously counted as rape, so can contribute to the increase in prevalence and reporting statistics. Therefore, any examination of crime rates needs to include an assessment of any recent and relevant definition changes as well as additional factors that could impact the prevalence and reporting rates.

There are several environmental and social risk factors for rape, including lower-density areas which have less surveillance, mixed residential, industrial, and commercial buildings, ethnic diversity, low-income areas, high population turnover, multiple-unit dwellings, and high unemployment (Kuo et al., 2018; Rossmo, 2009). Most sexual assaults within the USA occur within the victim's home or the home of a neighbour or relative (Greenfeld, 1997). Other risk factors for violence against women include economic

dependence on men, inadequate police and judicial practices, and lower rates of education for women (Ellsberg et al., 2015; Schuster & Krahe, 2017). In countries like India, which have a history of mistreatment of victims, police unwillingness to investigate allegations, and long delays in court proceedings, the risks and rates of rape are also high (Amar & Burgess, 2009; Kuo et al., 2018; Maier, 2014). Situational factors can also contribute to the risk of rape. A common theme among many rapes is the presence of alcohol and drugs, with victims and offenders frequently having consumed alcohol willingly prior to the assault, whether the offender intentionally provided the victim with drugs or alcohol or took advantage of a victim already under the influence (Horvath & Brown, 2007; Lalumière, Harris, Quinsey, & Rice, 2005; Maier, 2014; Orthmann & Hess, 2013).

Not only is rape one of the most underreported crimes, but it is also one of the most under-convicted crimes. Roughly 80% of incidents reported to the police do not result in criminal proceedings (Australian Institute of Criminology, 2007). Numerous reasons exist for the low sexual assault conviction rates, including the victim deciding not to pursue the matter further, settlement occurring outside a courtroom, and plea bargaining to reduce the charges to lesser offences. Another contributing factor is that reports of rape can be historical, more so than other offences, such that a victim may come forward years after the assault occurred. The delay in reporting presents challenges to investigation and prosecution of the offence. However, stranger rape is more likely to be reported to police compared to acquaintance rape (Planty et al., 2016). Of those reports that do result in an adjudicated defendant, 80% are proven guilty either through trial (19%) or guilty plea (61%), but only 55% of those proven guilty receive custodial sentences, either in correctional or community facilities (Phillips & Park, 2006). Using the conservative value of 30% of rapes reported to police, this means that only about 2.5% of rape offences result in custodial

sentences. These low rates highlight the need for improved investigative, legal, and support services of rape.

Sexual Assault Victims

A unique aspect of rape compared to other violent offences is the level of culpability often placed upon the victim, where he or she is held responsible for their victimisation (Burgess & Marchetti, 2009; Watts & Zimmerman, 2002). For example, a victim who was physically forced to engage in non-consensual intercourse with a stranger by violence or threat will generally be unquestionably labelled as a rape victim. A victim who was coerced into engaging in intercourse with an acquaintance or was unable to give consent due to intoxication may be viewed as a consenting partner and not identified as a victim, or even blamed for the rape occurring. Although a victim may engage in behaviours or choices which increase her risk of being a victim of sexual assault, this does not equate to blameworthiness for the rape. The notion of victim precipitation will be reviewed in Chapter Two. Victims of rape, more than victims of other violent crime, must often prove their innocence before their victimisation is believed (Messina-Dysert, 2015). This ties into the just-world hypothesis and rape myth that justifies misfortune by attributing blame and responsibility to the victim, ultimately protecting average citizens from the risk of misfortune (Burt, 1980). Although in any criminal investigation it is essential first to establish that an offence did occur, this is often done by scrutinising and judging a rape victim's personal life in a way that is not common within other violent victimisation.

Most sexual assault offences involve a male offender with a female victim who knew the offender in some capacity (Maier, 2014). Victims may sometimes be categorised based upon the type of offence committed against them; however, this can result in the classification of a victim who does not identify as a victim. Take, for example, the relatively

frequent occurrence at a bar or nightclub of having another person's hand (unwanted) on a victim's body in an inappropriate place. By definition, it is a sexual assault, although the alleged victim may take it in stride as a regular part of socialising at a bar or club and not identify as a victim (Holmes & Holmes, 2009). Additionally, the instance of being flashed is also common, and although it may result in more individuals identifying as victims, is frequently laughed off and not thought about again.

Varying research has indicated that in countries like the USA, the UK, and Australia, between 14-25% of women are victims of rape at some point in their lifetime (Burgess & Marchetti, 2009). Furthermore, the National Violence Against Women Survey in the USA found that women who had been a victim of rape in the past year had experienced an average of three rapes during that period (Orthmann & Hess, 2013). Women under 25 years old represent the highest concentration of rape victims, and women on college campuses are among those with the highest risk of victimisation (Burgess & Marchetti, 2009).

Individuals with intellectual or physical disabilities, mental illnesses, histories of physical or sexual abuse in childhood, lack of knowledge about the criminalisation of sexual assault, and individuals of sexual minorities (identifying as LGBTQI+) are at an increased risk of sexual violence (Hellmann et al., 2018; Kuo et al., 2018; Schuster & Krahe, 2019). Additionally, being divorced, separated, widowed, or not married or cohabitating was found to increase the risk of sexual violence in Germany and the Netherlands. It is thought that women in those categories engage in their daily activities alone more often than women cohabitating, resulting in an increased risk (Hellmann et al., 2018). Another group of women at high risk of victimisation are those that work in the sex industry as prostitutes and escorts, although this group of victims is frequently overlooked and understudied (Miller & Schwartz, 1995; Sullivan, 2007; Watts & Zimmerman, 2002). Sex workers face increased risk

of sexual assault and violence not only from clients, but also from club owners, pimps, and even law enforcement officers (or individuals posing as law enforcement officers) (Watts & Zimmerman, 2002).

Research on sexual assault victims often shows that the rates of child victims are higher than believed, with some studies showing that about 20-30% of sexual assault victims are under the age of 12 (de Wet et al., 2010; Holmes & Holmes, 2009; Woodhams & Labuschagne, 2012a). The rates of child victimisation vary across countries, with girls between the ages of 2-17 having a higher prevalence of sexual violence victimisation in Asia compared to Europe (Kuo et al., 2018). In Queensland, Australia, females between the ages of ten and nineteen have the highest rates of victimisation (Queensland Police Service, 2015, 2016, 2017). Even though young girls are offended against at higher rates than young boys, the rates of sexual assault against young boys are higher than the rates of sexual assault against grown men (Watts & Zimmerman, 2002).

Rates of male sexual assault victimisation are more under-researched and under-discussed than female victimisation, although some rates of male victimisation range from 3.8% (Elliott, Mok, & Briere, 2004) up to 9% of all rape or sexual assault victimisations (Planty et al., 2016). Elliot et al. (2004) found that male victims were, on average, younger than female victims at the time of their first adult victimisation and that men with a history of child sexual assault victimisation were five times more likely to also be victims as adults compared to men with no history of childhood victimisation. In Queensland, males between the ages of five and fourteen have the highest rates of sexual offence victimisation (Queensland Police Service, 2015, 2016, 2017). There is an increased risk of victimisation for men who are gay or bisexual, have mental health issues, are veterans, and are in prison. Possibly the most well-known instances of male rape come from within prisons, where

homosexual rape is used as a form of violence to establish dominance and control or as an additional element of a hate crime (Holmes, & Holmes, 2009). Contrary to popular belief, male victims of rape do not necessarily experience higher levels of violence and weapon use than female victims (Lundrigan & Mueller-Johnson, 2013).

Impacts of sexual assault.

The consequences of rape are numerous and affect victims in physical, psychological and cultural ways. Much of the trauma endured by the victim relates to helplessness and lack of control around being the object of the offender's anger and aggression (Burgess & Hazelwood, 2009). Victims of non-partner sexual violence may show higher levels of depression and anxiety, as well as increased risk of contracting sexually transmitted diseases (Mathur et al., 2018), although all victims of sexual assault suffer regardless of relationship to offender. Granting that all forms of sexual assault have negative impacts on the victims, victims of completed rape report significantly more negative impacts on their lives in areas such as self-esteem, self-perceived romantic worth, and long-term relationships compared to victims of attempted rape (Domenech del Rio & Garcia del Valle, 2016; Perilloux, Duntley, & Buss, 2012).

Even though most rapes occur between acquaintances, stranger rape involves a higher risk of weapon use and physical injury, resulting in a higher level of violence and more trauma to the victim (Abrahams et al., 2014; Bownes, O'Gorman, & Sayers, 1991; Jones, Wynn, Kroeze, Dunnuck, & Rossman, 2006). However, there is limited and mixed evidence on this point (Koss, Dinero, Seibel, & Cox, 1988; World Health Organization [WHO], 2013). Victims of stranger rape are more likely than victims of acquaintance rape to report the offence for a number of reasons, as discussed previously (Burgess & Marchetti, 2009; Durrant, 2013; Holmes & Holmes, 2009; Maier, 2014; Planty et al., 2016).

The effects of rape trauma can include feelings of being violated, withdrawing from social groups, and losing trust in those around them, and tend to take longer to recover from than other forms of criminal victimisation (Holmes & Holmes, 2009). Victims also report feelings of anxiety, distress, helplessness, and unhappiness (Schuster & Krahe, 2017). Many victims note increased arousal such as hypersensitivity to environment, increased avoidance behaviours, severe disruptions to their daily lives, reduced self-esteem and intimacy, higher rates of anxiety and depression, substance abuse and addiction, and psychosocial disorders (Amar & Burgess, 2009; Krahe, 2018; Kuo et al., 2018). Other risks associated with sexual assault are unintended pregnancy and transmission of sexually transmitted diseases and infections (STDs/STIs). The increased risk of STDs is of particular concern in countries and populations with higher rates of HIV infection, as the frequency of unprotected sexual aggression can increase the rates of HIV transmission (Kuo et al., 2018).

One of the most significant impacts of rape has become known as Rape Trauma Syndrome (RTS), which is an acute and long-term reorganisation process similar to Post-Traumatic Stress Disorder (PTSD) occurring after a sexual assault (Amar & Burgess, 2009). RTS results in significant life disruptions, emotional symptoms such as fear, anxiety, anger, shame, guilt, and embarrassment, physical symptoms such as vaginal pain, injuries, sleep disturbances, nausea, and headaches, and psychological symptoms such as self-blame, shock, hysteria, volatility, submission, intrusive thoughts, development of phobias, and avoidance (Amar & Burgess, 2009). Indeed, being a victim of rape has been noted as one of the most significant risk factors for the development of PTSD in women (Krahe, 2018).

Male victims of sexual assault also show significant levels of distress and dysfunction. Although male victims report equivalent levels of depression and psychological distress compared to female victims of sexual assault, they show more difficulty with self-identity

and sexual dysfunction and are more symptomatic on the Trauma Symptom Inventory Scale (Elliott et al., 2004). As rape-prone societies emphasise male strength and aggression, men are often expected to avoid any homosexual sexual contact and be able to fight off any unwanted advances. Thus, male victimisation may be especially distressing and destabilising. Male victims of sexual assault are more likely to outwardly direct the effects of their trauma compared to women. This externalisation may take the form of drug and alcohol use, aggression, and even criminal action (Holmes & Holmes, 2009).

Sexual assault is a global issue, resulting in substantial tangible and intangible costs to society and victims valued at hundreds of millions of dollars each year (Holmes & Holmes, 2009; McCollister, French, & Fang, 2010). These costs come in the form of investigations, trials, health cover, and victim recovery services such as psychological support and support groups. The cost of a single rape offence has been estimated at over \$240,000 USD (McCollister et al., 2010). The annual costs of health care following a sexual assault are significantly higher than for women who have not been a victim of sexual assault (Krahé, 2018). Many argue that it should be on the state to provide victim care and support services, especially as the economic and social cost of rape continues after an offender is convicted as the state pays for the housing, food, medical, and psychological care of offenders while in prisons and jails (Holmes & Holmes, 2009; Krahé, 2018). Additionally, victims suffer the loss of income and may have to attend psychological treatment, both of which can be costly, especially in countries without socialised healthcare systems or comprehensive insurance coverage.

There are also those people affected by sexual assault who are not the actual victim of the offence. These are known as secondary victims and include people such as the victim's spouse, family, children, co-workers, friends, or other people who interact with the

victim (Holmes & Holmes, 2009). The trauma and aftermath of a sexual assault can have detrimental effects on secondary victims and may even lead to relationship and family breakdowns. Secondary victims can also suffer because of any loss of income due to the sexual assault and suffering of the victim. Finally, both primary and secondary victims of high-profile cases can suffer re-traumatisation as a result of media presence and pressure, television programs, dramatisations, movies, and books that may be created based upon their victimisation (Holmes & Holmes 2009).

Sexual Assault Offenders

Individuals who engage in sexual violence are labelled sex offenders. Sex offenders are overwhelmingly male, accounting for 95% of sexual offences in Queensland (Queensland Police Service, 2017). This mirrors the results of the NCVS in the USA, which found that men committed 99% of sex crimes (Greenfeld, 1997; La Fond, 2005). In a systematic review of the prevalence of sexual violence in Turkey, Schuster and Krahe (2017) found two studies addressing the prevalence of perpetration, with both male and female offenders. These studies found that between 11.1% and 14.2% of women and 28.9% of men had forced a partner or member of the opposite sex to engage in sexual intercourse. Schuster and Krahe (2019) performed a systematic review of sexual violence research across Chile, finding perpetration rates for women ranging from 0.0% to 16.5% and from 0.8% to 26.8% for men. In a review of research across Southeast Asia, Winzer and colleagues (2017) found that lifetime rates of sexual aggression of men against partners ranged from 0.2% to 43.7% and against non-partners ranged from 5.8% to 23.4%. As the majority of sexual violence research relies on victimisation and self-report studies (Winzer et al., 2017), these perpetration rates should not be compared to offence rates, which rely on police or judicial involvement.

It is difficult to gather statistics on the prevalence of sexual offending, and most of the prevalence research comes from crime reporting databases and self-report surveys (Dartnall & Jewkes, 2013). Although self-report for some offences can provide more accurate information than police records, men are hesitant to admit to rape behaviours (Lisak & Miller, 2002). As with victim reporting, perpetrators are more forthcoming when specific behavioural elements are addressed, such as asking whether a man had pushed intercourse on a woman despite knowing she was not interested, rather than asking whether a man had engaged in rape, abuse, or assault (Lisak & Miller, 2002).

Sexual offences generally do not show the same rate of decline with age as other offences against the person, with the rate of rape remaining relatively stable across the age distribution (Queensland Police Service, 2016). Within Queensland, there are two to three times as many offenders between the ages of 15-19 compared to other age groups, with 10-14 years old and 20-24 years old having the next highest rates of offenders (Queensland Police Service, 2017). Of concern is the rate of 132.9 sexual assault offenders per 100,000 persons between the ages of 10 and 14 in Queensland, which has remained stable over the past five years (Queensland Police Service, 2015, 2016, 2017). However, this rate includes other sexual offences, which has much higher rates for this age group than rape and attempted rape. In the USA, roughly 40% of sexual assaults involve offenders over the age of 30, whereas about a quarter involve offenders under the age of 21 (Greenfeld, 1997; La Fond, 2005).

Many rapists do not have the means or confidence to approach courtship and sexual relationships in a more conventional way (Hegeman & Meikle, 1980). Regarding personality, much of the research has relied upon self-report personality scales such as the Minnesota Multiphasic Personality Inventory (MMPI) and has not been able to distinguish sex offenders

from other offender types (Davis & Archer, 2010). Pardue and Arrigo (2008) examined case studies of three high-profile rapists and found that the traits of lacking empathy and being conning or manipulative were consistent across all cases. Details of the personality traits of each rapist will be described in the section on rapist typologies in Chapter Two.

Psychopathy, which is characterised by a lack of empathy and remorse, callousness, egocentrism, and deceitfulness, is frequently seen in rapists (Hare, 1999; Hazelwood & Burgess, 2017). For a comprehensive analysis of personality profiles of extrafamilial sexual aggressors and an overview of their personality disorder traits, see Proulx and Beauregard (2014b).

Serial Rape

As serial rape is the focus of this research project, it is discussed throughout the thesis, such as in the section on theories of serial offending in Chapter Two, serial rape behaviour in Chapter Three, rape investigations and case linkage in Chapter Four, and throughout the methodology, results, and discussion chapters. Therefore, this section only provides a brief overview of the definition of serial rape and some overall information about serial rapists.

There is a lack of consistency and clarity around the threshold for and definition of serial rape. The lack of uniformity impacts investigative, legal, and research practices as there is an incomplete analysis of the phenomenon. The definition of serial rape follows the definition of serial homicide, which has varied over the past 40 years, depending on the legislative or research context. To resolve these differences, the FBI Serial Murder Symposium analysed the various definitions and concluded that serial murder is “the unlawful killing of two or more victims by the same offender(s), in separate events” (Morton & Hilts, 2008, p. 9). There is consensus within the sexual assault literature, with a serial

rapist defined as a person who has perpetrated at least two separate incidences of sexual assault (Lovell et al., 2017). Accordingly, this is the definition of serial rape used in this thesis.

Further clarification is made between the terms serial offender and repeat offender. A repeat offender targets the same victim more than once, often in domestic settings, whereas a serial offender targets different victims (Criminal Justice Joint Inspection, 2012). This distinction is not mutually exclusive, however. A serial offender can also be a repeat offender, as in the case of the serial rapists who has multiple stranger victims but also offends repeatedly against his children at home. Serial rapists often have a high amount of crossover in their victims; offending against victims of different ages as well as both strangers and acquaintances (Lovell et al., 2017).

The increase in media attention and public fear of serial offenders has increased research and the prioritisation of serial offenders, intending to advance police ability to identify and apprehend (Goldsworthy, 2009). Even though serial homicide receives more research attention, the examination of serial rape is a growing field, with the FBI's first study of serial rape occurring in 1984 through their National Center for the Analysis of Violent Crime. Serial rapists are more likely to complete the act of rape and are more likely to be strangers to their victims than non-serial rapists (Chiu & Leclerc, 2019; de Wet et al., 2010; Hazelwood & Warren, 1992; Lovell et al., 2017; Park et al., 2008; Woodhams & Labuschagne, 2012a). Thus, even though serial rapists constitute a minority of offenders, they result in the highest costs and consequences to victims and society. Furthermore, the lack of prior relationship between victim and offender presents an additional investigative challenge.

Although serial rapists share many of the same demographic characteristics as the general rapist population, there are some differences. Serial rapists are generally older than the average age of rapists (Lovell et al., 2017; Miller, 2014). Overall, serial rape offenders are White males (de Heer, 2014; Hazelwood & Burgess, 1992; Lovell et al., 2017; Park et al., 2008; Slater et al., 2014), although this is limited to White majority countries, as Woodhams and Labuschagne (2012a) had 100% Black and de Wet and colleagues (2010) had 84% Black serial rapists in their South African samples. Offender race can also be influenced by data source. Wright, Vander Ven, and Fesmire (2016) examined serial rape in the USA through media representations. Although only about a third of the cases had racial data provided by media, nearly half of those reported were black, potentially indicating the role of race in the media's choice of which offences to cover.

Some of the earliest research on serial rapists identified them as intelligent, socially skilled, employed, and well-groomed (Hazelwood & Burgess, 1987; Hazelwood & Warren, 1990). However, this research was based on a small number of case studies of offenders with at least ten victims each and in-depth interviews rather than quantitative analysis, so the results should be generalised with caution. In an overview of rape behaviour, L. Miller (2014) stated that over half of serial rapists had prior military service and at least one prior psychiatric hospitalisation. As these findings have not been mentioned before, they deserve further examination. However, as L. Miller did not indicate where this research was conducted, it is difficult to validate the claims. Serial sex offenders engage in more deviant sexual fantasies and have higher reports of being unsatisfied with their sex life than non-serial sex offenders (Marsh, 2018). Serial rapists have been likened to serial murderers across factors such as lack of empathy and remorse, which allows the offender to feel entitled to take what they feel is deserved without the thought of consequences to their

victim (Miller, 2014). Furthermore, those serial rapists that can be classified as sadistic mirror serial killers through the intense underlying motivational fantasy.

There is an overall body of research that shows serial rapists as conscientious and calculating surrounding their offences. Many serial rapists show precautions, criminal sophistication, forensic awareness, and planning through their victim selection and offence behaviours (Beauregard, Rossmo, & Proulx, 2007; Corovic et al., 2012; de Heer, 2014; Grubin et al., 2001; Hazelwood & Warren, 1990; LeBeau, 1987; Park et al., 2008; Santtila, Junkkila, & Sandnabba, 2005; Slater et al., 2014). These and other serial rape behaviours will be discussed in detail in Chapter Three.

A common trait of serial rapists is a prior criminal history (Baltieri & Andrade, 2008; Beauregard et al., 2010; Davies, Wittebrood, & Jackson, 1997; de Heer, 2014; Soothill, Francis, Ackerley, & Fligelstone, 2002; ter Beek, van den Eshof, & Mali, 2010). Although they did not examine serial sex offenders specifically, Beauregard et al. (2010) found that those rapists who had a more extensive criminal history employed more elaborate and sophisticated target selection patterns within their offences. This indicates that the extensive criminal experience influences offender behaviour across offences and may modify heuristics and sexual scripts. Furthermore, offender behaviours during a rape can provide insight into types of offences the offender had previously been charged with (Davies et al., 1997).

It is difficult to accurately gauge the number of serial sexual assault offenders due to the low number of reported offences and even lower rates of criminal action against an offender. In an examination of media reports of rape between 1940 and 2010 Wright and colleagues (2016) found 1,037 offenders represented across the 70 years in media that had engaged in at least three sexual assaults (with or without penetration) over at least 72

hours, who did not kill their victims or engage in grooming of children victims. Since this data comes from media outlets, it likely underestimates the number of serial rapists in America across that time. As the identification of serial rapists for research and reporting often relies on conviction reports and court proceedings, the number of known serial rapists is probably substantially under documented. Self-report studies within college samples show that a large proportion of males who engage in undetected rape and attempted rape are serial rapists, with an average of almost six rapes per offender (Lisak & Miller, 2002). This mirrors the findings within incarcerated populations in which individuals admit to many more sexual assaults (as well as other offences) than recorded based upon charges and arrest records (Groth et al., 1982; Weinrott & Saylor, 1991). Recent research examining previously unsubmitted sexual assault kits has further highlighted the high frequency of serial rapists (Lovell et al., 2017). The high rate of repeat offenders coupled with the substantial costs to victims and society highlights the importance of identifying these prolific offenders early in their criminal careers to limit further victimisation.

Conclusion

Sexual behaviour and norms are fluid constructs that vary across cultures and evolve throughout time. Although there are differences in what is considered normal, all sexual interactions share the elements of fantasy, symbolism, and ritualism, which are shaped by culture during development. Furthermore, cultural norms and attitudes towards sex, women, and aggression affect the acceptance and prevalence of violence against women. Societies that champion masculinity and aggression, devalue women, and are patriarchal have higher rates of sexual violence compared to matrilineal societies that promote equality and nurturing relationships. Furthermore, there are several rape myths which contribute to the acceptance of sexual violence, cast blame on the victim, and hinder the reporting of

rape offences. Rape is a highly underreported crime with some of the lowest conviction rates of any offence type, so learning from no-rape societies and combating rape myths can reduce sexual violence against women.

Sexual violence against women is an increasingly global concern as most women will be victims of sexual violence in their lifetime. Within Australasia, the rates of rape are more than double than the global average. There are many factors which inhibit the ability to compare research findings across jurisdictions and between countries, including different definitions, collection methods, and legal proceedings. In light of these difficulties, research methods have become more robust to allow for comparison across countries. This increase in research has led to an understanding of sexual assault offenders, victims, and offences.

Although most rape occurs between acquaintances, stranger rapists pose a higher risk to victims and society as they cause more trauma and are harder to identify and apprehend. There has been an increase in the research of stranger rape over the past five decades, although it is still not fully understood. A further subset of rapists is that of serial rapists, who have at least two victims over a period of time. Although it is difficult to identify the number of serial rapists in operation, self-report and sexual assault kit research indicates that serial rape is more common than once believed. Thus, it is imperative to increase the knowledge and understanding of serial rapists to improve identification and apprehension of prolific offenders and minimise further victimisation.

This chapter placed this thesis within the global context by introducing rape and providing an overview of the global prevalence of rape. Chapter Two will expand on this further firstly by discussing the theories of rape and secondly by summarising the different methods of classifying rapists, with a focus on the Groth typology.

Chapter 2 – Classification of Rapists

Rape is a complex, multidetermined act which, in addition to expressing anger and asserting control...is equivalent to the function of a symptom: it expresses the conflict, defends against the anxiety, and partially gratifies or discharges the impulse (Groth & Burgess, 1977, p. 404).

Introduction

Numerous researchers have developed methods to classify and quantify rapists, based upon an offender's psychological motivation, victim selection, verbal behaviour, offence behaviour, and more. This chapter provides a basic overview of the classification of rapists. This chapter begins by highlighting some of the relevant theories of rape, which serve as a foundation upon which to build classification methods of rape and serial rape. Motive is then briefly discussed as the inferring of motive from offence behaviours can assist in the investigative process and is often completed by investigators and behavioural analysts alike.

This chapter then discusses the importance of the person-situation interaction. This provides insight into the complexity of the innate biological and psychological elements of the offender and the situational context and cues of the offence. This chapter examines the unique role of the victim, both as she pertains to classification, and the effect she can have on the offender's behaviour. Finally, the chapter concludes by exploring the different typologies and methods for categorising rapists, as there are numerous approaches to this task. First, some of the most basic offender classification methods are discussed, followed by classifications based on psychological motive. Many of the early motivational typologies can be attributed to the work of Groth. As the Groth typology is used within the Behavioural

Specialist Unit of the Queensland Police Service, it is the typology focused on within this thesis. Finally, modern research-driven methods of classifying rapists are discussed.

Theories of Rape

There are numerous theories dedicated to sexual offending, far too many for this thesis to cover in a brief overview. Some theories attempt to explain sexual violence before it begins, others how an individual can become a career criminal, and additional theories explore how a particular situation or society can lead to rape. In general, theories of crime examine one of three levels: the macro-level of the society or culture in which the sexual assault occurs, the micro-level of the relationship dynamic between offender and victim, and the individual level of the sexual offender (Krahé, 2018). Chapter One examined the macro-level elements of rape. As this thesis focuses on stranger rape, the micro-level of theories dedicated to intimate partner violence will not be discussed, although the interaction between victim and offender will be highlighted through the person-situation interaction. Individual-level theories aim to explain rape behaviour from a biological, psychological, or social context.

Biological.

Biological theories of crime centre around elements such as genetic predispositions and evolution, brain anatomy and chemical functioning, hormones, in utero and early childhood exposure to toxins, and neuropsychological deficits (Ellis, 1991; Marsh, 2006; Miller, 2014; Ward & Beech, 2006). Evolutionary psychology argues that criminal behaviour provides an evolutionary advantage because it favours reproduction (Wilson, 1975). Viewing rape as an evolutionary adaptation suggests that there are mechanisms within males which encourage the act of rape to increase a male's reproductive success. For example, rape bypasses the

woman's discrimination and choice, thus increasing the chances of reproductive success for the male (Palmer & Thornhill, 2000).

There is physical evidence in support of biological and evolutionary explanations of rape. Male sperm count increases with more competition from other males (Miller, 2014) and research has shown per-incident rape pregnancy rates twice as high as per-incident consensual pregnancy rates (Gottschall & Gottschall, 2003). Although rape carries a high risk of punishment if caught, some men have developed an effective strategy by showing quick arousal to sexual violence paired with fast ejaculation, thus ensuring a completed act in a short period, minimising the risk (Miller, 2014). In an examination of all men convicted of any sexual offence between 1973 and 2009, Langstrom et al. (2015) found that men who had a full brother or father convicted of any sexual offence were 4-5 times more likely to be convicted of a sexual offence as well compared to half-brothers and matched control samples. This increased risk was due to genetic (40%) and non-shared environmental (58%) factors, rather than a shared home environment.

Differences in brain anatomy and chemistry may also be present in rape offenders. Some research has found that the temporal region of the brain is abnormal among paedophiles (Aigner et al., 2000; Miller, 2014). Furthermore, dysfunction or structural abnormalities in the frontal lobe is hypothesised as contributing to violent offending and rape (Raine, 2013a). Some research has found higher levels of testosterone in rapists, other studies have found lower levels of testosterone in paedophiles, while still others have found no difference in testosterone levels across their subjects (Cantor, Blanchard, & Barbaree, 2009). Although there are clear indications that damage to certain parts of the brain can increase aggression and decrease impulse control, there has not been enough research to conclusively link brain damage and sexual aggression specifically (Lalumière et al., 2005).

Immediate factors can also influence brain chemistry, such as drug use and addiction. Drug use can alter brain function and bring on psychosis, lower inhibitions, and increase risk-taking, all of which increase the risk of crime (Sinnamon, 2015). Alcohol and drug use have strong relationships to crime, and alcohol in particular to sexual assault (Lalumière et al., 2005). The disinhibiting effects of alcohol and consequential loss of rational judgement play an essential role in that relationship (Siegel, 2013). Furthermore, it is important not to discount the situation in which the consumption of alcohol occurs, as alcohol may be used intentionally as a facilitating factor in rape (Lalumière et al., 2005).

Psychological.

Psychological theories highlight the importance of the psychological development of the individual as it pertains to later criminality. They explain the methods through which individuals more readily engage in sexually aggressive behaviour as well as discount or justify their actions and include theories on attitudes and motivation, temperament, problematic attachments, cognitive ability, emotions, learning, motivation, neuropsychological processes and deficits, cognitions, fantasies, and the use of crime scripts (Miller, 2014; Ryan, 2004; Ward & Beech, 2006).

One psychological theory of crime that is relevant to rape investigation and case linkage is rational choice theory, which argues that criminals act based upon a cost-benefit analysis, selecting actions that will result in the highest reward for them, or choosing to act criminally because it is the most effective way to get what they want (Beauregard & Leclerc, 2014; Marsh, 2006). These behaviours are goal-oriented, and the outcome is intentional (Newman, 1997). Rational choice is seen in the degree of planning involved in a rape offence. Furthermore, it is argued that the behaviours of a rapist can be traced rationally within the context of the situation, as offenders adjust their crime site selection, victim-

targeting, approach style, and offence behaviours in response to perceived risk which varies based upon the environment (Hewitt & Beauregard, 2014; Newman, 1997). The decision to rape may be based upon the chance of interruption and detection, the ease of access to a victim, time of day, victim characteristics, offender personality, and more. Each element of the offence may be assessed multiple times throughout the act to determine the best continuing course of action (Beauregard & Leclerc, 2014).

Other psychological theories relate to cognition, emotion, and psychopathology. Disordered cognition is linked to multiple types of crime, as through a series of cognitive distortions, a rapist may minimise the knowledge that rape is wrong and harmful by distorting reality to align with their act of rape (Cantor et al., 2009). These cognitions develop throughout life, forming rape-supportive implicit schemata; allowing a rapist to objectify his victim, feel a sense of entitlement, and rationalise his behaviour (Miller, 2014; Ward, Gannon, & Keown, 2006). The development of sexual scripts and the contributions that sexually aggressive fantasies and encounters have on those scripts further shape the behaviour of a rapist (Ryan, 2004). Sexual scripts outline the expectations of a sexual encounter, provide structure to the offender's goals, and are rehearsed within rapist's fantasies to become a plan of action as the fantasies morph into reality (Holmes & Holmes, 2009).

Links have been found between pervasive anger and the amount of violence and aggression used during a sexual assault (Lalumière et al., 2005). Hegeman and Meikle (1980) highlight the importance of insecurity within rape, as the characteristic of insecurity was common among the many research projects they examined. This insecurity may manifest itself in the offender compensating by presenting as confident, aggressive, and composed. Lack of empathy has long been acknowledged as a factor in antisocial and criminal

behaviour (Hare, 1999). Rice, Chaplin, Harris, and Coutts (1994) found that both rapists and non-rapists showed phallogometric arousal (phallogometric assessment is the measurement of penile responses using a strain gauge fitted around a penis) to rape vignettes when told from the victim's point of view and with explicit wording that the victim enjoyed the experience. However, the difference in empathy levels can be seen in that rapists preferred rape stories with victim suffering, whereas non-rapists preferred consenting stories in which the female enjoyed the encounter, with no overlap between the groups regarding their preferences.

There is a common belief that mental illness is pervasive within criminal populations (Maier, 2014). Although this is not necessarily true, some psychopathologies interact with a situation to increase the risk of engaging in criminal activity (Sinnamon, 2015). Research on psychopathology within sexual assault offenders is often reliant on self-report, which is fraught with limitations (Gannon et al., 2008). However, there has been research examining the rates of various disorders in sex offender populations (for an overview of this research see Palermo & Farkas, 2013, pp. 136-149). Much of the research regarding psychopathy and rape compares sadistic rapists, non-sadistic rapists, and child molesters. Hare (1999) found rates of psychopathy in rapists around 40 to 50%, compared to 10 to 15% in child molesters. Some research indicates that rates of psychopathy are low in rapists, and even lower in child molesters (Jenkins & Petherick, 2014). Other research has not found significant differences in rates of psychopathy between individuals who rape compared to individuals who engage in other crime (Lalumière et al., 2005).

The two psychopathologies most common among rapists are antisocial personality disorder and the presence of paraphilias. Antisocial personality disorder is evidenced by a pattern of disregard for, and violation of, the rights of others (APA, 2013). Antisocial

personality disorder is often referred to as psychopathy, although the two have different diagnostic criteria, and psychopathy is not a personality disorder listed within the DSM-V. In a comparison of serial and non-serial sex offenders, Marsh (2018) found that serial offenders were more likely to have a diagnosis of borderline and avoidant personality disorder, whereas non-serial offenders were more likely to have diagnoses of narcissistic and obsessive-compulsive personality disorder. Furthermore, serial offenders were more likely to show antisocial personality disorder, although this finding did not achieve statistical significance (Marsh, 2018).

Paraphilias are persistent sexual interests outside of what is considered normal sexual behaviour (APA, 2013). Serial sexual offenders have been shown to have higher rates of multiple paraphilias compared to non-serial sexual offenders (Marsh, 2018). There are also predatory paraphilias that relate directly to sexual assault, including biastophilia, which is the sexual arousal from raping someone and somnophilia, which is the sexual arousal from having sex with a sleeping partner (Aggrawal, 2009). However, determining the role of biastophilia in rape is complicated, as rape is generally considered to have underlying non-sexual motivations, and research on these paraphilias is limited. Research supporting biastophilia often comes from examining the phallometric arousal of rapists and non-rapists. Rapists have shown higher levels of phallometric arousal in response to depictions of rape compared to consensual sex and have even shown arousal to scenes depicting general violence against women (but not against men) (Lalumière et al., 2005). Although the DSM-V includes definitions and diagnostic criteria for numerous paraphilic disorders which influence sexual offending, rape is not included as a diagnosable paraphilic disorder (Jenkins & Petherick, 2014). There have been arguments for classifying rape and paraphilias as sexual

addictions or compulsions, although there is little empirical evidence to support either claim (Lalumière et al., 2005).

Social.

Although violent and deviant behaviours have been around at least as long as written records, the evolution of societies and the development of societal rules and norms have led to definitions of crime and responses to criminals (Marsh, 2006). Social theories explore elements such as environment (developmental, home, and peer), social and cultural norms and attitudes towards violence, sex, women, and weapons, the role of media, and the opportunities to offend.

A relevant social theory for rape investigation is routine activity theory, which states that crime occurs when a motivated offender and a potential victim converge in a situation which has a lack of guardianship (Felson, 2008). Furthermore, an individual's lifestyle behaviours and characteristics guide their opportunities for and propensity to engage in criminal activity (Beauregard & Leclerc, 2014). Not only does one's lifestyle influence the choices they make, risks they take, and the goals they have, but also the places they regularly encounter as part of their day-to-day activities provide them with the opportunity for criminal behaviour. The role of environment can even be seen within rational choice theory because elements of situational and spatio-temporal settings can impact the decisions of an offender and the course of an offence (Hewitt & Beauregard, 2014).

As discussed in Chapter One, support of rape myths, patriarchal beliefs, callous sex attitudes, the legitimisation of violence, rape fantasies, and paraphilias are linked with sexually aggressive behaviour (Ryan, 2004; Ward & Beech, 2006). Rape myths have the purpose of legitimising aberrant behaviour and reducing culpability for the offender (Holmes & Holmes, 2009), and individuals who rape generally have inappropriate or

distorted attitudes of sexuality, aggression, and the role of women in society (Ryan, 2004). On the other hand, cultures that impress nurturing norms, have zero-tolerance towards aggression, and champion the protection of the vulnerable have low rates of interpersonal and sexual violence (Sanday, 2003).

Early environmental factors such as complications at birth, poor nutrition both in utero and early childhood, and insecure and adverse home environments can influence the expression of genes associated with antisocial and violent behaviour (Raine, 2008). Childhood development and environment play a crucial role in the progression of deviant behaviour. Being a victim of physical or sexual abuse, neglect, or deprivation contributes to the development of deviant sexual fantasies and paraphilias (Durrant, 2013). These findings are not unique to sexual offenders, however, and it is important to remember that the correlation between childhood trauma and abuse and adult offending is well established (Elklit, Karstoft, Armour, Feddern, & Christoffersen, 2013; Lalumière et al., 2005; Watts & McNulty, 2013).

Serial rape.

To the author's knowledge, there are no specific serial rape theories, but a variety of theories can be applied to help understand the serial rapist. Important in understanding why some people engage in multiple acts of rape is the acknowledgement that sexual offending shares similarities with healthy sexual behaviour. Sexual practices within the norms of society include fantasies and impulses, and as an individual's sexual identity grows and develops, so too do their fantasies (Holmes & Holmes, 2009). However, the fantasies of normalised sexual behaviour operate within the realm of intimacy and consent. Not only do the sex offender's fantasies operate in a different realm of power and control, but they can also transform into a ritual and become more compulsive than normal sexual behaviour.

This aspect of ritualism can become like an addiction for the offender as they must carry out the exact script they have developed (Holmes & Holmes, 2009). Further exploration of the similarities between addiction and rape is discussed in Chapter Three.

Although most people will engage in some form of deviant or illegal behaviour within their life, few will make a persistent habit out of it, earning themselves the label of *serial offender* or *career criminal*. However, these offenders are versatile and perpetrate the majority of offences across crime categories (Blumstein, Cohen, Roth, & Visher, 1986). The individual instances of crime that most people experience, as well as the serial nature of the crime, can, to an extent, be understood by examining criminality. DeLisi et al. (2012) define criminality as “the raw material or potential to engage in crime and violence that every person has within, [which] ranges along a continuum from very low to very high (p. 8).” Those individuals on the high end of the criminality continuum possess more of the underlying complex and interacting causes of violence and sexual aggression and thus are at a higher risk of engaging in those behaviours. Furthermore, those individuals having higher criminality would also be more likely to engage in serial crime. The concept of criminality has been supported through research examining self-control, genetics, temper, neuropsychological defects in verbal intelligence and executive function, and more (DeLisi et al., 2012). Further evidence for criminality is seen through examples such as the offender charged with violent crimes who displays aggression in other social interactions, indicating a perverse behavioural and personality pattern (Canter & Youngs, 2009).

In exploring criminal lifestyle theory, Walters (2019) explains the control and moral models and the underlying temperaments associated with each. In the control model, the underlying temperament is disinhibition, which leads to impulsivity and, ultimately, a reactive cognitive style which impacts criminal behaviour. The moral model highlights the

temperament of fearlessness that leads to callous and unemotional behaviours, culminating in a proactive or calculated offending pattern (Walters, 2018). The control model can be likened to the chronic offender mentioned by Holmes & Holmes (2009), while the moral model describes the actions of the controlled chronic offender. Although impulsivity and callousness are both associated with criminal behaviour, the serial sexual offender falls under the moral model of criminal lifestyle on the grounds of the proactive and planned nature of many of his offences. However, because serial rapists are few in number, there is little research providing empirical support for serial rape theories. Most of the support is drawn from research on psychopathy, as the link between psychopathy, high levels of criminality, and serial crime has been established.

Key components to understanding why some individuals engage in serial rape are insight, self-centredness, and lack of empathy. Insight is an individual's ability to understand the complex nature of any circumstance, including their emotions and behaviours within the given situation (Petherick & Sinnamon, 2014). Individuals rating low on insight may fail to understand their behaviour, thoughts, and emotions (Grant, 2001), thus may be unable to enact any change for future situations, leading to greater potential for serial offending. Self-centredness is a crucial component of crime and is inherently egotistical, as the intended outcome is typically for the benefit of the offender only. According to Ronel (2011):

Self-centredness is a state of consciousness in which the main focus is on the self and one's own interests, expectations, wishes, desires or risks, rage, fears and emotions, or cognitions, whereas those of others are essentially ignored. Usually, this state of consciousness involves some repression of awareness that makes any socially presented action possible (p. 1215).

It would be expected to see higher levels of self-centredness in serial offenders, although this research is lacking. Lack of empathy and other psychopathic traits such as callousness, lack of guilt, and sensation seeking have repeatedly been linked to crime and high-violence offenders such as serial killers (Durrant, 2013; Hare, 1999).

In further explaining serial rape, rational choice theory and the person-situation interaction (which will be discussed shortly) provide useful explanatory frameworks. Serial sexual offenders rationally adapt their strategies and decisions based upon the situation in which the offender is acting, as well as the interaction with the victim, which ultimately contributes to the successful completion of the offence (Hewitt & Beauregard, 2014).

Motivation

Throughout an investigation, when and where an offence occurred, the individuals involved, and the behaviours of all parties are examined to build a complete understanding of the events of the offence. Determining an offender's motivation is useful to the investigation of interpersonal crime (such as rape) because, simply, motive affects behaviour (Petherick, 2015c). Understanding motivation can help identify an offender, rule out potential suspects, and provide investigative and interview advice. However, the identification and understanding of motivation are not necessary for the arrest and prosecution of an offender. For this reason, many behavioural elements within an offence are overlooked during an investigation.

Motivation and behaviour are the results of multiple factors which are dynamic and multidimensional. Like any motivation, sexual offending can have both intrinsic and extrinsic motivations. Intrinsic motivation is unique to an individual and includes elements like a sense of achievement, satisfaction, or intrigue (Jeanes, 2019). An example of intrinsic motivation for a rapist is the feeling of power and control over another human. Extrinsic

motivation, on the other hand, includes tangible rewards such as pay, promotion, or other reinforcement (Jeanes, 2019). A rapist who is motivated by extrinsic factors may hope for recognition of his sexual skill or prowess. Motive is intrinsically tied to need, such that if it can be identified what need is being met through the commission of an offence; a corresponding motive can often be determined (Petherick, 2015c). This determination is difficult, however, considering the vast number of variables which influence motive. These include physiological sexual arousal, cognitions which either justify sexual aggression or minimise its impacts, negative affect such as anger, hostility, or depression, and personality components such as antisocial characteristics (Durrant, 2013).

From a practical perspective, investigators and analysts infer an offender's motive by examining the offender's behaviour during the offence, the environmental elements of the offence, and the interaction between victim and offender. It is important to recognise that inferring another's motives from crime scene behaviours and evidence is a highly subjective process. Some offender behaviours may be indicative of underlying motivation or fantasy on their own, such as placing a particular object in a victim's hand, whereas other times motivation and fantasy are determined through the examination of a sequence of events, such as the requirement of specific scripting by the victim. Motive is typically ascertained from clues left at a crime scene and the victim's recounting of events rather than directly from the offender (Petherick & Sinnamon, 2014). However, interviews with offenders can illuminate their motives and help tease apart the complex relationship between function and fantasy, as the two can be mistaken within a sexual assault.

Person-Situation Interaction

The effect that a situation and the interaction with others can have on an individual's behaviour was shown early through the experiments of researchers such as Zimbardo and

Milgram. The Stanford prison experiment highlighted how perceived power imbalance and situational confines influenced behaviour, to the point of violence and demeaning treatment of fellow participants (Haney & Zimbardo, 2009; Zimbardo, 2008). Milgram's shock experiments evidenced how proximal authority can persuade the degree of obedience in causing harm to another (Milgram, 1965). Although both researchers were inspired by actions during World War II, their results are applicable to understanding many situations in which there is a clear delineation of power. This has direct implications for rape because both the situation and the power dynamic between offender and victim encourages obedience on the part of the victim and can alter the extent to which an offender is willing to engage in violence and aggression.

In an early examination of victim and offender interaction, Luckenbill (1977) argued for viewing violence as a working agreement between victim and offender, with each party maintaining a role that shapes the actions of the other. Luckenbill stated that victim action or resistance is perceived by the offender as an agreement to the use of violence and force, regardless of the victim's intended outcomes. The offender interprets the victim's behaviour as provocation, thus reacting with violence. Within these interactions, aggression and violence can occur both proactively and reactively. Proactive aggression is seen in predatory rapists through the instrumental use of violence to get what they want (Raine, 2013). The level of violence and the details of the offence are often planned, and the violence used has a purpose. The behaviours and violence associated with proactive aggression are pre-determined and may not change based upon situational elements or interactions with a victim. On the other hand, reactive aggression and violence occur due to an emotional overwhelming or impulsive decision. This aggression is influenced by the situation and people in the environment, and although it can be the result of pent-up anger over time, the

resulting violence is often more emotional and unregulated than proactive aggression (Raine, 2013).

Within any situation, some elements can be antecedents of aggression. They may lead directly or indirectly to violence, and include frustrations, provocations, and rejections (Durrant, 2013). If an offender feels frustrated from not achieving his goals, provoked by actions of the victim, or rejected despite his advances, he may resort to sexual or physical violence to ensure the outcome he desires. During an investigation, it is necessary to examine the situational elements of a sexual assault to help ascertain whether the violence involved was proactive or reactive, and whether anything happened directly before the violence that may have influenced the offender. This can assist in understanding the psychological state and motivations of an offender.

One of the most significant interactionist frameworks for understanding rape is the person-situation interaction. This interaction model combines the fields of personality psychology and sociology, while still allowing for biological explanations of temperament and behaviour. The person-situation interaction states that both an individual's personality traits and the environment in which they find themselves regulate the behaviours that are displayed in any situation (Kihlstrom, 2013). To fully understand behaviour, it is vital to explore the ultimate causes (the underlying motivation, or the why) as well as the proximate causes (the immediate environment) and how these interact with personal elements such as hormones and motivations to illicit behaviour (Palmer & Thornhill, 2000). An offender's victim selection, method of attack, and decision making during an offence (whether rational or irrational) are also guided by environmental factors, the situational context, and the victim's reaction to offender behaviour (Beauregard, Leclerc, & Lussier, 2012).

The environment or situation, such as where a victim and offender meet, where the offence occurs, and where the victim is released or escapes from can alter the behaviours of both parties. Furthermore, rapists must adjust their situational preferences more than other offenders (such as burglars) because their target (victim) may be mobile and requires controlling for an offence to be successful (Beauregard et al., 2010; Rossmo, 2009). The site of initial contact between the victim and offender has particular influence on the behaviours of both parties as there is more variability in this location compared to the offence and release locations which are more under the control of the offender (Deslauriers-Varin & Beauregard, 2013). Whether an offence occurs inside or outside, as well as in a public or private place impacts the approach style, target selection, level of force, and coercive style of the rapist (Hewitt & Beauregard, 2014). Rapists have been identified as frequently using three approach styles: con, surprise, and blitz. A con approach relies on the offender's ability to interact with the victim and involves subterfuge, the surprise approach involves the offender waiting for or sneaking up on a victim or targeting a victim who is asleep, and the blitz approach employs immediate, injurious physical force to overpower and subdue a victim (Hazelwood & Warren, 1990). Although offenders may have a preferred approach method, it can vary between offences based upon situational elements or interactions with the victim.

Hewitt and Beauregard (2014) assessed 361 stranger rapes committed by 72 serial offenders to analyse the impact that time and place have on a rapist's offence strategies. Rapes committed during the week and crimes taking place outdoors were more likely to be committed by an offender who is forensically aware. Rapes occurring outdoors were also more likely to be perpetrated by an offender using a coercive strategy. Of the rapes occurring indoors, those in the victim's residence were more likely to involve a forensically

aware offender as well as more likely to involve a blitz or surprise approach style. On the other hand, offences occurring in a public place were less likely to involve a pre-selected victim or result in physical force by the offender or violent reaction to the victim's resistance (Hewitt & Beauregard, 2014).

A critical component to understanding the person-situation interaction is that neither person nor situation is exclusively responsible for the outcome. A person can manipulate the situation and vice versa based upon their cognitions, appearance, and stereotypes, as well as the behaviours of others within the situation (Kihlstrom, 2013). With the emphasis on the situation in rational choice theory and routine activity theory, this interaction is crucial and must be considered during an investigation to identify offender behaviour and motivation. This is especially important in interpersonal crimes like rape because the victim's verbal and physical behaviour, type and level of resistance, and how they conform to or conflict with the offender's sexual scripts can impact the ongoing behaviour of the offender.

Negative emotional affect, such as anger and hostility, can be intrinsic to an offender or the result of a negative encounter. Negative affect can disinhibit behaviour, which in turn may increase the likelihood of sexually coercive behaviours and escalating aggression when faced with resistance (Thomas & Gorzalka, 2012). For some rapists, physical resistance on the part of the victim will result in ceasing the attack, but for others, it can instigate a reaction of increased and even deadly force (Snow, 2006). In an examination of sex offenders' reaction to victim resistance, Balemba, Beauregard, and Mieczkowski (2012) found several elements which can influence the offender's use of violence. These factors included the offender's initial strategy, the use of weapons, the victim's age, the duration of the assault, and the victim's reaction to offender violence. Violence was more likely in

offences that included weapons, had older victims, and longer assault duration. An offender who engaged in a physically aggressive strategy at the onset of the offence was more likely to react to victim resistance with violence, and physical resistance was more likely to be met by a violent reaction. However, victim resistance was also found to be related to offender behaviour, such that an assault that began with violent offender behaviour was more likely to result in physical resistance by the victim (Balemba et al., 2012). Thus, the victim-offender interaction can create a feedback loop in which both parties react relative to the actions of the other; violence begets violence.

The Role of the Victim

The role and importance of the victim, especially within interpersonal offences such as rape cannot be ignored because the victim is the target and brings their own emotions and behaviours into the interaction (Petherick & Sinnamon, 2014). Victim resistance can influence offender behaviour, and the verbal and physical behaviours of the victim can contribute to their overall victimisation. It should be made clear, however, that examining the precipitating victim factors is not engaging in victim-blaming. On the contrary, understanding the victim's behaviours, actions, and reactions in the context of an offence can shed light on the emotions, behaviours, and reactions of the offender.

Victim precipitated rape states that a woman may contribute to her victimisation based upon the way she interacts with the offender, her level of intoxication, being at a man's home or having a man in her home, potentially her clothing choice, or by initiating some level of sexual intimacy (Maier, 2014). Victim precipitation can occur passively and actively. Passive precipitation occurs when the victim has characteristics, real or imagined, which are significant to the offender or trigger a reaction within him (Siegel, 2013). These could include physical or emotional qualities, victim incapacitation, or characteristics such as

age or group membership (Petherick & Ferguson, 2015c). On the other hand, active precipitation involves dynamic behaviours on the part of the victim which impacts the offender's behaviour (Siegel, 2013). In the context of a sexual assault, active precipitation can be as simple as the victim returning a greeting from the offender. In an examination of rape behaviours, Lawrence, Fossi, and Clarke (2010) found that victim resistance was typically preceded by an intensification of the offender's sexual or aggressive behaviours. Additionally, victim resistance was generally met with increased controlling behaviours and sexual, physical, or verbal aggression. However, their sample included only offences in which penetration was achieved, so the potential deterrence due to victim resistance was not assessed.

Within a series of rapes, any similarities between victims, whether physical, psychological or social, should be explored as they may be indicative of victim selection criteria (Petherick, 2015c). Even when the parties are strangers, the victim represents something to the offender. Examining this representation can provide insight into the offender's psychological state (Canter & Youngs, 2009). After all, rape takes one of the most intimate and personal behaviours between consenting parties and uses it as a form of violence: degrading the victim and breaking what is usually shared intimacy. Some offenders see the victim as merely an object; removing all interaction and reducing the victim to less than human, allowing them to engage in selfish behaviour and some of the more extreme and sadistic acts of torture and violence (Canter & Youngs, 2009; Hazelwood, 2009). Other offenders view the victim as a vehicle through which the offender's sexual and violent needs are realised. These victims are symbolic to the offender and may act as a surrogate for the object of the offender's anger as he acts to humiliate and degrade (Canter & Youngs, 2009). An offender may actively seek out a victim that symbolises and fulfils the representation of

his anger. Finally, the victim may be viewed as a person, allowing for pseudo-intimacy between offender and victim (Canter & Youngs, 2009). The victim is the target, as the offender views his actions as unselfish and believes the victim will perceive this care and not think of the offender as a dangerous person (Hazelwood, 2009). The role of the victim can be incorporated into the rapist types as well (which will be discussed in the next section of this chapter). A victim as an object may be the most frequent victim for the sadistic and power-assertive rapists, the victim as a vehicle for the anger-excitation, and the victim as a person for the power-reassurance rapist.

Classifying Rapists

There are several ways in which sex offenders can be categorised. Holmes and Holmes (2009) argue that sex offenders can be classified into three main groups based upon their offending frequency pattern. *First offenders* are individuals who have committed their first offence, which may have been brought on by a life stressor. *Chronic offenders* are generally impulsive and less intelligent or have underlying disorders which affect their impulse control, leading to committing multiple offences. Finally, *controlled chronic offenders* are antisocial, cold, and deceptive offenders who engage in calculated offences based upon their fantasies and growing levels of confidence (Holmes & Holmes, 2009).

A simple distinction between types of sexual offenders is that of adult versus juvenile offenders. Adult sex offenders often engage in a variety of offences (not just sexual offending), and may come from lower socioeconomic backgrounds, have been victims of adverse development or abuse, be less educated, and be unemployed (Durrant, 2013). Juvenile offenders (both male and female) have higher rates of offending compared to their adult counterparts (Araji, 2000), and offend against both adults and their peers (Watts & Zimmerman, 2002). Furthermore, multiple offenders and gang rape are more common

among juveniles (Holmes, & Holmes, 2009). However, as there is no clear demarcation for when an offender evolves from juvenile to adult from a behavioural perspective, this classification is generally reserved for a legal context and for sentencing and charge considerations rather than distinguishing between different types of offender.

Another primary distinction between sexual offenders is based upon the type of victim, whether they are an adult or child, and further classification based upon the age of the child. The most general distinction is between adult sex offenders (simply called rapists), and child sex offenders (known as child molesters) (Durrant, 2013). This is not to be confused with adult versus juvenile offenders as determined by the age of the offender at the time of the offence; it relates to their victim preference. Child sexual offenders are those who engage in sexual assault against children. The reasons for offending against a child are varied and include sexual preference, ease of access, ease of control over the child, a child's inability to report the offence, and other elements. Child molesters may be more educated, older, with less variety in their prior offending, and more likely to have been victims of sexual assault as children themselves compared to rapists (Durrant, 2013; Gannon, Collie, Ward, & Thakker, 2008). According to Araji (2000), most child molesters know their victim, have multiple victims, offend against their victims repeatedly, and the average age of their victim is between eight and twelve years old. It is important to remember that adult sexual offenders and child sexual offenders are not mutually exclusive groups, as offenders, especially serial offenders, often cross between adult and child victims (Lovell, 2017).

A distinction needs to be made clear around child sexual offenders. Often the terms child sexual offender, child molester, and paedophile are used interchangeably, although this is incorrect and detrimental. The term paedophile is a diagnosable disorder per the American Psychiatric Association Diagnostic and Statistical Manual (5th edition) (DSM-V),

rather than an offender classification. A paedophile is an individual who has recurring fantasies, urges, or behaviours involving sexual activity with prepubescent children (children 13 years old and younger) (American Psychiatric Association, 2013). To be diagnosed with paedophilia based upon the DSM-V criteria, an individual must have either acted on the urges or the urges cause significant distress and interpersonal difficulty. A paedophile is also distinct from a hebephile, who has a sexual interest in pubescent children and an infantophile, who is sexually attracted to children five years and younger (Durrant, 2013; Greenberg, Firestone, Bradford, & Broom, 2000). Although there may be some crossover in that a paedophile can become a child sex offender by acting on their urges and offending against a child, and some child sex offenders may have diagnosable paedophilia, the two terms are not mutually inclusive, and should not be treated as such (Wiebking et al., 2012). Furthermore, paedophiles have been shown to have different emotional activation patterns than non-paedophile child molesters (Wiebking, Sartorius, Dressing, & Northoff, 2012). Child sexual offenders actively engage in the decision to offend against a child. Paedophiles, on the other hand, do not actively choose to be attracted to children, and often feel intense amounts of guilt, unrest, and shame about their sexuality and often actively seek treatment (Fagan, Wise, Schmidt, & Berlin, 2002).

A classification of sexual offenders that warrants brief review is the female sex offender. Because the data limit the current research project to male offenders, female offenders will not be discussed in detail. Although female sex offenders are not as common as male sex offenders, women do engage in sexual offences. The stereotypical female sex offender has been popularised through international media and films as a teacher who has a sexual relationship with a teen male student that develops into a romantic relationship (Harris, 2010). Female sexual offenders offend against male victims more frequently than

female victims, except in the targeting of very young children (Gannon & Cortoni, 2010). Compared to their male counterparts, female sex offenders often have multiple child victims, younger victims, engage in more kissing, digital, and foreign object penetration, and show higher levels of psychological disturbances (Cooper, 2000). Female sexual offenders are generally classified based upon their victim choice: women who abuse adolescent boys, women who abuse young children (their own or another's), women who assault or coerce adults, and women who co-offend with men (Harris, 2010). Less is known about the developmental history, offending patterns, and interaction with co-offenders of female sexual offenders compared to male sexual offenders, although there have been recent developments in this area (Gannon, Rose, & Ward, 2008).

A final basic distinction that is relevant for this thesis is that of stranger, acquaintance, or partner rape. Most research on violence against women separates between partner and non-partner violence, with non-partner sexual violence including sexual violence by a family member, stranger, or acquaintance (Dartnall & Jewkes, 2013). As intimate partner violence is not the focus of this thesis, it will not be expanded upon. Acquaintance rape generally includes familial rape, partner rape, and other rape in which there is a prior relationship between offender and victim, whereas stranger rape occurs when there is no prior relationship.

Although the majority of rape occurs between acquaintances, there is a general belief in the general population that rape is committed primarily by strangers; indeed, this a main component of the real rape stereotype (Estrich, 1986; Holmes & Holmes, 2009). Stranger rapes may involve a higher risk of weapon use and physical injury than acquaintance rape (Abrahams et al., 2014; Jones et al., 2006), culminating in a higher level of violence; although there is mixed evidence on the amount of violence in rape offences, as

intimate partner rape has been shown to have an equally high level of violence (Koss, Dinero, Seibel, & Cox, 1988; WHO, 2013). Although there are mixed findings within the literature with regard to level of violence, there is a common trend of hostile and aggressive actions by strangers, compared to more pseudo-relationship actions by acquaintances (Bownes et al., 1991; Stermac, Du Mont, & Kalemba, 1995; Woods & Porter, 2008).

Stranger rapes have been found to take place outdoors with a higher level of force or violence as well as greater threat or use of weapons (Bownes et al., 1991; Stermac et al., 1995). More recently, it was found that stranger rapists were more likely to employ a blitz approach style, kidnap their victim, use a weapon, steal from the victim, remove victim's clothing, and engage in violent behaviour (Woods & Porter, 2008), supporting the theme of hostility and violence in stranger rape. Research in Australia has found that the majority of stranger sexual assaults occur in a single location, outside, in darkness, with a surprise approach style, and no weapon (Chiu & Leclerc, 2019). As previously discussed, some of the differences across countries can be the result of cultural and legal factors within each country, such as the low rate of weapon ownership in Australia contributing to fewer rapes occurring with the use of a weapon. The use of a single location, outside, and darkness were also indicative of unsolved cases (Chiu & Leclerc, 2019), which could mean they are more common among serial rapists (as serial rapes may be more likely to remain unsolved offences for longer).

Rapist typologies.

Despite the long history of rape across the globe, the empirical research on rape is a relatively young field, spanning the last 50 years. Researchers often classify rapists and group them into types so they can be more easily compared, and theories can be tested and validated. Rapist typologies aim to categorise offenders so that their motivations for

offending, their psychological state before, during, and after the offence, their likelihood of rehabilitation or recidivism, and any other relevant characteristics can be identified and understood. Although rapists are a heterogeneous group, classifying rapists into typologies or categories can have numerous benefits. From an investigative perspective, classified offenders and offences can be compared when searching for an unknown offender or attempting to link cases (Burgess & Hazelwood, 2009). Within research, categories can be studied and validated, helping to bridge the gap between theory and practice (McCabe & Wauchope, 2005b). Finally, regarding treatment and intervention, methodologies and programs can be tailored based upon the offender category as well as the unique elements of the individual (Knight, 1999; McCabe & Wauchope, 2005b), although it is not within the scope of this thesis to discuss treatment and intervention.

Numerous rapist typologies have been suggested, typically based upon the psychological state and motivations of the offender (Santtila et al., 2005). Much of the early work is attributed to Groth, who examined sexual offenders and highlighted the underlying motives of power and anger within rape and the use of sex as a means to achieve nonsexual needs (Groth & Burgess, 1977; Groth et al., 1977). Anger rapists generally use excessive force and act out of anger towards women, thus aiming to degrade and humiliate (Groth & Burgess, 1977). Power rapists typically act to control and dominate their victims and may engage in behaviours to enhance their masculinity (Groth et al., 1977). Most psychological typologies share the commonalities of anger and power and often incorporate elements of eroticised cruelty and opportunistic mating (Miller, 2014).

The element of opportunity has been categorised as a type for some researchers (Knight, 1999), and listed as a necessity for the commission of a crime by others. The opportunistic rapist still exhibits the general behaviours of some of the other motivational

types but may engage in a more impulsive decision to rape. In their examination of rapists, Kocsis, Cooksy, and Irwin (2002) describe the opportunistic rapist as an individual who may rape as a second thought through the commission of another crime. This offender may be younger or more inexperienced, showing a lack of coordination or premeditation. It can be argued that opportunistic rape is one of context, not motivation (Petherick, 2015c).

The foundational elements of power and anger are fluid and can be expressed in varying ways depending on the underlying motivation of the offender and the circumstances of the offence (McCabe & Wauchope, 2005b). Thus, each situational and behavioural element must be examined within the context of each rape. The initial dichotomy of power and anger types has seen continued research and development by numerous researchers (Groth, Burgess, & Holmstrom, 1977; Hazelwood & Burgess, 1987; Knight, 1999; Knight & Prentky, 1990; Petherick & Turvey, 2008) and has been validated by studies such as Canter and Heritage (1990). The continued research and development of this typology has resulted in the classification of four rapist types: anger-excitation, anger-retaliatory, power-assertive, and power-reassurance. Although some researchers may provide different names for these types and slightly different descriptions of the offender, there is a significant amount of overlap.

In Australia, the power and anger types have been validated by Bennett (2005), while the four subtypes have been validated by Kocsis et al. (2002) and McCabe and Wauchope (2005a). Although rates of each subtype within rapist populations is often missing, Bennett states that Criminal Investigative Analysis "internal documents claim that 60% of stranger-rape offences are committed by the power reassurance type and anger excitation offences occur only in approximately 7% of cases. Frequency of the other two types is not reported" (p. 4). Furthermore, in her validation of power and anger types within

200 Australian ViCLAS offences, Bennett determined that 93% of offences fell within the power classification while 6.5% were classified as anger rapes.

Within the QPS, the BSU relies on these four types to categorise offenders and provide investigative and interviewing advice. When the BSU is presented with an unsolved rape and asked to conduct a case linkage analysis, they use the Groth typology as a preliminary screening measure as it is understood that although rapists operate on a continuum of behaviour, a rapist who generally displays behaviours common to the power-reassurance type is less likely to also show behaviours common to the anger-retaliatory type (J. Keith, personal communication, March 28, 2016). Furthermore, when the BSU provides training to officers on the importance of behavioural evidence and the basics of case linkage through their Behavioural Comparative Case Analysis course, they teach the fundamentals of the Groth typology to officers as a starting point for understanding, recognising, and linking rape behaviour across offences (J. Keith, personal communication, March 28, 2016). As this thesis aims to have applied value to the QPS, the four types of anger-retaliatory, anger-excitation, power-assertive, and power-reassurance will be discussed within this thesis.

Anger-retaliatory.

The first subtype within the anger category, anger-retaliation (sometimes referred to as anger-displaced), describes an offender full of rage who lashes out (Groth et al., 1977). Rape is a means by which to express the offender's disdain for women, which can often result from past experiences with a woman or partner (Miller, 2014). As the victim is symbolic of perceived wrongs to the offender, the offence is often characterised by demeaning and vindictive violence (Canter & Youngs, 2009). This offender does not view the act of sex positively and simply uses it as a means to punish their victim (Pardue & Arrigo,

2008), engaging in impulsive and violent attacks, use of weapons (often weapons of opportunity found at the offence location), and displaying an overall intent to harm and humiliate (Hazelwood, 2009; Hicks & Sales, 2006; Kocsis et al., 2002). Pardue and Arrigo (2008) described the anger-retaliatory rapist as scoring excessively high on impulsivity and aggression, moderate to high on the personality traits of extroversion, conscientiousness, narcissism and need for intimacy, high on sensation seeking and intellect and low on agreeableness. This offender may also show higher levels of pervasive violence in his other criminal enterprises, such as domestic violence and assault, compared to the other types of rapists (Knight, 1999). He is selfish and will not negotiate with the victim and may subscribe to the rape myth of blaming the victim for their role in the offence (Turvey & Freeman, 2011).

Sexual assaults by an anger-retaliatory rapist may include oral, vaginal, and anal penetrations (Hicks & Sales, 2006). This offender will often approach his victim in a blitz style, immediately overpowering them with physical force and violence (Robertiello & Terry, 2007). Rape by an anger-retaliatory rapist may often have a short duration. Physical behaviours of this rapist include a high level of force or violence, immediate use of violence to overpower a victim, and possible ripping or tearing of victim clothing (Turvey & Freeman, 2011). Excessive violence against the victim may further serve to humiliate and even to mutilate the victim, and this offence may result in the death of the victim due to overkill.

Anger-excitation.

The second anger subtype, the anger-excitation rapist (more commonly known as the sadistic rapist), achieves sexual gratification from the suffering, humiliation, and degradation of his victims, and may employ extreme violence, torture, and mutilation, sometimes resulting in the death of the victim (Groth et al., 1977). Examining personality

traits, the sadistic rapist scored high on sensation seeking and intellect, moderate on hostility and low on agreeableness, extroversion, impulsiveness, narcissism, conscientiousness, and need for intimacy (Pardue & Arrigo, 2008). This rapist may engage in the most planning around his offences and spend extended time during the assault, relying on controlling behaviours such as gagging and binding to facilitate the lengthy attack (Hicks & Sales, 2006; Proulx & Beauregard, 2014a). The sadistic rapist may also present a high level of stability and ritualism in his behaviours, including recording the offence and taking of souvenirs or trophies from his victim (Hazelwood, 2009; Kocsis et al., 2002).

This offender presents as confident and uses a con approach style to gain the victim's trust and lure them away from safety to the offence location (Turvey & Freeman, 2011). During the offence, the sadistic rapist may engage in verbal behaviours such as degrading and humiliating language toward the victim and asking questions such as “can you feel that” and “does it hurt” (Turvey & Freeman, 2011). Furthermore, the sadistic rapist will not show any remorse for his actions (Robertiello & Terry, 2007). Finally, the physical and sexual behaviours of the offender will evidence the torture and eroticised aggression that play a central role in the offender's elaborate fantasy.

Power-assertive.

Power-assertive rapists view rape as an expression of dominance and feel entitled to take what they see as theirs (Groth et al., 1977). The power-assertive offender's offences are centred around the control and power over his victim (Miller, 2014). A macho personality exemplifies his dominance over others through intimidation, violence, and callousness (Zaitchik & Mosher, 1993). Although this offender may portray a macho persona, he is often insecure and uses rape as a means to bolster or restore his sense of masculinity, worth, and power (Robertiello & Terry, 2007). This offender does not show

interpersonal interaction with the victim, as the victim's role is purely to fulfil the offender's sexual desire (Canter & Youngs, 2009). Furthermore, whether the victim suffers physical harm is inconsequential to the offender because the victim is viewed simply as an object and a means to an end (Petherick & Sinnamon, 2014).

The power-assertive rapist may act impulsively during victim selection and offending (Robertiello & Terry, 2007), but he may also engage in a con style of approach, showing the confidence to interact with a victim and lure them to an offence location (Hicks & Sales, 2006). Throughout the offence, the offender may engage in multiple penetrative attacks (Turvey & Freeman, 2011). The use of force and violence is typically to maintain control and in response to victim resistance rather than with the intent to harm (Miller, 2014). Verbally, this offender may engage in direct and explicit communication, telling the victim precisely what to do or what he will do to the victim (i.e. *shut up, do not move, suck it, stay still*), and may verbally threaten the victim to gain compliance (Turvey & Freeman, 2011). Power-assertive offenders will often ensure their offence location is secure and engage in behaviours to assist in the completion of the rape, such as the use of restraints or gags on the victim (Turvey & Freeman, 2011).

Power-reassurance.

The power-reassurance rapist, like the power-assertive rapist, uses rape to boost his sense of masculinity and worth as well as to elevate his perceived social status (Groth et al., 1977; Hicks & Sales, 2006). However, this rapist is generally more insecure than the other sub-types, thus acts out fantasies of consensual intercourse to boost his sense of connection and relationship with the victim (Petherick & Sinnamon, 2014; Proulx & Beauregard, 2014a). Like the anger-retaliatory rapists, Pardue and Arrigo (2008) scored the power-reassurance rapist moderate to high on the personality traits of extroversion, conscientiousness,

narcissism, and need for intimacy. However, the power-reassurance rapists scored high on agreeableness and low on sensation seeking and intellect. As the power-reassurance offender views his victim as a human being with valid emotions, he may show a degree of empathy and does not have the aim of hurting his victim (Robertiello & Terry, 2007).

Generally, the power-reassurance rapist does not employ violence and may only use threats or display weapons to gain compliance, as his fantasy involves his victim becoming a consensual partner by virtue of his sexual prowess (Canter & Youngs, 2009; Turvey & Freeman, 2011). He may resort to violence when resisted, although he may flee when faced with excessive or repeated resistance (Miller, 2014). Verbally, this offender may compliment his victim, try to reassure them, and engage in extensive negotiations, even apologising for the attack upon completion (Turvey & Freeman, 2011). He may try to include his victim in the act by asking about her sexual preferences and history as well as for feedback on his performance. This offender may engage in more foreplay than other offenders, enriching his fantasy of consensual intercourse. Due to the general lack of confidence of this offender, he may target victims who are unable to resist or are asleep. Finally, in line with the fantasy of consent, this offender may attempt to contact a victim after an assault with the intent of meeting again (Turvey & Freeman, 2011).

It is important to remember that the aforementioned typology (and all unmentioned classifications) do not describe completely heterogeneous groups of offenders, but should be viewed on a continuum, with overlapping qualities, behaviours, and personality traits, which may be suppressed or expressed depending on situational and environmental factors (McCabe & Wauchope, 2005b). Although an offender may be categorised as one type for one offence, they may exhibit elements of another type at another time. For example, a power-reassurance rapist may exhibit power-assertive tendencies or commit a rape that is

classified as power-assertive. Typically, a rapist will remain in the general area on the continuum, a single offender will not engage in sadistic torture on one occasion and gentle, apologetic rape on the next, but there can be some crossover. Even sadism should be viewed on a scale, as some individuals may meet the DSM-V criteria for sadism but never have acted on their urges, while others may engage in sadistic rape but not meet the criteria for diagnosis (Nitschke, Osterheider, & Mokros, 2009).

Additionally, the framework through which an investigator or researcher operates will influence his or her preferred classification style. Different departments may follow the Groth typology or a different classification typology, and even two departments who both follow the Groth typology may have different operational thresholds that determines when they classify one offender as power-reassurance versus power-assertive. Herein lies the difficulty of not only empirically validating rapist typologies but also comparing research findings across departments and countries. Therefore, it is essential not to consider these subtypes as exclusive, and to only use them as a guideline during an investigation or future research.

Other classification methods.

Although rapist typologies were initially developed based upon the underlying psychological motivations of offenders, recent research has examined other ways of categorising rapists. Some of these categorisation methods are based on individual and thematic offence behaviours (Grubin et al., 2001), the role of the victim as they relate to the offender (Canter, Bennell, Alison, & Reddy, 2003; Canter & Heritage, 1990), patterns of mobility and victim selection (Beauregard, Proulx, & Rossmo, 2005; Beauregard et al. 2007, 2010), and even verbal behaviours of rapists (Lawrence et al., 2010).

Beauregard et al. (2005) explored the spatial patterns of sexual offenders, providing the dichotomy of mobile and stable offending patterns. They assessed offender characteristics, modus operandi (MO, refers to the offender's chosen method of operation and will be discussed in Chapter Four), and distances travelled by offenders. Generally, mobile sexual offenders are more sophisticated; showing higher intelligence, more planning of and control over offences and more time spent in pursuit of fantasies (Beauregard et al., 2005). Furthermore, this offender takes more precautions to avoid detection, by offending against strangers, travelling farther for his offences and not leaving forensic evidence. On the other hand, geographically stable offenders operate closer to home or work bases, are more impulsive, less sophisticated, and generally more antisocial and psychopathic. These offenders are spontaneous in their offending, often engaging known victims and leaving behind physical evidence (Beauregard et al., 2005).

Beauregard et al. (2007) assessed the hunting process of serial stranger rapists and found that the majority of offenders searched in specific locations to find victims, targeted specific victims, and left the victims at the offence location once they were finished. They further found that 42% of their sample spent a significant amount of time outside the actual offence prowling for victims and that 48% used a con approach style where they tricked the victim or used a false identity. Violence was used in over half of offences when victims were older, although 42% of offenders changed offence methods between victims based on different circumstances (Beauregard et al., 2007). These findings relate to the mobile offender style described by Beauregard and colleagues (2005) and indicate planning and preparation surrounding the offences of serial rapists.

In a later study, Beauregard et al. (2010) examined the target selection patterns of rapists in Canada and Portugal, deducing three distinct types of victim selection: home-

intruder, tracker, and lurker. The home-intruder rapist typically breaks into the victim's home and shows a general lack of premeditation. The tracker rapist, on the other hand, tends to engage in extensive planning around his offences and designates specific areas in which to search for victims. This offender does not break into a victim's house and is more likely to use a vehicle in the commission of his offence. Finally, the lurker rapist is an opportunistic rapist who may find victims through the routine activities of his day and ambush them. Beauregard and colleagues found that Canadian rapists were more likely to use home-intruder or lurker target selection patterns, while Portuguese rapists were more likely to be trackers. Furthermore, it was found that selection patterns were congruent with the environmental elements of each country. For example, the winding and organic layout of Portuguese streets is more conducive to an offender who plans more and has designated areas in which to find victims, whereas the grid-style of Canadian cities makes opportunistic target selection, offending, and escape easier (Beauregard et al., 2010). This highlights the importance of the environment as it pertains to the rational choices of offenders during the commission of their crimes.

In an examination of the temporal and verbal behaviours during stranger rapes, Lawrence et al. (2010) grouped rapes based on whether they occurred in the victim's bedroom, elsewhere in the victim's home, or outside the victim's home, and whether the assault was direct (single penetrative act) or compound (multiple penetrations). Lawrence and colleagues also examined both offender and victim verbal behaviour during the assaults, paying particular attention to the impact of victim resistance. They found that offender verbal behaviour was influenced by the location of the attack as well as whether the assault was compound or direct. As location became less private, moving from the victim's bedroom to outside the victim's house, the offender's speech showed more

emphasis on controlling the actions of the victim and ensuring completion of the offence, becoming more directive. In general, offenders engaging in compound assaults used a variety of verbal strategies depending on location. For example, compound assaults in the victim's bedroom were characterised by pseudo-intimacy, whereas those elsewhere in the victim's home and outside employed threats, reassurances, demands, and directions to control the assault. On the other hand, offenders completing direct assaults were consistent in their language regardless of location, engaging in aggressive and controlling behaviours (Lawrence et al., 2010).

One of the main ways that offender classification has assisted in case linkage and investigations is through the analysis of offence behaviours and behavioural themes. The exploration of behavioural themes has built upon earlier research around typologies and motivations, such as Canter and Heritage (1990), A. Davies (1992), Groth et al. (1977), Hazelwood and Warren (1990), and Knight and Prentky (1990). Much of this early research has been criticised for relying too heavily on case reports rather than empirical evidence and because there is a high degree of crossover between rapist types (Canter, 2004; Petherick & Turvey, 2012a; Vettor, Woodhams, & Beech, 2014). Chapter Three includes an overview of rape behaviour and behavioural themes.

Conclusion

DeLisi, Conis, and Beaver (2012, p.13) state that "criminology confidently acknowledges that individual-level factors are paramount and recognises that the pathology of the most violent and serious offenders is largely attributable to biological factors and the complex interplay between nature and nurture." The quantity and variety of biological, psychological, and social theories of rape and serial offending highlight the complexity of this phenomenon. Schools of thought and individual theories explain the different causes

and behaviours of rapists, such as evolutionary psychology, rational choice theory, and routine activity theory. These theories laid the foundation on which modern classification methods have been built. Additionally, understanding an offender's motivation can influence an investigation by prioritising suspects and giving investigative and interview advice.

Rape is an interpersonal crime which takes an intimate interaction and transforms it with violence. Because of the interpersonal nature of sexual offences, an understanding and analysis of the victim, offender, and the interaction between the two is critical. The victim plays a crucial role in this interaction as they bring their own personality and behaviours into the offence, influencing offender behaviour. As the person-situation interaction shows, stable personality traits can result in different behaviours depending on the context and actors within a given situation, and different environments can produce the same behaviours in different offenders. Thus, any investigation of rape must focus on all three parties to the offence: offender, victim, and environment.

Numerous typologies of rapists have been created, typically based upon the foundations of anger, power, and sex. The early typologies were developed to categorise offenders based upon psychological motivation. The categories of power-assertive, power-reassurance, anger-retaliatory, and anger-excitation rapists developed by Groth and his colleagues are still in use and guide the case linkage practice and investigative advice provided by the Queensland Police Service's Behavioural Specialist Unit. Newer typologies and classification methods have been established related to target selection, offender mobility, offender behaviour, and even temporal and verbal behaviours. However, it is important to remember that even if an offender fits into a type, there is fluidity in the behaviours of offenders. Thus, typologies and classification methods should be used only as

a guide and tool to assist investigations. These typologies and their associated behaviours are useful for understanding offender motivation, linking offences, and prioritising suspects.

This chapter laid the foundations for understanding rape behaviour, including the interaction between victim and offender and the classification of offenders. The following chapter will review offender behaviour in-depth, beginning with an understanding of personality and the formation of behaviours and concluding with an examination of the foundational concepts of case linkage: behavioural consistency and distinctiveness.

Chapter 3 – Rape Behaviour

Personality and its expressions in thought, feeling, and action is consistent and inconsistent; it is stable and unstable; relational, contextualised, and intrapersonal; predictable and unpredictable. We adapt to situations while internally coherent; we are goal directed, planful, and future oriented but also reactive, impulsive, automatic, and reflexive; we are influenced profoundly both by the social environment and by the messages of our genes and biological pre-dispositions. We are the architects of our lives and their victims (Shoda & Mischel, 2000, pp. 421-422).

Introduction

As an understanding of individual behaviour and personality can provide insight into offender motivations and behavioural patterns, this chapter begins by exploring the theory building that evolved from personality psychology. Namely, the development of the cognitive-affective personality system will be considered, as this is the foundation on which case linkage was developed. This chapter then examines the role of habitual behaviour and the degree to which offenders behave both consciously and unconsciously. This has implications for investigations as offenders may resort to habitual behavioural responses during a rape, or consciously alter their behaviour to avoid detection, which can complicate the case linkage process. This chapter then briefly explores addictive behaviour because some behaviours related to fantasy and compulsion can mirror addictive behaviour. A comparison of sexual disorders, addiction, and sexual offending will follow as some paraphilias have a high correlation with sexual offending and deviance.

This chapter then discusses the assumptions of consistency and distinctiveness. For case linkage based on behavioural evidence to be successful, a serial offender must behave relatively consistently across his or her offences, yet distinct enough compared to other

offenders to be identifiable. Research to date which tests consistency and distinctiveness will be presented.

Finally, this chapter concludes with an overview of rape behaviour, as understanding general rape behaviour is paramount to determining consistent and distinct offender patterns. This chapter then summarises the research which focuses on distinguishing between serial and non-serial rapists, as this distinction can assist investigations and case linkage yet there is a paucity of research addressing it, and a complete lack in Australia. Furthermore, this knowledge gap of serial versus non-serial rape behaviour in Australia is the primary motivation for the current research project.

Personality

The concept of personality evolved to indicate the qualities and traits that make an individual unique, previously known as 'character' within the psychological community. Psychologist Gordon Allport drew upon Psychoanalytic and Gestalt disciplines to found personality psychology, with a focus on individuality and the interaction with the environment. Allport defines personality as "the dynamic organization within the individual of those psychophysical systems that determine his unique adjustments to his environment" (as quoted in Snyder & Deaux, 2012, p. 4). Over 80 years later, this still holds as a valid definition as it highlights both the internal and external components of the individual, which combine to produce behaviour. Personality reflects the mechanisms developed in response to the environment and situations individuals are faced with throughout their life, which result in behaviour (Siegel, 2013). Personality may be thought of as an ongoing coping mechanism towards the environment. According to Allport's early work, personality is made up of four general traits of intelligence, temperament, self-expression, and sociality (Fancher & Rutherford, 2012). These personality traits develop through genetic inheritance

and learned responses while interacting with the environment, and vary in their degree of stability and flexibility across situations (Olivia, 2013). Personality is composed of dynamic mental and emotional representations which interact with and are sensitive to the different features of a situation.

As humans experience the world both physically and cognitively, they create narratives and storylines of their lives (Canter & Youngs, 2009). These narratives are developed from temperament, personality, interactions with other people, and situations experienced. Culture also plays an important role, impacting the expression of individual disposition, influencing life stories, and providing the backdrop of themes, images, and plots of each identity narrative (McAdams, 2009). Behaviours are not merely a reaction to the environment; they influence an individual's mental life, which includes future-oriented goals and plans, self-regulation strategies, ruminations, and imagination (Shoda & Mischel, 2000). The mental life, individual narrative, and storyline all combine and affect motivation and behaviour. In response to desirable and undesirable experiences, motivations develop through the influence of personality, self-esteem, and emotions (Petherick & Sinnamon, 2014). As individual identity and narratives develop through youth and adolescence, they are susceptible to conflict and insecurity, which can lead to the exploration and development of criminality within their personal narrative (Canter & Youngs, 2009).

Self-schemas and mental representations of one's life help make sense of the world and inherently shape individual identity. Emotional experiences aid in the development of self-esteem and self-efficacy, or how one feels about themselves and their abilities. Self-esteem and self-efficacy contribute to an individual's understanding of their place in society, resulting in a feedback loop, as how one feels about themselves shapes self-esteem, which, in turn, impacts emotions (Petherick & Sinnamon, 2014). Notable in this interaction is

introspection, or the ability to identify, understand and manipulate one's emotional state. These emotional states result in the development of motivations to either prolong or alleviate the emotions experienced. The motivational and emotional processes are dynamic rather than static; they change and develop throughout one's lifetime based upon the experiences gained. Together, emotion and self-esteem play an essential role in shaping personality as people experience and adapt to the world around them (Petherick & Sinnamon, 2014).

Nomothetic and idiographic analysis.

Part of Allport's contribution to the field of personality psychology was the introduction and clarification of nomothetic and idiographic research styles (Fancher & Rutherford, 2012). Nomothetic analysis focuses on the general laws and characteristics in which people vary, analysing these group differences in a quantifiable way. An example of a nomothetic approach to personality research is personality dimension analysis such as the Big Five. Offender profiles that are the result of nomothetic analysis provide abstract generalisations and theoretical probabilities about offender types (Petherick & Turvey, 2012a). From a case linkage and behavioural analysis perspective, nomothetic analysis examines the frequency of behaviours for both individual and groups of offenders. Behavioural base rates can be determined through this method, which can be useful in further determining the distinctiveness of an offender's behavioural pattern or examining behavioural trends within a population.

Idiographic analysis, on the other hand, is more qualitative and focuses on the unique elements of an individual (Petherick & Turvey, 2012a). For case linkage, an idiographic analysis is often an in-depth examination of a single case or an offender's series to provide investigative direction and advice or to build a case against an offender for trial.

In conducting an idiographic analysis of behaviour, it is important to identify a unique set of 'activating psychological features' for the individual, which may then be used to predict future behaviour (Shoda, Mischel, & Wright, 1994). Although this is easier to do in personality psychology research than practical criminal investigations, it nevertheless highlights the importance of assessing the psychological importance of a situation for an offender.

Both nomothetic and idiographic approaches are relevant for research and practice as they can provide an overall understanding of personality and behaviour, and even analyse base rates of behaviours, as well as contextualise the individual uniqueness within a given context. A further collection of behavioural information, as well as the psychological significance of the situation in which the behaviour occurred, can contribute to the growing body of knowledge of serial sexual offenders and provide insight into future behaviours. Shoda and colleagues (1994) highlighted that the similarity in situational elements, such as the level of demand or stressfulness, produced the most similar behaviours. Indeed, as continuing research indicates that serial stranger rapists may have a group-level consistency and distinctiveness, recognising, understanding, and categorising the psychologically significant elements of their offences could provide a more in-depth understanding of rapist behaviour and motivation. This, in turn, can have positive impacts on further research, investigations, and treatment programs.

Personality research.

There are two main approaches to studying personality, the first of which examines the essential core traits, such as extraversion and introversion, which form the underlying spectrum for human behaviours. One of the earlier methods of analysing the core traits of personality was developed by Hans Eysenck, who suggested the super-traits of psychoticism

(the tendency towards egocentrism, cruelty, and insensitivity), extraversion-introversion (one's level of sociability, outgoingness, and activity), and neuroticism (the tendency towards anxiety, emotional instability, and irritability) (Durrant, 2013). The other primary model of personality is often known as the Big Five personality traits. While this model is similar to Eysenck's model, the traits included are openness, conscientiousness, extraversion, agreeableness, and neuroticism (Durrant, 2013). From a criminology perspective, personality tests are often used to try and predict antisocial behaviour, as there are links between certain personality traits, such as impulsivity, aggression, neuroticism, and negative emotionality and crime (Durrant, 2013; Siegel, 2013). Low levels of agreeableness, emotional stability, and conscientiousness have been found to have stronger links to criminal activity than some of the previously assumed social characteristics such as academic attainment, social class, and occupational status (O'Riordan & O'Connell, 2014).

The other approach to studying personality focuses on the interaction between stable personality traits and the environment, specifically how those personality traits are expressed through that interaction. Early personality research believed that behaviour would be consistent and could be predicted based on the understanding of temperament and personality traits. Indeed, early studies on personality consistency took a nomothetic approach, averaging behaviours over time to try and find a stable baseline or core personality, and any variability in behaviour was statistically treated as error (Shoda et al., 1994). While this approach can be useful for comparing overall behavioural trends, it negates situational variability, making idiographic analysis nearly impossible.

As has been discussed previously, the effect that the situation can have on individual behaviour is significant and must not be overlooked. As can be seen daily, one person does not behave the same way across all situations, and the variation in their behaviour can be

considerable. Additionally, the work of Caspi, Bem, and Elder (1989, as cited in Pettigrew & Cherry, 2012) highlighted the processes of *cumulative continuity*, in which an individual's interaction style biases them to choose similar situations which continue to reinforce their interaction style and *interactional continuity*, which occurs when an individual's interaction style instigates reciprocal and reliable reactions in other people. These multifaceted and reciprocal interactions further stress the importance of the individual, the situation, and the other people in the environment.

The building evidence of the influence of situation caused a rift in the personality psychology community, culminating in a paradigm crisis that tried to explain the stability of personality yet distinctiveness of behaviour (Mischel, Shoda, & Mendoza-Denton, 2002). One of the leading solutions to this rift was the integration of the fields of personality and social psychology (Snyder & Deaux, 2012), such that stable personality systems are now understood as dynamic and interactive with the environment, resulting in a variety of behavioural patterns.

Cognitive-affective personality system.

Shoda, Mischel, and Wright's (1994) research observed the behaviour of children at a summer camp, and provided support for the *if...then...* expression of personality invariance, which states that if situation A is present, then an individual will react with X behaviour, but if situation B is present, the same individual will act with Y behaviour, thus showing the dynamic interaction between underlying personality systems and the situation. By examining situations based upon their psychologically 'active' elements, Shoda and colleagues were able to explore the stable yet distinct behavioural responses in situations previously overlooked in personality psychology. They studied the elements of provocation, teasing, threatening, warning, praising, seeking out, and shunning across different activities

and through different interpersonal interactions. The stability of the *if...then...* patterns better reflected the underlying personality than previously believed average behavioural tendencies, and the analysis of these patterns provides a unique insight into individual motivations and behaviours (Shoda et al., 1994). It was also found that the psychological features of the situation played an essential role in determining the behavioural response, such that those situations that maintain a high degree of psychological similarity to an individual will produce similar behavioural outputs (Mischel et al., 2002).

This research went on to form the foundation of the cognitive-affective personality system (CAPS) theory, developed by Mischel and Shoda in 1995. This theory states that overall personality can be broken down into personality units: stable representations of one's temperament and emotional reactions, which mediate how an individual perceives and responds to a situation (Pettigrew & Cherry, 2012). When presented with psychologically similar situations, an individual will respond with similar behavioural output, and each will have individual stable behavioural responses (Mischel et al., 2002).

Through cognitive personality systems, an individual creates mental representations of the world, which influence behaviours based on how these systems are activated and inhibited (Mischel et al., 2002). As behavioural strategies are activated more frequently, they will be more likely to activate in future situations as well. Conversely, infrequent behaviours and strategies may experience degradation and erosion (Woodhams, Hollin, & Bull, 2007). Thus, any response displayed will be dependent on the past experiences of the individual, the current situation, as well as the future orientation and goals of the person (Shoda & Mischel, 2000).

The psychological and emotional similarity between situations is vital to the understanding of sexual assault due to the element of fantasy. As an offender seeks to fulfil

his sexual fantasy, the behaviours presented during an attack can not only provide insight into his mental and motivational states but can also provide a blueprint for analysing and potentially predicting future behaviour. Goals, behaviours, and planning due to fantasy may result in similar acts across offences (Woodhams, Hollin, et al., 2007). In the practice of case linkage, behavioural similarities between two offences can be used in conjunction with an analysis of the potential psychological meaning and significance of the assault to assist in determining whether two offences were the work of a single offender.

Habitual Behaviour

The human ability to multitask is primarily facilitated by the formation of habitual behaviours. As Martin (2008) said, “the habitual mind is guided by the past but lives in the present” (p.4). Take, for example, the frequent occurrence of arriving at a destination without necessarily remembering the drive there. That car ride was directed by habitual behaviour, remembering the previously learned driving behaviours and applying them to the current situation. Early research and development of the notion of habit can be traced to behaviourists and their work such as Thorndike’s (1898) *law of effect*, Hull’s (1943) *formalised drive theory*, and Skinner’s (1938) *operant conditioning*, most of which focused on habit formation based on reinforcement (Wood & Rüniger, 2016). The understanding that situational cues can invoke emotions, cognitions, and goals in an individual, thus impacting behaviour, was a turning point in personality psychology.

A comprehensive definition of habit is provided by Verplanken (2018) as “memory-based propensities to respond automatically to specific cues, which are acquired by the repetition of cue-specific behaviours in stable contexts” (p. 4). Generally, habit formation provides a cognitive advantage; it results in more efficient behaviour, allowing cognitive resources to be freed up for more demanding tasks (Svanberg, 2018). Habitual behaviours

can be invoked directly by specific cues and situational contexts as well as by the subsequent cognitions.

Verplanken cautions not to think of habits as only behavioural, as individuals can form habits of cognition as well, such as the automatic recollection of solutions to repetitive problems or dysfunctional habitual negative self-thoughts. Habits of cognition relate to the process of thinking rather than a behavioural response and influence how humans interpret the world and act in the face of ambiguous situations. An understanding of cognitive habits could provide insight into the decision-making and problem-solving cognitive patterns of serial sexual offenders when they are faced with conflicts, such as victim resistance. However, to the author's knowledge this has not been addressed and would be very difficult to assess empirically.

Wood & Runger (2016) indicate that habit forms at two levels, habit learning and automated habit performance. Habit learning refers to those memory associations of behaviour, which are created through repeated behavioural responses across similar contexts, while automatic habit performance reflects the specific patterned behavioural responses that are relatively insensitive to change. Initially, behaviour and action are in response to intention and have the aim of achieving a goal or outcome. If an action provided a satisfactory result to a situation, it is noted and stored, and a mental script created to more efficiently and automatically recall the behaviour the next time the same or similar circumstance is encountered (Martin, 2008). Additionally, if that behaviour produces a reward, the link between the behaviour and the specific context will be strengthened; to the point of automaticity with repeated instances of similar outcomes (Hogarth, 2018). Simply stated, habits are formed as an individual's goals influence them to act repeatedly in a consistent manner within similar contexts. Eventually, that context will provide the cue for

the habitual behaviour, regardless of underlying goal or motivation. Habits have often been described as a form of automaticity, in that:

Automatic processes tend to be: goal-independent, in that they can function in the absence of, or even contrary to, intentions; unconscious, in that they can function without conscious awareness and may even be inaccessible to it; efficient, in that they do not require effortful attention or mental processing; fast; and perhaps most importantly for habits – stimulus driven, in that they can be cued directly by perception of elements in the environment (Mazar & Wood, 2018, p. 18).

There can be numerous elements of a situation which form the ultimate cue for habit formation, such as preceding actions, environmental cues and other people, and exposure to these cues can be either inadvertent or deliberate (Wood & R nger, 2016). Cues do not necessarily have to occur in the external environment, as internal states such as emotions, mood and cognitive representations can also cue habitual behaviour (Mazar & Wood, 2018). Some individuals may form habits more quickly than others (known as *habit propensity*), either because of the fast formation of habits in response to stimuli or the inability to control goal-directed behaviour (Verhoeven & de Wit, 2018). Unless an individual has the capability and motivation to alter their behaviour, the habitually formed behaviour will be the default response to future similar contexts (Wood & R nger, 2016). Habit formation and persistence can occur independent of goals and intentions, and once formed, habits are powerfully resistant to change (Mazar & Woods, 2018). This resistance has significant implications because even when trained in goal-directed behaviours and insight, individuals can fall back into habitual patterns when presented with the cueing factor, even after significant time has passed.

The concept and understanding of habit can be applied to the study of serial rape. Throughout an offence, the contextual and interpersonal elements can act as further cues and reinforcers of behaviour, particularly those actions and behaviours that fulfill the offender's sexual fantasy and result in sexual and aggressive gratification. However, as planning and deliberate decision-making act as protection against habit formation (Wood & Runger, 2016), offenders who consciously engage in planning their offences and act deliberately may be less likely to form offence-related habits, thus reducing potential consistency in behaviour. This has implications for case linkage, as it is reliant on repetition of behaviours to connect offences. As habitual behaviours are prone to repetition, an understanding of habit may be beneficial for case linkage in recognising the more stable offence behaviours. On the other hand, deliberate and distinct behaviour by an offender may be harder to link across offences.

When presented with situations that require split attention, induce stress, or tax one's abilities, people can often fall into habitual behaviours even if unintended (Wood & Runger, 2016). These habit slips may be seen in serial rape offenders when faced with additional challenges or risks during an offence, such as time pressure, the influence of drugs and alcohol, resistance by the victim, or intrusion or interruption of an offence. Considering these habitual slips, it is necessary to gather information on these potential impeding factors to gain insight into whether the offender's behaviours have been the result of rational, goal-oriented decisions or habits.

Rape and Addiction

Addiction can be understood as an extreme form of habit formation: automatic patterns of behaviour (Svanberg, 2018). Habit formation and drug addiction have similarities, especially as habits related to drug rewards form faster than other reward-

seeking and goal-directed habits (Verhoeven & de Wit, 2018). Through learning, the pairing of rewards with drug use, reinforcement of drug use, and other mechanisms, habits and cravings are formed (Wanigaratne, 2006). However, it is unclear whether it is the habit formation process rather than the impairment in goal-directed and conscious decision making that influences the addictive behaviour more strongly. In exploring drug addiction as a habitual behaviour, Wood and R nger (2016) state that the initial drug-seeking behaviour is voluntary, deliberate, and goal-directed. This same concept can be applied to serial rape. The first offence is deliberate, voluntary, and goal directed as the offender aims to exact power and control over his victim while fulfilling his fantasy. However, with the associated reward for the offender, and the psychological rumination after the offence, it could be argued that the act of rape shifts and changes along the behavioural continuum towards addiction.

Another factor related to addiction and habit that can have direct implications on the understanding of rape is the effect of drugs and alcohol. Drug and alcohol use promote habit formation (even outside of addiction) by impairing goal-directed behaviours (Wood & R nger, 2016). Drug and alcohol use negatively affect an individual's ability to engage in rational decision making and evaluate outcomes, thus placing more reliance on habitual responses. As the majority of rape offences occur with the use of drugs or alcohol (Lalumi re et al., 2005; Maier, 2014; Orthmann & Hess, 2013), understanding the role that drugs and alcohol play on habitual behaviour can deepen the understanding of rational versus habitual behaviours during an offence.

Although the term sexual addiction does not appear within the DSM-V, it is frequently used by the general public, media, and even professionals. Indeed, the DSM-V states explicitly that:

Groups of repetitive behaviours, which some term behavioural addictions, with such subcategories as 'sex addiction,' 'exercise addiction,' or 'shopping addiction,' are not included because at this time there is insufficient peer-reviewed evidence to establish the diagnostic criteria and course descriptions needed to identify these behaviors as mental disorders (American Psychiatric Association, 2013, p.481).

This statement alone highlights the need for further exploration of the nature, aetiology, development, and manifestation of sexual addiction. As it is currently understood, sexual addiction covers a wide array of behaviours, including masturbation, viewing pornography, telephone or cybersex, visiting strip clubs, paraphilic behaviours, and sexual intercourse to the extent that is compulsive and out of control (Aggrawal, 2009; Slovenko, 2009). There is a complex and unclear dynamic between sexual offending and sexual addiction, as some forms of sex addiction are also offences. Although rape is not an addiction, there are components to addictive behaviour and sexual addiction that can provide insight into a rapist's motives. Furthermore, the crossover between rape and addiction can impact case linkage analysis. The compulsive nature of some sexual and addictive behaviours can result in a higher likelihood of repetitive actions which can be used for identifying a series of offences. Indeed, serial sexual offenders have been shown to have higher rates of compulsive masturbation compared to non-serial sexual offenders (Marsh, 2018).

All sexual behaviour contains fantasy, symbolism, ritualism, and a degree of compulsion. However, what sets the sexual offender apart from normal sexual behaviour is the level of each. Specifically, sexual offenders' ritualism and compulsion approach levels that are similar to addiction (Holmes & Holmes, 2009). The scripting of serial rapists deviates from regular sexual scripting in that it often must occur in specific and repeating sequences,

which pairs with preoccupation and compulsion to result in an offender who may be unable to control his desires or actions. For a sex addict, this preoccupation and obsession are focused around the physical act of sex, while the sex offender's focus is often related to the psychological constructs of power and control (Slovenko, 2009). The presence of desires, especially in the absence of self-efficacy, can result in the indulgence of addictive behaviour (Wanigaratne, 2006). This can be seen in the serial sexual offender, especially the anger-excitation offender who acts on impulse with untamed rage.

Other similarities between sexual addiction and sexual offending may be seen in the build-up of psychological tension before an event. For a sex addict, the temptation and obsession around their addiction continue to grow until they can no longer avoid action, and they indulge their fantasy (Aggrawal, 2009). Furthermore, there is an element of risk involved in deviant sexual acts, whether they are illegal or not, that can create a thrill for the individual, which becomes sought after and addictive in its own right (Johnson, 2016). For a rapist, the feelings of power, control, and entitlement that an offender may feel upon completion of an offence can result in intense feelings of ecstasy which will be sought after again (Johnson, 2016).

Perhaps the area for the most significant crossover between sexual addiction and sexual offending is that of paraphiliac disorders. Paraphilic behaviours are relatively consistent and resistant to change, especially those that are more aggressive, such as sadism (Hazelwood & Warren, 2009). Because of the underlying deviant fantasy, paraphilic interests are stable and maintain even during incarceration. There have been numerous accounts in which an individual released from prison has quickly engaged in a repeated paraphilic-motivated offence (Hazelwood & Warren, 2009).

Although this chapter has discussed similarities between sexual offending and some aspects of sexual addiction, it needs to be made very clear that sexual offending is not the same as sexual addiction. Sexual addiction occurs over time as an individual deviates from healthy sexual relationships, progressively retreating further from reality through their preoccupation with sex, the ritualisation of sex, compulsion around sex, and their feelings of despair and hopelessness that accompany that retreat (Johnson, 2016). Although sexual offending shares some of these elements, nowhere in the definition of sexual addiction is violence, coercion, or aggression included, and it is uncommon for sexual offenders to feel despair and hopelessness surrounding their offences (Johnson, 2016). Additionally, sexual offending is determined and defined by the specific behaviours involved, whereas sexual addiction is often defined in terms of the impact it has on one's life (Freimuth, 2005). Another primary difference is that the sexual addict will generally feel guilt, self-reproach, and intention to change after engaging in the sexually deviant act (Aggrawal, 2009), and there is no indication that sexual offenders share this remorse (Johnson, 2016).

One central way sex addicts and sex offenders differ is in their motivation. The sex addict's preoccupation and compulsion around sex results in the motivation to have as much sex as possible. On the other hand, the sex offender is motivated by a desire to use sex as a weapon to humiliate, degrade, or harm another individual. Additionally, many sexual addicts will seek out help or treatment because of the impairment or distress their addiction is causing in their life, but sex offenders rarely step forward for treatment, unless it is after they have been caught, with the purpose of reducing their prison sentence (Johnson, 2016).

Another, and perhaps the most prominent, difference between sex addicts and sex offenders is the element of choice. Although the sex addict may initially choose to engage in

sexually deviant behaviours in an attempt to cope with whatever relationship or life trauma they may be experiencing, the repeated action and formation of habitual behaviour on the level of compulsion is unique. Sexual offenders, on the other hand, actively engage in the decision-making processes and rational choices to find a victim, engage in the sexual assault, maintain control over the victim, successfully escape, and avoid detection. One may expect to see an increasing divergence in control between the addict and the offender. As an addict falls farther into addiction, they suffer a gradual reduction in their ability of self-control (Moss & Dyer, 2010). The serial sexual offender, however, would be expected to increase in his self-control as his offences continue. The rational decision to continue to offend results in learning from past mistakes and successes, further developing the skills to ensure the successful completion of his offences (Beauregard & Leclerc, 2014).

It needs to be made clear that the discussion of addiction within the realm of rape is by no means providing an excuse for rape or minimising the behaviours of rapists. Although acknowledging the similarities between serial rape and addiction may be useful in understanding some of the underlying psychological processes and mechanisms, this does not mean that rape is an addiction. When rape is aligned with sexual addiction, there is a risk of minimising the responsibility placed on the rapist. This can be carried over to the legal realm, in which sexual addiction may be used as a defence for sexual offences. An example of such a case is *United States v. Caro*, in which a man charged with possession of child pornography cited sexual addiction as a defence (Slovenko, 2009). The defence stated that the offender had reduced mental capacity as a result of his sexual addiction and that he collected child pornography as a form of medicating his addiction. The court rejected this defence, but it highlights the slippery slope and risks associated with viewing sexual offending and sexual addiction as interchangeable. It is vital to avoid this, as rape is a choice

made by offenders. Additionally, although sexually aggressive behaviours may become habitual or the act of sexual aggression itself may have an addictive quality for the offender, the offender still makes the conscious decision to engage in sexual behaviour and aggression towards another person without consent.

Conscientiousness

Although habitual behaviour contributes to sexual offending, there is a general belief that serial rapists are more deliberate and calculating in their offences than non-serial rapists. Thus, the role of intentional and goal-directed, as well as habitual, behaviour in serial offending needs to be explored. Indeed, if it can be understood whether serial rapists plan and act out each offence deliberately, and which internal versus situational cues elicit repeated behaviours, a greater understanding of motivations can be gleaned, assisting in case linkage, profiling, and investigations.

From a personality trait perspective, conscientiousness reflects an individual's level of reliability, self-discipline, and task perseverance (Durrant, 2013). This trait correlates negatively with aggression and criminal behaviour such that individuals with low levels of agreeableness and conscientiousness (and, conversely, high levels of impulsivity with low levels of self-control) show higher rates of aggressive and criminal behaviour. Furthermore, agreeableness and conscientiousness are integral in the moral and control models of criminal lifestyle development (Walters, 2018). Individuals with low goal-mediating ability and low self-control may behave more often out of impulse rather than rational thought. Indeed, the inability to regulate and control behaviour and reactions is a significant feature in many psychological theories on crime, and the primary tenet of Gottfredson and Hirschi's General Theory of Crime (Durrant, 2013). Individuals who have lower levels of self-control are less able to manage and restrain aggressive responses to situational factors such as

rejection, frustration, and provocation; thus, are more likely to act with violence (Durrant, 2013).

The anger-excitation (sadistic) rapist type has been noted to be excessively high on impulsivity and low on conscientiousness (Pardue & Arrigo, 2008), which fits with the higher levels of violence that are often seen in sadistic rapes. On the other hand, sadistic rapists may engage in more planning around their offences compared to other rapist types, which may be more indicative of higher conscientiousness. However, it is important to note the high amount of fantasy and ritualism in the sadist rape (Hazelwood, 2009; Kocsis et al., 2002). The importance of fantasy and ritualism paired with the high levels of impulsivity may explain the serial sadistic rapist's highly consistent behaviours across offences: his behaviours are driven more by impulse than conscientious thought and are more habitual, possibly bordering on addiction as he seeks to fulfil his fantasy.

Conversely, individuals with high self-control or high conscientiousness have greater and more deliberate control over their behaviour and may consciously choose to behave in specific ways (Minbashian, Beckmann, & Wood, 2018). Both the anger-retaliatory and the power-reassurance rapists scored moderate to high on conscientiousness (Pardue & Arrigo, 2008). However, the anger-retaliatory rapist scored excessively high on impulsivity and sensation-seeking, whereas the power-reassurance rapist scored low. The vindictiveness characterised by anger-retaliatory rapists (Canter & Youngs, 2009) paired with the high impulsivity may lead to more consistent behaviours across his offences. On the other hand, the high conscientiousness and need for intimacy of the power-reassurance rapist, paired with his relatively higher level of empathy shown for his victims (Robertiello & Terry, 2007), may lead this rapist to have a more diverse range of behaviours as he tries to connect with each victim in a way that will foster intimacy. The extensive interpersonal interaction with

the victim (Turvey & Freeman, 2011) may result in the power-reassurance rapist consciously altering his behaviour depending on the victim, thus having a less consistent behavioural pattern across his offences compared to the anger-retaliatory or anger-excitation rapists. Future research could further examine the behavioural consistency and personality characteristics of the different rapist types. This information could help the understanding of behavioural consistency and conscientiousness.

Although the research on conscientiousness (or personality characteristics in general) in serial rapist populations is limited, some research on sexual homicide supports the notion that serial offenders may have higher rates of conscientiousness. In a study on single-victim and serial sexual homicide, Chan, Beauregard, and Myers (2015) found that serial sexual homicide offenders displayed structured premeditation compared to single-victim offenders. This indicates that the serial offenders were higher on conscientiousness, as self-discipline and task perseverance are necessary for an offence to be premeditated and structured. Another factor that may be related to conscientiousness and serial offending is intelligence. There is an association between intelligence and the ability to form sexual fantasies and engage in complex offences, so serial offenders may have higher levels of intelligence than non-serial offenders (Hazelwood & Warren, 2009). The understanding that serial offenders score higher on conscientiousness and may be of higher intelligence poses a potential problem for investigations because higher rates on conscientiousness and self-control indicate an ability to knowingly behave outside of an offender's typical personality system in order to avoid identification.

Deception and staging.

Aligned with the notion that serial offenders rate highly on conscientiousness and goal-directed behaviours are the concepts of deception and staging. Indeed, a consistent

finding across research is that serial rapists show proactive behaviours related to avoiding detection and showcasing forensic awareness (Corovic et al., 2012; Grubin et al., 2001; Park, 2009; Santtila et al., 2005; Woodhams & Labuschagne, 2012a). Because of this, the role of deception needs to be examined, as this is essentially a form of staging within serial rape. Staging is described as the purposeful alteration of physical evidence at a crime scene before police arrive (such as moving a body or destroying a crime scene) to disguise an offender's identity or to redirect lines of inquiry (Douglas & Munn, 1992; Ferguson, 2015). Elements of staging may be beneficial for case linkage, although staging is most often seen within homicide in which there is a prior relationship between victim and offender (Brandl, 2004; Ferguson, 2015). The intentional effort to redirect or thwart an investigation complicates the case linkage process and can result in the determination of incorrect links. To the author's knowledge, no empirical examination of the role of deception and staging within sexual assault offences has been conducted. However, it is noteworthy that this type of analysis would be notoriously difficult to complete, and it is unclear the extent to which such analysis would contribute to practical investigations.

However, within the sexual assault field, there is an argument for expanding the understanding and definition of staging. Now, it should be noted that as no empirical evaluation has been found on staging and sexual assault, this discussion is purely theoretical and provides a potential for further research and analysis in the investigations of sexual assault. Staging within a sexual assault, as it relates to deception, can be seen in preparatory behaviours, offence behaviours, and escape behaviours, and have either practical motivations, psycho-sexual motivations, or both (J. Keith, personal communication, April 15, 2019). Preparatory staging includes any deceptive behaviours which influence victim acquisition. Examples of these behaviours include posing as a police officer, client of a

prostitute, or professional such as electrician, creating a false situation such as a broken-down car to lure victims, or even deliberately altering elements of the victim's situation to instigate contact with the offender, such as puncturing the victim's car tyre. Offence staging behaviours can include deliberate attempts to conceal the identity, such as disabling lighting, disguising the voice, wearing a mask or other covering of the face and intentionally positioning the victim's body to block their vision.

Potential offence staging behaviours include the use of a specific location or props to either facilitate the completion of the offence or trashing a house to make a rape appear as though it was a secondary crime of burglary rather than the primary goal. As serial rapists show forensic awareness and engage in behaviours to facilitate escape and avoid identification and detection, it follows that these behaviours fall under the umbrella of staging. Escape related staging refers to those deceptive behaviours to avoid detection, such as providing a false name, destruction or removal of forensic evidence, planting evidence related to the method of escape, or pretending as though the offender knows the victim or their family and making threats against them to deter reporting. These elements could confound the investigative and case linkage processes and allow serial rapists to continue to offend for more extended periods before being caught.

A final element of staging and deception that relates to serial rape is that of the offender intentionally changing his behaviour across offences to avoid detection. As serial rapists have been shown to display forensic awareness, they are also aware of general police and investigative practices. Serial rapists may have knowledge that investigations often rely on behavioural evidence to link cases to form series attributed to a single offender. Thus, these offenders may deliberately alter core components of their offences for the purpose of avoiding their offences being linked. They may do this by changing their MO,

the geographic region in which they generally search for victims, and the type of victim they choose. These differences across a series can make linking offences more difficult and highlight the need for investigators to pool all available information to make links, as well as not rely too heavily on there being high levels of consistency across offences in order to link them.

Analysing the staging behaviours within an offence can provide insight into the offender's motivations, psychology, and sexual fantasies. One motivation may simply be to confuse investigators. As some behaviours can have dual purposes, they should be examined to determine the most likely motivation. For example, an offender who deceives the victim as to their purpose, either by saying somebody else sent them, or indicating that they are only there to rob the victim, may do so to increase compliance by the victim or to minimise blame to himself. Additionally, preparing or choosing a specific offence location may ensure the completion of the offence or may fulfil the offender's fantasy.

Some behaviours that may blur the lines between deception and truth are those related to fantasy and compulsion within the serial rapist's offences. For example, an offender who forces a victim to wear particular clothing or walk an exact route blindfolded before offending against her could do so to minimise evidence and confuse the victim, or he could be acting out his sexual fantasy and script. As the core components of the rapist's fantasy remain stable, any compulsive behaviours will thus remain consistent; the MO behaviours will show evidence of misdirection or staging. It is important to assess both the psychological significance and the potential purpose of behaviour during case linkage and analysis, especially in determining which behaviours are consistent across offences or distinct to an offender.

Behavioural Consistency and Distinctiveness

The theoretical foundation for case linkage practice stems from personality psychology and the work of Mischel and Shoda. Case linkage rests on the tenets of behavioural consistency and distinctiveness. Behavioural consistency is not limited to the realm of criminology. Indeed, criminal behaviour is often understood on the continuum of normal behaviour (Canter & Youngs, 2009). Consistent behavioural patterns are seen across different elements of one's life, reflecting underlying traits, such as aggression, as well as consistent personality systems. Within criminology, behavioural consistency and distinctiveness argue that each offender will remain relatively consistent in their behavioural responses to psychologically similar situations in a way that can be traced across offences, yet each offender is unique and distinguishable in their behavioural patterns (Tonkin, Woodhams, Bull, & Bond, 2012a). Tapper (2008, p.50) states "that the intra-individual behavioural variation *across* offences must be less than the inter-individual behavioural variation *between* individuals." It should be made clear that discussing behavioural consistency and distinctiveness within criminology is, by nature, limited to serial offenders as multiple offences are a requirement to establish individual consistency and distinctiveness. However, as this thesis demonstrates, consistency can also be assessed at a group level, and non-serial offenders can be incorporated into a comparative analysis to examine the distinctiveness of serial offenders.

Consistency.

As shown by Mischel and Shoda's CAPS research, individuals remain relatively stable in their behavioural patterns across different social contexts, especially when psychological relevance is examined. As individual personalities and preferences remain steady over a lifetime, it follows that behaviours reflective of this would also be stable (Brandl, 2004). Initially, it was believed that a person would remain consistent in their behaviours across

situations through their personality, but it is now understood that the psychological significance of a situation and the interaction between the offender, victim, and environment are crucial (Woodhams, Hollin, et al., 2007). Individual behaviours may change as an offender learns what contributes to a successful offence, what hinders the completion of an offence, or what behaviours fulfil their underlying fantasies. However, behavioural consistency states that the offender will remain relatively consistent across his offences, especially in those behaviours which relate to the underlying core components of an offence.

Within investigations, behavioural consistency is generally analysed through MO behaviours. Indeed, modus operandi implicitly assumes some level of consistency in order for an offender to have a chosen method of operation. Behavioural consistency is crucial for accurate case linkage because, without it, it would be impossible to determine whether two offences were the work of a single offender based on behavioural evidence (Woodhams & Toye, 2007). Although the analysis of consistency often falls to MO behaviours, some of the behaviours considered to remain relatively consistent across offences are those that relate to the underlying fantasy of the offender (which is sometimes related to offender signature) (Olivia, 2013), especially the compulsive elements that occur habitually. Not only are the behaviours tied to the offender's fantasy expected to have higher levels of consistency, but those behaviours that contribute to the successful elements of an offence will also develop stronger cognitive connections and thus be more likely to be used consistently.

Many goal-oriented behaviours may be activated automatically as they become habitual, thus showing more consistency. Additionally, it has been found that there is more consistency with less time between offences, more consistency in adult versus juvenile offenders, and more consistency in more experienced offenders (Tapper, 2008; Woodhams,

Bull, et al., 2007). Some offenders may have an ever-present motivation to offend, resulting in a high frequency of offending typically in the same area, whereas others are characterised by a long-term, low rate of offending (Tonkin, Woodhams, Bull, Bond, & Palmer, 2011).

When assessing the consistency of behaviours across a series, it is vital to keep in mind that MO behaviours can change as the offender learns which behaviours result in the most successful completion of the crime (Douglas & Munn, 1992). Variables that influence an offender's consistency across offences include the time between offences, age of offender, experience, and automatic versus conscious behaviour (Tapper, 2008). Furthermore, behaviours can change due to several factors, such as an interaction with the victim that does not conform to the internal fantasy of the offender, thus changing the psychological meaning of the interaction (Woodhams, Hollin, et al., 2007). Therefore, examining the context and potential for evolution and adaptation of behaviours across a series is important for case linkage. Ritual behaviours can also grow and evolve as the offender's fantasy progresses and becomes more fully developed, especially in those instances of sadistic fantasy, although the fundamental core of the ritualistic behaviour generally remains stable (Olivia, 2013). Additionally, although consistency is often analysed on an individual basis, it can also be seen within groups; such as burglary get-away drivers consistently having a history of vehicle-related offences (Canter & Youngs, 2009), or serial sexual offenders showing a high level of forensic awareness (Grubin et al., 2001).

As an offender learns from previous offences and evolves his strategy for success, those behaviours assisting in the completion of his offences become more consistent. Thus, a more experienced offender might be expected to show more behavioural similarity across his or her crimes (Woodhams, Hollin, et al., 2007), although this has not been supported in research (Grubin et al., 2001; Tonkin, Grant, & Bond, 2008). Furthermore, one offender may

be highly consistent in his or her behaviour, while another is highly variable (Tapper, 2008). This offender has been referred to as the consistently inconsistent offender; one who continually acts in different and non-consistent ways (Canter & Youngs, 2009). In a recent analysis of consistency across serial sexual assault, Sorochinski and Salfati (2018) found that of the 28 offenders assessed across a series of four offences, one offender remained completely inconsistent in his behaviours across all behavioural dimensions, and this inconsistency extended across the entire length of his series. This finding provides support for this type of offender as a potentially unique classification. Although this offender would be notoriously difficult to identify through traditional case linkage methods, an understanding of this offending type can provide further knowledge for the field of case linkage. It is also worth exploring whether the consistently inconsistent offender acts so by virtue of an underlying element of his personality, which carries over to other facets of his life, or whether it is a deliberate and deceitful style of offending to ensure the continued success of his offences. To the author's knowledge, this has yet to be empirically examined, and mention of consistently inconsistent offenders is sparse.

Support for consistency.

There is support within the literature for behavioural consistency, especially with those behaviours that are less situation-dependent and more under the control of the offender (Bennell, Snook, MacDonald, House, & Taylor, 2012; Slater, Woodhams, & Hamilton-Giachritsis, 2015). Support for behavioural consistency has been found within sexual assault, burglary, robbery, homicide, car theft, and arson (Bennell & Canter, 2002; Bennell, Bloomfield, Snook, Taylor, & Barnes, 2010; Ellingwood, Mugford, Bennell, Melnyk, & Fritzon, 2013; Salfati & Bateman, 2005; Santtila, Fritzon, & Tamelander, 2004; Tonkin et al., 2008; Yokota & Canter, 2004; Woodhams, Hollin, et al., 2007). Behavioural consistency

has been addressed at both an individual behaviour level and a thematic level, with those individual behaviours more under the control of the offender typically displaying more consistency (Harbers, Deslauriers-Varin, Beauregard, & van der Kemp, 2012; Woodhams, Bull, et al., 2007).

As it is acknowledged that there is a ritual or fantasy basis for their crimes, it follows that serial rapists would aim to repeat the circumstances which allow for the more successful fulfilment of their fantasy. Therefore, they would elect for a high degree of consistency in their surroundings, allowing for more consistency in their behaviours as well. Within sexual assault, consistency of individual behaviours has been found in the type of sexual offence and the type of victim targeted (Sjöstedt, Långström, K., & Grann, 2004; Soothill et al., 2002), approach method (Harbers et al., 2012; Hazelwood & Burgess, 2001; Slater et al., 2014), offence site selection (Harbers, et al., 2012; Lundrigan, Czarnomski, & Wilson, 2010), and in the use of weapons and violence (Knight, Warren, Reboussin, & Soley, 1998). Sjöstedt et al. (2004) found that serial sex offenders showed more consistency in victim selection, especially those who targeted strangers. Harbers et al., (2012) found that within a series masturbation and exhibitionism were relatively consistent, supporting the use of low-frequency behaviours to link offences. Furthermore, they found that offenders who were highly consistent in the environmental elements of their offences were also more consistent in their behaviours, and that the older an offender was at the beginning of their series, the more consistent they were across their series (Harbers et al., 2012). One hypothesised explanation was that offenders who are more consistent have a smaller range of skills and less opportunities to engage in different behaviours. Additional consistent serial rapists' behaviours are discussed later in this chapter in the section on serial rape behaviour.

At a thematic level, consistency has been shown in the presence of criminal sophistication in serial rapists (Corovic et al., 2012; Park, 2009), as well as in control and escape behavioural domains (Grubin et al., 2001). The high levels of consistency across control and escape themes may be due to several factors. These types of behaviours are easy to record as they are less dependent on victim recall, so the higher consistency seen may be due to more accurate recording and coding of behaviours (Grubin et al., 2001). Additionally, as the priority of a police investigation is to determine that a crime has been committed, they will ensure that the information about how an offender got away and how a victim was controlled is recorded precisely (Woodhams, Hollin, et al., 2007).

Most often, support for behavioural consistency comes from comparing similarity coefficients, such as Jaccard's, between linked and unlinked pairs of crimes (Bennell, Gauthier, Gauthier, Melnyk & Musolino, 2010; Bennell, Jones, & Melnyk, 2009; Mokros & Alison, 2002; Slater et al., 2015; Woodhams, Grant, et al., 2007; Woodhams & Labuschagne, 2012; Woodhams et al., 2018). This process occurs by first matching crimes by the same offender (linked) and calculating a similarity coefficient between the two offences based upon the shared offence behaviours and characteristics. Then, pairs of offences from different offenders (unlinked) are matched and the similarity coefficient calculated. Because the unlinked pairs are from different offenders, it is expected that their similarity coefficients are lower than those of the linked pairs by the same offender (Woodhams, Hollin, et al., 2007).

The research on consistency of behaviour in serial rape has been conducted across an array of countries, with data from a variety of sources, varying sample sizes, and a range of variables. Table 1 presents a summary of the different research that has analysed behavioural consistency using Jaccard's coefficients. In determining which behaviours and

variables to include in their analyses, the authors relied on previously developed rape behaviour checklists, created their own checklists, or pulled variables from the ViCLAS form. Offence variables are coded dichotomously to reflect their presence or absence through the offence. Bennell and colleagues (2009; 2010), Mokros and Alison (2002), and Woodhams & Labuschagne (2012) used variables related to offender behaviour only, while Slater et al. (2015), Woodhams, Grant et al. (2007), and Woodhams et al. (2018) also included variables related to the offence scene, target selection, or both.

Table 1

Overview of Studies Examining Behavioural Consistency of Serial Rape Using Jaccard's Coefficients

Author	Country	Sample		Data source	Variables (n)	Mean/Median Jaccard's	
		Cases	Offenders			Linked	Unlinked
Mokros & Alison, 2002	United Kingdom	139	100	Victim statements	28	.41	.27
Woodhams, Grant, et al., 2007	United Kingdom	16	7	Social service department descriptions	55	.39	.17
Bennell et al., 2009	United Kingdom	126	42	Victim statements	27	.41	.27
Bennell, Gauthier, et al., 2010	United Kingdom	126	42	Victim statements	36	.39	.23
Woodhams & Labuschagne, 2012	South Africa	119	22	Police files	114	.52	.34
Slater et al., 2015	United Kingdom	244	100	ViCLAS	217	.37	.17
Woodhams et al., 2018	Belgium, Finland, Netherlands, South Africa, United Kingdom	3364*	3018	ViCLAS, Police files	166	.44	.24

Note. *3364 offences includes all offences from all countries. The authors conducted multiple analyses by country and by type of offence. The linked Jaccard's value remained unchanged but unlinked varied slightly. See Woodhams et al. (2018) for full details.

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Within the abovementioned research, the mean (or median, as reported in Slater et al., 2015) Jaccard's coefficients for linked pairs ranged from .39 to .52 and for unlinked pairs from .17 to .34, and the results were statistically significant across all studies. The highest Jaccard's coefficients were found in South Africa, with linked offences $J = .52$ and unlinked offences $J = .34$ (Woodhams & Labuschagne, 2012), while the lowest were in Slater et al.'s (2015) UK sample, with linked offences $J = .37$ and unlinked offences $J = .16$. The lowest Jaccard's coefficient was found when the highest number of variables was included in the analysis, although the reverse was not seen as Woodhams and Labuschagne (2012) had the highest Jaccard's coefficients but included 114 variables, and Bennell et al. (2009) (who included the fewest [27] behaviours) showed similar Jaccard's coefficients to Woodhams et al. (2018), who included 166 variables in their analysis (linked = .41 and .44, unlinked = .27 and .24, respectively). However, Slater et al. also limited their sample to stranger offences only, which could influence the results of their analyses.

Overall, linked pairs (serial offenders) have more behavioural similarity than unlinked pairs, evidenced by higher Jaccard's coefficients. This held true across countries and data sources, with different sample sizes and number of variables included in the analyses. Additionally, Woodhams, Grant, et al. (2007) examined juvenile offences only, and still found Jaccard's coefficients within the norm of other research. This provides support for behavioural consistency because those offences by a single offender show higher behavioural similarity (presence of behaviours) than the offences paired by different offenders. Thus, it follows that serial offenders are engaging in more consistent behaviours across their offences than two different offenders across two different offences.

Distinctiveness.

Notions of behavioural distinctiveness were first developed by the German psychologist William Stern (1871-1938) through his argument for understanding personality and individuality through *relational individuality* and *real individuality*. Relational individuality is nomothetic and refers to an individual's relative position on a wide variety of traits, such that even if two individuals share similarities across single traits, the overall behavioural pattern will be unique for each (Fancher & Rutherford, 2012). Real individuality, on the other hand, refers to the unique individual relationship between traits for each individual and is understood through an idiographic analysis of the individual.

Through their research creating the CAPS theory, Mischel and Shoda were able to show that not only did individuals remain consistent in their personality system responses and behavioural outputs to situational cues, but different individuals also possess unique patterns of responses. This understanding of behavioural distinctiveness changed the way personality and behaviour were examined and is a crucial component of case linkage practice and research. While behavioural consistency can be useful for drawing inferences about an offender or linking cases to one another, if consistency is shared across multiple offenders, then it does nothing to establish links or differentiate between offenders (Canter & Youngs, 2009). The other necessary component of successful case linkage is that one offender must behave in identifiably unique ways compared to other offenders.

As each person has distinct personality systems, perceptions of the world, and experiences, they will use different behavioural strategies and display individual behaviours (Woodhams, Hollin, et al., 2007). One benefit of having case linkage databases that contain a large number of cases and behavioural data is that it can help determine more precisely whether a behaviour is truly distinct because the base rates of behaviours can be examined

(Bennell et al., 2012; Woodhams, Bull, et al., 2007). Case linkage databases serve as repositories for criminal offences through which case linkage analysis is completed, which will be discussed in detail in Chapter Four.

Support for distinctiveness.

The support for offender distinctiveness is generally in tandem with the support for consistency, although distinctiveness examines the ability to distinguish between offenders whereas consistency examines stability in offender behaviours. There are two main methods to testing distinctiveness: distinguishing between linked and unlinked offence pairs and allocating crimes to a series. These two approaches have been used to support offender distinctiveness across a range of offence types. Outside of sexual assault, offender distinctiveness has been shown in burglary (Bennell & Canter, 2002; Bennell, Gauthier, et al., 2010; Bennell & Jones, 2005; Goodwill & Alison, 2006; Markson, Woodhams, & Bond, 2010; Tonkin, Santtila, & Bull, 2012; Tonkin, Woodhams, Bull, Bond, & Santtila, 2012), robbery (Burrell & Bond, 2012; Woodhams & Toye, 2007), homicide (Salo et al., 2013; Santtila, Pakkanen, Zappalà, Bosco, Valkama, & Mokros, 2008), arson (Ellingwood et al., 2013; Santtila, Fritzon et al., 2004), car theft (Tonkin, Woodhams, et al., 2012), and across crime different types (Tonkin et al., 2011; Tonkin et al. 2012a; Tonkin & Woodhams, 2017).

The first (and more common) approach to examine offender distinctiveness tests the ability to distinguish between linked and unlinked offence pairs by calculating a similarity coefficient between pairs of offences, then using that coefficient to predict whether the pairs are linked or not. This research provides support for case linkage, so the results of these studies will be discussed in more depth in the case linkage section of Chapter Four. Lower similarity scores for crimes by different offenders compared to crimes by a single offender should support the assumption of distinctiveness (Bennell et al., 2009; Ellingwood,

2012). In the majority of sexual assault research involving the use of similarity coefficients, this is indeed the case (e.g. Bennell et al., 2009; Santtila et al., 2005; Slater et al., 2015; Tonkin et al., 2017; Winter et al., 2013; Woodhams & Labuschagne, 2012; Woodhams, Grant, & Price, 2007; Woodhams et al., 2018). Furthermore, distinctiveness has been shown when the data set contains serial and non-serial offences as well as only serial offences (Tonkin, Santtila, et al., 2012; Slater et al., 2015; Winter et al., 2013; Woodhams et al., 2018).

It is important to note that there is a substantial degree of overlap in the similarity coefficients of both linked and unlinked offence pairs (Bennell et al., 2009). The fact that researchers are successful in discriminating between linked and unlinked pairs despite this overlap indicates that absolute distinctiveness is not necessary. However, the ability to distinguish between different offenders' linked pairs (individual distinctiveness) has not been examined to the author's knowledge. This is a possible avenue for future research, which could further provide support for case linkage practice. This ability would also have implications for investigations; if investigators were faced with multiple serial rapists operating simultaneously, distinguishing between offenders could increase the effectiveness of investigations as well as help build evidence to use in trial after an offender has been arrested.

The other primary way distinctiveness is assessed is by testing the accuracy of crime allocation (often using a case linkage database), which simultaneously supports consistency and distinctiveness. This method of testing behavioural distinctiveness involves taking a crime from a series as a query or index offence and rank-ordering the remaining crimes in the database in terms of similarity to the query crime. Then the top five or ten most similar offences are examined to see if they contain additional crimes from the same series as the

index offence. Using behavioural consistency to match offences accurately supports offender distinctiveness because it is the distinct individual behavioural patterns which create the similarities between linked offences.

Through multidimensional scaling and discriminant function analysis, Santtila et al. (2005) found that a sexual assault from the same series was in the top five most similar offences over 40% of the time and in the top ten most similar offences just under 60% of the time. Grubin et al. (2001) used the domain type frequencies as a filter through which to link sexual assault cases. They found that the top 10% of similar cases often included actual linked cases. However, they noted that a filter tool that leaves 10% of cases to be assessed as potential links might not be realistic when a case linkage analysis can include thousands of cases. By applying additional filters of temporal and spatial proximity, the likelihood of linkage increased, although it also increased the number of linked cases that were excluded simply by geographic differences (Grubin et al., 2001). Soroichinski (2015) found that the overall themes of control, violence and sexual behaviours can be used to distinguish between offences, especially in using subtypes of each. Soroichinski found that the control and violence themes were best understood as quantitative variables about the degree of each an offender showed, whereas sexual behaviour was best understood as a qualitative variable with the subtypes of instrumental, pseudo-pleasing, demeaning, and extreme/fantasy. This combination of quantitative and qualitative subtypes could be used as further filters in assisting a case linkage analysis.

Yokota, Fujita, Watanabe, Yoshimoto, and Wachi (2007), tested the prediction of which serial rapist in the database a crime belonged to by looking at the top five per cent of rank-ordered offenders based on behavioural similarity to the query crime. They found that 24 of the 81 offenders were correctly ranked as the most likely offender, and the median

rank for the correct offender was four. Although these studies show that there is a degree of accuracy in allocating crimes to a series or offender, there is still a large amount of error. The study by Yokota et al. (2007) shows promise for the practical aspect of case linkage in helping inform a police investigation. If the median correct offender was ranked four in most similar offenders, it could help narrow down a suspect pool.

Rape Behaviour

Although few studies have explicitly compared serial versus non-serial rapist behaviour, rape behaviour (including that of serial offenders) has received increasing research attention over the past twenty years. This research has been conducted in a variety of countries, with some of the highest concentration of research occurring in the USA, the UK, Canada, Finland, Sweden, and South Africa. The analysis of rape behaviour generally explores either individual behaviours or, using statistical techniques like multidimensional scaling (MDS), thematic clusters of behaviours. The method of identifying offender behavioural styles provides information on how an offender relates to his victim and may give insight into the offender's narrative and the role of the victim (Lundrigan & Mueller-Johnson, 2013). Research on individual behaviours highlights the high and low-frequency actions of various rapists. As this thesis focuses on serial rape, general rape behaviour will not be discussed as there are many overlaps. Both Rossmo (2009) and L. Miller (2014) have provided comprehensive overviews of general rapists' behaviour.

Behavioural themes.

Numerous researchers have examined behavioural themes of rapists. Although there have been several classification methods suggested, most thematic evaluations include the elements of intimacy and involvement, violence and hostility, power and control, sexuality, and, less commonly, criminality and theft (Canter et al., 2003; Corovic et al., 2012; Grubin et

al., 2001; Häkkänen, Lindlof, & Santtila, 2004; Kocsis et al., 2002; Park et al., 2008; Salfati & Taylor, 2006; Santtila et al., 2005; Slater et al., 2015; and Canter, Reddy, & Alison, 2000 and Alison & Stein, 2001, as discussed in Lundrigan & Mueller-Johnson, 2013).

As part of the *Home Office Research Study*, Grubin et al. (2001) used the theoretical basis of previous research to develop behavioural themes within sexual assaults in both the UK and Canada. These themes were control, sex, escape, and style, and they have been used in later research (Slater et al., 2014). Similarly, Canter et al. (2003) found the underlying themes of involvement, control, hostility, and theft in an examination of stranger rape offences in the UK. However, Canter and colleagues were among the first to propose the use of these themes, as well as the combination of different levels of themes within an offence to differentiate between offenders.

The underlying themes of hostility, involvement, and control have been found in the UK by Canter, Reddy, and Alison (2000) and Alison and Stein (2001) (both discussed in Lundrigan & Mueller-Johnson, 2013), while Canter et al. (2003) added the theme of theft. Häkkänen et al. (2004) highlighted the themes of hostility, involvement, and theft in their sample of Finnish rapists. Also in Finland, Santtila et al. (2005) introduced sub-themes for both hostility and involvement; distinguishing between sexual and physical hostility and expressive versus deceptive involvement. The theme of criminal sophistication has also been found as both Park et al. (2008) and Corovic et al. (2012) discussed the themes of violence, interpersonal involvement, and criminal sophistication.

Using multidimensional scaling (MDS) to examine serial rape within Australia, Kocsis et al. (2002) highlighted the themes of control, hostility, and theft. Furthermore, they noted that offence planning and precautionary behaviours were consistent across all offences. These themes follow similar patterns to those developed in other countries. Also in

Australia, McCabe & Wauchope (2005b) examined the physical and verbal behaviour of rapists and extracted four verbal themes and five behavioural themes. Although their classifications do not closely follow the overall themes in much of the research, the overlaps can be seen. The verbal themes include: caring, persuasion, or reassurance; sexually abusive or explicit; angry, demeaning, or threatening; and revenge or payback, and the behavioural themes include: vaginal, kissing or fondling; oral, anal, and brutal; and physical (McCabe & Wauchope, 2005b). The behavioural themes determined by McCabe & Wauchope (2005b) relate more to the specific behaviours displayed by offenders in their sample rather than the underlying thematic classifications developed by other researchers.

As can be seen, there is a significant amount of overlap in the behavioural themes across research, and many similarities across countries. While exploring underlying themes of behaviours can help classify rapists and analyse similarities across research, it is important to be aware of the behaviours that are common within each theme. Themes related to intimacy and involvement include complimentary, reassuring, and apologising verbal behaviours, intimate sexual behaviours such as kissing, fondling, and foreplay, conning approach styles, and generally do not include violence and aggression (Corovic et al., 2012; Lundrigan & Mueller-Johnson, 2013; Park et al., 2008). Themes related to hostility and aggression include both physical and verbal violence and threats, humiliating and degrading treatment of the victim (including evidence of sadism), surprise and blitz approach styles, and evidence of offender anger (Canter et al., 2003; Lundrigan & Mueller-Johnson, 2013; Salfati & Taylor, 2006; Woodhams & Labuschagne, 2012a). Power and control themes are characterised by behaviours such as binding and gagging victims, planning the offence, specific methods of approaching and controlling a victim, use of weapon, and other behaviours which allow for the completion of the offence (Canter et al.,

2003; Grubin et al., 2001; Lundrigan & Mueller-Johnson, 2013; Salfati & Taylor, 2006).

Finally, those themes related to escape and criminal sophistication involve precautionary behaviours such as wearing a mask or gloves, using a condom, offending in familiar areas, and other behaviours related to successfully leaving a crime scene (Grubin et al., 2001; Park et al., 2008; Santtila et al., 2005).

Serial rape behaviour.

Not only have behavioural themes been examined, but the frequencies of individual behaviours have also been a common focus throughout the research. Although many researchers have examined both serial and non-serial rape behaviours, few have compared the behaviours across the offender groups (Corovic et al., 2012; Park et al., 2008; Slater et al., 2014). The differences between serial and non-serial rapist will be discussed in the next section. Because this thesis focuses on serial rape, only research discussing serial rape behaviours will be highlighted here.

There are mixed findings regarding the approach style of serial rapists. Serial rapists across the world engage in all the noted approach styles: the use of a con to gain a victim (Beauregard et al., 2007; Rossmo, 2009; Santtila et al., 2005; Woodhams & Labuschagne, 2012a), a surprise approach style (Chiu & Leclerc, 2019; de Heer, 2014; Wright et al., 2016), and a blitz style (Corovic et al., 2012; LeBeau, 1987). Some of these differences may be attributed to cultural differences across countries, or they could be attributed to different definitions or data collection techniques, as discussed in Chapter One.

Some high-frequency behaviours of serial rapists include offending in familiar areas clustered around home bases and anchor points (LeBeau, 1987; Rossmo, 2009; Santtila et al., 2005), use of violence or threat of violence to obtain and maintain compliance (Beauregard et al., 2007; Corovic et al., 2012; Miller, 2014; Rossmo, 2009; Woodhams &

Labuschagne, 2012a), completing the act of rape (Corovic et al., 2012; Park et al., 2008), and giving specific directions to or making demands of their victim (Corovic et al., 2012; Grubin et al., 2001). Rossmo (2009) further highlights some of the behaviours indicative of serial rapists, including stylised verbal scripts demanded of victims and sadistic behaviour.

L. Miller (2014) describes serial rapists as carrying out a planned mission, including preparations and precautions involved in the concealment of their identity. Precautionary behaviours of serial offenders include concealing their face, using gloves, disguising their voice, using a condom, and changing their appearance (i.e. shaving) (Grubin et al., 2001). Many serial rapists show planning, precautions, and criminal sophistication (Corovic et al., 2012; de Heer, 2014; Grubin et al., 2001; Park et al., 2008; Slater et al., 2014). De Heer (2014) found that serial rapists who used more methods to protect their identity engaged in more severe sexual assaults, as did rapists who engaged in more planning of their offences. De Heer also found more severe sexual assaults among White offenders. Precautionary behaviours of serial rapists can also be seen through gagging or smothering their victims to silence them (Corovic et al., 2012; Park et al., 2008) and using different initial contact and offence scenes (LeBeau, 1987).

Serial offenders who show more forensic awareness are not only more likely to complete the act of rape, but also use offence locations that may pose a higher risk of being caught (public locations, victim's residence, offences during the week) (Hewitt & Beauregard, 2014). Furthermore, serial rapists with a more sexually driven motivation tend to travel farther distances as they have specific victim criteria they are trying to fulfil (Knight et al., 1998). The increased forensic knowledge of serial offenders may help them feel more secure in their actions, such that they feel comfortable offending in the victim's home or in

a public place without leaving forensic evidence behind or being interrupted, allowing for the successful completion of the rape.

Serial rapists frequently used vehicles in the commission of their offences, and targeted victims alone, often on college campuses (in the USA) (Miller, 2014). Regarding sexual behaviours, L. Miller found that the most common behaviours were vaginal penetration, fellatio, kissing, and fondling. Finally, there has been some evidence of sexual dysfunction and paraphilias among serial rapists (Miller, 2014; Rossmo, 2009), and there have been discussions around whether rape belongs in the DSM (Raine, 2013).

Some serial rape behaviours are unique across countries. Woodhams and Labuschagne (2012a) examined the behaviours of South African serial rapists, finding high-frequency behaviours of daytime approach and the offender being on foot. The use of a con (most commonly an employment con) to approach a victim is more common in South Africa (Woodhams & Labuschagne, 2012a) than it is in the USA (LeBeau, 1987; Park et al., 2008) or Sweden (Corovic et al., 2012), where surprise and blitz approach styles were more common. The rates of unemployment in South Africa are much higher than in either the USA or Sweden, which may explain the high frequency of employment cons. However, a con approach style was also common among serial rapists in Finland (Santtila et al., 2005), so unemployment rates are not the only contributing factor to approach style. In the UK, serial rapists frequently use solicitation as a means to gain a victim. Prostitution is legal (to an extent) in the UK, whereas it is illegal in both the USA and Sweden, which may account for this difference (House Affairs Committee, 2016; Waltman, 2011).

Santtila et al. (2005) studied serial rapists in Finland, finding that serial rapists were often under the influence of alcohol at the time of the attack, attacked at night, and carried out the attack in an apartment despite roughly half of offenders approaching the victim

outside. This contrasts the findings from Brazil and Sweden, in which alcohol use among serial rapists was no different to the general rapist population (Baltieri & Andrade, 2008; Corovic et al., 2012) and South Africa in which the offender attacked during the day and rapes often occurred in a public location (Woodhams & Labuschagne, 2012a). The high use of unemployment in South Africa most likely contributes to the higher rates of rape in daylight. Use of a vehicle in serial sexual assault is more common in The USA and Finland than it is in South Africa, although the much lower rates of vehicles per capita may account for this difference (Woodhams & Labuschagne, 2012a).

In the USA, the UK, and Sweden serial rapists often engage in behaviours which show sophistication and are designed to avoid detection and capture, such as threatening, using a weapon, engaging in precautions, and showing forensic awareness (Corovic et al., 2012; Grubin et al., 2001; Park et al., 2008). Some of these behaviours were seen more often in South African serial rapists, such as the frequency of threats to the victim (Woodhams & Labuschagne, 2012a). Some behaviours are similar across countries, such as the use of weapons in South Africa and the USA (Park et al., 2008; Woodhams & Labuschagne, 2012a) and the instruction to the victim to not report the offence in South Africa and Finland (Santtila et al., 2005; Woodhams & Labuschagne, 2012a).

The interaction between victim and offender can also vary between countries. Finnish serial rapists were less inquisitive about the victim than South African serial rapists, who were less inquisitive than American serial rapists (Park et al., 2008; Santtila et al., 2005; Woodhams & Labuschagne, 2012a). However, both South African and American rapists complimented their victim and made sexually explicit comments at a similar rate (Park et al., 2008; Woodhams & Labuschagne, 2012a), while Swedish serial rapists more frequently induced victim participation (forcing the victim to perform fellatio and masturbate the

offender) (Corovic et al., 2012). South Africa has a culture which condones sexual coercion, views women as objects belonging to men, and has a lower perception of reciprocal sexual behaviours even in consenting relationships (Woodhams & Labuschagne, 2012a), whereas Sweden promotes more sexual freedom and equality between the sexes (Von Hofer, 2000). These differences could explain some of the differences seen between countries.

Furthermore, anal penetration, forced fellatio, and kissing the victim were less common among South African serial rapists than American and Finish serial rapists (Park et al., 2008; Santtila et al., 2005; Woodhams & Labuschagne, 2012a). These similarities and differences across countries highlight the need to explore and understand serial rape within each country's culture and environment, thus furthering the support for this research project within Australia.

Serial versus non-serial rape.

Throughout much of the historical research and in the popular media and public opinion, there is an underlying assumption that serial rapists are unique. When examining the theories of consistency and distinctiveness, this assumption is manifested by the implied understanding that serial offenders (as a group) can be differentiated from non-serial offenders, leading researchers and practitioners to link cases based on behavioural similarity and distinctiveness. Being able to accurately differentiate between serial and non-serial rapists has investigative implications. If serial rapists (as a group) have a set of consistent and distinct behaviours, then it is possible to identify potential serial rapists from a single offence, before a case linkage analysis is conducted. This early acknowledgement of a potential serial rapist can result in additional resources being directed to the investigation to find the offender before a second rape occurs. Whether there truly is a difference in serial versus non-serial rape behaviour has not commonly been studied, as a search located only

three studies specifically addressing whether serial rapists and single-victim (non-serial) rapists can be differentiated (Corovic et al., 2012; Park et al., 2008; Slater et al., 2014). These studies were conducted in Sweden, the USA, and the UK, respectively. Other research on rape behaviour has included secondary comparisons or side notes regarding serial versus non-serial rapist, which will be included in this discussion.

In an early study of rapists in the USA, LeBeau (1987) determined that, compared to non-serial rapists, serial rapists were more likely to be strangers to their victims, use a blitz style of approach, travel a shorter distance with their victim and have a more restricted geographic area in which they offended. The finding that serial rapists are more likely to be strangers to their victims supports the public image of this offender type and has been found in other research (de Wet et al., 2010; Hazelwood & Warren, 1992; Lovell et al., 2017; Park et al., 2008; Woodhams & Labuschagne, 2012a). LeBeau's results about restricted geographic area have been replicated in later studies and research on serial burglary as well (Tonkin et al., 2011). Another finding that has been replicated across studies is that serial rapists are, on average, older than non-serial rapists (Miller, 2014). In Brazil it was found that serial rapists had a higher level of education and showed more signs of impulsivity than non-serial rapists (Baltieri & Andrade, 2008).

Park et al. (2008) examined serial and non-serial rapists in the USA and determined that serial offenders were more likely to display criminal sophistication (including using a surprise attack and displaying forensic awareness to increase the chance of eluding detection), gag their victim, deter victim resistance, ask questions and be inquisitive, and complete the act of rape. Single-victim offenders were more likely to display violent behaviours (including threatening the victim, manually hitting or kicking the victim and engaging in vaginal, oral or both penetrations) and display interpersonal involvement

(including making sexual comments and inducing victim participation). Park and colleagues concluded that the verbalisation displayed by the non-serial offenders as well as the criminal sophistication displayed by the serial offenders contributed to the differentiation between the two groups in such a way that could have potential use for police investigations.

In a recent analysis of previously unsubmitted sexual assault kits in the USA, Lovell et al. (2017) discerned several differences between serial and non-serial rapists. They found that serial offenders were more likely to be strangers to their victims, offend outside or in vehicles, kidnap their victim, use a weapon, and use verbal assault or threat of physical assault compared to non-serial rapists. Non-serial rapists, on the other hand, were more likely to offend in their own residence and punch or slap their victims (Lovell et al., 2017). Lovell and colleagues state that the high rates of serial rape found through sexual assault kit testing indicate that serial rape is more prevalent than previously believed and highlights the importance of investigating each stranger rape as part of a potential series.

A 2012 Swedish study by Corovic et al. found that, at their first offence, serial rapists were more likely to use a blitz attack, give orders, use a weapon for intimidation, smother the victim, complete the act of rape, steal belongings, and leave semen compared to non-serial rapists. At their second offence, serial rapists were more likely to make verbal threats toward the victim, show forensic awareness, and induce victim participation. On the other hand, single-victim rapists were more likely to have been drinking alcohol before the offence and were more likely to kiss the victim (Corovic et al., 2012). In their Brazilian sample, Baltieri and Andrade (2008) did not find a difference between serial and non-serial rapists with regard to alcohol or drug use, despite hypothesising that there would be. These

types of differences in findings across countries highlight the need to conduct this research within Australia rather than rely on results from other nations.

Grubin et al. (2001) examined rapists from both the UK and Canada. When examining serial rape behaviours, they found that serial rapists were more likely to show escape-related behaviours and behaviours more interactive with, and demeaning toward, the victim. However, these trends were not statistically significant. Slater et al. (2014) examined rape in the UK and established that serial rapists engaged in more sexual acts such as fondling the victim, forcing the victim to masturbate the offender and discussing the sex acts, although again these results were not significant. The only statistically significant finding was that serial offenders were more likely to use solicitation as a means to obtain a victim. It is clear from the results of these studies that there are some findings consistent across countries and other findings that are directly contrasted across countries. This highlights the need to examine serial versus non-serial rapists within a particular country or jurisdiction before proceeding to an analysis of case linkage.

Conclusion

Behaviour is a function of both individual personality and the interaction between people and the environment. The field of personality psychology has contributed much to the understanding of criminal behaviour and the ways in which that behaviour is examined. The nomothetic and idiographic styles of crime analysis and research have their foundations in personality psychology, as do the theories of behavioural consistency and distinctiveness. Through the work of pioneers like Mischel and Shoda, personality has been recognised as both unique and consistent. Furthermore, behavioural responses can be identified and tracked by examining the underlying psychological significance of a given situation.

Although behaviours often begin as goal-directed, with repeated use and reinforcement, they can become habitual through reinforcement of rewards and situational cues. Some habitual behaviour can mirror or even evolve into addictive behaviour. There are crossovers between sexual addiction and rape, especially in the form of paraphilias and paraphilic disorders. As sex offenders display deviant sexual fantasies and compulsions, they are at a higher risk of habitual and addiction-like sexual behaviours as they seek to fulfil their fantasies. An understanding of habitual and addictive behavioural patterns can give insight into offender behaviour as well as provide suggestions for treatment and management of offenders. Furthermore, as serial rapists are conscientious, deliberate, and calculating in their offending, they present investigative challenges. The identification of deceitful behaviours is especially important within investigations as serial offenders may consciously alter behaviour patterns to impede an investigation and avoid detection.

Behavioural investigations and case linkage practice rest on the concepts of consistency and distinctiveness. Both notions have increasingly been supported over the past few decades, with the majority of the support surrounding consistency. Consistency and distinctiveness have been supported across a range of offence types, including sexual assault. This support has been seen through comparing cross-crime similarity coefficients between serial and non-serial rapists as well as through the accurate allocation of offences to the correct series.

The culmination of the understanding of personality and behaviour can be seen in the analysis of both serial and non-serial rape. A variety of research on serial rape behaviour has provided insight into the thematic classifications of offender behaviour as well as the individual behaviours shown by serial rapists. The distinction between serial and non-serial rapists has been examined in a few studies, with mixed results. However, this research is

lacking in Australia, and offender behaviours must be understood within the social and cultural context of a given country.

The first three chapters have laid the groundwork for understanding the global context of rape, the classification of rapists, and the nuances of rape behaviour. Chapter Four will discuss rape investigation methods and tools, behavioural analyses, and case linkage, all of which rely on this collective knowledge of rape.

Chapter 4 – Rape Investigations

All rapes are serious: but that does not mean all strategies for dealing with rape should be the same. Preventing rape and catching perpetrators are activities that are supported by good intelligence material so that the right investigative approach is selected and resources are targeted effectively. Without that material, the risk to the identification of repeat offenders, or perpetrators whose crimes are escalating in seriousness can increase, and opportunities to strengthen prosecutions be lost (Criminal Justice Joint Inspection, 2012, p. 4).

Introduction

In any criminal investigation, the ultimate goal can simply be stated as two-fold: firstly, to identify and apprehend an offender, and secondly, to gather enough evidence to prove his or her guilt (Rossmo, 2009). Investigations are concerned with six components: what, where, how, who, when, and why (Tilstone, Hastrup, & Hald, 2013). Each of these components is connected, and together they make up the complete understanding of a criminal event.

There are many different approaches to criminal investigations and many types of offences which fall under the responsibility of investigators. When confronted with serial offenders, investigative methods may be complemented by criminal profilers or crime analysts. Within this thesis, a crime analyst refers to the behavioural analyst, and should not be confused with a forensic crime analyst who goes to a crime scene to process physical and forensic evidence. Although the titles of profiler and crime analyst are sometimes used interchangeably, and both can practice case linkage, they generally have different roles. Traditionally, criminal profilers provide demographic and personality information about the potential offender based upon offence characteristics. Comparatively, crime analysts

examine all aspects of an offence, including the offender, to compile a holistic and comprehensive overview of the case, link offences together, provide investigative support, and even suggest suspect interview techniques (Petherick, 2015a).

The use of profilers and crime analysts is especially prevalent in the investigation of interpersonal crime, such as stranger rape and homicide. Although this thesis focuses on stranger rape offences, a basic understanding of the general investigative process is necessary, especially as this project aims to impact both theory and practice. This chapter begins with a discussion of the importance of logic and reasoning, as these are the underpinnings of any investigation. A review of elements specific to rape investigations then follows, including an examination of false reports of rape. Legitimate offence reporting is essential for case linkage because the inclusion of a false report in a case linkage analysis can negatively impact the results of the analysis, or even make it redundant in the first place.

This chapter will then shift the focus to the behavioural investigation methods. The historical practice of criminal profiling will be discussed, followed by the modern methods of crime analysis and profiling that have been developed. This chapter presents a thorough analysis of the practice of case linkage, which is the method of identifying serial offenders or linked cases and is the practical focus of this thesis. This includes an examination of the practice of case linkage, the efficacy of case linkage, the reliability of case linkage databases, the empirical evidence for linkage, and a commentary on the limitations of the research on behavioural consistency and distinctiveness and case linkage.

Logic and Reasoning

Any investigation or examination of evidence requires critical thinking, logic and reasoning. Indeed, this was one of the central premises of Dr Hans Gross (1847-1925) who

published the most influential book on investigations in his time, *Criminal Investigation, A Practical Textbook for Magistrates, Police Officers and Lawyers*. Gross stressed the use of science, systematic and holistic crime reconstruction, and criminal profiling during investigations rather than relying solely on intuition and experience (Turvey, 2012a). These tenets have formed the basis of investigative practice, with an emphasis on sound, systematic, and logical techniques. An investigator or analyst should critically review all available evidence and ensure that any conclusions drawn are reasonable and supported by the evidence (McGrath & Torres, 2012).

Hypothesis generation and testing are generally accomplished through two forms of reasoning: induction and deduction. Induction is a type of inference that works from specific observations to a general premise and relies on the use of statistical or correlational evidence to make judgements based upon probability such that if the base information is accurate, the conclusion is likely (Girod, 2014; Petherick, 2015b). Using induction during an investigation correlates previous research and statistics with current evidence to provide an overview of the common characteristics of an offence or offender. Much of the base evidence comes from government crime data repositories and empirical research on different elements of offending. Much of the research and practice of case linkage is inductive, as are some of the more basic criminal profiling generalisations (for example, most sexual assault offenders in Western societies are white males).

Deductive reasoning, on the other hand, rests on the argument that if the veracity of evidence can be determined, then the conclusions drawn from that evidence will, by default, be valid (Petherick, 2015b). Each hypothesis is tested by applying the scientific method, through which the analyst attempts to falsify the hypothesis. Deductive reasoning begins with a general premise; the available evidence is examined against that premise and

finds the premise valid or invalid, at which point a conclusion is drawn (Girod, 2014). This is seen more frequently during the investigation of a single case, or an idiographic case analysis. Deductive reasoning is not, however, necessarily in contrast with inductive reasoning. Often, induction forms the first step within deductive methods because inductive reasoning provides the theories or hypotheses which are then tested against the available evidence using deductive logic (Petherick, 2015a; 2015b).

Through decision-making and problem-solving processes, people rely on heuristics, or mental shortcuts developed through experience, as a way to increase efficiency and speed (Petherick & Turvey, 2012b). However, mental shortcuts rely on conscious and unconscious bias and can result in logical fallacies. Logical fallacies are deceptive in their appearance of logic, yet they lack the accurate analysis and reasoning which make up a sound argument (Turvey, 2012b). There are numerous logical fallacies that can beset an investigator, profiler, or crime analyst, such as appeals to authority or emotion, over generalisations, confirmation bias, conditional probabilities, circular reasoning, *argumentum ad hominem* (argument to the man), and *post hoc, ergo propter hoc* (after this, therefore because of this) (Gormley & Petherick, 2015; McGrath, 2013; Petherick, 2015b; Tilstone et al., 2013). Investigators should be aware of the different logical errors, potential biases, and fallacies to alleviate the reliance on such heuristics.

False Reports

In an ideal world, all reported offences would be legitimate, believed, and result in the conviction of the offender. Unfortunately, this is rarely the case for a variety of reasons, many of which have been discussed previously in Chapter One. Another contributing factor that deserves mention is the issue of false reporting. A false report is defined as any untruthful statement or claim of victimisation, including misrepresentation of the victim's

involvement, false location of the offence, or untruthful information about circumstances surrounding the allegation (Petherick & Ferguson, 2015b). False allegations determined as legitimate may result in miscarriages of justice, while true allegations incorrectly determined as false can result in the current and future victims' mistrust in the criminal justice system and reduced rates of legitimate reporting (Deslauriers-Varin, Bennell, & Bergeron, 2018; Turvey & McGrath, 2012). Investigations of false reports are costly, in both time and money, redirect resources away from the investigation of legitimate claims of victimisation, result in significant harm or loss to the falsely accused, and cast doubt on future legitimate reports of crime (Petherick & Ferguson, 2015b). False reports impact case linkage because including erroneous information from falsely reported rapes into a case linkage analysis will confound efforts, waste time and resources, and mislead investigators in the identification of series.

Unfortunately, there is no consensus as to the exact rate of false reports of rape. Estimates vary across studies and countries, ranging from as low as 1.5% to some estimates as high as 90% (Rumney, 2006). Owing to the methodological differences between studies, as well as the operational differences in identifying and classifying false reports, it is difficult to compare the results across studies or get an accurate idea of the true nature of this phenomenon (De Zutter, Horselenberg, & van Koppen, 2017; Ferguson & Malouff, 2016). Recent analyses and meta-analyses have used stricter guidelines for the definition of false reports and increased ecological validity. They have found average rates of false reports around 5% (De Zutter et al., 2018; Ferguson & Malouff, 2016). However, as with most offence data, the research likely captures an incomplete snapshot of the genuine phenomenon.

Some common characteristics of false reports of rape may include low behavioural coherence, fewer offender behaviours detailed, fewer mentioned pseudo-intimate behaviours, a higher number of violent behaviours mentioned, and more stereotypical (or movie-like) accounts of the events (Canter & Youngs, 2009; Deslauriers-Varin et al., 2018). Other indications of a false report include delay in reporting, lack of offender description, involvement of multiple offenders, inconsistencies in injuries or clothing condition compared to the offence account, lack of detail regarding sexual acts, and the victim not conforming to the expectations of a victim held by the investigator (Brandl, 2004; Hazelwood & Burgess, 2009; Petherick & Ferguson, 2015b). Many false reports show similar characteristics to legitimate rape reports, and this discussion does not suggest that these characteristics are limited to false reports. Additionally, the physical and emotional trauma of a legitimate rape can result in inconsistencies in victim testimony, so the presence of inconsistencies should not be assumed to indicate a false report (Hazelwood & Burgess, 2009).

Any indication of a false report should be met by gaining a second opinion and including the expertise of additional investigators. During an investigation, any points of conflicting information should be considered. A victimology can assess for evidence of previous false allegations, criminal history, psychopathology, or deceptive and attention-seeking behaviour (Petherick & Ferguson, 2015b). Behavioural evidence, both on the part of the alleged victim and offender should be examined for mismatches of information or behaviours that contrast statistically to normative rape behaviours (Petherick & Ferguson, 2015b). Once the veracity of a rape report is established, the investigation commences.

Rape Investigation

Any discussion of serial rape behaviour and case linkage would be incomplete without an examination of rape investigations, as case linkage is a tool to assist during an investigation. Timely, accurate, and thorough investigation of rape is of critical importance in view of the prevalence of rape and the negative consequences of rape for victims and society. The investigation and prosecution of rape offences changed in the 1970s with rape law reforms, led by feminist researchers such as Brownmiller challenging the public perception of victims and the practice of questioning a victim's innocence in her victimisation and blaming her for the rape (Terry, 2012). As such, current rape investigation and prosecution mirrors the objective and thorough process of other violent interpersonal crime such as homicide. Rape investigation typically involves an interview with the victim, collection of any available physical evidence on the victim, and identification and examination of the crime scene (if possible). The collection of all available information and evidence is done in a structured manner, and collaboration between other investigators, forensic experts, and, in some jurisdictions, prosecution may occur (Savino & Turvey, 2011).

One of the greatest investigative challenges within rape offences is that of stranger rape. Although only about 20% of rape offences occur between strangers (Burgess & Marchetti, 2009; Domenech del Rio & Garcia del Valle, 2016; Office for National Statistics, 2018; Planty et al., 2016; Queensland Police Service, 2017; Rape Abuse & Incest National Network, 2019), stranger rape often requires the most time, effort, and money to solve. The lack of prior relationship between victim and offender means there is no initial suspect for investigators to question, so investigators must rely on behavioural and physical evidence, witnesses, CCTV, and electronic evidence to generate and narrow down a suspect pool. A further crucial element of rape investigations is the early detection of similar offences which

may be the work of a single offender. Serial rapists are more likely to complete a rape, use violence, cause more significant harm and suffering to their victims, and create higher investigative and economic costs compared to non-serial rapists (Holmes & Holmes, 2009; Lovell et al., 2017; McCollister et al., 2010; Park et al., 2008). Thus, it is suggested to initially consider every reported stranger rape as part of a series to assess the possibility of links to other crimes and not stall as a result of missed links or lack of communication within and between departments (Criminal Justice Joint Inspection, 2012; Lovell et al., 2017).

Investigators have three leading roles when responding to rape allegations; interviewing and supporting the victim, investigating the allegation in order to identify and arrest the offender, and collecting and processing evidence for use at trial (Maier, 2014). If a rape is reported immediately, the victim is advised not to wash or shower before a physical exam and may be asked to retain the clothing she wore during the offence (Orthmann & Hess, 2013). With immediate or timely reporting, victims undergo a medical examination, including the collection of any vaginal, oral, or anal DNA evidence (Dempsey, 2003). Like most investigations of interpersonal violence, photographs of injuries and the crime scene and collection of any available evidence is crucial.

One significant element for the investigation of serial rape offences is the identification and exploration of potential fantasy within an offence. Fantasy plays a significant role in sexual deviance and offending. However, reality rarely fulfils all elements of fantasy (Hazelwood & Warren, 2009). Thus, the serial rapist will continue to offend as they strive to complete their fantasy. In the drive to complete their fantasy, the offender may engage in the ritualistic behaviours that have come to be commonly known as a signature, which investigators can use in conjunction with other behavioural and physical evidence to link serial rape cases (Hazelwood & Warren, 2009). Although offenders show

stability and consistency in personality and behaviour, the capacity for changing behaviour is always present. Thus, the investigator must have flexibility and always examine the situational factors which influence motivation and behaviour (Durrant, 2013).

Evidence.

The basis for all evidentiary investigations is Locard's Exchange Principle, attributed to Edmond Locard (1877-1966). Locard stated that no individual could commit a crime or a violent act without leaving behind a trace of their presence (Tilstone et al., 2013). This has been translated into Locard's Principle, which states that when two objects encounter one another there is an exchange in which each object takes away part of the other (Gooch & Williams, 2007). This is the foundation of forensic science, as it dictates the transfer of all scientific evidence such as blood, fingerprints, epithelial cells, fibres, footprints, semen, saliva, trace evidence, and even electronic evidence (Byard, James, Berketa, & Heath, 2016; Hosmer, Bartolomie, & Pelli, 2016). It is important to note, however, that there are offences which contain no discernible forensic transfer between offender and victim. Thus, it cannot be assumed that physical and forensic evidence will always be present, so the collection of behavioural evidence can be beneficial, especially in interpersonal crimes such as rape.

During an investigation, each piece of evidence contributes to the discovery of who was involved and what happened during an offence. Evidence can be collected from the crime scene, victim, witnesses, and the offender (Spalding & Bigbee, 2009), and would ideally be collected from all sources, although this is not always possible. Evidence can prove that a crime was committed, corroborate a hypothesis, provide associations between people and places, and show that something did not happen (thus exonerating an individual) (Tilstone et al., 2013). Analysing a crime scene first involves a search for physical evidence, both visible and microscopic. However, this only provides a partial understanding

of the events that occurred, and in cases such as rape, it may not be possible to process the crime scene due to the length of time passed, the location of the offence, or the lack of physical evidence (Woodhams, Hollin, et al., 2007). A rape offence may not involve a high level of violence, there may be a delay between offence and reporting which allows for injuries to heal, or there may be a lack of appropriate equipment or training to detect the physical evidence associated with a rape (Burgess & Marchetti, 2009). Therefore, all available information about a sexual assault must be incorporated into a rape investigation or linkage analysis, including both physical and behavioural evidence.

Physical evidence.

Physical evidence relates to any materials left at a crime scene, such as hair, fibres, fingerprints, bodily fluids, and even wounds to the victim (Turvey, 2012b). Examining physical evidence within a rape investigation should include establishing the existence of sexual activity, evidence of any injury consistent with non-consensual sex, and personally identifying evidence such as DNA. If a rape is reported shortly after the offence, it is essential to note that the victim is a potential source of evidence, and the appropriate measures should be taken to both support the victim and preserve any evidence (Criminal Justice Joint Inspection, 2012). Locard's Principle further dictates the handling of evidence as investigators must not contaminate evidence by introducing additional trace material. Specific to the collection of sexual assault kits, technicians must be aware of the risks of trace dislocation, in which evidence around the labia and vulva can be transferred into the vagina during the collection process, resulting in contamination (Loeve et al., 2013).

Physical evidence is important for serial rape investigation because the presence or absence of biological evidence, such as DNA or semen, can be included in a case linkage analysis. Furthermore, the presence or absence of other physical evidence can also be

included, such as whether a weapon was involved, where the weapon came from, and if the offender took the weapon (or any other items) with him upon completion of the offence. Additionally, any physical injuries the victim sustained, their extent, and other indications of violence can also be included into the case linkage. All of this information give insight into the offender and can be incorporated in the assessment of similarities across multiple offences.

Behavioural evidence.

Although physical evidence such as DNA has been touted as the gold standard for linking offences and identifying an offender, it can often be missing, especially in sexual assault cases (Mokros & Alison, 2002). Furthermore, DNA evidence may not be relevant in a rape between acquaintances where both parties acknowledge the sexual act but contest the issue of consent. Behavioural evidence, on the other hand, is always present in sexual assault and can provide enough information for links to be made (Sorochinski & Salfati, 2018). Locard's Principle can also be applied to behavioural evidence, as any interaction between two people impresses their future actions and reactions; each incorporates the behaviours of the other and comes away with evidence of that interaction.

Behavioural evidence can be seen through physical, documentary, or testimonial evidence, and includes anything the offender and victim said or did which contributes to the understanding of what occurred during an offence (Woodhams, Hollin, et al., 2007). For example, physical evidence can provide insight into behaviours, such as the presence of footprints to provide information about the offender's movements and surveillance habits (Turvey, 2012b). The victim's actions should be included because their verbal and physical behaviours can alter those of the offender (Kihlstrom, 2013). Behavioural evidence is generally gathered through interviews with victims, and, occasionally, interviews with the

offender once identified. It should be acknowledged that inferring information about an offender's motive, personality, and other psychological characteristics is a subjective process, so any conclusions drawn should not be treated as fact.

Behavioural evidence within a rape offence generally falls within at least one of three categories: physical behaviour, verbal behaviour, and sexual behaviour. An analysis of these behavioural realms can provide insight into the offender's motivations, personality, and what needs are being satisfied during the offence (Olivia, 2013). Physical behaviours include the method of approach, level of violence, and means of controlling the victim. Verbal behaviours include any directions, threats, complimentary or degrading statements, and general conversation held during an offence. Finally, sexual behaviour includes specific sexual acts such as fellatio and cunnilingus, vaginal and anal penetration, and intimate behaviours such as stroking, cuddling, and kissing. Individual behaviours can overlap across the different categories, such as physical or verbal behaviours that are necessary for the offender's sexual fantasy.

Behavioural analyses are performed using the *modus operandi* (MO), ritual, and signature of an offender, and are based upon the behaviours shown during an offence, their emotional significance, and the motivation of the offender (Bennell et al., 2012; Petherick & Ferguson, 2015a). MO is influenced by a combination of personality and situation and consists of those behaviours necessary for successful victim acquisition and control, completion of the offence, and avoiding identification and capture (Bennell et al., 2012; Davies, 1992; Petherick & Ferguson, 2015a; Rossmo, 2009). Examples of MO include breaking a window to gain access to a property, bringing duct tape and using it to control a victim, and taking a victim to a secluded location to avoid witnesses. MO was initially thought to remain stable for an offender, but this view has evolved with the understanding

of the person-situation interaction (Keppel, 2000; Rossmo, 2009). An offender's MO can change due to learning from past successes and failures, interaction with the victim, drug use, or mental instability (Douglas & Munn, 1992; Petherick & Ferguson, 2015a). Because of this potential variability, the reliance on only MO behaviours for case linkage should be avoided, and additional elements, such as victim information and forensic evidence, should be included for more accurate linkages when possible (Bennell et al., 2012). However, as research on case linkage continues, the use of MO behaviours, as well as the inclusion of other offence information, has been shown to result in accurate linking (Woodhams, Hollin, et al., 2007).

Signature reflects the inner fantasy, ritual, and compulsion of an offender as well as their psychological motive for the crime. Signature is seen in the elements of an offence not necessary for the completion of the crime, such as excessive violence, bizarre and ritual actions, language choice, and dominating behaviours (Keppel, 2000; Petherick & Ferguson, 2015a). The presence of paraphilias within a rape can also contribute to signature as they manifest in highly repetitive and predictable behaviours relating to a specific sexual interest (Lanning, 2017). Although an offender's signature may change slightly with time and as behaviours are refined and evolved, it is thought to be stable as it reflects the offender's fantasy (Douglas & Munn, 1992; Keppel, 2000). As an offender acts out the elements of their fantasy, they do so in a uniquely personal way, which may be revealed in the physical and behavioural evidence left behind (Douglas & Munn, 1992).

When elements of a signature are seen across multiple crimes, they can be used in a linkage analysis to indicate a potential serial offender. However, reliance on signature must be done with caution because signature is scarce and may often be missing entirely from a crime (Harbers et al., 2012). Typically, signature is discussed in the context of interpersonal

crimes such as homicide and sexual assault. However, it is questionable whether volume offences such as burglary, robbery, and auto theft will show those fantasy behaviours attributed to signature (Woodhams, Hollin, et al., 2007). Additionally, there can be significant cross-over in signature and MO behaviours such that the two may not be distinguishable (Bennell et al., 2012; Petherick & Ferguson, 2015a). Furthermore, the process of inferring personality characteristics from signature behaviours at a crime scene is a subjective process which has not been practised consistently or supported empirically (Petherick & Ferguson, 2015a; Tapper, 2008). Some behaviours that may appear to be signature could be due to the environment or interaction with the victim, so the context of each behaviour should be assessed (Woodhams, Hollin, et al., 2007).

While class and individuating evidence typically refer to physical evidence, they have applications to behavioural evidence as well. Class evidence equates to *modus operandi* evidence, whereas individuating evidence is in the signature elements of an offence and may provide insight into the underlying fantasies and motives of an offender. The presence of verbally abusive behaviour is an example of behavioural class evidence, while individuating evidence is the specific phrases used by the offender, especially if they contain unique characteristics. Class and individuating evidence also relate to nomothetic and idiographic analysis. Profiling and case linkage rely on the nomothetic analysis of behavioural class evidence. From a case linkage perspective, this involves the examination of behavioural similarities across offences which are then compared to base rates of behaviours. More recently, there has been a push to include idiographic analysis in case linkage, so that an analyst examines all aspects of the potentially linked cases and uses a combination of nomothetic and idiographic analyses to determine whether the offences are linked (Petherick, 2015a).

Criminal Profiling and Behavioural Investigation

Criminal profiling refers to a process of investigation and analysis that infers characteristics of an offender based upon the evidence available from a crime scene or victim or witness testimony (Douglas, Ressler, Burgess, & Hartman, 1986). Although the term profiling brings to mind images of serial killers and popular media such as *Silence of the Lambs* and *Criminal Minds*, the practice of making inferences about an individual's criminal, demographic, or other factors is not new. Some of the first attempts to classify offenders based on characteristics can be attributed to Cesare Lombroso (1835-1909), who attempted to identify and categorise criminals based on physical and demographic characteristics (Turvey, 2012b). The early forms of investigative profiling may be seen in the fictional characters of C. Auguste Dupin (Edgar Allen Poe), Hercule Poirot (Agatha Christie), and Sherlock Holmes (Sir Arthur Conan Doyle), who immortalised the evidence-based method of inference and deduction that has become the popularised view of profiling (Ackley, 2017).

Profiling has had many names, including *criminal profiling*, *psychological profiling*, *behavioural profiling*, *personality profiling*, *crime scene analysis*, *criminal investigative analysis*, *case linkage analysis* and *behavioural consistency analysis* (Fox & Farrington, 2018). As highlighted by Petherick and Turvey (2012a), any report, opinion, or analysis that concludes some characteristics of an offender could be considered a form of profiling. Profiling is used within multiple investigations, including hostage-taking, arson, threat assessment, rape, homicide, and especially within serial offences (Douglas et al., 1986). As with most investigative techniques, profiling is a tool to be used in conjunction with other methods and is not to be relied upon solely.

Forensic psychiatrists initially conducted most profiles, as they were thought to be uniquely suited on the grounds of their training and knowledge of psychopathology and behavioural sciences, which allowed them to infer offender personality and psychology based upon details of the crime (Petherick & Turvey, 2012a). Profiling has since evolved and is no longer in the sole domain of psychiatrists, although psychiatrists and psychologists still conduct a high number of profiles and act as consults to investigations and even to other individuals completing profiles (McGrath & Torres, 2012). Profiles are now created by psychologists, criminologists, police practitioners, sociologists, psychiatrists, and other specialised fields.

Criminal profiling initially made inferences about an offender's characteristics through the homology assumption. The homology assumption states that two offenders who engage in similar offences should share similar background characteristics (Petherick & Ferguson, 2015a). However, the support for the homology assumption has been mixed, with some studies discounting it (e.g. Mokros & Alison, 2002; Woodhams, Bull, et al., 2007), while others have supported it (e.g. Salfati & Canter, 1999; Santtila, Häkkänen, Alison, & Whyte, 2003; Santtila, Ritvanen, & Mokros, 2004). Furthermore, although there has been an increase in the research relating to profiling, especially over the last 40 years, an agreed-upon approach, standardisation method, and even title for the practice of profiling is still lacking (Fox & Farrington, 2018).

The most recent and comprehensive analysis of profiling is that conducted by Fox and Farrington (2018), who analysed 426 written works (empirical and not) which spanned a 40-year period from 1976 to 2016. They concluded that although the quality of publications and the use of advanced statistical methods in works on offender profiling has increased, especially in the last decade, there are still problems with unknown error rates, empirically

based approaches to profiling, and admissibility of profiling information in court. In response to the shortcomings and criticisms of the initial profiling methods, individuals and organisations have developed systems of behavioural investigation and profiling. However, rather than work towards the improvement of a universal system, this has resulted in competing practices which essentially have the same focus and methods, albeit with slight variations. The following methods all detail the overall process of investigating an offence in its totality, generally using both behavioural and investigative practices in a holistic and detailed approach.

Criminal investigative analysis.

Criminal investigative analysis (CIA) is the method of criminal profiling used by the Federal Bureau of Investigation (FBI) and taught by the International Criminal Investigative Analysis Fellowship (ICIAF). CIA arose from the FBI's Criminal Profiling Project (CPP): a study of 36 incarcerated offenders and their 118 victims between 1979 and 1983, which examined similarities and differences across offenders and offences (Petherick & Turvey, 2012a). The early research of the National Center for the Analysis of Violent Crime (NCAVC) produced the dichotomy of organised versus disorganised offenders based upon the elements of sophistication, planning, and competence seen during an offence (Ressler & Burgess, 1985). The results of the CPP were used to help further explain the distinction between organised and disorganised offenders, which was then used to teach police practitioners about profiling in a way that was easy to incorporate into investigative practice. The strength of this method was its simplicity; it bridged the gap between research and practice with minimal training to investigators.

Criminal investigative analysis has six stages: profiling inputs, decision-process models, crime assessment, generating a criminal profile, investigation, and apprehension

(Douglas et al., 1986; Knight et al., 1998), although the first four stages incorporate the behavioural analysis. However, there is some contention about how strictly it is followed, as Petherick and Turvey (2012a) highlight conflicting methodologies presented by Douglas and Burgess (1986) and Ressler et al. (1988). These methodologies have been simplified to involve four general steps: case organisation, crime analysis from investigative and scientific perspectives, victim and offender analysis from behavioural and scientific perspectives, and written conclusion (see Ackley, 2017 for a comprehensive review of this methodology). The overarching goal of CIA is to examine all behavioural and investigative information related to a case in minute detail and provide investigative advice to the requesting agency, rather than be involved in the actual investigation (Ackley, 2017; Scherer & Jarvis, 2014).

The initial methodology of CIA faced criticism because of the lack of empirical validation, reliance on nomothetic methods, the false dichotomy of organised versus disorganised offenders, and its foundations on personal experience and intuition rather than organised and sound logic (Petherick & Turvey, 2012a). In light of these criticisms, CIA methods have undergone numerous changes and improvements towards a more scientific, evidence-based practice (Ackley, 2017). Furthermore, as it has been acknowledged that there is a lack of uniformity regarding the methodology of CIA, Ackley (2017) highlights the shift from a single process of profiling to an understanding of CIA as a multidisciplinary approach to providing investigative advice and guidance using comprehensive scientific and behavioural methods. Despite the criticisms, it is important to recognise the foundations to the behavioural analysis field that CIA contributed, as CIA “techniques, tactics, and procedures have become a staple of behavior-based programs that support law enforcement, intelligence, and military communities” (Douglas, 2013, p. 67).

To assist in the standardisation of the CIA methodology and consistency in its implementation, the ICIAF was founded in 1984 by the FBI under the name of the National Criminal Investigative Analysis Fellowship. This program was created to train law enforcement officers in CIA to maintain a consistent standard of excellence, integrity, and quality of behavioural investigations (International Criminal Investigative Analysis Fellowship [ICIAF], 2016). By 2016, 37 individuals from around the world had completed the ICIAF's training in the CIA method, including the head of the BSU in Queensland. Other countries involved in the ICIAF include Canada, New Zealand, the United Kingdom, and the Netherlands. The ICIAF has two divisions: the CIA Division and the Geographic Profiling Division. To become a full member of the ICIAF, an individual must be sponsored by a full member, complete an academic training phase, an internship phase which consists of three separate month-long internships, and pass an examination (ICIAF, 2016). Upon completion of all necessary training and examination, the understudy is placed on a one-year probationary period, culminating in becoming a board-certified Criminal Investigative Analyst.

Investigative psychology.

Investigative psychology (IP) is a branch of applied psychology which was developed in 1992 in the UK by Canter in response to concerns over the original CIA method of profiling. IP is founded on research-based psychological disciplines and incorporates nomothetic and inductive methods of empirical evidence to determine crime and criminal characteristics (Taylor et al., 2015). Investigative psychology is concerned with understanding crime through examining offenders, investigations, and legal proceedings, and is also a broader methodology of problem-solving psychology (Canter & Youngs, 2009). IP provides a framework through which investigations can incorporate key aspects of

psychology to understand offender behaviour and thought, inform investigative directions, and support the decision-making process (Taylor et al., 2015). Furthermore, IP champions the continued development of research-based investigative advice and evidence-based research to progress both theory and policing practice (Canter & Youngs, 2009).

To analyse as much of the offender within a single case as possible, investigative psychology uses a five-factor model: interpersonal coherence, significance of time and place, criminal characteristics, criminal career, and forensic awareness (Petherick & Turvey, 2012a). Interpersonal coherence describes the offender's interaction style, with the premise that an offender will relate to their victim in much the same way they relate to people in general throughout their life. Because an offender may choose locations and times that are significant to him, the analysis of time and place can provide insight into the mental maps of the offender (Canter & Youngs, 2009). Although the examination of criminal career may not be pertinent to an ongoing investigation, especially with an unknown offender, the collective knowledge gained from the analysis of criminal careers can provide insight into the changing behaviours and adaptations of offenders as they progress through multiple offences. Likewise, an offender's level of forensic awareness can be estimated by their offence behaviours, and changes in forensic awareness can be tracked across a series of offences.

As with many of the other profiling methods, IP has been met with criticism owing to the nomothetic and inductive nature of the practice, which is difficult to accurately apply to a specific case (Petherick & Turvey, 2012a). However, IP should be considered a discipline rather than a specific behavioural investigation process, which can contribute to a wide range of investigative practices or criminal problems (Youngs, 2013). Furthermore, IP laid the groundwork on which modern case linkage has developed.

Idiographic analyses.

In light of the criticisms of CIA and IP relying too much on nomothetic approaches, idiographic and deductive behavioural investigative methods have been developed, namely behavioural evidence analysis (BEA), developed by Turvey, and applied crime analysis (ACA), developed by Petherick. BEA is referred to as an ideo-deductive method of crime scene analysis and profiling in that it is an idiographic approach which examines the unique characteristics of a single offence and the interaction between the victim, offender, and situation (Turvey, 2012b). The process of BEA includes forensic analysis, forensic victimology, and crime scene analysis, and BEA highlights the inclusion of deductive reasoning in profile development and the importance of physical evidence in any investigation (Petherick, 2015a). BEA relies on critical thinking, scientific method, and analytic analysis, and rests on ten basic principles from the behavioural and biological sciences (for a discussion on those principles see Turvey, 2012b, p. 129-132). BEA is typically used during an investigation to help narrow down a suspect pool and provide a comprehensive understanding of the offence, and within a legal context during a trial, sentencing, or appeals to provide insight regarding motivation, fantasy, and risk, or to determine links to other offences (Turvey, 2012b).

Applied crime analysis is an in-depth, idiographic analysis of a single case or offender, to provide a holistic overview of a crime or a series (Petherick, 2015a). ACA is intended for use at any point in an investigation, as it can identify, gather, and interpret a multitude of information. ACA includes an examination of physical evidence and the crime scene, forensic victimology, and an analysis of offender motivation and behaviour (Petherick, 2015a). The ACA method may be best conceptualised as a modernisation of the Sherlock Holmes investigative style: one individual who compiles all available information

from different sources to gain a detailed understanding of the case and answer whatever specific questions they were presented with in relation to any area of any crime type. ACA has a variety of applications, including timeline compilation, detection of staged crime scene, risk assessment, threat management, false report assessment, case linkage, fantasy and motive analysis, and examination of investigative and legal shortcomings at trial (Petherick, 2015a). The strength of these methods is in their in-depth idiographic nature. As such, and because of the time and resource commitment required, BEA and ACA are not practical inclusions for every criminal investigation. They can, however, be helpful in cases in which traditional investigative methods need assistance, or where a systematic review of the evidence is required.

Case Linkage

Although they are now recognised as two distinct fields, for many years case linkage was considered part of criminal profiling (Woodhams & Bennell, 2015b), and many profiling practitioners cite case linkage as one of the many services offered. Both case linkage and criminal profiling are based upon offender consistency, although instead of trying to make inferences about an offender's characteristics, case linkage aims to identify and connect multiple offences thought to be the work of a single offender through behavioural and physical evidence. Case linkage is further reliant on offender distinctiveness, which is in contrast to the homology assumption that formed the initial basis of profiling. Although case linkage and profiling methods can both be used within an investigation to assist with the identification and apprehension of an offender, each is conducted with different aims. While profiling is concerned with the offender, and what the elements of an offence might show the offender's psychological state, characteristics, and motivations, case linkage assesses offence behaviours with the purpose of determining whether those behaviours are

consistent and distinct across several offences to warrant linking the offences into a series (Davies, Imre, & Woodhams, 2018). Although case linkage was initially used for severe and violent crimes such as homicide and sexual assault, it has expanded to include high-volume crimes such as robbery, burglary, arson, and car theft, and can be particularly useful in cases lacking eyewitness or physical evidence (Burrell & Bull, 2011; Labuschagne, 2006).

Early case linkage practice relied on the analyst manually listing all crimes of interest and their details, including information from victim and witness statements and any other evidence; examining all information to find similarities on which to base links (Collins, Johnson, Choy, Davidson, & Mackay, 1998). This method was automated in the mid-1980s by the Federal Bureau of Investigation (FBI) with the introduction of their Violent Crime Apprehension Program (ViCAP). Other jurisdictions followed suit, creating additional databases and systems to alleviate linkage blindness: the absence of communication and data sharing across jurisdictions and between investigative bodies, which can result in serial offenders remaining elusive (Bennell et al., 2012).

Also in the mid-1980s, Canada had a series of cross-jurisdiction homicides which prompted the development of the Major Crime File (MCF), modelled after ViCAP (Royal Canadian Mounted Police [RCMP], n.d.). By 1990, there were over 800 cases in the MCF database, but no links had been established. The lack of links was attributed to the text-based query function that left searches either too broad or too narrow and the cumbersome task of completing the reporting forms, which resulted in most investigators avoiding the MCF (RCMP, n.d.). Lastly, the MCF did not allow for the capture of behavioural data, which has since been recognised as essential for successful case linkage (Collins et al., 1998).

The failure of the MCF led Inspector Ron MacKay to undergo profiling training with the FBI and to collaborate with colleagues to create the Violent Crimes Linkage Analysis

System (ViCLAS). ViCLAS was based upon the combined elements of the most successful American systems and was developed as a national repository for information sharing between jurisdictions (Martineau & Corey, 2008; RCMP, n.d.). ViCLAS also broadened the scope of crimes to include sexual assault as this was more prevalent than homicide in Canada, as well as addressed the language barrier across jurisdictions by providing the ViCLAS booklet (with standardised coding) in multiple languages (Collins et al., 1998). ViCLAS is now considered the gold standard for case linkage systems, and is used around the world: in Belgium, the Czech Republic, France, Germany, Ireland, the Netherlands, New Zealand, Switzerland, the UK, and individual states within the USA (RCMP, n.d.). Not all countries and jurisdictions that conduct case linkage have access to databases and automated case linkage systems, so they rely on manual case linkage methods. One example is the Investigative Psychology Unit of the South African Police Service (see Omar, 2008 for a brief overview of this unit).

ViCLAS and similar databases capture a variety of offences, including homicide, sexual assault, missing persons, child abductions where foul play is suspected, and child pornography (Martineau & Corey, 2008). ViCLAS was introduced in Australia in 1997, but a platform upgrade in 2010 led to the development of the Violent and Sexual Crimes Database (VSCD) (J. Keith, personal communication, March 28, 2016). VSCD entries are voluntary, and although New South Wales, Queensland, South Australia, and Victoria all have access to the database, currently only Queensland captures data to upload to the database.

The strength of case linkage databases is in their ability to compare multiple variables at once to make linkages across them (Rossmo, 2009). These databases serve as a storage facility, collecting information on solved and unsolved crimes, and have query functions that allow for the search and identification of linked crimes based upon offence

behaviours and variables (Martineau & Corey, 2008). These databases can hold substantial amounts of information. In 2008, the Canadian ViCLAS contained over 300,000 cases, 3,200 links, and 88,000 series (Martineau & Corey, 2008; RCMP, n.d.). The Belgian ViCLAS database has roughly 8,000 cases (Davies, Imre, & Woodhams, in press), in the UK, ViCLAS has over 25,000 offences (National Crime Agency, n.d.), and the Australian VSCD holds just over 13,000 offences (J. Keith, personal communication, March 28, 2016). Case linkage databases can also be used to combat some of the issues with the previous practice of profiling because they provide a common ground in which research and practice can work together in a multifaceted approach (Kocsis & Palermo, 2015). As repositories for behavioural data, these databases can provide information on base rates of behaviours within a variety of offence types. By knowing the overall frequency of a behaviour or group of behaviours, an analyst can then compare behaviours within their current offence to determine the uniqueness of the offender, which can then help to narrow the focus of an investigation or suspect pool (Rossmo, 2009).

Different countries have different processes for completing a case linkage database entry. The use of and submission to ViCLAS is voluntary in most of Canada, although it is required in Ontario and Quebec (RCMP, n.d.). The Serious Crimes Analysis Section (SCAS) is central unit responsible for all ViCLAS entries within the UK. All information for any offence in the UK that meets the criteria for inclusion in ViCLAS is sent to SCAS, where the ViCLAS form is completed and checked by specialised trained analysts (National Crime Agency, n.d.). Other countries, like Australia, rely on the investigating officer to complete the initial database entry. Through offence monitoring, members of the BSU review all reported offences for the month and flag those offences which are suitable for entry onto the VSCD (J. Keith, personal communication, March 28, 2016). The investigating officer is then tasked

with entering the necessary information onto the VSCD, and it is requested that this be completed within 30 days. Once entered, the report is assessed for completeness and accuracy by a member of the BSU. This step is vital because there are behavioural elements which can be interpreted subjectively, so quality control by a trained professional is essential.

The VSCD and ViCLAS are similar in format; they collect information on all elements of an offence across several sections. In the VSCD these sections include administration, victim, offender, vehicle, initial contact scene, assault scene, victim release scene, murder, weapon, offence information, sequence of events, and narrative summary. The majority of the VSCD entry consists of multiple-choice questions. Some questions allow only single selection, such as offender and victim sex and race. Occasionally, items also include an open dialogue box to gather more information. For example, one question asks, "is there evidence of sexual insertion of an object(s) other than the penis into the victim's body?" and allows for a single selection between yes, no, and unknown. However, if the investigator selects yes, a dialogue box asks for (although does not require) further specification. Other questions allow multiple selections, such as "did the offender experience any type of sexual dysfunction? (select ALL that apply)." Finally, some questions collected only written responses, such as "what did the offender say to the victim? (use the offender's actual words/phrases where possible)." The sequence of events and narrative summary sections allow the investigator to detail what happened during the offence, from the initial contact through to the end of the encounter as well as provide any additional relevant information. All of the information in the VSCD is available for case linkage analysis, and the narrative summary and sequence of events provide qualitative and idiographic references.

Case linkage generally uses a structured professional judgement (SPJ) approach; incorporating previous experience, education and training, and empirical evidence (Petherick & Ferguson, 2015a). Case linkage can result in several connections: between an offender and a crime scene, a victim and a crime scene, connecting multiple offences to one another, or even excluding unrelated offenders and offences (Petherick & Ferguson, 2015a). The most common function of case linkage is that of connecting an offender to multiple offences or multiple offences to one another in the establishment of a series (Bennell et al., 2012). This is completed by using individual behaviours as well as behavioural themes, although the use of individual behaviours is more common (Winter et al., 2013; Woodhams et al., 2018).

Case linkage practice occurs both proactively and reactively. The proactive approach, often known as comparative case analysis, involves actively searching a database for similarities between offences (Woodhams & Bennell, 2015b). This can be conducted continuously without prompting from an investigation, or when presented with an unsolved case. The reactive process, often known to practitioners simply as case linkage, occurs when an analyst is provided with a solved case and searches the database for other unsolved cases that match either the index offence or the offender in behavioural or other elements (Woodhams, Hollin, et al., 2007). In both instances, solved and unsolved cases are examined for similarities to provide information about potential suspects or linked offences (Collins et al., 1998). However, some analysts express concern about searching for cases when presented with an offender because it assumes the guilt of the individual, which may be detrimental to an investigation by limiting the suspects they examine, which can increase the risk of miscarriages of justice (Burrell & Bull, 2011). Thus, they suggest using that method of case linkage only in building a case against an offender for use at trial.

Furthermore, case linkage is an investigative tool to help guide an investigation rather than provide absolutes (Woodhams, Hollin, & Bull, 2007).

The case linkage process can take anywhere from less than an hour to several weeks depending on the information requested, the priority of the request, the amount of information provided, the use of multiple sources of information, the quality of the data within the databases, the complexity of the behaviours assessed, and the strength of the similarities between offences (Burrell & Bull, 2011). This process has been described in various ways (e.g. Bennell et al., 2012; Martineau & Corey, 2008; RCMP, n.d.; Woodhams & Bennell, 2015b; Woodhams, Hollin, et al., 2007) and is summarised as follows:

1. Once supplied with an index offence, the analyst gathers all relevant information, including victim and witness statements, police and forensic reports, and any other forms of information.
2. Appropriate behaviours for case linkage are identified based upon the empirical research and base rates of behaviours, the behaviours similar across crimes (when presented with a series), or the unique behaviours of the offender (when presented with an individual).
3. The context of behaviour and the victim and offender interaction are analysed. Relevant behaviours are compared to other crimes within the database, and a degree of match is established.
4. The analyst must determine the distinctiveness of the key behaviours by comparing them to the base rates of behaviours within that crime type. Base rates can be found either within the database or within other crime frequency records, and base rates should be taken from the area in which the crime occurred.

5. Once potentially linked cases are found, the analyst submits this information in the form of a report to the police to assist with identifying a series, narrowing down a suspect pool, or helping to guide the investigation in other ways.

While much of the necessary linkage information is kept within a database, and there are statistical models designed to link cases based on behavioural similarity, the analyst must be still involved in the process because of their ability to assess the context and psychological significance of behaviour (Woodhams, Hollin, & Bull, 2007). In a survey of 18 case linkage analysts, Burrell and Bull (2011) found that the analysts highlight the importance of using all available information in an analysis, as well as remaining in communication with the investigative team in case of updates or further evidence. They found that analysts relied on multiple types of evidence in conducting case linkage, such as behavioural, temporal, spatial, and forensic evidence. Because of the copious factors that can influence offender behaviour, case linkage analysts must have the local knowledge of the jurisdiction in which the crime occurred, remain open-minded and objective, highlight any caveats, and acknowledge the potential for human error (Burrell & Bull, 2011).

Impact of case linkage.

Accurate case linkage can benefit both investigations and trials. During an investigation, the identification of linked offences can reduce the case-load of police departments and investigators by directing the allocation of resources, facilitating collaboration between jurisdictions, and narrowing down suspect pools (Bartol & Bartol, 2013; Burrell & Bull, 2011; Grubin et al., 2001; Santtila et al., 2008; Woodhams, Bull, et al., 2007). Case linkage can also exclude those cases that may not be part of a series (Petherick & Ferguson, 2015a). Lastly, it can link cold cases to current cases to increase closure rates. In court, the results of case linkage can be used to attribute multiple cases to an offender,

provide additional evidence against a perpetrator, and influence sentencing determinations (Burrell & Bull, 2011; Turvey, 2008). Conversely, incorrect case linkage can have detrimental effects, such as wasting time and resources as well as misled policing and wrongful convictions (Grubin et al., 2001; Winter et al., 2013).

It is important to note that there have been no large-scale empirical studies examining the overall success of case linkage systems in terms of the number of linkages made and how they assisted in police investigations and the identification and capture of suspects (Bennell et al., 2012). Studies of this nature would not only provide support for the continued use of case linkage systems but would also provide a baseline from which further updates and improvements to the database and case linkage process could be compared. When a case linkage analysis is requested by a police department or investigator, the investigator is often asked to provide the analyst with the outcome of the investigation so that the database can be updated. However, this feedback is rarely provided or does not include a level of detail that is useful for analysts to be able to assess their own effectiveness (Davies, Alrajeh, & Woodhams, 2018). The lack of published success rates has led to contention over the usefulness of case linkage.

In 2009, an evaluation of ViCLAS databases was written by Margot, which resulted in several practitioners and government agencies questioning the validity and usefulness of case linkage databases. Davies, Imre, et al. (2018) responded, addressing the numerous methodological issues within Margot's paper and providing empirical evidence for the use of ViCLAS. Davies and colleagues (2018) additionally highlight the usefulness of ViCLAS across multiple countries. In Switzerland, at least 70 investigations resulted in positively linked crimes, and ViCLAS has been credited with closing several investigations. Over four years in Germany, 61 cases were linked using ViCLAS and confirmed by other means (such as

DNA). In Belgium, the ViCLAS unit assisted in distinguishing between multiple series of sexual assaults (Davies, Imre, et al., 2018). Finally, in the UK, ViCLAS is recognised as providing a national overview of crime as well as ensuring consistent and high-quality coding of offence information. In 2014, 372 offences were identified as potentially linked within the UK by SCAS (National Crime Agency, n.d.). Although additional studies could further assess the impact of case linkage databases and analysis, there is an agreement by practitioners and academics that case linkage analysis positively impacts the investigative process by providing insight on motive and patterns of offences, the judicial process by providing a robust evidence base, and even crime prevention tactics by exploring offender targeting patterns and providing preventive advice to potential victims (Burrell & Bull, 2011).

Reliability of case linkage databases.

In order for case linkage to be accurate and useful, the crime information must first be collected and entered into the database accurately (Bennell et al., 2012; Martineau & Corey, 2008). To increase the accuracy and reliability of ViCLAS entries, the *Field Investigators Guide* was created which provides detailed instructions on how to complete a ViCLAS entry. As Bennell and colleagues (2012) highlight, there is a paucity of research analysing the data coding practices within ViCLAS reports, although case linkage analysts use quality assurance practices to ensure the validity of the data as much as possible (Davies, Imre, et al., 2018; Woodhams, Bull, & Hollin, 2007). Missing data can lead to missed true links or falsely linking cases, both of which have negative consequences. If the data within ViCLAS, VSCD, and other databases are unreliable or inaccurate, any inquiry conducted using that data would be of little use. Proper data collection and input into crime linkage databases lessens the gap between theory and practice by providing accurate and complete data to use in research and investigations (Bennell et al., 2012). Furthermore, a database

with a large amount of high-quality data can help with the linkage process by providing a comprehensive overview of base rates and because analysts link cases based on a high number of similarities across offences (Burrell & Bull, 2011).

One of the first tasks in empirically supporting the use of crime linkage databases is to establish interrater reliability (Bennell et al., 2012). Indeed, a foremost concern of most behavioural science research is the reliability of human observation and recording of information (Hartmann, 1977). Interrater reliability means that two investigators or analysts, given the same crime information, agree upon the elements present and absent during an offence and input the data consistently. There are technical differences between agreement and reliability across different research fields, where agreement refers to the degree to which ratings are identical, and reliability refers to the variability of errors within a measure (Gisev et al., 2013). However, for this study, interrater reliability is used as the general term to describe concurrence between raters on a given task, whereas the agreement is the specific amount of similarity in the input.

There are a few ways that interrater reliability of case linkage data can be analysed, including percentage agreement, Cohen's kappa, Scott's pi, odds ratio, and consensus estimates (Stemler & Tsai, 2008). Consensus estimates analyse a typical representation of a construct, are easy to calculate, and work well for nominal variables. Percentage agreement has a strong intuitive appeal and is easy to calculate as the number of items with the same rating is summed and divided by the total number of items. An odds ratio can be used for dichotomous ratings as well, although the interpretation of results is more complicated than percentage agreement (Stemler & Tsai, 2008). Cohen's kappa and Scott's pi can also be used because they account for the agreement that occurs due to chance and compare it to the actual level of agreement (Stemler & Tsai, 2008).

Percentage agreement is the method of choice for most case linkage interrater reliability estimates (Davies et al., in press; Martineau & Corey, 2008; Snook, Luther, House, Bennell, & Taylor, 2012). The interpretation of percentage agreement is that 90% and above is high, 80-90% is acceptable, and 70% is the minimum agreement level (Hartmann, 1977). Within case linkage research, percentage agreement is determined at three levels; overall agreement, occurrence agreement, which is the agreement on the items that *did* occur during an offence, and non-occurrence agreement, which is the agreement on the items that *did not* occur during the offence (Martineau & Corey, 2008). Although behaviours and elements that are present are generally more used for case linkage, analysts can search for cases based upon non-present elements as well, so it is important to have high levels of both occurrence and non-occurrence agreement. However, non-occurrence agreement will generally be higher because many items in a database entry have multiple options, which naturally provides more opportunity for non-occurrence agreement, as well as a higher risk for discrepancies in occurrence agreement (Snook et al., 2012).

One potential issue with using percentage agreement is that it may overstate reliability compared to other agreement measurements, as behaviours that have very low or very high frequency can influence percentage agreement. This highlights the importance of calculating overall, occurrence, and non-occurrence agreement (Lewin & Wakefield, 1979). Computing both percentage agreement and kappa can help with the interpretation of results as well as identify potential bias between raters, as kappa can be sensitive to bias (Gisev, Bell, & Chen, 2013). When interpreting the kappa coefficient, .75 and higher is indicative of excellent agreement, .40 to .75 is moderate and below .40 is considered poor agreement (Gisev et al., 2013; Hoyt, 2010).

A few researchers have assessed interrater reliability of ViCLAS using percentage agreement. Martineau and Corey (2008) tested the interrater reliability of police officers in completing the ViCLAS booklet for either a homicide or a sexual assault offence vignette. Although the scenarios provided were fictitious, they were created based upon real cases and checked by both police officials and ViCLAS analysts for validity. They found an overall agreement for the homicide scenario of 79.30% and 87.70% for the sexual assault scenario. However, the non-occurrence agreement was 54.67% and 68.80%, respectively, while the occurrence agreement for homicide was 38.43%, and as low as 25.38% for sexual assault, meaning there was little agreement about the elements that *did* occur within either scenario. The higher level of overall agreement for the sexual assault scenario might have been due to the presence of a victim, which allows for a more thorough understanding of the behavioural evidence than is possible for a homicide (Davies, Alrajeh, et al., 2018). Additionally, the booklet for the homicide scenario contains more sections, providing more opportunity for disagreement, especially in the coding of open-ended questions (Martineau & Corey, 2008).

In an assessment of interrater reliability with ten police officers, Snook et al. (2012) examined the occurrence agreement of the ViCLAS booklet using a full case file. The use of an actual case increased ecological validity by providing more information and more closely mimicking the actual process of case linkage (Snook et al., 2012). They found low levels of agreement at both the individual item level and the section level, with only 11 of the 106 variables examined attaining an occurrence agreement above 80%, and only the administrative section had high levels of agreement. Furthermore, those variables viewed as more useful for case linkage had low levels of agreement (typically less than 25%).

Davies et al. (in press) tested interrater reliability in a sample of Belgian ViCLAS analysts. This study provided greater ecological validity by using real cases, including four cases to code, and asking participants to code the offences during regular working hours rather than under research conditions, all of which more accurately simulates the practice of case linkage analysis. The average agreement across all four cases was 55.80%, ranging from 51.60% - 64.80%. The average non-agreement was 44.20%, ranging from 35.20% - 48.40% across the cases. Overall, the agreement and non-agreement scores were higher for Davies and colleagues than in previous research, although much of the agreement does not meet the 70% minimum threshold for acceptable agreement.

Both Davies et al. (in press) and Snook et al. (2012) provide in-depth discussions of potential explanations for low agreement rates. Lower reliability within a research scenario (compared to actual practice) could be due to boredom from the task, inexperience with the ViCLAS booklet (9 out of the 10 officers had not previously completed a ViCLAS booklet), and lack of intimate knowledge regarding the case than an investigating officer usually has (Snook et al., 2012). Furthermore, many departments have training and quality control processes in place which catch and correct any initial coding errors that may be counted as disagreements in the research (Davies et al., in press).

Experience and training.

The Royal Canadian Mounted Police (n.d.) request that ViCLAS specialists have at least five years of experience investigating serious crime, a background in humanities, and undergo ViCLAS training courses and continuing education. The ViCLAS specialist course teaches the analysis of offender behaviour, the identification of patterns and links, the extraction of key information, and the use of the ViCLAS database. However, in some jurisdictions that use ViCLAS, investigators with no prior knowledge of the system may be

asked to complete the ViCLAS booklet and even conduct case linkage analyses due to resource demands (Snook et al., 2012). This disparity in experience may increase the number of errors made during the case linkage process. Furthermore, with all of the time and resources that go into training specialised linkage analysts, the expertise gained from the training should be empirically supported.

There have been a few studies which examine whether experience and training impact case linkage accuracy. Santtila, Korpela, and Häkkänen (2004) compared experienced vehicle investigators, experienced general investigators, novice general investigators and novice participants in their ability to link vehicle offences. They found that all investigators outperformed the novice group but that there was no difference between the different investigator groups. In Martineau & Corey's (2008) study of interrater reliability, whether the police officer was trained in the ViCLAS booklet did not affect the level of agreement in assessing interrater reliability. Bennell, Bloomfield, et al. (2010) compared police professionals, university students, and a logistic regression model in distinguishing linked from unlinked serial burglary pairs. Half of each participant group was provided with the heuristic that as spatial proximity increases (the closer two offences are to one another), so too do the odds that the two offences are the work of a single offender. They found that the university students outperformed the police professionals, with police professionals showing a tendency to rely on inaccurate linking cues and inconsistent MO beliefs. Furthermore, they found that those participants who received the training heuristic outperformed those that did not, and that the logistic regression model outperformed all human participants across all conditions. The fact that university students outperformed police professionals supports the importance of logic and metacognition in case linkage, as continued education at tertiary levels increases metacognitive ability (Martinez, 2006).

Tonkin (2012) replicated Bennell, Bloomfield, et al.'s 2010 study, addressing some limitations and increasing ecological validity by ensuring participants had relevant practical experience with behavioural case linkage, including crimes in a different geographic region for the logistic regression models, and providing participants with temporal information for all offences (which was absent in Bennell, Bloomfield, et al.'s study; see Tonkin, 2012, pp. 178-182 for a discussion of the limitations and methods to address them). Additionally, Tonkin examine both residential burglary and commercial robbery. Tonkin found that the two residential burglary logistic regression models significantly outperformed both students and crime analysts, but the regression model for commercial burglary did not outperform students and actually performed worse than crime analysts. Furthermore, within the residential burglary linking practice, he found that training significantly increased accuracy among students but decreased accuracy among crime analysts (such that trained students outperformed trained crime analysts, but untrained analysts outperformed untrained students). In linking commercial robbery, crime analysts outperformed students, regardless of training.

The variance in results across these studies indicates that this is an area that needs further exploration. Also, the finding that, in certain conditions, logistic regression models performed best highlights the need to examine further the usefulness of including statistical prediction rules into case linkage. However, it is important to bear in mind that research on case linkage accuracy is often more simple than the true practice of an analyst, although the ecological validity of research is increasing, as will be discussed further in the limitations section of this chapter.

Case linkage accuracy.

Research on case linkage accuracy using behavioural evidence has supported linkage accuracy to varying degrees across a range of offences (i.e. Bennell & Canter, 2002; Bennell et al., 2009; Bennell, Gauthier, et al., 2010; Bennell & Jones, 2005; Burrell & Bond, 2012; Goodwill & Alison, 2006; Markson et al., 2010; Santtila, Fritzon, et al., 2004; Santtila et al., 2005; SSanttila et al., 2008; later et al., 2015; Tonkin et al., 2017; Tonkin, Santtila, et al., 2012; Tonkin, Woodhams, et al., 2012; Winter et al., 2013; Woodhams & Labuschagne, 2012; Woodhams, Grant, & Price, 2007; Woodhams et al., 2018; Woodhams & Toye, 2007). In an overview of case linkage research, Bennell and colleagues (2014) analysed 19 studies across the UK, Finland, and South Africa over a range of crime types, including burglary, robbery, car theft, arson, sexual assault, and homicide. They found that linking accuracy was higher for interpersonal crime, such as homicide and sexual assault than it was for property crime. The highest level of accuracy was found when Melnyk and colleagues (2011) used MO behaviours to link serial homicide, whereas when Burrell et al. (2012) examined variables related to items stolen to link personal robbery the case linkage accuracy was less than chance.

The highest accuracy when using individual variables and behaviours occurred when inter-crime distance and temporal proximity were used compared to MO behaviours (Bennell et al., 2014), although the inclusion of MO behaviours and temporal and inter-crime distance resulted in greater linking accuracy (Tonkin & Woodhams, 2017). In general, using MO behaviours results in higher linking success for interpersonal crimes such as rape and homicide, while temporal and spatial behaviours have more success in crimes like burglary and robbery (Woodhams & Bennell, 2015b; Woodhams & Toye, 2007). This may be because the victims of interpersonal crimes can present more information about the

offence than what investigators can extrapolate based solely upon crime scene evidence. Additionally, victim statements may be able to more effectively identify the distinctive behaviours that are important for case linkage (Burrell & Bull, 2011).

Like research on behavioural consistency, the most common method of testing linkage accuracy is through cross-crime similarity coefficients. Ellingwood (2012) addressed the use of various similarity coefficients (Jaccard's, simple matching index, and Sorensen-Dice index) in case linkage, finding that there was very little difference across the three measures, with the simple matching index performing slightly worse overall. Notably, the simple matching index performed worst in serial rape when there were uneven numbers of linked and unlinked offence pairs (as is the reality). This may indicate that the simple matching index, although a valid tool for linking with other crimes, should not be used for the linking of serial rapes. Furthermore, Ellingwood found that there was a higher correlation between the variability of Jaccard's coefficient and the accuracy of the linkage. These results and the increasing use of Jaccard's coefficient in case linkage have made it the preferred cross-crime similarity coefficient measure.

There is substantial overlap in the similarity coefficients of both linked and unlinked offences, meaning that entirely distinguishing between linked and unlinked pairs is not possible (Bennell et al., 2009; Swets et al., 2000b). To increase the accuracy of the decision making, the variables included in the analysis must help distinguish between linked and unlinked crimes. Two offences that have a high degree of similarity will be more difficult to discriminate between, whereas cases with a low amount of overlap will be easily distinguished (Bennell, 2005). Therefore, behaviours that are shown to have minimal overlap between serial and non-serial offenders will contribute to more successful

determination of linkage. On the other hand, evidence or behaviours that have either very high or very low base rates will complicate the decision-making process.

In testing linkage accuracy, cross-crime similarity coefficients are incorporated into a Receiver Operator Characteristic (ROC) analysis, which has become the gold standard for linkage accuracy assessment (Bennell & Jones, 2005). Receiver operating characteristic analysis developed from signal detection theory and the work of radar analysts during World War II (Bennell et al., 2009). Radar operators needed to determine whether a blip on the radar screen was due to an enemy target, friendly vessel, or random noise. Signal detection theory assessed radar receiver operators' ability to distinguish between the different potential blips accurately. Signal detection theory has since been incorporated into the criminology and case linkage fields, as the process of determining a dichotomous yes-no diagnostic outcome is consistent across disciplines (Swets, Dawes, & Monahan, 2000b). In case linkage analysis, the diagnostic outcome is truly linked or not linked, and the decision is to link or not to link (Bennell, 2005).

ROC analysis calculates the probability of hits (correctly linked cases) as a function of the probability of false alarms (incorrectly linked cases) along a sliding scale of threshold levels from strict to lenient (Bennell et al., 2009; Swets, 1992). Arbitrarily setting a threshold to determining linkage can impact the results of the analysis by missing valid links or increasing false alarms (Bennell et al., 2009). Because ROC analysis plots the hits and false alarms as each raw score is considered as the threshold point, it simultaneously assesses all thresholds (Swets, Dawes, & Monahan, 2000a). The area under the curve (AUC) is the overall indication of the diagnostic accuracy of the ROC curve. An AUC of .50 is equal to chance, between .50 and .70 denotes low accuracy, .70 to .90 equates to moderate accuracy, and any AUC above .90 indicates high accuracy (Swets, 1992). The AUC is

interpreted as a probability, such that within the case linkage research, an AUC of .80 means that there is an 80% chance that a randomly selected linked pair will have a higher cross-crime similarity coefficient than a randomly selected unlinked pair (Bennell et al., 2009). ROC analysis can be paired with other statistical procedures like logistic regression analysis and can examine the impact of moderator variables, such as the linkage approach used, type of similarity coefficient used, and the nature of the crime scene behaviours (Bennell et al., 2009).

Using ROC analysis can not only improve the accuracy of decision-making but can also improve the utility of the outcome; maximising the number of hits compared to false alarms (Swets et al., 2000b). The utility of a process is essential because increasing the number of correct hits should not come at the price of a high number of false alarms (Bennell, 2005). Setting a diagnostic threshold should be done with the most comprehensive understanding of the situation, considering the base rates of behaviours, the consequences of false alarms, and the benefits of hits (Swets, 1992). However, the analysis of costs and benefits of case linkage decisions is challenging, so the threshold is typically set to either maximise the utility of the decision or to conform to a pre-determined acceptable rate of false alarms (Bennell, 2005; Bennell et al., 2009). An outcome with a low base rate, such as the occurrence of serial rape, should generally be distinguished with a more stringent threshold (Swets et al., 2000b). ROC analysis allows for the review of linkage accuracy without an imposed pre-determined threshold and can also analyse the proper threshold level depending on the desired outcome: maximising hits while minimising false alarms versus not surpassing a set level of false alarms (Bennell et al., 2009).

Linkage of sexual assault.

There are many studies that have examined case linkage accuracy of sexual assault using Jaccard's coefficients, ROC analysis, or a combination of both (Bennell, Gauthier, et al., 2010; Bennell et al., 2009; Mokros & Alison, 2002; Tonkin et al., 2017; Slater et al., 2015; Winter et al., 2013; Woodhams, Grant, & Price, 2007; Woodhams & Labuschagne, 2012; Woodhams et al., 2018). When assessing cross-crime similarity coefficients of linked and unlinked offence pairs, these researchers found a range of Jaccard's coefficients for linked pairs from .39 to .52 and a range for unlinked pairs from .17 to .34, supporting behavioural consistency as previously discussed in Chapter Three.

Some researchers have used regression analysis (frequently with Jaccard's coefficient) to examine the ability to distinguish between linked and unlinked offence pairs using behavioural similarity (Tonkin et al., 2017; Slater et al., 2015; Winter et al., 2013; Woodhams & Labuschagne, 2012; Woodhams et al., 2018). Generally, this is accomplished through a leave-one-out cross-validation (LOOCV) method, which involves removing a single case from the data set, developing a logistic regression model on the remaining data set, then applying the model to the removed case to get a predicted probability, repeating the process with each case within the data set (Woodhams & Labuschagne, 2012). The predicted probability is then incorporated into an ROC analysis. The reason for using a LOOCV logistic regression is that it validates the results so they can be generalised beyond the data set used to develop the model (Woodhams & Labuschagne, 2012).

Through the ROC analyses, the resulting AUC values ranged from .74 to .89, indicating moderate to excellent case linkage accuracy (Bennell, Gauthier, et al., 2010; Bennell et al., 2009; Tonkin et al., 2017; Slater et al., 2015; Winter et al., 2013; Woodhams & Labuschagne, 2012; Woodhams et al., 2018). Across all studies, the AUC values were

statistically significant, demonstrating that linked serial rape offences have higher behavioural consistency than unlinked pairs, and that consistency can be used to link offences accurately. Slater et al. (2015), Tonkin et al. (2017), Woodhams and Labuschagne (2012) and Woodhams et al. (2018) used the LOOCV method and incorporated all offences from each series in their analyses, finding high AUC values (.86-.87, .87, .88, and .85-.86, respectively). Winter et al. (2013) also used a LOOCV method. However, they compared dimensional behavioural linking accuracy using a discriminant function analysis with multivariate behavioural linking accuracy using a Bayesian approach. Winter and colleagues found that multivariate method (AUC = .89) significantly outperformed the dimensional approach (AUC = .80). Bennell et al. (2009) ran an ROC using the Jaccard's coefficients directly (rather than predicted probabilities produced by a regression), resulting in an AUC of .75. Bennell, Gauthier, et al. (2010) compared the use of Jaccard's coefficient and a taxonomic similarity index (another measure of cross-crime similarity), finding that Jaccard's (AUC = .81) outperformed the taxonomic similarity index (AUC = .76), although this difference was not statistically significant.

Some researchers have examined which elements can further improve case linkage accuracy. Bennell et al. (2009) included 27 offence variables and found moderate levels of linking accuracy (AUC = .75). Bennell, Gauthier et al. (2010) then used the same sample but expanded to include 36 variables, resulting in an AUC of .81, indicating that the inclusion of more behavioural evidence results in greater linkage accuracy. Winter and colleagues (2013) examined linkage accuracy based on the inclusion of individual behaviours versus behavioural themes. Using serial rape data, they found that the use of multiple behaviours resulted in higher linkage accuracy than reliance on behavioural themes (AUC = .84 versus AUC = .74, respectively). This further supports the inclusion of as much behavioural and

offence information as possible into the case linkage analysis. Winter et al. further examined the use of serial only data compared to serial and non-serial offences and found the inclusion of all offences significantly increased the discrimination accuracy (AUC = .84 for serial only, AUC = .89 for all offenders). The comparison of discrimination accuracy using serial only and all offender data was replicated by Slater et al. (2015) and Woodhams et al. (2018), although they both found an inverse effect; the inclusion of all offender data slightly reduced discrimination accuracy. The AUC for Slater et al. dropped from .87 to .86 when all offences were included, and from .86 to .85 for Woodhams et al. Neither effect was significant.

Bennell et al. (2009) and Slater et al. (2015) used ROC analysis to examine different Jaccard's coefficients to identify the most appropriate threshold level. Bennell et al. (2009) determined that using a Jaccard's coefficient of .33 as the threshold value provided a maximisation of hits (72%) and minimisation of false alarms (32%). Alternatively, setting an acceptable false alarm level of 20% resulted in a Jaccard's coefficient of .37 as the threshold value, and a hit rate of 61%. Slater et al. (2015) found that using a Jaccard's coefficient of .24 as the threshold resulted in correctly identifying 79% of both linked and unlinked pairs. Because of the low Jaccard's coefficients, Bennell et al. argue that high levels of consistency and distinctiveness may not be necessary for case linkage. Furthermore, Slater and colleagues found that ROC analysis using only serial offender data more accurately identified unlinked pairs whereas including non-serial offenders as well more accurately identified truly linked pairs, although this difference was not statistically significant. However, it is worth noting because of the potential support for behavioural distinctiveness it provides, as serial offence pairs were more accurately identified when non-serial offences

were included in the analysis. This suggests that serial offenders do engage in more consistent and distinct behaviours.

The other common way that case linkage has been examined is by testing the accuracy with which a query crime can be allocated to the correct series, or whether offences from the same series as the index offence can be identified. This is generally completed using bespoke computer algorithms (Grubin et al., 2001) or multidimensional scaling and discriminant function analysis (Santtila et al., 2005). This process involves removing the query crime from the database then rank-ordering the remaining cases based upon their similarity to the index offence. Then, a pre-specified number of rank-ordered crimes, typically the top five or ten most similar offences are examined to see how many crimes from the same series are listed, which is compared to what is expected due to chance.

Grubin et al. (2001) tested whether an index offence could be correctly allocated to the correct series. They found that for 115 out of 117 series examined there was an allocation accuracy significantly higher than chance. Yokota et al. (2007) used a statistical prediction rule to assess to which offender each offence was most likely to belong by rank-ordering all remaining offenders in their sample and reviewing the top five per cent. Twenty-four of the 81 offenders were correctly rank-ordered number one for their offences, with the median rank position being four (range= 1-339). Santtila et al. (2005) conducted discriminant function analysis to test the accuracy of case classification. They found that for 37 of the 43 cases (86.1%), the actual series to which the case belonged was in the top ten most likely series. However, these approaches to testing linkage have been criticised by Bennell et al. (2005) for only having a single decision threshold, such as the top five or ten cases. This has low ecological validity and can distort the view of linkage accuracy.

While these findings are statistically significant, it should be noted that often non-occurrence agreement is included in determining links. Linking based on the shared absence of behaviour should be done with caution because a behaviour could be absent for many reasons, such as being incorrectly coded, missed in the investigation, or being a low-frequency behaviour. Through an examination of the accuracy of different statistical approaches to linking behaviour, Tonkin et al. (2017) found that treating joint presence and joint absence of behaviours as two separate types of consistency had higher discrimination accuracy rates than when only joint presence was included or when joint presence and joint absence were coded as the same type of consistency. This indicates that it is not only the behaviours that are present during a rape that are important, but those behaviours not shown can be equally important to determining links. This has important implications for both future research and practice of case linkage.

Linkage across offence types.

Typical case linkage research involves a single crime type and solved offences.

However, as the majority of offenders are versatile across crime categories, the majority of crime is perpetrated by a minority of offenders (Blumstein et al., 1986), and as case linkage practice involves unsolved offences, it is necessary to address whether linking across crime types and with both solved and unsolved offences is possible. Linking across crime type has recently begun to be assessed by using geographic and temporal proximity information as well as more traditional MO behaviours (Tonkin & Woodhams, 2017; Tonkin et al., 2012a; Tonkin et al., 2011, Woodhams et al., 2018).

Tonkin et al. (2011) examined linking across violent, sexual, burglary, robbery, theft, and criminal damages offences using geographic and temporal proximity across offences, based upon the premise that serial offenders offend in an area in which they are familiar.

Tonkin and Woodhams (2017) examined linking across burglary and robbery using geographic and temporal proximity as well as MO behaviours. Both studies found that across all conditions, linked offences had fewer days between offences and shorter inter-crime distances than unlinked pairs. Although each offender showed consistency in returning to the same area to commit their offences, these areas were specific to each offender because of their history and activities in the area, allowing for differentiation between offenders (Tonkin et al., 2011). Furthermore, both temporal proximity and inter-crime distance resulted in accurate case linkage within crime type, across crime type, and across crime category. In both studies, inter-crime distance resulted in the highest linkage accuracy of the single variables. However, for Tonkin et al. the inclusion of temporal proximity as well did not increase accuracy whereas, for Tonkin and Woodhams, the combination of MO, geographic information, and temporal proximity resulted in higher linking accuracy than each element individually. Tonkin and Woodhams theorised that burglary and robbery have similar motives, so the psychological similarity to the offender across the different offences will lead to similar behaviours.

Because relying on a threshold to determine linkage can result in a truly linked case being excluded due to slight behavioural differences, Tonkin and colleagues suggest the use of inter-crime distance to prioritise cases for examination. Furthermore, Tonkin and Woodhams found that many of the Jaccard's coefficients were low, but they were still able to accurately distinguish between linked and unlinked pairs, supporting Bennell et al.'s (2009) argument that absolute behavioural consistency is not necessary for case linkage.

To increase ecological validity, Tonkin et al. (2012a) examined whether cases could be linked across solved and unsolved offences across a variety of crime types. They searched all instances of multiple crimes that had been linked to a single offender by DNA and

included at least one unsolved offence for each offender. The inclusion of unsolved cases avoided the instance in which two solved offences made up a linked pair, which would not be examined in practical case linkage (Tonkin et al., 2012a). Offence similarity and case linkage accuracy were assessed using inter-crime distance and temporal proximity across crime type, within crime type, and across crime category. Consistent with Tonkin et al. (2011), Tonkin et al. (2012a) found that all linked pairs had shorter inter-crime distance and fewer days between offences than unlinked pairs (except between those pairs across crime type), and that inter-crime distance resulted in moderate linkage accuracy at all levels of comparison. Tonkin et al. (2012a) showed lower linking accuracy with both inter-crime distance within crime type (AUC = .77) and temporal proximity across crime type (AUC = .53) compared to the 2011 study (AUC = .91 and .74, respectively), although the other measures of discrimination accuracy were similar across the two studies. This indicates that using solved cases for case linkage may inflate linking accuracy.

Conclusion

Rape investigation, like all investigation, is grounded in sound logic and reasoning and the use of the scientific method. By maintaining the integrity of process and logic, an objective and thorough investigation is ensured. Specialised departments and methods have developed for the investigation and analysis of rape. Once the veracity of a rape report has been established, the investigators analyse all available information to gain a holistic understanding of the offence. Case linkage of rape relies on both physical and behavioural evidence, with an emphasis on behavioural evidence. Behavioural evidence includes everything that both the offender and victim did or said throughout an offence and provides insight into an offender's motives, actions, and identity. Furthermore, the investigation of serial rape relies on the exploration of the fantasy and motivation of the offender.

Initially, any examination of offender characteristics was termed profiling and was based upon the early research of the FBI. However, as the methodology and results of the early research have been criticised, behavioural investigations have developed, and profiling methodologies have been updated. Furthermore, a new discipline, investigative psychology was developed. Although investigative psychology does not include a specific methodology, it merges the varied disciplines of psychology and the practice of investigations. Profiling and IP have been criticised because of their nomothetic approach, so other behavioural investigation methods have been created, including behavioural evidence analysis and applied crime analysis. Although they are not practical inclusions for every investigation, BEA and ACA are useful when an in-depth idiographic analysis of an individual case is required, or when investigative or judicial errors have been made.

Originally a component of criminal profiling, case linkage has grown into a well-recognised and distinct process. This investigative tool often uses behavioural databases such as ViCLAS, ViCAP, and the VSCD, which serve as repositories for the behavioural data of thousands of violent and interpersonal crimes. They can be searched for unique behaviours and used to identify potential series of offences. Case linkage has seen increasing empirical support over the last twenty years, successfully linking within interpersonal crimes such as sexual assault and homicide as well as high-volume crimes such as burglary, robbery, car theft, and arson. Behavioural linking within sexual assault has been supported in numerous countries with a moderate to high degree of accuracy. The highest accuracy has been found when including all behavioural, and offence variables and linking success has been seen when unsolved offences or multiple offence types are included. Furthermore, case linkage has been successful even when offences have a low degree of behavioural similarity. The

increasingly ecologically valid research methods support the crossover between linkage research and linkage practice.

Limitations

There have been a number of noted limitations across the behavioural consistency and distinctiveness and case linkage research. One of the main challenges is the availability, accessibility, and quality of the data (Burrell & Bull, 2011). Police officers may not recognise the potential of behavioural data and tracking offences, and report not having enough time to complete the extensive and in-depth database questionnaires (Rossmo, 2009). Within sexual assault, the reliance on victim statements for much of the information provides a secondary account of the offence, which may hinder case linkage (Woodhams, Bull, et al., 2007). Victim statements are fallible due to memory errors or inflation or omission of details because of the traumatic or embarrassing nature of the offence (Bennell et al., 2009; Woodhams & Bennell, 2015a). Furthermore, there can be errors recording and coding information from the victim's statement; thus, interviews should be recorded when possible to provide the original source of information (Woodhams, Bull, et al., 2007).

The biggest criticism of case linkage research is the lack of ecological validity. The number of behavioural variables examined, the complexity of the cases, and the time pressure of case linkage analysis are difficult to recreate in research settings, leading to low ecological validity (Bennell et al., 2012). Additionally, case linkage studies typically do not mirror the real-life practice of case linkage because they use restricted samples, examine a single crime type, and use solved cases (Bennell et al., 2014). The use of linkage databases increases ecological validity, as does the use of full case files, but these approaches can be limited by unknown data quality and interrater reliability rates. The use of small sample sizes is difficult to address because serial offender populations are limited (Slater et al.,

2015). In practice, the accuracy of case linkage is seldom absolute, as evidence such as DNA is often missing, conviction rates for some types of offences are naturally low, and mistakes in convictions can still happen (Woodhams, Bull, et al., 2007). This is one of the main reasons why most case linkage research uses solved crimes.

Although the use of solved offences helps to establish the ground truth (whether a pair of crimes is actually linked or not) essential for ROC analysis and provides support for behavioural consistency and distinctiveness, it may inflate linkage accuracy results because captured offenders may have displayed more consistent and distinct behaviours than non-captured offenders, leading to their identification and apprehension (Bennell et al., 2014). As the practice of case linkage has been supported, researchers are beginning to address these criticisms by incorporating multiple crime categories and unsolved offences (Slater et al., 2015; Tonkin et al., 2011; Tonkin et al., 2012a; Tonkin & Woodhams, 2017; Woodhams et al., 2018). As most of this research has come from the UK and Europe, it is important to follow this example in other countries, such as Australia.

The restriction of samples based on the inclusion of only selected cases from an offender's series is a further criticism (Slater et al., 2015; Tonkin & Woodhams, 2017). It was previously argued that including all crimes within a series may lead to bias because of those highly prolific offenders who show either very high or very low consistency across their series (Bennell et al., 2009), but limiting the number of offences included in research does not mirror the case linkage reality. This is problematic because it does not allow for an examination of the progression of behaviour across a series of offences or an analysis of consistency over time (Soroichinski & Salfati, 2018). Behavioural consistency within subsequent offences is generally high, sometimes sharing as much as 90% of behaviour, but when assessed across an entire series of offences, behavioural consistency drops

significantly (Soroichinski & Salfati, 2018). This highlights the importance of not relying on a single pair of crimes to determine the overall consistency of a serial offender. Furthermore, the inclusion of all available offences within a series increases the ecological validity of the research. Slater et al. (2015), Winter et al. (2013), Woodhams and Labuschagne (2012), and Woodhams et al. (2018) have addressed this concern and increased ecological validity by incorporating all offences of the serial offenders studied.

In a similar vein is that both linked and unlinked offence pairs have generally been created from serial offenders only. If the assumption of behavioural distinctiveness is valid, then it would be assumed that two serial offenders would engage in more distinct behaviours compared to two non-serial offenders, thus generally having a lower Jaccard's coefficient. The use of only serial offender data in previous research could have skewed the results (Slater et al., 2015). Tonkin, Santtila, et al. (2012), Slater et al. (2015), Winter and colleagues (2013), and Woodhams et al. (2018) focused on this issue by calculating Jaccard's coefficients and conducting ROC analyses using both serial non-serial offender data. This increases ecological validity because the actual practice of case linkage includes cases from a variety of offenders. Furthermore, Slater et al. (2015), Winter and colleagues (2013), and Woodhams et al. (2018) conducted two sets of analyses, using serial offender data only and using a mix of serial and non-serial offender data. Although not statistically significant, Slater et al. found that the non-serial unlinked pairs had higher Jaccard's coefficients than the serial unlinked pairs. If this finding can be replicated in future research, it can help provide retroactive support for the use of Jaccard's coefficients to demonstrate behavioural distinctiveness. Winter et al. found that including both serial and non-serial offence data in their analyses significantly increased their discrimination accuracy, whereas Slater et al. and Woodhams et al. found the reverse effect (although not significant). The differences across

these studies shows the need for further exploration using multiple data sets and comparing serial and non-serial offences.

Much of the research that supports the concept of distinctiveness does so in an indirect way through the support for consistency. The research on the accuracy of allocating a query offence to a series, offender, or finding other offences of the same series provides support for consistency of behaviour across offences and is cited as supporting distinctiveness. Showing that two serial offences can be grouped in the same top 5 or 10 most similar offences is a good starting point for supporting distinctiveness and can assist investigations in narrowing down additional cases to examine for linkage. Additionally, acknowledging that two offences from a single offender have a higher similarity coefficient than two offences from different offenders shows behavioural consistency and suggests that offenders are unique in their behaviours.

Furthermore, the issue of individual distinctiveness is still under-researched. By individual distinctiveness, it is meant that each offender behaves uniquely enough to be distinguished from another offender. This is important if there is a situation in which there are two serial rapists operating simultaneously in a similar area. It would be helpful for investigations and trials to be able to distinguish between offenders. Individual distinctiveness has gained increased support recently by the works of researchers like Slater, Tonkin, Winter, and Woodhams using both serial and non-serial offences in their analysis of similarity coefficients. Future research could further this area by examining the similarity coefficients and behavioural consistency of one offender across his series compared to other serial offenders, or by testing the ability to accurately allocate offences from multiple offenders to their correct series.

One difficulty with using ROC analysis is that it works best with continuous or graded variables (Swets et al., 2000b), whereas case linkage decisions are typically based upon the dichotomous presence or absence of behaviour. However, this limitation is generally overcome by using continuous variables in ROC analyses, such as Jaccard's similarity coefficient or predicted probabilities derived from regression models. Furthermore, as ROC analysis was designed for radar signal detection in which there are copious amounts of data, the imbalance between the number of unlinked and number of linked offences in criminology research increases the risk of decision-making errors (Bennell et al., 2014; Woodhams et al., 2018).

Finally, although case linkage research has flourished over the past 15-20 years, there is still room for additional replication and validation studies. The majority of research has examined different crime types, used different behaviours, and relied upon different statistical techniques. As much of the case linkage research is currently conducted in Europe, there is a need for increased research in other countries. Furthermore, there is still some disagreement about the best method to use to assess case linkage accuracy and support the theories of consistency and distinctiveness. Although the use of similarity coefficients and ROC analysis has become widely accepted, there is still no complete cohesion and standardisation to assessing case linkage practice and accuracy on a global scale.

Chapter 5 – Methodology

The previous four chapters laid the theoretical foundation for this quantitative research project. As research methods and knowledge advance, they provide additional opportunities to test underlying theories and generate new ones. Additionally, to understand the phenomenon of rape within Australia, the context of rape in other countries must be understood to compare and contrast the findings of this research. The next three chapters are dedicated to the unique quantitative examination of serial and non-serial rape in Queensland. This chapter details the methodology of the current research project, beginning with an overview of the project's aims. This chapter then describes the data collection process using both the Violent and Sexual Crime Database (VSCD), and the general Queensland Police Records and Information Management Exchange (QPRIME) database, as well as highlights the inclusion and exclusion criteria for both serial and non-serial rapists. The data coding and variable analyses are then described. The statistical analyses used in this project include chi-square, logistic regression, and receiver operating characteristics (ROC) analysis. Chapter Six then provides the results of the statistical analyses. Finally, Chapter Seven discusses the results and implications of this research, highlights the limitations, and provides directions for future research.

Goals

As highlighted throughout the literature review portion of this thesis, the understanding of rape within Australia is lacking. Furthermore, there have been methodological shortcomings with previous research in case linkage and rape behaviour, namely the use of only two offences per serial offender and the reliance on serial offender data only to conduct ROC analysis. Thus, this quantitative research project not only fills an important gap in the knowledge base but also addressing these methodological issues.

As the first research in Australia to examine the distinction between serial and non-serial rapists, this project advances the understanding of rape behaviour in Australia, contributing useful and necessary knowledge. This research also tests the theories of consistency and distinctiveness, building on previous research in this area. Finally, it analyses case linkage accuracy of serial rape within the sample of Queensland offences. Throughout these three examinations, this project will continue the trend of increasing ecological validity.

This research project has three main questions, with the intent of furthering the knowledge of serial rape behaviour and supporting case linkage practices in Australia. The first two questions examine the offence behaviours of serial and non-serial rapists to increase the understanding of these offenders within Australia and assist in investigative decision-making:

1. Do serial rapists (as a group) display behaviours that are distinct from non-serial rapists?
2. Can offence behaviours be used to discriminate between serial and non-serial rapists?

The final question is related to the theory and practice of case linkage analysis:

3. Are the principles of offender consistency and distinctiveness and the practice of case linkage supported within this sample of Australian rapists?

The primary goal of this research project is to help with the identification of potential serial rapists at an earlier stage in the investigation, as a precursor to a case linkage analysis. Significant and distinct variables could be used as a screening tool to flag cases as potential serial offenders for linkage analysis. The early detection of potential serial

offenders assists in the allocation of resources and improves the efficiency of an investigation. As can be seen from the research questions, the goal of this project is not necessarily to develop a method for linking individual crimes more effectively, although it is hoped that this work will contribute to case linkage through an examination of behavioural consistency and distinctiveness as well as testing linkage accuracy within the current sample. As has previously been argued, linking individual crimes is based upon the specific similarity between singular cases and may be dependent on very rare yet consistent behaviours. Because of the rarity of such behaviours, they are only helpful in linking the few instances in which they appear. In previous research, the inclusion of as much information as possible into a case linkage analysis has resulted in the highest success (Winter et al., 2013; Woodhams et al., 2018). As such, this project analyses offence variables as individual variables rather than themes of behaviours and includes as many offence variables as possible (such as variables relating to the initial contact location and the victim's behaviours) rather than only specific MO or signature behaviours.

Additionally, this research project addresses two noted criticisms of previous rape case linkage research: limited case selection and using only serial rapist data for ROC analysis. To maintain ecological validity, this research includes all offences within each serial rapist's series (ranging from 2 to 6 offences in this sample) and incorporates all offence data within the ROC analysis.

Expected Results

Based on previous research, there are a few findings that are expected. It is difficult to predict the differences in offence behaviour between serial and non-serial offenders based on previous research because only three previous studies have explicitly examined this (Corovic et al., 2012; Park et al., 2008; Slater et al., 2015), with similarities and

differences across their findings. Within this study, it is anticipated that there will be behavioural differences between serial and non-serial offenders and that those behaviours more under the control of the offender, such as behaviours related to control of the victim, forensic awareness and planning, and ensuring escape, will be more common within the serial offender group. Furthermore, those behaviours that are more indicative of an opportunistic and disorganised offence, as well as those behaviours related to interpersonal involvement between victim and offender may be more common within the non-serial rapist group. To be clear, these hypotheses are not referring to thematic results, as this project explores individual behaviours. These behaviours have been grouped into thematic classifications by previous researchers (e.g. Bennell, Gauthier, et al. 2010, Grubin et al., 2001, Winter et al., 2013), which drives this hypothesis from a theoretical perspective.

Whether any behaviours will be able to predict serial versus non-serial offender classification accurately is unknown, as this was not examined in all three previously mentioned studies. Corovic et al. (2012) conducted a regression analysis and found three variables significantly predicted whether an offence was from a serial versus non-serial rapist. These variables were *kissed victim*, *controlled victim*, and *offender drank alcohol before the offence*. The variable *controlled victim* was indicative of serial rapes while the variables *kissed victim* and *offender drank alcohol before the offence* were indicative of non-serial rapes. Although there are no predicted results as to specific behaviours that may significantly predict serial versus non-serial rapist classification, it is anticipated that some of the variables unique to either serial or non-serial rapists will be significant when included in a regression analysis.

To further support the theory of behavioural consistency, linked offence pairs are expected to have a higher Jaccard's coefficient than unlinked pairs. This finding would be in

line with previous research (Bennell et al., 2009; Mokros & Alison, 2002; Slater et al., 2015; Woodhams et al., 2018), which indicates higher behavioural similarity within linked offences. Additionally, to support the theory of behavioural distinctiveness, it is anticipated that unlinked non-serial offence pairs will have higher Jaccard's coefficients than unlinked serial offence pairs. This finding would support the argument that serial offenders each have their own unique and stable offending patterns, whereas, overall, non-serial offenders engage in more similar behaviours to each other, thus showing less distinctiveness.

As more case linkage research uses ROC analysis to test case linkage accuracy (e.g. Bennell et al., 2009; Bennell, Gauthier, et al., 2010; Tonkin, Santtila, et al., 2012; Slater et al., 2015; Winter et al., 2013; Woodhams et al., 2018), there is a growing body of consistent findings. It is anticipated that the results of this study will conform to previous findings. Overall, it is expected that the ROC analysis will result in case linkage accuracy with an acceptable AUC level. Furthermore, this research follows Bennell and colleagues (2009) argument that accurate case linkage can be achieved even with lower values of Jaccard's coefficients.

Violent and Sexual Crimes Database

Case files used for this research project were taken from Queensland cases in the VSCD (as determined by the ethics approval of this project), as well as from the QPRIME database. All offences within the VSCD are also present in QPRIME, and each offence has a unique case number for each database. This ensured that there were no duplicated cases within this analysis, as each case found in QPRIME could be searched in the VSCD. For this analysis, the murder section of the VSCD entry was ignored as no sexual homicides were included, as was the additional information section as it was usually blank, or included other

information that did not fit into the rest of the VSCD form, the variability of which was generally not useful for case linkage analysis.

Throughout the data collection, the author was involved in the quality control process of offences within the VSCD database. As an investigator fills out the VSCD form, it is marked as in progress. Once the VSCD form is complete, it is recorded as awaiting quality control. At this point, a member of the BSU team examines the VSCD entry for completeness and accuracy and uses the original case file information to fill in any missing data. The entry is then marked as completed. Although any case (regardless of status within the VSCD) can be included in any query search of the VSCD to find serial offenders and offence series, the cases with completed statuses are more accurate and robust. Within this sample, any offences that had the status of in-progress or awaiting quality control needed to undergo the quality control process. The author was trained in this process by the head of the BSU and subsequently completed the quality control process on all previously entered cases in the data set. Any offences not already in the VSCD had the entry completed by the author, and the quality control check was done by another member of the BSU.

Interrater reliability.

To test the validity of cases created by the author, ten VSCD offence entries created by the author were chosen at random and re-created by the head of the BSU, using the original case file information and without reading the author's entry. Because some of the open response options require large amounts of text (the sequence of events and narrative summary), and because of the high demands on the head of the BSU during ongoing investigations, the decision was made not to include open responses in the percentage agreement assessment. Excluding open-response questions is a noted limitation of this analysis, and the examination of those responses warrants further exploration at another

time. Additionally, because of the ethics approval and the QPS agreements surrounding the collection of data for this project, all data were de-identified, so no information relating to victim or offender identity or specific locations of offences was included. Variables which provide multiple-choice options on the VSCD form were dummy coded as binary for each option, such that the presence or absence of each was provided, resulting in a dichotomous data set of 288 variables with which to compare interrater reliability.

Interrater reliability assessment establishes the accuracy and agreement between multiple raters and is especially useful when numerous persons are involved in the data entry process. Percentage agreement was determined as the most appropriate reliability measure as the data were all nominal and mostly dichotomous. In line with previous research and literature on the agreement in similar data entry styles (Davies et al., in press; Martineau & Corey, 2008; Snook et al., 2012), and because this project used two raters, ten offences were chosen as an appropriate number to use for the interrater reliability assessment.

Percentage agreement was calculated for overall agreement, occurrence agreement, and non-occurrence agreement. The overall agreement shows the percentage of variables within the case that both raters agreed on (either occurrence agreement or non-occurrence agreement). Occurrence agreement was calculated using the method detailed by Hartmann (1977) and subsequently used by Martineau & Corey (2008), Snook et al. (2012), and Davies et al. (in press). The number of times both raters agreed that a variable was present was counted and divided by the number of times at least one rater indicated the variable was present. Likewise, non-occurrence agreement was computed as the number of time both raters listed a variable as not present divided by the number of times either rater deemed a variable not present. Both occurrence agreement and non-occurrence agreement results

were multiplied by 100 to get a percentage. As the purpose of this interrater reliability assessment was the analysis of the author's validity and consistency with the VSCD entry rather than a complete examination of the VSCD, agreement rates were calculated for each case rather than for each variable or VSCD section.

As can be seen from Table 2, the author and the head of the BSU had high levels of agreement across all cases. The average overall agreement was 91.27%, with an average occurrence agreement across the ten cases of 79.65% and an average non-occurrence agreement of 94.05%. The lowest occurrence agreement was 68.92%, and the lowest overall agreement was 86.20%, both of which occurred for case one. The highest occurrence agreement and the highest overall agreement were both within case two, with 87.69% and 95.30%, respectively. The lowest non-occurrence rate was for case eight, at 89.45%, while the highest was for case six at 96.59%.

Table 2
Percentage Agreement between Raters

Case	Agreement			Kappa
	Occurrence	Non-Occurrence	Overall	
1	68.92%	89.86%	86.20%	0.67
2	87.69%	96.24%	95.30%	0.90
3	75.00%	93.84%	89.50%	0.74
4	77.04%	93.90%	89.80%	0.75
5	82.61%	95.19%	92.70%	0.84
6	87.14%	96.59%	94.20%	0.89
7	85.07%	96.14%	93.10%	0.88
8	71.88%	89.45%	87.60%	0.75
9	77.05%	95.41%	92.70%	0.82
10	84.13%	93.87%	91.60%	0.80

Note. Agreements calculated for all dichotomous and multiple-response variables within each case.

Created by the author, Serena Davidson, 2020

Kappa was also calculated for all cases to provide another unit of agreement analysis, which considers agreement based on chance. Kappa values ranged from .67 - .90

across the ten offences, with an average Kappa value of .80. The lowest kappa value (.67) occurred for case one, while the highest was seen for case two. Cases one and three had kappa values in the moderate range (.67 and .74, respectively), while the rest of the cases had kappa values in the excellent range of .75 and above.

Data Collection

Because the research on serial stranger rape is often limited by small sample sizes, the decision was made to gather as many serial offenders as possible and then match the number of cases found with non-serial rape offences. Naturally, there is no guarantee that every serial offender will be captured or found through a data collection process, but incorporating as many serial offences as possible increases the power of the analyses, and provides a greater understanding of stranger rape within Queensland. Furthermore, as some cases were found outside the VSCD and uploaded to this database, it helps ensure that the VSCD is up-to-date and as complete as possible.

Before any data collection and analysis can begin, it is important to have a strict set of inclusion and exclusion criteria, as well as pre-determined definitions for any potentially confusing concepts or variables. Clear definitions and inclusion criteria allow for stronger research designs and help avoid bias in data collection. As such, the inclusion criteria for this study were:

- Stranger relationship between victim and offender
- Adult offender
- Offence meets Queensland's legal definition of rape
 - Serial offenders must have committed at least two stranger rapes
 - Non-serial offenders must have a single stranger rape offence only, and not have any prior sexual offence charges (including non-contact offences)

- Offender acted alone
- No sexual homicide
- Solved offence
- Male offender

Defining a relationship as that of strangers is an increasingly difficult task, as discussed in Chapter One. Those offences in which a victim and offender had no previous physical interaction were defined as stranger offences. As this thesis aims to identify behaviours unique to serial offenders, the decision was made to include only solo-acting offenders. Offenders working in pairs or groups are often more violent and engage in more severe sexual assaults compared to single offenders (Woodhams, Cooke, Harkins, & da Silva, 2012), so were not included in this analysis. Additionally, as juvenile offenders have been noted to have different characteristics (Araji, 2000; Holmes & Holmes, 2009), they were excluded from this sample.

As the threshold for adult offending in Queensland is 17 years old (Queensland Government, 2015), no offenders under the age of 17 at the time of the offence were included. It is worth noting that the *Youth Justice and Other Legislation (Inclusion of 17-year-old Persons) Amendment Act 2016* was enacted in February 2018, such that offenders 17 years of age are now considered juvenile (Queensland Courts, 2018; Youth Justice and Other Legislation Amendment Act, 2016). However, as this change was enacted after the completion of the data collection, some offenders in this data set would now be considered juveniles, so this should be considered in future research or in comparing results of this research.

Regarding the definition of rape, this research uses the current Queensland legal definition of rape (as defined in Chapter One, pp. 27-28). Therefore, some older cases that

involved digital penetration were included, although they did not meet the definition of rape in their time. The current legal definition of rape, however, does not cover instances in which an offender performs non-consensual fellatio on a male victim, so any cases in which this was the only form of assault to occur were not able to be incorporated. As this research focuses on offender behaviour during an offence, no sexual homicides were included because of the lack of victim to provide insight into offender behaviour.

The decision to include only solved offences was made to maintain validity, as unsolved offences cannot be known with certainty to be part of a series. Furthermore, unsolved offences indicate doubt as to the identity of the offender or the nature of the offence. To be clear, the determination of solved was based on an investigative perspective, not a legal one. Within Queensland, an offence is considered solved:

When police have identified an offender for the offence and have sufficient evidence to determine the offender committed the offence. There are several subcategories that make up the solved category, including solved — offender bar to prosecution (meaning there is some legal or other factor inhibiting the prosecution of the offender) (Queensland Audit Office, 2017, p. 2).

Because most cases do not result in a conviction, to restrict a data set to only those offenders convicted would significantly restrict and may bias the data. As seen from the above definition there can be factors which inhibit prosecution of an offense, and cases can be dismissed or offenders acquitted for a variety of reasons. Because of this, the decision was made to allow any cases which the QPS considered solved, regardless of the outcome if or when a case went to trial. The allowed VSCD case statuses included: solved but no charges brought, charges laid, acquittal, and conviction. Implicit in the inclusion of solved offences is the understanding that every offence included was determined to be a

legitimate offence, so there are no false allegations. There is always a risk of false accusations that are wrongly convicted and result in miscarriages of justice. However, because the cases included in this study have reached the point in the investigation where the QPS is sufficiently content to label the status as solved, there is a high likelihood of the cases being legitimate.

Some previous research has examined differences between serial and non-serial offenders in terms of the percentage of completed rape offences. However, all offences in this research project are completed rapes based upon the Queensland definition, so this is not possible. Finally, the decision to include only male offenders was made based upon the data. The author was open to including women in the study; however, after applying all other inclusion criteria during the serial offender data collection, no female offenders remained. The decision was then made to exclude any women from the non-serial group as well to maintain consistency across the comparison groups.

Serial rape offenders.

The author began the data collection process in April 2015 with an initial search of the VSCD, which holds over 13,000 cases across a variety of offence types (J. Keith, personal communication, March 28, 2016). This search included all offences with a sexual crime classification (sexual assault, sexual assault with a weapon, sexual assault with multiple offenders, break, enter, and sexual assault, abduction and sexual assault, date rape, false allegation, and other [please describe]), as well as any offences which were assigned the possible motive of “sexual” or “kidnap for sexual purpose.” Additionally, the search included only solved offences, based on the case status within the VSCD.

The initial VSCD return on possible cases was 1,629 cases, ranging from 1979 to 2015. The author then sorted those cases based on whether they had any known or

suspected links to other cases within the database. Three categories were created: linked offences, not linked offences, and potentially linked offences. This initial classification resulted in 241 linked offences, 15 potentially linked offences, and 1,373 unlinked offences. As the potentially linked cases were generally linked to unsolved offences or offences with an unknown offender, they were discarded. The unlinked offences were stored for the subsequent collection of non-serial rapes. The original VSCD set of 241 linked offences included 171 cases that were listed as involving strangers and 70 between acquaintances. This data set included 104 offenders, 71 of which had at least one stranger rape, and 55 who appeared to only engage in stranger rape. After the application of the inclusion criteria and completion of the quality control checks, this data set was reduced to 25 offenders. The decision was then made to search the QPRIME database for additional serial offenders to increase the sample size.

A request was made of the QPRIME system for all persons involved in multiple sexual offences from 1995, which was chosen as the cut-off date due to the data degradation of offences before 1995. Cases within the QPRIME database prior to 1995 were found to have limited, if any, information, so a proper VSCD form would not be possible. This query resulted in a data set of 146,631 cases because this data set included every capacity in which an individual could be involved in a case, such as a victim, doctor, police officer, and caseworker. The author cleaned this data set; removing all non-offenders, women, unnamed suspects, juvenile offenders, law enforcement and medical personnel, and any other individuals who were not potential offenders. The initial edit reduced the data set to 41,000 cases. The data were then organised into a pivot table by offender based upon the number of charges. The table included 4,906 males responsible for 16,619 offences. This was narrowed down by removing any offenders who were under 17 at the time of the

offence, any offenders who only had multiple charges for a single victim, any offences with several offenders, any offenders whose charges were related to domestic violence, offenders who were acquaintances with their victims, unsolved offences, and offences in which no penetration occurred.

Because the current QPRIME system was developed and implemented in 2007, this presented an additional challenge to the data collection process. Cases after 2007 could be more efficiently examined due to the way data were collected and reported within the database. The author requested the inclusion of the relationship between victim and offender in the data set provided to assist in excluding irrelevant cases. However, this field was not able to be queried for cases between 1995 and 2007, so much of the inclusion and exclusion analysis was done on a case by case basis by manually finding the relationship field and reading investigator notes to determine whether penetration occurred. As some offences before 2007 had not been fully uploaded and updated in the QPRIME database, there were several requests made to the records department for copies of the original and microfilm documents. These were then used to complete the inclusion and exclusion examination, as well as update the case information within the QPRIME database by uploading the files. Those offences that met the inclusion criteria for serial rapists were then uploaded to the VSCD by the author, and the quality control check was completed by another member of the BSU.

Once the author was satisfied that the inclusion and exclusion criteria had been thoroughly applied, the final serial offender data set included 125 offences with 127 victims from 46 offenders. Two of the serial rapists offended against two victims each during a single offence. It was decided to keep these offenders in the data set to maintain ecological validity, as the practice of case linkage is not limited to offenders with single victims only.

These offences were coded as a single case, in which the behaviours of the offender against both victims were treated as a single incident rather than two separate cases. This is in line with the method of Woodhams et al. (2018). All offences within each series were included to maintain ecological validity as when analysts are determining linkages within databases such as ViCLAS and the VSCD they incorporate many offences. Including all offences within a series can also indicate whether offenders with longer series show higher levels of consistency compared to offenders with fewer offences within their series, although it is beyond the scope of this project to analyse this.

Non-serial rape offenders.

To get the non-serial data the author repeated the initial search of the VSCD database and added any new offences since the first query to the unlinked offence list, resulting in 1,413 possible offences. These offences were then analysed using the same inclusion criteria as the serial offender group, except for the number of sexual offence charges. For the non-serial offender group, offenders were classified as a non-serial offender if they had no prior sexual assault history, regardless of relationship with the victim. Because this research project aims to determine whether there is a difference between serial and non-serial offender behaviour, it was decided that any offenders with additional sexual offence charges would be excluded, regardless of severity, because they indicate an overall pattern of sexual deviance and offending. It is one of the most recognised limitations in this field that there is no guarantee that a one-time offender has genuinely offended just once. There is an inherent risk in this kind of research that single-offence rapists have engaged in multiple offences that have gone undetected. To ensure as much as possible that non-serial offenders were truly non-serial offenders, the author checked the charge history of every offender. This search included all charged offences, as conviction

rates for sexual offences are generally low, so conviction status is not an appropriate means to determine offending history. Any offenders who had additional sexual assault charges, including non-contact offences such as exposing themselves or masturbation in public, were excluded.

Again, any cases in the VSCD that had not yet had the quality control checks completed were done by the author. As there were a high number of stranger rape offence within the VSCD database, the author only needed to do minor additional searching using QPRIME to match the number of offences between serial and non-serial rape groups. To remain objective through case selection, several years between 2008 and 2017 were chosen at random, and then the month was selected at random to search for non-serial rape offences that met the inclusion criteria. The final data set was matched to the serial data set such that there were 125 stranger rape offences from 125 non-serial offenders, resulting in an overall data set of 250 cases from 171 offenders. The final data set spanned 1979 to 2017. Similar to the serial rapists, three non-serial rapists offended against two victims during a single offence, resulting in 128 victims. As both serial and non-serial rapists showed similar rates of offending against multiple victims, it was decided that the inclusion of these offences was worthwhile.

Data Analysis Procedure

Data coding.

Once all data were collected, it was imported into excel for a preliminary data cleaning. The original data set imported from the VSCD included 721 potential variables, a mixture of dichotomous, multiple response, and open-ended questions. Firstly, all variables with zero counts for both offence groups were removed (311 variables were removed at this stage). This data set was then imported to SPSS. Some of the variables were kept as multiple

response options for analysing frequencies, although it was later determined they needed to be dichotomously coded for analysis purposes. The coding dictionary, which includes 229 variables (a mix of dichotomous and multiple response options), most in their original format for brevity, can be found in Appendix A.

A number of variables were initially nominal with multiple response options, so they were dummy coded so that all data to be included in the chi-square analyses were dichotomous. Dummy coding was completed to facilitate statistical analysis using chi-square and logistic regression. Through the dummy coding, variables with multiple responses were recoded into new variables with the target response coded as 1 and all other responses coded as 0. For example, the variable related to how the offence ended (release, escape, or rescue/interruption) was dummy coded into three separate variables. For the release variable, all cases in which the offence ended in the offender releasing the victim were coded as a 1, while all other responses were coded as 0. It is worth noting that this resulted in incorporating missing data into the dichotomies rather than leaving them as missing, which is a potential limitation of the data. Variables that were originally dichotomous did keep missing data as missing, so this limitation only applies to variables with multiple response options that were dummy coded. Those multi-response variables that had responses with low frequencies only had the higher-frequency responses dummy coded (as the low-frequency response counted as an excluded variable). The process resulted in a data set of 303 variables, both dichotomous and nominal, relating to offence characteristics and behaviours as well as victim and offender demographic information.

Through the dummy coding process, three variables were created to interpret the open-response dialogue options better. These variables include the victim's relationship to the initial contact scene, the details of any performance required of the victim by the

offender, and anything that preceded a change in offender attitude. Appendices B, C, and D list all the original responses as well as the author's coding method of these variables. For the variable detailing the victim's relationship to the initial contact scene, there were several cases with missing information. For these cases, the author went back to the narrative summary of each offence to identify the appropriate coding where possible.

When the binary logistic regression analysis was first conducted, 19 cases were excluded due to missing data. To alleviate that problem, the author examined which variables were missing for each case and went back to the original case material to determine the correct information to complete the missing information. This was accomplished for all 19 cases.

Frequencies.

An additional examination of the frequencies of all variables was run to further clean the data set. The variables with frequencies of five or below in both groups were excluded. A count of five was chosen as the threshold as it represents less than five per cent occurrence in either offence group. This low frequency impacts the ability to meaningfully identify patterns across the offence groups. Variables with low frequencies in both offender groups were excluded from further analyses, which resulted in the removal of 62 variables. Those variables that were excluded for this reason are listed in Appendix E.

There were several variables, however, which had low frequencies for one offender group but met the threshold for the other offender group. There were nine variables that had frequencies of five and below in the serial offenders group (but higher than five in the non-serial offender group), including: *the offender being let into to the initial contact scene by a third person; the initial contact scene taking place at a residence other than the victim's or offender's; the weapon used being recovered (by police); the offender using an alternative*

con to approach the victim (aside from asking for or offering help, solicitation, posing as an authority figure, and general socialising/feigning interest in the victim); the offender's attitude changing due to the end of the encounter; the offender engaging in repeated attempts to reassure the victim; the victim's clothing being removed by unknown means; the offender inserting a foreign object into the victim, and the assault taking place at a residence other than the victim's or offender's.

The 36 variables that had low frequencies in the non-serial offender group but met the threshold for the serial offenders include *the offender showing a financial motive; the offender approaching the victim through solicitation for sex; the offender approaching the victim by posing as an authority figure; the victim's occupation was a prostitute; the initial contact occurring at the victim's work; the initial contact occurring outdoors on a pathway; the offender accessing the initial contact scene through forced entry; the initial contact occurring at the offender's residence; the offender choosing the initial contact location; the presence of multiple offence sites; the offender talking about himself mostly/excessively; extensive negotiation occurring between offender and victim; the offender recording the offence (taking photos or noting victim details); the assault including anilingus, beating, slapping, or verbal abuse; the offender first contacting the victim via the internet; the offender contacting the victim after the offence to remind or threaten the attack; the offender showing precautions such as administering a drug to the victim, disabling lights, giving a false name, wearing a mask, using a condom, concealing his identity or face, or deterring victim reporting (by threatening, posing as police, etc.); the offender using restraints he found at scene; the offender blindfolding the victim as soon as possible after the assault began; the offender displaying conditional ejaculation; the offender overcoming his sexual dysfunction with forced fellatio; the offender's attitude changing due to something*

other than victim resistance, victim manipulation, or the end of the encounter; the offender requiring intimacy from the victim; the offender requiring the victim to engage in foreplay; and the offender requiring some other act by the victim. The frequencies of those offence variables included in the chi square analysis are listed in the third and fourth columns of Appendix G.

Chi-square analysis.

The first task was to determine whether there was a difference in the frequency of behaviours between serial and non-serial offenders. Using SPSS (version 26), a series of crosstabs were run on 168 behavioural and offence-related variables (determined by the frequency analysis). As some variables in this analysis had expected counts less than five in one offender group, Fisher's exact statistic was used to assess statistical significance, as Fisher's exact overcomes the problems of small sample size (Field, 2013). As several chi-square analyses were run, this increases the risk of Type I error. To combat this risk, an adjusted alpha level of .01 was set following the suggestion of Gardner (2001) when running a series of individual chi-square analyses. Significant variables at the $p < .01$ level are indicated with an asterisk in Appendix G, and this alpha level was used to further guide which variables were included in the regression. The chi-square analyses resulted in 67 variables significant at the $p < .05$ level and 45 variables significant at the $p < .01$ level which had different frequencies between serial and non-serial offenders (presented in Table 10 in Chapter 6).

Multicollinearity.

Those behaviours that were statistically significantly different between serial and non-serial offenders were then examined for multicollinearity. Examining multicollinearity assesses the correlation between variables to determine whether any variables are highly

correlated (Field, 2013). Because all variables were dichotomously coded, multicollinearity was assessed using Spearman's rho, which is acceptable for the analysis of non-parametric data (Field, 2013). Highly correlated variables ($> .7$) are at risk of skewing the results of regression analysis (Baguley, 2012). Thus, any variables correlating at $.7$ and above were reviewed, and phi values, previous research and theory, and professional judgement were combined to decide which variables to keep and which to exclude. Phi value was used to establish effect size, and the variable with the highest phi value was kept. For variables with similar phi values, professional judgement and prior theory were used to resolve which variable to keep. Because the focus of this thesis was to determine whether serial rapists behave uniquely, the variable that had greater investigative relevance was kept in cases of multicollinearity with similar phi values. For example, the variables *weapon involved* ($\Phi = .20$) and *offender brought weapon* ($\Phi = .22$) were highly correlated ($r = .82$). Although *offender brought weapon* had a higher phi value, it was excluded because it is more subjective and harder to accurately capture compared to capturing whether a weapon was involved (to any extent). The multicollinearity analysis between significant variables as well as the reasoning behind which variables were included or excluded can be found in Appendix H.

Excluded variables.

Three variables were determined to not be of assistance to the investigation or case linkage of stranger rape because they provided information established and uploaded to the VSCD after a case has been solved. These variables were *victim selection was pre-targeted* ($\chi^2 (1) = 37.23, p < 0.001, \Phi = 0.39$), *victim selection was opportunistic* ($\chi^2 (1) = 29.33, p < 0.001, \Phi = -.34$), and *offender gave false name as precaution* ($\chi^2 (1) = 5.99, p < 0.05, \Phi = 0.16$). Although these variables were significant, with low to moderate phi values, it was

decided to exclude the three variables from the logistic regression in order to maintain ecological validity because that information would not be present during an actual investigation.

Another variable that was excluded was *offender displayed unusual characteristics*. Although the dichotomous coding of this variable was statistically significant ($\chi^2 (1) = 7.51, p < 0.01$) with a low phi value ($\Phi = 0.17$), the decision to exclude this variable was made because it was a highly subjective variable based upon the observation of the victim. The detailed description of this variable included a range of responses such as "slight accent," "offender was shaking," "deep voice," "skinny, hairy legs," "sniffed victim's underwear before returning them to victim," "posed as a police officer," "short-tempered," "loud laugh," "made references to the victim's ex-boyfriend" and "offender stared at victim constantly without blinking." Because of the wide variety of responses and subjectivity of the victim's insight, this variable was excluded.

During the quality control process and subsequent discussions with the head of the BSU, it was determined that the variable *force used during sex act* was another highly subjective variable. The subjectivity of this variable was noticed by reading the original case file information and victim statements. Some individuals completing the VSCD form interpreted force during sex to simply mean the act of intercourse, as much of the modern literature and practice accepts that the act of rape itself is violence. Another interpretation of this variable was increased force used during sex, such as additional violence or aggression. Because the interpretation of this variable is unclear from the VSCD entry, it was removed from further analysis.

Finally, because logistic regression requires no counts to be below one (Field, 2013), any variables with a zero count in one offender group were excluded from the logistic

regression analysis. Those variables included: *the offender showing a financial motive; the offender approaching the victim by posing as an authority figure; the assault including anilingus or verbal abuse; the offender first contacting the victim via the internet; the offender contacting the victim after the offence to remind or threaten the attack; and the offender showing precautions such as administering a drug to the victim, disabling lights or deterring victim reporting (by threatening, posing as police, etc.).*

Logistic regression.

Logistic regression analysed whether any of the statistically significant variables can be used to predict serial versus non-serial offence classification. Logistic regression was chosen because both the predictor and output variables are binary. The minimum accepted events per variable (EPV) ratio for logistic regression was first calculated. The EPV ratio is an indication of how many behavioural variables can be included in the logistic regression, based upon the number of offences within the data set. It has been determined that an EPV ratio of less than ten can result in several issues within logistic regression, including bias in the regression coefficients, overestimated and underestimated sample variance, improper coverage of confidence intervals, conservative Wald statistics and paradoxical associations (Peduzzi, Concato, Kemper, Holford, & Feinstein, 1996). To avoid these problems, an EPV of ten was set, resulting in 25 variables allowed in the logistic regression analysis. There were 33 potential variables significant at the $p < .01$ level from which to choose (45 significant variables determined by chi-square analyses minus 12 variables excluded due to multicollinearity). The phi value and previous literature were used to determine which variables to include in the logistic regression analysis.

Two variables were included in the logistic regression despite not being significant at the $p < .01$ level and having low phi values. These variables were *assault category: fondling*

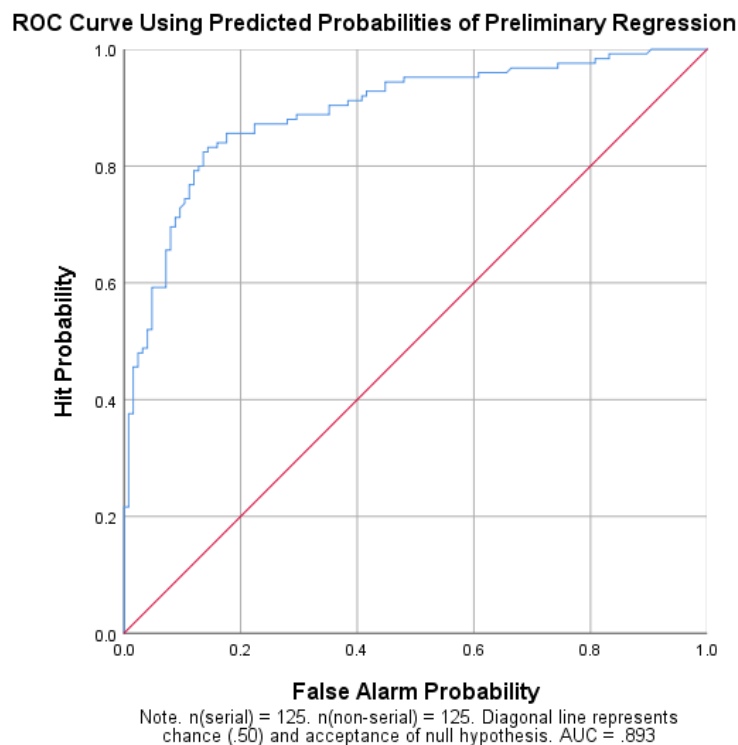
($\chi^2 (1) = 4.59, p < 0.05, \Phi = 0.14$) and *assault category: kissing* ($\chi^2 (1) = 5.57, p < 0.05, \Phi = -0.15$). The decision was made to include these variables in the regression because previous research had found them to be significant and had found that offender kissed victim contributed to differentiating between serial and non-serial offences (Corovic et al., 2012). Therefore, the author decided to include these variables to test whether there are similar findings within Australia.

A binary logistic regression was conducted using all 250 cases, with the following 25 variables included: *offender under the influence of drugs or alcohol; victim lifestyle: prostitute; victim incapacitation: alcohol; was vehicle used?; initial contact (IC) witnesses; IC outdoor: public street or parking; IC business: bar, tavern, or nightclub; offender IC gain entry: forced entry; victim at IC for general socialising; offender chose IC location; contact end: release; weapon involved?; weapon intentionally used by offender; offender displayed some anger; assault category: fondling; assault category: kissing; attitude change: escalation of behaviour; offender required victim to perform fellatio; offender require other act by victim; image projected: macho; demeanour towards victim: demeaning; contact before offence; means of contact: phone; clothing: victim disrobed self; and evidence of offender precautions.*

The initial regression model was significant ($\chi^2 (25, N = 250) = 141.40, p < 0.001$), indicating that the model could distinguish between serial and non-serial offences. Overall, the model correctly classified 84% of offences, correctly classifying 81.6% of serial rapes and 86.4% of non-serial rapes. The regression results indicated that there were twelve outlier cases, six serial offences and six non-serial offences that had studentized residuals greater than two and had been misclassified. To test whether these outlier cases influenced the regression analysis, they were removed, and the regression was re-run (Cousineau &

Chartier, 2010). The results of the regression changed with the removal of the outlier cases, indicating that those cases were significantly impacting the regression analysis. Because of this, the decision was made to remove those cases from the regression (Cousineau & Chartier, 2010). Additionally, the removal of the outlier cases lowered the count of non-serial offenders to zero for the variable *offender IC gain entry: forced entry*, so that variable was removed. The removal of this variable maintained the appropriate events per variable ratio; as the regression included 238 cases, it could only include 24 variables (Peduzzi et al., 1996). For the full results of the initial regression analysis, as well as the listing of outlier cases, see Appendix I.

To further examine the ability of the regression model to distinguish between serial and non-serial rapes, an ROC analysis was run using the predicted probabilities produced by the regression model. Running an ROC analysis on these values provides a threshold-independent measure of the discrimination accuracy rather than relying on the single probability threshold of .5 used by the regression model. This method is in line with Pakkanen, Zappala, Bosco, Berti, and Santtila (2015), who conducted a similar analysis comparing serial and one-off homicides. The ROC analysis was conducted on both the initial and final regression models. The results of this analysis on the final regression will be reported in the results chapter. Figure 1 shows the ROC curve using the predicted probabilities produced by the initial regression model. This analysis resulted in a good level of discrimination accuracy, $AUC = .893$ ($p < .001$, $SE = .02$, $95\% CI = .85 - .93$).

Figure 1

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Consistency and distinctiveness.

To continue to add validity to previous research and examine consistency, a specific software package, B-LINK, was used. This software, developed by Craig Bennell, creates all potential combinations of linked and unlinked offence pairs and calculates a variety of cross-crime similarity coefficients across each offence pair (Bennell, 2002). The cross-crime similarity coefficients produced by B-LINK were used to test serial versus non-serial behavioural consistency as well as case linkage accuracy based upon similarity coefficients. Two hundred and eighteen variables were included in the B-LINK software to calculate the similarity coefficients. These variables ranged across initial contact scene, assault scene, victim behaviours, and offender behaviours. No variables were included that would be unknown in the early stages of a stranger rape investigation to provide validity for future use with unsolved offences. The full list of variables included can be seen in Appendix J.

The similarity of linked pairs versus unlinked pairs was then compared using Jaccard's coefficient. Jaccard's coefficient ranges from zero (completely inconsistent) to one (perfect consistency) (Slater et al., 2015). This similarity measure has been used frequently in previous research (i.e. Bennell et al., 2009; Bennell, Gauthier, et al., 2010, Mokros & Alison, 2002; Tonkin et al., 2017; Slater et al., 2015; Woodhams, Grant, et al., 2007; Woodhams & Labuschagne, 2012; Woodhams et al., 2018) because it ignores the similarity of non-present items, so the lack of a behaviour (such as no weapon used) in two crimes will not increase the similarity between the two (Bennell et al., 2009). This is important for case linkage because cases are linked based upon the similar elements that are present, and a lack of recorded behaviour could be due to issues in collecting or coding the data rather than the behaviour being missing (Bennell et al., 2009). As Jaccard's similarity coefficient is the standard within the case linkage research, it was used within this project to examine offender consistency and distinctiveness.

One of the noted criticisms of previous research is the use of serial rape offences to create unlinked pairs. As Slater et al. (2015) emphasise, if the assumption of offender distinctiveness is valid, two serial offenders would be expected to have more distinct behaviour than two non-serial offenders. Thus, unlinked crime pairs taken from serial offenders should show a lower similarity coefficient than those taken from non-serial offenders, potentially overemphasising the difference in similarity coefficients between linked and unlinked pairs. This has begun to be addressed, as Tonkin, Santtila, et al. (2012), Slater et al. (2015), Winter and colleagues (2013), and Woodhams et al. (2018) have compared discrimination accuracy using both serial and non-serial offences. The current study replicates this method to contribute additional reliability and comparability across research. Similarity coefficients were calculated for all linked pairs as well as all possible

unlinked pairs using just serial rape offences, then all possible unlinked pairs of non-serial offenders, and finally all possible unlinked combinations when serial and non-serial offences were combined. The reason for analysing separate cross-crime similarity coefficients on linked offences and unlinked offences separately was to provide further exploration of behavioural consistency and distinctiveness. The mean Jaccard's coefficients of serial linked, non-serial unlinked, and serial unlinked offences were compared to determine whether there was a significant difference. This was assessed through Kruskal-Wallis tests as the Jaccard's coefficients were not normally distributed, as determined through Kolmogorov-Smirnov tests.

Case linkage accuracy.

Through B-LINK, using serial offences only resulted in 7,750 offence pairs (134 linked and 7,616 unlinked), whereas incorporating all offences (both serial and non-serial) created 31,125 offence pairs (134 linked pairs and 30,991 unlinked pairs). Using the Jaccard's similarity coefficients produced by B-LINK, two ROC analyses were run. The first involved serial offences only, as had often been used previously in research. The second included all non-serial offences as well to increase ecological validity, following Tonkin, Santtila, et al. (2012), Slater et al. (2015), Winter et al. (2013), and Woodhams et al. (2018). The decision to run the ROC analysis on both data sets rather than just the latter, more ecologically valid method, was made because that comparison provides a more comprehensive benefit to the case linkage field. If it is found, for example, that the AUC is different between the two analysis groups, this has implications for the practice of case linkage.

A further step in the analysis of cross-crime similarity coefficients is to test the sensitivity and specificity of the test statistic used as well as the threshold for deciding whether two offences are indeed linked. If this threshold is pre-determined to maximise hits

or minimise errors, it can lead to bias in the analysis (Bennell, 2005). Receiver operating characteristic (ROC) analysis is increasingly popular within the case linkage research because it tests the sensitivity and specificity of the diagnostic prediction at every potential threshold so that decisions can be empirically driven. ROC analysis is not biased by the decision threshold and allows a threshold to be set based upon the desired analysis, whether it is to maximise the sensitivity (high true positive rate) or the specificity (low false-positive rate).

Conclusion

This chapter highlighted the methodology used within the current research project, including the previously recognised best practices it follows and the methodological shortcomings it addresses. The data were taken from both the VSCD and QPRIME in order to gather as many serial offenders as possible. To identify and confirm the ground truth of linked offences, this research had strict inclusion and exclusion criteria, such as ensuring that non-serial rapists do not have any prior sexual offending charges.

This research relied on three primary statistical evaluations. Chi-square analysis was used to assess serial versus non-serial rape behaviour, as directed by research question one. Logistic regression examined the predictive capacity of offence variables (research question two). Finally, the use of Jaccard's coefficients and ROC analysis addressed research question three by testing the principles of consistency and distinctiveness as well as the practice of case linkage within this sample of Queensland rapists.

Chapter 6 – Results

This chapter provides the results of the current research. It begins by providing the demographic information of both offenders and victims. It then presents the frequencies of variables in the data set, organised into low, medium, and high frequency categories. This provides a foundation of base rates of offence variables and behaviours. Through the presentation of frequencies, this chapter also shows the frequencies of the behaviours unique to serial and non-serial rapes within Queensland. The results of the chi-square analyses are then presented to show the variables that were significantly different between serial and non-serial rapes. The results of the multicollinearity analysis follow to provide evidence and justification for the variables included in or excluded from the logistic regression analysis. This chapter then presents the results of the final regression analysis, including those variables that significantly contributed to the model in distinguishing between serial and non-serial rapes. The chapter concludes with the results from the comparison of Jaccard's coefficients across multiple offence pairings, which provides support for consistency and distinctiveness, as well as the ROC analysis that provides support for case linkage analysis.

Demographics

Table 3 provides information about offender and victim ages, while Table 4 gives frequencies of offender and victim demographic information about sex, race, marital status, occupation, and living situation. Information was also collected regarding offender and victim transportation and lifestyle habits, as this information is captured on the VSCD form. Although this information was not used for any statistical analyses or comparisons between groups, it is provided in Appendix F.

Table 3*Offender and Victim Age*

	Offenders		Victims	
	Serial (n=46)	Non- serial (n=125)	Serial (n=127)	Non- serial (n=128)
<i>Age</i>				
Mean	31.8	28.7	27.7	26.1
SD	10.3	10.3	13.8	11.5
Mode	26	24	18	18
Minimum	17	17	6	5
Maximum	80	67	86	81
Test Statistic	$t(248) = 2.33, p = 0.02$		$t(252) = 1.01, p = 0.32$	

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Serial rapists.

Serial rapists ($n = 46$) were responsible for 125 offences, ranging from two to six offences in each series ($M = 2.72, SD = 1.09$). Most offenders (60.9%, $n = 28$) had a series of two offences. Nine offenders (19.6%) had a series of three offences, while a series of four and five offences were each shown by four offenders (8.7%). Finally, a single offender had a series of six offences. Although there were a smaller number of serial offenders ($n=46$) than non-serial offenders ($n=125$), demographic information was collected for each case, which provides an equal comparison. At the time of the offence, serial offenders had a mean age of 31.76 with a minimum age of 17 and a maximum age of 80. The highest frequency of offending occurred between the ages of 25 and 30, with another spike at 36. Most serial offenders were White, single, and employed.

Table 4
Offender and Victim Demographics

	Offenders				Victims			
	Serial (n=46)		Non-serial (n=125)		Serial (n=127)		Non-serial (n=128)	
Sex	n	Percent	n	Percent	n	Percent	n	Percent
Male	125	100%	125	100%	1	0.8%	6	4.7%
Female	0	--	0	--	126	99.2%	122	95.3%
<i>Race</i>								
White	94	75.2%	72	57.6%	103	81.1%	99	77.3%
Aboriginal/ Torres Strait Islander	24	19.2%	29	23.2%	3	2.4%	6	4.7%
Oriental/ Asian	0	--	13	10.4%	11	8.7%	9	7.0%
Other	7	5.6%	9	7.2%	0	--	5	3.9%
Unknown	0	--	2	1.6%	9	7.1%	8	6.3%
Missing	0	--	0	--	1	0.8%	1	0.8%
<i>Marital Status</i>								
Single	59	47.2%	59	47.2%	79	62.2%	97	75.8%
Married/ De Facto	38	30.4%	29	23.2%	12	9.4%	12	9.4%
Separated/ Divorced	6	4.8%	6	4.8%	9	7.1%	8	6.3%
Other	1	0.8%	1	0.8%	5	3.9%	1	0.8%
Unknown	20	16.0%	30	24.0%	21	16.5%	10	7.8%
Missing	1	0.8%	0	--	1	0.8%	0	--
<i>Occupation</i>								
Student	0	--	3	2.4%	15	11.8%	20	15.6%
Post-Secondary Student	0	--	0	--	11	8.7%	14	10.9%
Employed	47	37.6%	46	36.8%	36	28.3%	46	25.9%
Unemployed	14	11.2%	12	9.6%	25	19.7%	29	22.7%
Criminal Enterprise	20	16.0%	9	7.2%	0	--	0	--
Sex Trade Worker	0	--	0	--	22	17.3%	4	3.1%
Unknown	17	13.6%	13	10.4%	14	11.0%	14	10.9%
Missing	27	21.6%	42	33.6%	4	3.1%	1	0.8%
<i>Living Situation – Living With</i>								
Adult Children	--	--	--	--	3	2.1%	1	0.7%
Dependant	20	13.9%	5	3.7%	13	9.3%	17	11.7%
Friend	4	2.8%	6	4.4%	6	4.3%	2	1.4%
No One	13	9.0%	9	6.6%	22	15.7%	18	12.4%
Parents	25	17.4%	15	11.0%	27	19.3%	41	28.3%
Relatives	2	1.4%	11	8.1%	9	6.4%	14	9.7%
Roommate	12	8.3%	19	14.0%	24	17.1%	26	17.9%
Spouse	33	22.9%	17	12.5%	10	7.1%	9	6.2%
Unknown	35	24.3%	54	39.7%	26	18.6%	17	11.7%

Note. As the living situation question allowed for multiple responses, living situations may be counted in multiple categories for an individual offence.

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Non-serial rapists.

Non-serial offenders had a mean age at the time of the offence of 28.72 with a minimum age of 17 and a maximum age of 67. The highest frequency of offending for non-serial offenders was between 18 and 19 years old then again from 24 to 25 years old. An independent samples *t*-test was conducted which found that serial offenders ($M = 31.76$, $SD = 10.30$) were, on average, older at the time of the offence than non-serial offenders ($M = 28.72$, $SD = 10.31$). The mean difference, 3.04, was significant ($t(248) = 2.33$, $p = 0.02$), although it only represented a small effect size ($r = 0.15$).

As with the serial offenders, most non-serial offenders were White ($n = 72$, 57.6%), but a higher percentage were of other races. Chi-square analysis compared offender race between serial and non-serial rapists, and the results were significant; $\chi^2(4) = 18.64$, $p < 0.01$. This difference represented a small effect size ($\Phi = 0.27$). Upon further exploration it was found that there were significant differences both in the number of White offenders, with the serial rapist group consisting of significantly more White offenders ($\chi^2(1) = 8.68$, $p < 0.01$, $\Phi = 0.19$), and in the number of Asian offenders, with the non-serial rapist group consisting of significantly more Asian offenders ($\chi^2(1) = 13.71$, $p = 0.000$, $\Phi = -0.23$).

Victims of serial rape.

There were 127 victims of serial rapists, with two offenders offending against two victims each in a single assault. One hundred twenty-six victims were female, with one male victim. Mean victim age was 27.69 years; the youngest victim was six years old and the oldest was 86. The highest frequency victim ages were 18 and 20 ($n=11$ offences for each), followed by 19 years old ($n=8$), then 16 and 26 years old each occurred in seven cases. Indeed, the decade of 16-26 accounted for over half of all victims (54.3% of cases). Victim age was missing for one offence. Most victims of serial rapists were White, single, and employed (although about one fifth of victims were students).

Victims of non-serial rape.

As with the serial offenders, there were a number of non-serial offenders who had multiple victims in a single offence. Three non-serial offenders offended against two victims at a single offence, resulting in a total of 128 victims of non-serial offenders. One hundred twenty-two victims were female; six were male. The mean age of victims at the time of the offence was 26.09 years; the youngest victim was five years old and the oldest was eighty-one. The highest frequency of offending was against 18-year-old victims ($n = 12$), followed by 24-year-old victims ($n = 10$), 23-year-old victims ($n = 9$), then 14 and 27-year-old victims ($n = 7$ each). An independent samples t -test was conducted to assess age between serial rapist and non-serial rapist victims. On average, that victims of serial offenders ($M = 27.69$, $SD = 13.77$) were older at the time of the offence than the victims of non-serial offenders ($M = 26.09$, $SD = 11.53$). However, the mean difference, 1.61, was not significant ($t(252) = 1.01$, $p = 0.32$), and represented a negligible effect size ($r = 0.06$). The majority of victims of non-serial rapists were White. Chi-square analysis was conducted to compare victim race between serial and non-serial offender groups. The result was not significant ($\chi^2(4) = 6.33$, $p = 0.18$). Like the victims of serial offenders, most victims of non-serial offenders were single, and many victims were employed, although just over a quarter of victims were students.

Frequencies

The frequency of all offence variables was analysed, providing an overview of rape behaviour in Queensland. The output was subsequently separated by the author into low (less than 10%), medium (between 10% and 50%), and high (above 50%) frequency based on overall occurrence within the 250 cases. This analysis resulted in 81 low frequency, 102 medium frequency, and 41 high frequency offence variables and characteristics. Table 5 shows low frequency variables, Table 6 shows medium frequency variables, and Table 7 shows the high frequency variables. For ease of interpretation due to the high number of

variables in the low and moderate frequency groups, the tables have been organised based upon offender and victim characteristics, initial contact scene characteristics, assault scene characteristics, offence behaviours and characteristics, offender and victim interaction, sexual behaviours, and offender precaution and control behaviours. Presenting this information gives an initial overview of the base rate characteristics of stranger rape in Queensland.

Table 5
Low Frequency Variables (Below 10% Overall)

Variable	Missing/ Unknown	Serial		Non-serial		Total	
		n	%	n	%	n	%
<i>Offender and Victim Characteristics</i>							
Offender Asian*	2	0	0	13	10.4	13	5.2
Offender in Possession of Other's Items	4	12	9.6	10	8	22	8.8
Potential Motive: Burglary	0	6	4.8	9	7.2	15	6
Potential Motive: Financial*	0	7	5.6	0	0	7	2.8
Potential Motive: Robbery	0	11	8.8	5	4	16	6.4
Victim Incapacitation: Drug	0	11	8.8	11	8.8	22	8.8
Victim Unfamiliar with Initial Contact Scene	15	8	6.4	16	12.8	24	9.6
<i>Initial Contact Scene Characteristics</i>							
Initial Contact Scene Chosen by Offender*	15	17	13.6	4	3.2	21	8.4
Offender Gain Entry to Initial Contact Scene: Forced Entry*	2	13	10.4	1	0.8	14	5.6
Offender Gain Entry to Initial Contact Scene: Let in by Victim	2	11	8.8	6	4.8	17	6.8
Offender Gain Entry to Initial Contact Scene: Let in by 3rd Person*	2	2	1.6	12	9.6	14	5.6
Initial Contact Scene - Living Quarters: Offender's Residence	0	6	4.8	5	4	11	4.4

...Table 5 continues on next page...

Variable	Missing/ Unknown	Serial		Non-serial		Total	
		n	%	n	%	n	%
Initial Contact Scene - Living Quarters: Other Residence	0	5	4	11	8.8	16	6.4
Initial Contact Scene - Business: Victim's Workplace*	0	10	8	3	2.4	13	5.2
Initial Contact Scene - Business: Other	0	8	6.4	9	7.2	17	6.8
Initial Contact Scene: Commercial/Industrial Area	0	8	6.4	7	5.6	15	6
Initial Contact Scene: Park/Recreational Area	0	10	8	7	5.6	17	6.8
Initial Contact Outdoors: Pathway (access, footpath, jogging, bike)	0	7	5.6	2	1.6	9	3.6
Initial Contact Scene: Vehicle	0	12	9.6	6	4.8	18	7.2
Vehicle Borrowed/Rented	16	9	7.2	8	6.4	17	6.8
Vehicle Stolen	16	4	3.2	1	0.8	5	2
<i>Assault Scene Characteristics</i>							
Multiple Offence Sites	5	8	6.4	3	2.4	11	4.4
Offender Gain Entry to Assault Scene: Let in by Victim	2	9	7.2	6	4.8	15	6
Offender Gain Entry to Assault Scene: Offender Lived/Worked in the Building	2	7	5.6	15	12	22	8.8
Assault Scene: Business/Public Building	0	10	8	8	6.4	18	7.2
<i>Offence Behaviours and Characteristics</i>							
Approach Con: Offender Asked Victim for Help/Assistance/Information	0	9	7.2	8	6.4	17	6.8
Approach Con: Solicitation for Sex*	0	14	11.2	5	4	19	7.6
Approach Con: Pose as Authority Figure*	0	10	8	0	0	10	4
Approach Con: Other Con	0	3	2.4	6	4.8	9	3.6

...Table 5 continues on next page...

Variable	Missing/ Unknown	Serial		Non-serial		Total	
		n	%	n	%	n	%
Contact End: Rescue	0	8	6.4	14	11.2	22	8.8
Weapon Displayed (But Not Used)	0	12	9.6	9	7.2	21	8.4
Victim Sustained Moderate Blunt Trauma	1	9	7.2	9	7.2	18	7.2
<i>Offender and Victim Interaction</i>							
Offender Negotiated with Victim After Victim Resistance	9	10	8	7	5.6	17	6.8
Attitude Change Due to: Victim Manipulation (Mock Offender, Request, Play Along, etc.)	1	15	12	8	6.4	23	9.2
Attitude Change Due to: End of Encounter	1	3	2.4	6	4.8	9	3.6
Attitude Change Due to: Other	1	9	7.2	4	3.2	13	5.2
Offender Talked About Self Mostly/Excessively	31	8	6.4	2	1.6	10	4
Offender Demeanour Towards Victim: Pseudo-Complimentary	0	8	6.4	6	4.8	14	5.6
Extensive Negotiation Between Victim and Offender	4	6	4.8	2	1.6	8	3.2
Repeated Attempts to Reassure the Victim	4	5	4	9	7.2	14	5.6
Means of Contact: Internet*	0	13	10.4	0	0	13	5.2
Contact Nature: Remind/Threaten Offence*	0	6	4.8	0	0	6	2.4
Contact Nature: Other	0	6	4.8	7	5.6	13	5.2
<i>Sexual Behaviours</i>							
Assault Category: Anilingus*	0	7	5.6	0	0	7	2.8
Assault Category: Beating	0	8	6.4	4	3.2	12	4.8
Assault Category: Biting	0	10	8	13	10.4	23	9.2
Assault Category: Hair Pulling	0	13	10.4	6	4.8	19	7.6
Assault Category: Slapping	0	6	4.8	4	3.2	10	4

...Table 5 continues on next page...

Variable	Missing/ Unknown	Serial		Non-serial		Total	
		n	%	n	%	n	%
Assault Category: Verbal Abuse*	0	6	4.8	0	0	6	2.4
Assault Category: Unusual	0	12	9.6	7	5.6	19	7.6
Offender Bit Victim	2	10	8	14	11.2	24	9.6
Evidence of Ejaculation: On Victim's Body	0	7	5.6	10	8	17	6.8
Evidence of Ejaculation: On Victim's Clothing	0	8	6.4	8	6.4	16	6.4
Evidence of Ejaculation: Elsewhere	0	13	10.4	8	6.4	21	8.4
Dysfunction: Unable to Obtain and/or Sustain Erection	0	12	9.6	11	8.8	23	9.2
Dysfunction: Retarded Ejaculation	0	7	5.6	9	7.2	16	6.4
Dysfunction: Conditional Ejaculation (Ex: Fellatio, Penetration from Behind, etc.)	0	6	4.8	2	1.6	8	3.2
Overcome Dysfunction: Offender Forced Victim to Perform Fellatio	4	7	5.6	5	4	12	4.8
Foreign Object Inserted	0	3	2.4	6	4.8	9	3.6
Offender Require Foreplay (Masturbate Self/Offender, Licking, Cunnilingus, etc.)	0	13	10.4	5	4	18	7.2
Offender Require Intimacy (Kissing, Cuddling, Stroking, etc.)	0	11	8.8	5	4	16	6.4
Offender Require Other Act by Victim*	0	12	9.6	1	0.8	13	5.2
Clothing Removed How: Cut or Torn	0	10	8	12	9.6	22	8.8
<i>Offender Precaution and Control Behaviours</i>							
Precautions: Administer Drug*	0	9	7.2	0	0	9	3.6
Precautions: Bound	0	11	8.8	6	4.8	17	6.8
Precautions: Condom*	0	12	9.6	2	1.6	14	5.6

...Table 5 continues on next page...

Variable	Missing/ Unknown	Serial		Non-serial		Total	
		n	%	n	%	n	%
Precautions: Disabled Lights*	0	6	4.8	0	0	6	2.4
Precautions: Covered Victim's Eyes	0	14	11.2	7	5.6	21	8.4
Precautions: Covered Victim's Mouth	0	9	7.2	6	4.8	15	6
Precautions: Gave False Name*	0	14	11.2	4	3.2	18	7.2
Precautions: Mask	0	8	6.4	3	2.4	11	4.4
Precautions: Removed Evidence	0	9	7.2	5	4	14	5.6
Precautions: Offender Concealed Identity/Face	0	7	5.6	2	1.6	9	3.6
Precautions: Deter Victim Reporting (Threaten, Pose as Police, etc.)*	0	10	8	0	0	10	4
Offender Recorded Offence (Photos or Victim's Details)	0	8	6.4	4	3.2	12	4.8
Restraints Used	0	14	11.2	7	5.6	21	8.4
Restraints Used: Found at Scene	0	12	9.6	5	4	17	6.8
Victim's Face Covered	1	10	8	6	4.8	16	6.4
Victim Blindfolded	0	14	11.2	7	5.6	21	8.4
Blindfold Applied Quickly (As Soon as Possible After Initial Assault)	0	7	5.6	1	0.8	8	3.2

Note. *Variable statistically significantly different between serial and non-serial rape offences at $p < .05$

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Because low frequency behaviours were determined from the overall data set, twelve variables had a frequency higher than 10% for serial rapes but below 10% for non-serial rapes, while six variables had a frequency higher than 10% for non-serial rapes, but below 10% for serial rapes. The variable that had the highest frequency within serial rapes, but still less than 10% overall was *the initial contact scene chosen by the offender* (13.6% serial rape, 3.2% non-serial rape [8.4% overall]). The variable with the highest frequency

within non-serial rapes but still less than 10% overall was *the victim was unfamiliar with the initial contact scene* (6.4% serial rape, 12.8% non-serial rape [9.6% overall]).

Nine variables had frequencies for serial rape but a zero count for non-serial rape. These include: *the offender's possible motive was financial; the offender approached the victim by posing as an authority figure; the assault included anilingus; the assault included verbal abuse; the offender contacted the victim via the internet; the offender contacted the victim to remind or threaten the attack; the offender administered a drug to the victim; the offender disabled lighting; and the offender deterred victim reporting by threatening, posing as police, etc.* There was one variable that had a zero count for serial rape, which was that the offender was Asian (10.4% of non-serial rape). Nineteen variables, including some of the variables that had frequencies above 10% or a count of zero in one offence group, were statistically significantly different between serial and non-serial rapists, as discussed in the next section on chi-square and phi values.

Table 6
Medium Frequency Variables (Between 10-50% Overall)

Variable	Missing/ Unknown	Serial		Non-serial		Total	
		n	%	n	%	n	%
<i>Offender and Victim Characteristics</i>							
Offender Aboriginal	0	24	19.2	29	23.2	53	21.2
Offender Displayed Unusual Characteristics*	0	19	15.2	6	4.8	25	10
Offender Under the Influence of Drugs or Alcohol*	0	33	26.4	80	64	113	45.2
Offender Familiar with Assault Scene	1	59	47.2	59	47.2	118	47.2
Victim Selection: Pre- Targeted*	5	43	34.4	5	4	48	19.2
Victim Incapacitation: Alcohol*	0	19	15.2	62	49.6	81	32.4
Victim Lifestyle: Prostitute*	0	22	17.6	3	2.4	25	10
<i>Initial Contact Scene Characteristics</i>							
Offender Familiar with Initial Contact Scene	0	59	47.2	58	46.4	117	46.8
Victim at Initial Contact Scene for General Socialising*	15	9	7.2	39	31.2	48	19.2
Offender Gain Entry to Initial Contact Scene: Building Was Open to Public*	2	15	12	33	26.4	48	19.2
Offender Gain Entry to Initial Contact Scene: Through Insecure Door/Window	2	15	12	21	16.8	36	14.4
Initial Contact Scene Witnesses*	25	42	33.6	75	60	117	46.8
Initial Contact Outdoors*	0	65	52	46	36.8	111	44.4
Initial Contact Outdoors: Paved/Public Street or Parking*	0	47	37.6	23	18.4	70	28
Initial Contact Scene: Living Quarters	0	49	39.2	45	36	94	37.6

...Table 6 continues on next page...

Variable	Missing/ Unknown	Serial		Non-serial		Total	
		n	%	n	%	n	%
Initial Contact Scene - Living Quarters: Victim's Residence	0	38	30.4	29	23.2	67	26.8
Initial Contact Scene: Retail/Business	0	32	25.6	42	33.6	74	29.6
Initial Contact Scene: Business/Public Building	0	41	32.8	52	41.6	93	37.2
Initial Contact Scene - Business: Bar/Tavern/Nightclub*	0	9	7.2	32	25.6	41	16.4
Vehicle Used*	0	54	43.2	26	20.8	80	32
Vehicle Owned by Offender*	16	30	24	13	10.4	42	17.2
<i>Assault Scene Characteristics</i>							
Offence on Weekend*	0	44	35.2	64	51.2	108	43.2
Offender Used Con to Get Victim to Assault Scene	0	35	28	46	36.8	81	32.4
Offender Used Force to Get Victim to Assault Scene	0	24	19.2	16	12.8	40	16
Assault Scene Witnesses*	15	26	20.8	45	36	71	28.4
Assault Scene Outdoors	1	56	44.8	47	37.6	103	41.2
Assault Scene Vehicle*	0	23	18.4	12	9.6	35	14
Assault Scene Living Quarters	0	25	20	35	28	60	24
Assault Scene - Living Quarters: Victim's Residence	0	12	9.6	13	10.4	25	10
Assault Scene - Living Quarters: Offender's Residence	0	12	9.6	14	11.2	26	10.4
Assault Scene - Living Quarters: Other Residence	0	25	20	35	28	60	24
<i>Offence Behaviours and Characteristics</i>							
Approach Con: Offender Offered Victim Help/Assistance/Drugs/Etc.	0	17	13.6	29	23.2	46	18.4
Approach Con: Socialising/Bar/Feign Interest*	0	21	16.8	37	29.6	58	23.2

...Table 6 continues on next page...

Variable	Missing/ Unknown	Serial		Non-serial		Total	
		n	%	n	%	n	%
Approach Style: Surprise	0	47	37.6	39	31.2	86	34.4
Approach Surprise: Offender Sneaked Up on or Grabbed Victim	0	22	17.6	14	11.2	36	14.4
Approach Surprise: Victim Was Asleep	0	24	19.2	25	20	49	19.6
Contact End: Escape*	0	13	10.4	27	21.6	40	16
Weapon Involved*	0	40	32	19	15.2	59	23.6
Weapon Intentionally Used by Offender*	0	25	20	7	5.6	32	12.8
Offender Brought Weapon*	5	32	25.6	11	8.8	43	17.2
Offender Removed Weapon*	11	31	24.8	10	8	41	16.4
Weapon Type: Stabbing*	0	36	28.8	15	12	51	20.4
Victim Sustained No Injuries	0	52	41.6	60	48	112	44.8
Victim Sustained Minor Injuries (No Medical Treatment Required)	0	55	44	46	36.8	101	40.4
Victim Sustained Moderate Injuries (Required Outpatient Treatment)	0	16	12.8	17	13.6	33	13.2
Victim Sustained Minimal Blunt Trauma	1	24	19.2	15	12	39	15.6
Victim Sustained Facial Injury	5	21	16.8	15	12	36	14.4
Moderate Force Used by Offender	4	26	20.8	23	18.4	49	19.6
Force Used Immediately*	11	34	27.2	20	16	54	21.6
Force Used After Contact but Before Sex Act	11	35	28	25	20	60	24
Force Used During Sex Act*	11	26	20.8	46	36.8	72	28.8
Force Used Upon Victim Resistance	11	28	22.4	20	16	48	19.2
Offender Projected Pseudo-Sensitive Image	0	11	8.8	17	13.6	28	11.2

...Table 6 continues on next page...

Variable	Missing/ Unknown	Serial		Non-serial		Total	
		n	%	n	%	n	%
Offender Projected Macho Image*	0	52	41.6	19	15.2	71	28.4
Offender Displayed Some Anger*	0	44	35.2	24	19.2	68	27.2
DNA Available*	0	44	35.2	64	51.2	108	43.2
Semen Identified	3	29	23.2	37	29.6	66	26.4
Semen Identified: In Vagina	0	22	17.6	34	27.2	56	22.4
Offender Did Not Talk About Self at All	31	63	50.4	58	46.4	121	48.4
Offender Made Reference to Self in Passing	31	27	21.6	24	19.2	51	20.4
Offender Talked About Self but Not Excessively	31	16	12.8	21	16.8	37	14.8
Items Taken by Offender	0	28	22.4	22	17.6	50	20
<i>Offender and Victim Interaction</i>							
No Victim Resistance (Followed Instructions/Demands)	3	37	29.6	26	20.8	63	25.2
Victim Resistance: Verbal (Argued/Negotiated)	3	45	36	40	32	85	34
Victim Resistance: Physical (Struggled, Fought, Attempted Escape)*	3	39	31.2	55	44	94	37.6
Offender Ignored Victim Resistance	9	22	17.6	32	25.6	54	21.6
Offender Fled/Ceased to Demand After Victim Resistance*	9	8	6.4	19	15.2	27	10.8
Offender Used Force After Victim Resistance	9	39	31.2	31	24.8	70	28
Offender Threatened After Victim Resistance (Victim or 3rd Party)	9	22	17.6	12	9.6	34	13.6
Evidence of Offender Attitude Change*	0	66	52.8	44	35.2	110	44

...Table 6 continues on next page...

Variable	Missing/ Unknown	Serial		Non-serial		Total	
		n	%	n	%	n	%
Attitude Change: Escalation of Behaviour*	0	53	42.4	27	21.6	80	32
Attitude Change: De- Escalation of Behaviour	0	18	14.4	21	16.8	39	15.6
Attitude Change Due to: Victim Resistance (Of Any Kind)	1	38	30.4	25	20	63	25.2
No Questions About Victim's Personal Life	33	60	48	58	46.4	118	47.2
Offender Asked a Question or Two in Passing	33	23	18.4	24	19.2	47	18.8
Offender Asked Questions, But the Victim Did Not Think It Dominated the Offender's Interest	33	27	21.6	22	17.6	49	19.6
Some Negotiation Between Victim and Offender	4	49	39.2	49	39.2	98	39.2
Some Attempts to Reassure the Victim	4	46	36.8	32	25.6	78	31.2
Offender Demeanour Towards Victim: Demeaning*	0	21	16.8	6	4.8	27	10.8
Contact Outside Offence*	0	38	30.4	21	16.8	59	23.6
Contact Before Offence*	0	31	24.8	12	9.6	43	17.2
Contact After Offence	0	15	12	11	8.8	26	10.4
Means of Contact: Phone*	0	27	21.6	7	5.6	34	13.6
Means of Contact: Personal	0	13	10.4	12	9.6	25	10
Contact Nature: Wishing to Meet*	0	29	23.2	6	4.8	35	14
<i>Sexual Behaviours</i>							
Assault Category: Anal Sex	0	24	19.2	23	18.4	47	18.8
Assault Category: Choking	0	21	16.8	14	11.2	35	14
Assault Category: Cunnilingus	0	22	17.6	16	12.8	38	15.2
Assault Category: Digital Penetration (Vaginal or Anal)	0	47	37.6	43	34.4	90	36

...Table 6 continues on next page...

Variable	Missing/ Unknown	Serial		Non-serial		Total	
		n	%	n	%	n	%
Assault Category: Fellatio*	0	46	36.8	28	22.4	74	29.6
Assault Category: Fondling*	0	50	40	34	27.2	84	33.6
Assault Category: Kissing*	0	37	29.6	55	44	92	36.8
Assault Category: Masturbation	0	18	14.4	11	8.8	29	11.6
Evidence of Ejaculation	0	24	19.2	20	16	44	17.6
Evidence of Sexual Dysfunction (Offender)	0	23	18.4	18	14.4	41	16.4
Evidence Offender Attempted to Overcome Dysfunction	0	19	15.2	12	9.6	31	12.4
Offender Require Victim Performance (Of Any Kind)*	0	56	44.8	24	19.2	80	32
Offender Require Victim to Perform Fellatio*	0	38	30.4	13	10.4	51	20.4
Offender Require Positioning, Action, or Scripting	0	21	16.8	13	10.4	34	13.6
Clothing Removed: Victim Disrobed Self*	0	34	27.2	13	10.4	47	18.8
<i>Offender Precaution and Control Behaviours</i>							
Evidence of Offender Precautions*	0	70	56	30	24	100	40
Victim Gagged	0	16	12.8	12	9.6	28	11.2

Note. *Variable statistically significantly different between serial and non-serial rape offences at $p < .05$

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There were 102 variables that had a medium frequency overall (between 10-50%), as shown in Table 6. Forty-seven variables had an overall frequency of between 10-20%, 26 had an overall frequency of 20-30%, 15 had an overall frequency between 30-40%, and 14 had an overall frequency between 40-50%. Two variables (*evidence offender engaged in precautionary behaviours* and *evidence of offender attitude change*) had frequencies above 50% in serial rapes (56% and 52.8%, respectively) but less than 50% in non-serial rapes (24% and 35.2%, respectively). Two variables (*initial contact scene had witnesses* and *offence*

occurred on a weekend) had frequencies above 50% for non-serial rapes (60% and 51.2%, respectively) but below 50% for serial rapes (33.6% and 35.2%, respectively). All four of these variables were statistically significantly different between serial and non-serial rapes upon chi-square analysis. There were 15 variables that had frequencies above 10% for serial rapes but below 10% for non-serial rapes, and five variables that were above 10% for non-serial rapes but below 10% for serial rapes. Of these 20 variables, 12 were statistically significant upon chi-square analysis. No variables had a zero count for one offence group but still achieved at least 10% frequency overall.

There were 41 high frequency variables (presented in Table 7), those offence characteristics and offender behaviours that represent the 'typical' Queensland rape. It should be noted that to provide a more complete picture of Queensland rape, some variables have been presented in this table as the lack of a behaviour or characteristic (as coded by 0 through the dummy coding process).

Table 7
High Frequency Variables (Above 50% Overall)

Variable	Missing/ Unknown	Serial		Non-serial		Total	
		n	%	n	%	n	%
<i>Offender and Victim Characteristics</i>							
Offender White*	2	94	75.2	72	57.6	166	66.4
Offender Did Not Display Unusual Characteristics*#	0	106	84.8	119	95.2	225	90
Offender Not Familiar with Assault Scene#	1	66	52.8	65	52	131	52.4
Victim Selection: Opportunistic*	0	81	64.8	116	92.8	197	78.8
Victim Familiar with Initial Contact Scene*	15	81	64.8	61	48.8	142	56.8
<i>Initial Contact Scene Characteristics</i>							
Initial Contact Scene: Residential Neighbourhood	0	73	58.4	68	54.4	141	56.4

...Table 7 continues on next page...

Variable	Missing/ Unknown	Serial		Non-serial		Total	
		n	%	n	%	n	%
Initial Contact Indoors*	0	60	48	79	63.2	139	55.6
Initial Contact Scene and Assault Scene - Same Location	0	66	52.8	63	50.4	129	51.6
Initial Contact Scene and Release Scene - Same Location	1	74	59.2	55	52.8	140	56
No Vehicle Used*#	0	71	56.8	99	79.2	170	68
<i>Assault Scene Characteristics</i>							
Offence on Weekday*	0	81	64.8	61	48.8	142	56.8
No Assault Scene Witnesses*#	15	87	69.6	77	61.6	164	65.6
Assault Scene and Release Scene - Same Location	3	98	78.4	111	88.8	209	83.6
<i>Offence Behaviours and Characteristics</i>							
Approach Style: Con	0	74	59.2	86	68.8	160	64
Contact End: Release*	0	104	83.2	84	67.2	188	75.2
Weapon Not Involved*#	0	85	68	106	84.8	191	76.4
Victim Sustained Injuries	0	73	58.4	65	52	138	59.6
Victim Sustained No Blunt Trauma	2	91	72.8	100	80	191	76.4
No Facial Injury#	5	102	81.6	107	85.6	209	83.6
Offender Did Not Bite Victim#	2	115	92	109	87.2	224	89.6
Minimal Force Used by Offender	0	99	79.2	98	78.4	197	78.8
Offender Projected Neutral Image	0	62	49.6	89	71.2	151	60.4
Offender Displayed No Overt Anger*	0	79	63.2	101	80.8	180	72
No Items Taken by Offender#	0	97	77.6	103	82.4	200	80
<i>Offender and Victim Interaction</i>							
Victim Resistance of Any Kind@	3	87	69.6	97	77.6	184	73.6

...Table 7 continues on next page...

Variable	Missing/ Unknown	Serial		Non-serial		Total	
		n	%	n	%	n	%
Offender Reacted to Victim Resistance [@]	9	79	63.2	69	55.2	148	59.2
Offender Demeanour Towards Victim:	0	96	76.8	113	90.4	209	83.6
Neutral							
No Negotiation Between Victim and Offender	4	69	55.2	71	56.8	140	56
No Attempts to Reassure the Victim	4	73	58.4	81	64.8	154	61.6
No Contact Outside Offence [#]	0	87	69.6	104	83.2	191	76.4
<i>Sexual Behaviours</i>							
Assault Category: Vaginal Intercourse	1	86	68.8	90	72	176	70.4
No Evidence of Sexual Dysfunction [#]	0	102	81.6	107	85.6	209	83.6
Offender Did Not Require Performance of Victim ^{*#}	0	69	55.2	101	80.8	170	68
Clothing Removed	0	107	85.6	99	79.2	206	82.4
Clothing Removed: Offender Disrobed Self	0	67	53.6	68	54.4	135	54
Clothing Removed: Offender Disrobed Victim	0	69	55.2	79	63.2	148	59.2
Clothing Removed How: No Damage	0	93	74.4	84	67.2	177	70.8
<i>Offender Precaution and Control Behaviours</i>							
Restraints Not Used [#]	0	111	88.8	118	94.4	229	91.6
Victim Not Gagged [#]	0	109	87.2	113	90.4	222	88.8
Victim's Face Not Covered [#]	1	114	91.2	119	95.2	233	93.2
Victim Not Blindfolded [#]	0	111	88.8	118	94.4	229	91.6

Note. *Variable statistically significantly different between serial and non-serial rape offences at $p < .05$. #Variables indicate the lack of presence (coded as 0 through dummy coding). @Variables created by tallying all cases in which the victim presented any kind of resistance and all cases in which the offender presented any kind of reaction to victim resistance.

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By reporting the non-present variables, the highest frequency variables were shown to be those elements that were not present during an offence. The variables *offender did not display unusual characteristics; restraints were not used; the victim's face was not covered; and the victim was not blindfolded* all had overall frequencies of 90% and above. Indeed, 15 of the 41 high frequency variables were those that indicate a lack of presence (reporting the absence of a variable), whereas four variables in their original wording (*victim sustained no blunt trauma, offender displayed no overt anger, no negotiation between victim and offender, and no attempts to reassure victim*) count an absence of behaviour. Two variables (*initial contact indoors and offender projected neutral image*) had frequencies just below 50% in the serial offences (48% and 49.6%, respectively), but above 50% in the non-serial offences (63.2% and 71.2%, respectively). On the other hand, two variables (*offence on weekday and victim was familiar with initial contact scene*) had frequencies just below 50% for non-serial offences (48.8% for each) but above 50% for serial rapes (64.8% each). All four of these variables were statistically significant upon chi-square analysis.

Although the results of the chi-square analyses are presented in the next section, it is still important to present frequency information to provide a holistic overview of the variables and how they relate to the overall dataset. Therefore, the frequencies of variables statistically unique to serial rapes are shown in Table 8 while those variables statistically unique to non-serial rapes are shown in Table 9.

Table 8*Frequency of Variables Statistically Higher in Serial Rapes ($p < .05$)*

Variable	Missing/ Unknown	Serial		Non-serial		Total	
		n	%	n	%	n	%
<i>Offender and Victim Characteristics</i>							
Offender White	2	94	75.2	72	57.6	166	66.4
Offender Displayed Unusual Characteristics	0	19	15.2	6	4.8	25	10
Potential Motive: Financial	0	7	5.6	0	0	7	2.8
Victim Selection: Pre- Targeted	5	43	34.4	5	4	48	19.2
Victim Lifestyle: Prostitute	0	22	17.6	3	2.4	25	10
Victim Familiar with Initial Contact Scene	15	81	64.8	61	48.8	142	56.8
<i>Initial Contact Scene Characteristics</i>							
Initial Contact Scene Chosen by Offender	15	17	13.6	4	3.2	21	8.4
Offender Gain Entry to Initial Contact Scene: Forced Entry	2	13	10.4	1	0.8	14	5.6
Initial Contact Outdoors	0	65	52	46	36.8	111	44.4
Initial Contact Outdoors: Paved/Public Street or Parking	0	47	37.6	23	18.4	70	28
Initial Contact Scene - Business: Victim's Workplace	0	10	8	3	2.4	13	5.2
Vehicle Used	0	54	43.2	26	20.8	80	32
Vehicle Owned by Offender	16	30	24	13	10.4	42	17.2
<i>Assault Scene Characteristics</i>							
Offence on Weekday	0	81	64.8	61	48.8	142	56.8
Assault Scene Vehicle	0	23	18.4	12	9.6	35	14
<i>Offence Behaviours and Characteristics</i>							
Approach Con: Solicitation for Sex	0	14	11.2	5	4	19	7.6
Approach Con: Pose as Authority Figure	0	10	8	0	0	10	4
Contact End: Release	0	104	83.2	84	67.2	188	75.2
Weapon Involved	0	40	32	19	15.2	59	23.6
Weapon Intentionally Used by Offender	0	25	20	7	5.6	32	12.8

...Table 8 continues on next page...

Variable	Missing/ Unknown	Serial		Non-serial		Total	
		n	%	n	%	n	%
Offender Brought Weapon	5	32	25.6	11	8.8	43	17.2
Offender Removed Weapon	11	31	24.8	10	8	41	16.4
Weapon Type: Stabbing	0	36	28.8	15	12	51	20.4
Force Used Immediately	11	34	27.2	20	16	54	21.6
Offender Displayed Some Anger	0	44	35.2	24	19.2	68	27.2
Offender Projected Macho Image	0	52	41.6	19	15.2	71	28.4
Offender Demeanour Towards Victim: Demearing	0	21	16.8	6	4.8	27	10.8
<i>Offender and Victim Interaction</i>							
Evidence of Offender Attitude Change	0	66	52.8	44	35.2	110	44
Attitude Change: Escalation of Behaviour	0	53	42.4	27	21.6	80	32
Contact Outside Offence	0	38	30.4	21	16.8	59	23.6
Contact Before Offence	0	31	24.8	12	9.6	43	17.2
Means of Contact: Phone	0	27	21.6	7	5.6	34	13.6
Means of Contact: Internet	0	13	10.4	0	0	13	5.2
Contact Nature: Wishing to Meet	0	29	23.2	6	4.8	35	14
Contact Nature: Reminder/Threaten of Offence	0	6	4.8	0	0	6	2.4
<i>Sexual Behaviours</i>							
Assault Category: Anilingus	0	7	5.6	0	0	7	2.8
Assault Category: Fellatio	0	46	36.8	28	22.4	74	29.6
Assault Category: Fondling	0	50	40	34	27.2	84	33.6
Assault Category: Verbal Abuse	0	6	4.8	0	0	6	2.4
Offender Require Victim Performance (Of Any Kind)	0	56	44.8	24	19.2	80	32

...Table 8 continues on next page...

Variable	Missing/ Unknown	Serial		Non-serial		Total	
		n	%	n	%	n	%
Offender Require Victim to Perform Fellatio	0	38	30.4	13	10.4	51	20.4
Offender Require Other Act by Victim	0	12	9.6	1	0.8	13	5.2
Clothing Removed: Victim Disrobed Self	0	34	27.2	13	10.4	47	18.8
<i>Offender Precaution and Control Behaviours</i>							
Evidence of Offender Precautions	0	70	56	30	24	100	40
Precautions: Administer Drug	0	9	7.2	0	0	9	3.6
Precautions: Condom	0	12	9.6	2	1.6	14	5.6
Precautions: Disabled Lights	0	6	4.8	0	0	6	2.4
Precautions: Gave False Name	0	14	11.2	4	3.2	18	7.2
Precautions: Deter Victim Reporting	0	10	8	0	0	10	4

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Overall, there were 49 variables that were statistically significantly higher in serial offences. Within the serial rape group (rather than the whole sample overall), 11 variables were low frequency, 31 were medium frequency, and 7 were high frequency. The five statistically unique variables with the highest frequency for serial rapes were: *the offender released the victim upon assault completion (83.2%); the offender was White (75.2%); the offence occurred on a week day (64.8%); the victim was familiar with the initial contact scene (64.8%); and the offender showed evidence of precautions (56%)*, whereas the five variables with the lowest frequency for serial rape that still achieved statistical significance were: *the offender disabled lights (4.8%); the offender contacted the victim after the offence to remind or threaten them of the attack (4.8%); the assault included verbal abuse (4.8%); the assault included anilingus (5.6%); and the offender's motive was potentially financial (5.6%)*.

There were nine variables that reached statistical significance that had a zero count in the non-serial group. Five of them were the abovementioned lowest frequency variables for serial rapes. The other four were *the offender posed as an authority figure to approach the victim, the offender administered drugs to the victim, the offender engaged in precautions to deter victim reporting, and the offender contacted the victim via the internet.* All of these nine variables were low frequency variables for serial rapes.

Table 9

Frequency of Variables Statistically Higher in Non-Serial Rapes ($p < .05$)

Variable	Missing/ Unknown	Serial		Non-serial		Total	
		n	%	n	%	n	%
<i>Offender and Victim Characteristics</i>							
Offender Asian	2	0	0	13	10.4	13	5.2
Offender Under the Influence of Drugs or Alcohol	0	33	26.4	80	64	113	45.2
Victim Selection: Opportunistic	5	81	64.8	116	92.8	197	78.8
Victim Incapacitation: Alcohol	0	19	15.2	62	49.6	81	32.4
<i>Initial Contact Scene Characteristics</i>							
Offender Gain Entry to Initial Contact Scene: Building Was Open to Public	2	15	12	33	26.4	48	19.2
Offender Gain Entry to Initial Contact Scene: Let in by 3rd Person	2	2	1.6	12	9.6	14	5.6
Victim at Initial Contact Scene for General Socialising	15	9	7.2	39	31.2	48	19.2
Initial Contact Scene Witnesses	25	42	33.6	75	60	117	46.8
Initial Contact Indoors	0	60	48	79	63.2	139	55.6
Initial Contact Scene - Business: Bar/Tavern/Nightclub	0	9	7.2	32	25.6	41	16.4

...Table 9 continues on next page...

Variable	Missing/ Unknown	Serial		Non-serial		Total	
		n	%	n	%	n	%
<i>Assault Scene Characteristics</i>							
Offence on Weekend	0	44	35.2	64	51.2	108	43.2
Assault Scene Witnesses	15	26	20.8	45	36	71	28.4
<i>Offence Behaviours and Characteristics</i>							
Approach Con: Socialising/Bar/Feign Interest	0	21	16.8	37	29.6	58	23.2
Contact End: Escape	0	13	10.4	27	21.6	40	16
Force Used During Sex Act	11	26	20.8	46	36.8	72	28.8
Offender Displayed No Overt Anger	0	79	63.2	101	80.8	180	72
Offender Projected Neutral Image	0	62	49.6	89	71.2	151	60.4
Offender Demeanour Towards Victim: Neutral	0	96	76.8	113	90.4	209	83.6
DNA Available	0	44	35.2	64	51.2	108	43.2
<i>Offender and Victim Interaction</i>							
Victim Resistance: Physical (Struggled, Fought, Attempted Escape)	3	39	31.2	55	44	94	37.6
Offender Fled/Ceased to Demand After Victim Resistance	9	8	6.4	19	15.2	27	10.8
<i>Sexual Behaviours</i>							
Assault Category: Kissing	0	37	29.6	55	44	92	36.8

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Overall, there were 22 variables that were significantly higher in the non-serial rape group. One variable was low frequency, 12 were medium frequency, and nine were high frequency. The highest frequency significant variables for non-serial rapes were: *the victim was selected opportunistically (92.8%); the offender's demeanour towards the victim was neutral (90.4%); the offender displayed no overt anger (80.8%); the offender projected a neutral image (71.2%); and the initial contact occurred indoors (63.2%)*, while the lowest frequency variables that were still statistically significant were: *the offender was let into the initial contact scene by a third person (9.6%); the offender was Asian (10.4%); the offender*

ceased to demand or fled after victim resistance (15.2%); the victim escaped the offence (21.6%); and the initial contact occurred at a bar, tavern, or nightclub (25.6%). The only variable that had a zero count for serial rapists was the offender was Asian. Of note is the single sexual behaviour and lack of precaution and control behaviours within the non-serial rapes, compared to the eight sexual behaviours and 12 precaution and control behaviours in the serial rape group.

Chi-Square and Phi Values

Chi-square analysis was run on all dichotomous offence variables, including an analysis of phi, which is interpreted as an effect size for dichotomous data (Field, 2013). The chi-square analyses resulted in 67 statistically significant variables which had different frequencies between serial and non-serial offenders. Because a total of 168 crosstabs were conducted, an adjusted alpha level of .01 was adopted to mitigate the increased risk of Type I error, so the 45 variables that remained significant at the adjusted level are shown in Table 10. Appendix G shows the results of the chi-square analysis, variable counts, p-values, Fisher's exact statistic, and the phi values for all variables included in the crosstabs analyses, with statistically significant (at $p < .05$) variables bolded.

Table 10

Counts, Chi-Square, P-values, Fisher's Exact, and Phi Values for Significant Variables at Adjusted Significance ($p < .01$)

Variable	n, Present		χ^2 (df = 1)	ρ	P (Fisher's Exact)	Φ
	Serial	Non- Serial				
Offender Under the Influence of Drugs or Alcohol	33	80	35.67	.000	--	-.38
Offender Displayed Unusual Characteristics	19	6	7.51	.006	--	.17
Victim Lifestyle: Prostitute	22	3	16.04	.000	--	.25
Victim Incapacitation: Alcohol	19	62	33.77	.000	--	-.37
Was Vehicle Used?	54	26	14.41	.000	--	.24
Vehicle Owned by Offender	30	13	8.12	.004	--	.18
Initial Contact (IC) Witnesses	42	75	17.50	.000	--	-.27
Offender IC Gain Entry: Forced Entry	13	1	10.90	.001	--	.21
Offender IC Gain Entry: Let in by Third Person	2	12	7.57	.006	--	-.17
Offender IC Gain Entry: Building Open to Public	15	33	8.35	.004	--	-.18
IC Business: Bar, Tavern, or Nightclub	9	32	15.43	.000	--	-.25
IC Outdoor: Public Street or Parking	47	23	11.43	.001	--	.21
Victim at IC for General Socialising	9	39	23.21	.000	--	-.31
Offender Chose IC Location	17	4	8.79	.003	--	.19
Assault Scene (AS) Witnesses	26	46	7.10	.008	--	-.17
Contact End: Release	104	84	8.58	.003	--	.19
Weapon Involved?	40	19	9.78	.002	--	.20
Offender Brought Weapon	32	11	12.39	.000	--	.22
Offender Removed Weapon	31	10	12.87	.000	--	.23
Weapon Intentionally Used by Offender	25	7	11.61	.001	--	.22
Weapon Type: Stabbing	36	15	10.86	.001	--	.21
Victim Selection: Opportunistic	81	116	29.33	.000	--	-.34
Victim Selection: Pre-Targeted	43	5	37.23	.000	--	.39
Con: Pose as Authority Figure	10	0	10.42	.001	--	.20
Force Used During Sex Act	26	46	7.80	.005	--	-.18
Offender: No Overt Anger	79	101	9.60	.002	--	-.20
Offender: Some Anger	44	24	8.08	.004	--	.18

Variable	n, Present		χ^2 (df = 1)	ρ	P (Fisher's Exact)	Φ
	Serial	Non- Serial				
Evidence of Offender Attitude Change	66	44	7.86	.005	--	.18
<i>...Table 10 continues on next page...</i>						
Attitude Change: Escalation of Behaviour	53	27	12.43	.000	--	.22
Require: Performance (Of Any Kind)	56	24	18.82	.000	--	.27
Require: Fellatio	38	13	15.40	.000	--	.25
Require: Other Act by Victim	12	1	9.82	.002	--	.20
Image Projected: Neutral	62	89	12.19	.000	--	-.22
Image Projected: Macho	52	19	21.42	.000	--	.29
Demeanour Towards Victim: Neutral	96	113	8.43	.004	--	-.18
Demeanour Towards Victim: Demeaning	21	6	9.34	.002	--	.19
Contact Before Offence	31	12	10.14	.001	--	.20
Means of Contact: Phone	27	7	13.62	.000	--	.23
Means of Contact: Internet	13	0	13.71	.000	--	.23
Contact Nature: Wishing to Meet	29	6	17.58	.000	--	.27
Clothing: Victim Disrobed Self	34	13	11.56	.001	--	.22
Evidence of Offender Precautions	70	30	26.67	.000	--	.33
Precautions: Administered Drug	9	0	9.34	--	.003	.19
Precautions: Condom	12	2	7.57	.006	--	.17
Precautions: Deter Victim						
Reporting (Threaten, Pose as Police, etc.)	10	0	10.42	.001	--	.20

Note. Order of variables matches the order in which they appear in the VSCD form.
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Of the 45 significant variables, 32 were more common among serial rapes, while 13 were more common among non-serial rapes. All variables had small to medium effect sizes ($|\Phi| = .17 - .39$). The five variables with the highest phi values that were indicative of serial rapes include: *the victim was pre-selected* ($\Phi = .39$); *any evidence of offender precautions* ($\Phi = .33$); *the offender projected a macho image* ($\Phi = .29$); *the offender required any kind of performance of the victim (such as fellatio, positioning/scripting, foreplay, intimacy, etc.)* (Φ

= .27); and the offender reached out to the victim to arrange a meeting before the initial contact ($\Phi = .27$). On the other hand, the five variables with the highest phi values that were indicative of non-serial rapes include: the offender was under the influence of drugs or alcohol ($\Phi = -.38$); the victim was under the influence of alcohol ($\Phi = -.37$); the victim was opportunistically targeted ($\Phi = -.34$); the victim was at the initial contact scene for general socialising ($\Phi = -.31$); and the initial contact scene had potential witnesses ($\Phi = -.27$).

Multicollinearity

Multicollinearity was assessed for all significant variables. Moderate ($r > .70$) or high ($r > .80$) correlation with at least one other variable was found in twenty-five variables. Due to the size and complexity of the correlation matrix, it has not been included within this thesis, although it is available upon request from the author. The variables that were significant at the adjusted alpha value and had collinearity with another variable are shown in Table 11, as is the rationale for which variables were included or excluded for the logistic regression analysis.

Table 11
Multicollinearity of Significant Variables ($p < .01$)

Variable	r >.70	Correlation >.70 with Which Variable(s)?	Include/Exclude for Regression: Why?
Victim Lifestyle: Prostitute	.71	Approach_Solicitation	Higher phi value. INCLUDE
Offender IC Gain Entry: Building Open to Public	.80	IC_BarTavClub	Lower phi value. EXCLUDE
IC at Bar, Tavern, Nightclub	.80	ICEntry_openpublic	Higher phi value. INCLUDE
Contact End: Release	-.76	Contact End: Escape	Higher phi value. INCLUDE
Weapon Involved?	.91	WeaponStabbing	Less subjective, easier to accurately capture. INCLUDE
	.82	Weapon_OffBrought	
	.80	Weapon_RemByOff	

...Table 11 continues on next page...

Variable	<i>r</i> >.70	Correlation >.70 with Which Variable(s)?	Include/Exclude for Regression: Why?
Offender Brought Weapon	.82 .86	Weapon Weapon_RemByOff	More subjective, harder to accurately capture. EXCLUDE
	.80	WeaponStabbing	
Offender Removed Weapon	.86 .80	Weapon_OffBrought Weapon	More subjective, harder to accurately capture. EXCLUDE
	.79	WeaponStabbing	
Weapon Type: Stabbing	.91 .80	Weapon Weapon_OffBrought	Weapon Involved more beneficial as it captures multiple weapon types. EXCLUDE
	.79	Weapon_RemByOff	
Victim Selection: Opportunistic	-.94	VicTargeted	Determined after investigation. EXCLUDE
Victim Selection: Pre-Targeted		VicSelectOpp	Determined after investigation. EXCLUDE
Offender: No Overt Anger	-.98	OffAnger_Some	Less important for linkage. EXCLUDE
Offender: Some Anger		OffAnger_None	More important for linkage. INCLUDE
Evidence of Offender Attitude Change	.77	Escalating_AttitudeChange	Lower phi value. EXCLUDE
Attitude Change: Escalation of Behaviour	.77	AttitudeChange	Higher phi value. INCLUDE
Require: Performance	.74	RequireFellatio	Incorporates all subsequent requirements. EXCLUDE
Require: Fellatio	.72	AssaultFellatio	Higher phi value. INCLUDE
Image Projected: Neutral	-.78	OffImage_Macho	Lower phi value. EXCLUDE
Image Projected: Macho		OffImage_Neutral	Higher phi value. INCLUDE
Demeanour Towards Victim: Neutral	-.79	OffDemeanour_Demeaning	Lower phi value. EXCLUDE
Demeanour Towards Victim: Demeaning		OffDemeanour_Neutral	Higher phi value. INCLUDE
Contact Before Offence	.82 .70	OutsideContact ContactNatureWish	Higher phi value. INCLUDE
Means of Contact: Phone	.82 .71	ContactNatureWish OutsideContact	
Contact Nature: Wishing to Meet	.82 .73	MeansofContactPhone OutsideContact	More subjective. EXCLUDE
	.70	ContactBefore	

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This analysis resulted in the removal of 12 variables (*offender IC gain entry: building open to the public; offender brought weapon; offender removed weapon; con: solicitation for sex; offender: no overt anger; assault category: fellatio; evidence of offender attitude change; require: performance; image projected; neutral; demeanour towards victim: neutral; contact outside offence; and contact nature: wishing to meet*). The multicollinearity results for all significant variables (at the $p < .05$ level), as well as the reasoning for inclusion and exclusion decisions, can be seen in Appendix H.

Logistic Regression

Binary logistic regression was performed to assess whether any variables can be used to differentiate between serial and non-serial rape offences. The initial model contained 25 variables (as previously listed in the methodology chapter, p. 214), all offences, and was significant ($\chi^2 (25, N = 250) = 141.40, p < 0.001$), indicating that the model could distinguish between serial and non-serial offences. For the full results of the initial regression analysis, as well as the listing of outlier cases, see Appendix I. As discussed in the methodology chapter, twelve outlier cases were identified that significantly impacted the results of the regression, so the decision was made to leave those cases out of the final regression. One predictor variable (*offender gained entry to the initial contact scene through forced entry*) was also removed because the removal of the outlier cases reduced the count to zero for the non-serial group. This also maintained the appropriate EPV ratio.

The final model was significant ($\chi^2 (24, N = 238) = 199.33, p < 0.001$), indicating that the model could distinguish between serial and non-serial offences. The model was found to be a good fit through the Hosmer and Lemeshow test ($\chi^2 (8) = 5.79, p = 0.69$). Through the Hosmer and Lemeshow Goodness of Fit test, poor fit is indicated by a significance value less than .05. As the p -value is greater than .05, the model is supported.

Table 12*Binary Logistic Regression Predicting Serial versus Non-Serial Rape Offence Classification*

Predictor	Serial Versus Non-Serial Rape				
	β	SE β	Wald's χ^2	e β (OR)	95% CI
Offender Under the Influence of Drugs or Alcohol	-3.07	0.62	24.35***	0.05	[0.01, 0.16]
Victim Lifestyle: Prostitute	1.49	1.86	0.64	4.43	[0.12, 169.02]
Victim Incapacitation: Alcohol	-0.81	0.62	1.72	0.45	[0.13, 1.49]
Was Vehicle Used?	-0.03	0.54	0.00	0.97	[0.34, 2.80]
IC Witnesses	-0.20	0.56	0.13	0.82	[0.26, 2.44]
IC Business Bar, Tavern, or Nightclub	-1.05	0.99	1.13	0.35	[0.05, 2.42]
IC Outdoor Public Street or Parking	1.01	0.61	2.74	2.76	[0.83, 9.17]
Victim at IC for General Socialising	-1.46	0.98	2.23	0.23	[0.03, 1.58]
Offender Chose IC Location	2.79	1.48	3.54	16.32	[0.89, 299.17]
Contact End: Release	0.63	0.63	1.00	1.87	[0.55, 6.39]
Weapon Involved?	0.19	0.84	0.05	1.21	[0.23, 6.33]
Weapon Intentionally Used by Offender	0.21	1.11	0.04	1.23	[0.14, 10.93]
Offender: Some Anger	-2.51	0.98	6.52*	0.08	[0.01, 0.56]
Assault Category: Fondling	1.55	0.61	6.56*	4.71	[1.44, 15.43]
Assault Category: Kissing	-2.02	0.65	9.79**	0.13	[0.04, 0.47]
Attitude Change: Escalation of Behaviour	0.38	0.69	0.31	1.46	[0.38, 5.59]
Require: Fellatio	1.51	0.90	2.78	4.50	[0.77, 26.38]
Require Other Act by Victim	4.35	1.53	8.11**	77.29	[3.86, 1541.41]
Image Projected: Macho	5.31	1.31	16.39***	202.49	[15.48, 2648.13]
Demeanour Towards Victim: Demeaning	-1.78	1.29	1.90	0.17	[0.01, 2.12]
Contact Before Offence	1.96	0.88	4.96*	7.10	[1.27, 39.90]
Means of Contact: Phone	1.91	1.25	2.33	6.78	[0.58, 79.03]
Clothing: Victim Disrobed Self	2.21	0.74	8.84**	9.08	[2.12, 38.90]
Evidence of Offender Precautions	0.94	0.52	3.27	2.56	[0.93, 7.11]

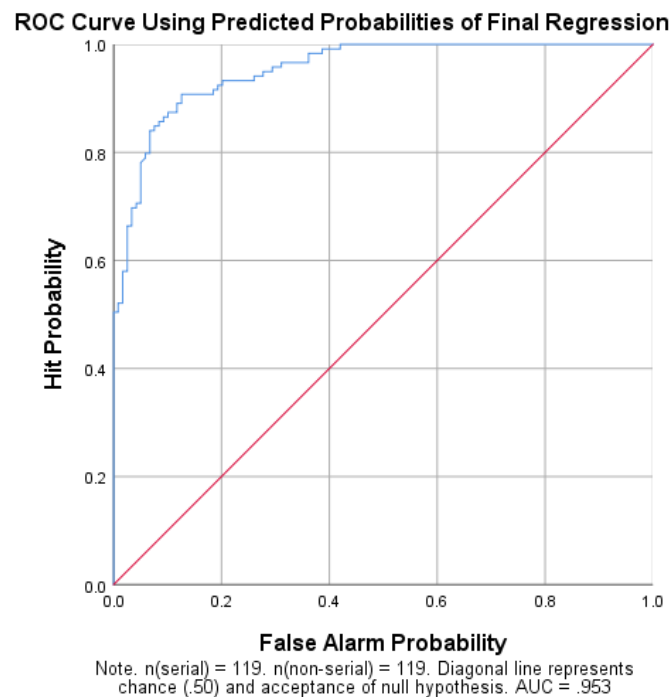
Note. N = 238. 24 variables included. OR= Odds Ratio. CI = Confidence Interval. The order of variables matches the order in which they appear through the VSCD form and the subsequent data set. All variables entered upon step 1. Negative β values are indicative of non-serial offences, positive β values are indicative of serial offences. * $p < .05$, ** $p < .01$, *** $p < .001$

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The model explained between 56.7% (Cox and Snell R square) and 75.6% (Nagelkerke R square) of the variance between serial and non-serial rapes. Table 12 displays the results of the binary logistic regression analysis. Overall, the model correctly classified 87.8% of offences, correctly classifying 87.4% of serial rapes and 88.2% of non-serial rapes. The final regression model was more accurate in discriminating between serial and non-serial rape

offences than the initial regression. The final regression resulted in an increase in overall accuracy of 3.8%, a 5.8% increase in classifying serial rapes and a 1.8% increase in classifying non-serial rapes.

Figure 2



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To further examine the ability of the regression model to distinguish between serial and non-serial rapes, and in following the approach of Pakkanen et al. (2015), a threshold-independent ROC analysis was run using the predicted probabilities produced by the regression model. Figure 2 shows the ROC curve using the predicted probabilities produced by the final regression model. This analysis resulted in an excellent level of discrimination accuracy, $AUC = .953$ ($p < .001$, $SE = .01$, $95\% CI = .93 - .98$). The increase in discrimination accuracy between the initial and final regression models as a result of removing the 12 outlier cases ($AUC = .89$ to $AUC = .95$) may be significant as there is no overlap in their confidence intervals (.85-.93 versus .93-.98, respectively).

In the final model, eight predictor variables made a statistically significant contribution to the model, as shown in Table 13. Three of the significant variables were indicative of non-serial offences (*the offender was under the influence of drugs or alcohol, the offender displayed some anger during the offence, and the offender kissed the victim*). The remaining five variables (*the offender fondled the victim; the offender required the victim to engage in an act other than fellatio, intimacy, or foreplay; the offender projected a macho image of himself during the offence; contact (not in person) between victim and offender before the offence; and the victim disrobed herself during the offence*) were indicative of serial offences.

Table 13

Significant Predictors of Serial versus Non-serial Rape Offences

Predictor	β	SE β	Wald's χ^2	e β (OR)	95% CI
Serial Rapes					
Assault Category: Fondling	1.55	0.6	6.56*	4.71	[1.44, 15.43]
Require Other Act by Victim	4.35	1.53	8.11**	77.29	[3.86, 1541.41]
Image Projected: Macho	5.31	1.31	16.39***	202.49	[15.48, 2648.13]
Contact Before Offence	1.96	0.88	4.96*	7.10	[1.27, 39.90]
Clothing: Victim Disrobed Self	2.21	0.74	8.84**	9.08	[2.12, 38.90]
Non-Serial Rapes					
Offender Under the Influence of Drugs or Alcohol	-3.07	0.62	24.35***	0.05	[0.01, 0.16]
Offender: Some Anger	-2.51	0.98	6.52*	0.08	[0.01, 0.56]
Assault Category: Kissing	-2.02	0.65	9.79**	0.13	[0.04, 0.47]

Note. OR = Odds Ratio. CI = Confidence Interval. * P < .05 ** P < .01 *** P < .001

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As can be seen from Table 13, the three variables with the highest predictive values were the offender projecting a macho image of himself during the offence, the offender requiring the victim to engage in an act other than fellatio, intimacy or foreplay, and the offender being under the influence of drugs or alcohol. The odds ratio for *offender under the influence of drugs or alcohol* was .05, indicating that an offence with an offender who

presented as under the influence of drugs or alcohol was 20 times more likely to be a non-serial offence. On the other hand, *offender projected a macho image* had an odds ratio of 202.49, indicating that an offence with an offender who projected a macho image was 202 times more likely to be a serial offence. Additionally, *offender required other act (besides fellatio, intimacy, or foreplay) by victim* had an odds ratio of 77.29, indicating that an offence in which the offender required the victim to engage in an act other than fellatio, intimacy, or foreplay was 77 times more likely to be a serial offence. Of note, however, is that the confidence intervals for *offender projected a macho image* and *require other act by victim* are very wide (LL = 15.48, UL = 2648.13 and LL = 3.86, UL = 1541.41, respectively). A very wide confidence interval weakens the practical significance of the findings and may be indicative of a too-small sample (Vaske, 2002). Therefore, these results should be interpreted with caution.

Jaccard's Coefficients and ROC Analysis

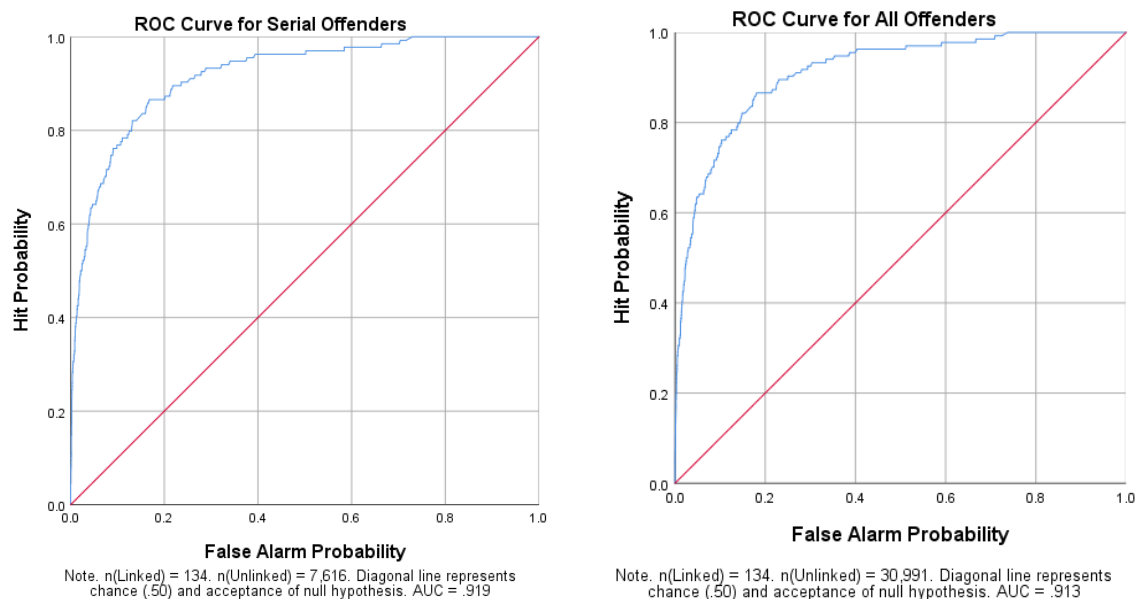
All possible combinations of linked and unlinked pairs of offences were computed using B-LINK. As discussed previously, this was computed using only serial offender data and including serial and non-serial offenders together. The use of only serial offenders resulted in 134 linked offence pairs and 7,616 unlinked offence pairs, while the inclusion of all offenders resulted in 30,991 unlinked offence pairs. Mean Jaccard's coefficients were computed and compared for multiple groups (serial linked, serial unlinked, and non-serial unlinked). A Kruskal-Wallis test showed that the mean Jaccard's coefficient was significantly different across each offender group ($\chi^2 (2) = 467.55, p < .001$).

The differences between each pairing group was explored using Mann Whitney U. The Jaccard's coefficient for serial linked offences ($M = .456, SD = .140$) was statistically higher than the Jaccard's coefficient for non-serial unlinked offences ($M = .255, SD = .083$), U

= -5703.89, $p < .001$. Serial linked offences also had a higher mean Jaccard's coefficient than unlinked offences using only serial offenders ($M = .252$, $SD = .08$), $U = -6751.6$, $p < .001$.

Furthermore, the mean Jaccard's coefficient for the serial unlinked offences was lower than non-serial unlinked offences ($U = 1047.7$, $p < .001$). The p -values remained the same after a Bonferroni correction.

Figure 3
ROC Curves for Serial Offenders Only and All Offenders



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Two ROC analyses were run on serial-only offence pairs and all offenders' offence pairs, the graphs of which can be seen in Figure 3. Using serial offender data only resulted in an AUC of .919 ($p < .001$, $SE = .01$, $95\% CI = .90 - .94$), whereas including all offenders (serial and non-serial) resulted in an AUC of .913 ($p < .001$, $SE = .01$, $95\% CI = .89 - .94$). Both ROC analyses resulted in high accuracy. The AUC for the serial-only group was higher than the all offenders group, although it was not statistically significant ($D = 0.01$, $p = .80$).

In following Woodhams et al., (2018), an acceptable false alarm level of 15% was adopted in the current research. Setting the false alarm level at 15% and using serial

offender only resulted in a Jaccard's coefficient threshold of $J = .332$ and a hit probability of 83.60%. The same false alarm level using all offender data resulted in a Jaccard's threshold of $J = .338$ which provided a hit probability of 82.10%. The actual number of hits, misses, correct rejections, and false alarms that were the result of using a threshold of $J = .332$ (as determined by setting a false alarm level of 15%) can be seen in Table 14.

Table 14

Number of Hits, Misses, Correct Rejections, and False Alarms Using a Decision Threshold of 15% False Alarms

		Predicted Linked	Predicted Unlinked
Serial Offenders Only	Linked in Reality	83.6% Hit Rate (112 linked pairs correctly identified)	16.4% Miss Rate (22 linked pairs incorrectly classified as unlinked)
	Unlinked in Reality	15% False Alarm Rate (1,142 unlinked pairs incorrectly classified as linked)	85% Correct Rejection Rate (6,474 unlinked pairs correctly identified)
All Offenders (Serial and Non-Serial)	Linked in Reality	82.1% Hit Rate (110 linked pairs correctly identified)	17.9% Miss Rate (24 linked pairs incorrectly classified as unlinked)
	Unlinked in Reality	15% False Alarm Rate (4,649 unlinked pairs incorrectly classified as linked)	85% Correct Rejection Rate (26,342 unlinked pairs correctly identified)

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Youden's index was also calculated, which determines the threshold which produces the maximisation of hits as well as the minimisation of false alarms. For serial offenders only, the Youden's ($J = .700$) identified a Jaccard's coefficient of .326 and a hit probability of 86.6%, with a false alarm probability of 16.8%. The Youden's index for all offenders ($J = .685$) identified a Jaccard's coefficient of .326, resulting in a hit probability of 86.6% and a false alarm probability of 18.1%. Table 15 show the actual frequencies of hits, false alarms, misses, and correct rejections for a Jaccard's threshold value of .326 based on Youden's index.

Table 15

Number of Hits, Misses, Correct Rejections, and False Alarms Using a Decision Threshold Based on Youden's Index

		Predicted Linked	Predicted Unlinked
Serial Offenders Only <i>J = .70</i>	Linked in Reality	86.6% Hit Rate (116 linked pairs correctly identified)	13.4% Miss Rate (18 linked pairs incorrectly classified as unlinked)
	Unlinked in Reality	16.8% False Alarm Rate (1,279 unlinked pairs incorrectly classified as linked)	83.2% Correct Rejection Rate (6,337 unlinked pairs correctly identified)
All Offenders (Serial and Non-Serial) <i>J = .69</i>	Linked in Reality	86.6% Hit Rate (116 linked pairs correctly identified)	13.4% Miss Rate (18 linked pairs incorrectly classified as unlinked)
	Unlinked in Reality	18.1% False Alarm Rate (5,609 unlinked pairs incorrectly classified as linked)	81.9% Correct Rejection Rate (25,382 unlinked pairs correctly identified)

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Using Youden's index to determine the most appropriate threshold resulted in better linkage accuracy of serial offences regardless of whether serial only offence pairs or all offence pairs were included. This method correctly identified 116 linked pairs (while incorrectly classifying 18 linked pairs as unlinked), whereas setting an acceptable false alarm level of 15% resulted in 112 correctly identified linked pairs (with 22 misses) when serial only offences were used and 110 correctly identified linked pairs (with 24 misses) when all offences were included. On the other hand, setting an acceptable false alarm level of 15% resulted in more accurately identifying unlinked offence pairs (higher correct rejection rate).

Conclusion

There were several significant results from the current analyses. There were several demographic differences between serial and non-serial offenders. Serial rapists were, on average, older than non-serial rapists at the time of the offence, and a greater percentage of

serial rapists were White compared to non-serial rapists. There were no significant differences between the demographic information of victims of serial and non-serial rapists.

Preliminary Chi-square analysis revealed 67 variables that were statistically significantly different between serial and non-serial offender, which was reduced to 45 after a conservative alpha level of .01 was set. After assessing for multicollinearity and using a combination of phi values and professional judgement to select variables, 24 variables were included in the logistic regression analysis. The logistic regression model accurately distinguished between serial and non-serial offenders, with eight variables having a significant contribution to the distinction.

The Jaccard's coefficients of serial linked offences, non-serial unlinked offences, and serial unlinked offences were significantly different. Linked serial offence pairs were more similar than unlinked non-serial offence pairs, which were in turn more similar than unlinked serial offence pairs. Jaccard's coefficients were used to conduct two ROC analyses: using serial offender offences only and using all possible offences. Both ROC analyses had high levels of linkage accuracy. Both the analysis of Jaccard's coefficients and the ROC analyses provide support for the theories and practice of case linkage. An in-depth examination of and the implications of these results will be discussed in the next chapter.

Chapter 7 – Discussion

Chapters Five and Six of this thesis were dedicated to the quantitative research project using serial and non-serial rapist data from the Queensland Police Service. However, an analysis of results must be accompanied by the contextualisation within the current knowledge base and comparison to previous research. As such, this chapter is dedicated to the analysis and interpretation of the research results. After reiterating the research goals and questions, this chapter presents an overview of stranger rape in Queensland, then discusses the results of the research as they pertain to each research question. It then highlights the limitations of the current research. This chapter concludes with suggestions for future research avenues, including the long-term research goals related to the current findings.

This project was designed to explore serial and non-serial rape behaviours, analyse consistency and distinctiveness, and test the ROC method of case linkage, as none of this has yet been examined within Australia. This project had three main research questions:

1. Do serial rapists (as a group) display behaviours that are distinct from non-serial rapists?
2. Can offence behaviours be used to discriminate between serial and non-serial rapists?
3. Are the principles of offender consistency and distinctiveness and the practice of case linkage supported within this sample of Australian rapists?

Stranger Rape in Queensland

Behavioural Themes and Rapist Typologies.

The behaviours and offence characteristics examined throughout this thesis can be discussed in relation to the behavioural themes designated by previous research. Although

it is acknowledged that assigning behaviours to a domain is largely arbitrary, there has been research validating behavioural themes in rape, as discussed in Chapter Three. Indeed, following previous classifications, many offence behaviours within this project can be grouped into themes of control, escape or criminal sophistication, sex, and style or intimacy (following the initial themes of Grubin et al., 2001). As described by Grubin and colleagues (2001) the style theme includes those behaviours that are not necessary for a successful rape, but rather show the offender's personality or offence style, and could be likened to signature. However, many of the original variables included in Grubin et al.'s style theme also show a pseudo-intimacy quality (such as mention of victim enjoyment, compliments the victim, requests a date, shows remorse, asks questions about victim's personal life, etc.), and other research has also explored the theme of intimacy or involvement on its own. Therefore, this theme is called style or intimacy here until further research within Australia is done.

Control behaviours found within the current research sample include whether a victim was pre-targeted, a blitz or surprise approach style, if the offender was familiar with initial contact and offence locations or even chose the initial contact location, the victim working as a prostitute, whether the victim was incapacitated, the level of force used (and when) by the offender, the involvement of a weapon, the offender's reaction to victim resistance, whether multiple locations were used during the offence, and whether the offender blindfolded, gagged, restrained or otherwise limited the victim. Escape and criminal sophistication behaviours include any precautions the offender took to minimise being caught, such as administering a drug to the victim, using a condom, covering the victim's eyes/mouth, destroying or removing evidence, concealing his face or identity, securing an escape route, and deterring victim reporting.

Behaviours in the sex domain include, intuitively, most of the behaviours related to the sex act, such as vaginal or anal penetration, cunnilingus, anilingus, and fellatio, kissing and fondling, masturbation, foreign object insertion, evidence of ejaculation, the offender requiring certain acts from the victim, and whether and how clothing was removed. The style or intimacy theme includes pseudo-intimate behaviours such as a con approach, asking questions of the victim, engaging in reassurance or negotiation, engaging in or requiring kissing, fondling, cuddling, or cunnilingus, the offender presenting as pseudo-sensitive and being complimentary towards the victim, the offender experiencing sexual dysfunction, and the victim disrobing the offender. Additional behaviours in this theme show a different style, such as the offender under the influence of drugs or alcohol, stealing the victim's belongings or clothing, contact with the victim before or after the offence, engaging in biting, cutting, hair pulling, hand or fist insertion, pinching, stabbing, simulated intercourse, the offender talking about himself and the offender showing an attitude change.

Whether the style or intimacy theme is best conceptualised as a single category is the work of a future project, as there are behaviours within this project that appear to display pseudo-intimacy while others seem more hostile. Indeed, there are frequent overlaps in terms of which behaviour may best fit in a theme, such as the level of force, pre-selecting a victim, posing as an authority figure, recording the offence, and engaging in foreplay behaviours. All of these behaviours can fit into multiple themes. Just because a behaviour is classified as belonging to a certain theme does not mean it will only fall under that theme. An offender may gag his victim as a control tactic to keep her quiet, or it could relate to an inner fantasy he has. Furthermore, whether this behaviour occurs at the beginning of the offence or only in response to victim resistance would give an indication as

to what role the behaviour is filling. This highlights the importance of context and the interaction between victim and offender.

As there are behaviours in this sample that are more indicative of a potential pseudo-intimate subtype, so too are there behaviours that are indicative of an aggressive and hostile subtype as well as a confident subtype. Aggressive and hostile behaviours include a blitz approach style, a higher level of force that is seen not at the beginning of an offence or in reaction to victim resistance, the offender displaying anger (especially overwhelming anger), the offender escalating his attitude, the offender's demeanour towards the victim being demeaning, the victim's clothing being torn or cut away, and the offence including beating, choking, hand or fist insertion, pinching, slapping, stabbing, suffocation, verbal abuse, and generally aggressive and violent behaviours that go above and beyond what is required for control. Those behaviours and variables indicative of confidence include the initial contact occurring somewhere the victim is familiar with, a con approach, the initial contact or assault occurring in an area where there are potential witnesses, the offence occurring over multiple locations, the offender contacting the victim to set up the initial contact, the offender ignoring the victim's resistance, and stealing the victim's personal belongings (as a trophy). Further analysis could validate these behavioural themes, the potential subtypes, as well as any other subtype clusters of behaviours.

In comparing the behavioural themes seen within this sample with the Groth rapist types discussed in Chapter Two, there are similarities. As the power type (with the subtypes of power-reassurance and power-assertive) is more common than the anger rapist type (with Bennett [2005] classifying 93% of rapes as power and 6.5% as anger), intuitively more behaviours will be indicative of these subtypes. Many of the abovementioned behaviours that fit in the control theme match the power-assertive rapist, such as a surprise or con

approach, force and violence as a means of control and in response to victim resistance rather than with the intent to harm, threats to gain compliance, displaying a macho persona, and the use of restraints or gags (Hicks & Sales, 2006; Miller, 2014; Turvey & Freeman, 2011; Zaitchik & Mosher, 1993).

On the other hand, behaviours in the style or intimacy theme more closely match the power-reassurance rapist. These behaviours include reassuring the victim, negotiating with the victim, asking questions of the victim, fleeing or ceasing to demand when faced with victim resistance, and engaging in foreplay behaviours such as kissing and fondling (Canter & Youngs, 2009; Miller, 2014; Turvey & Freeman, 2011). Indeed, in Bennett's 2005 validation of the power and anger types, a number of these variables were present within the power type, including unselfish verbal behaviour (comprised of reassuring, complimentary, self-demeaning, ego-building, and concerned statements), foreplay, threatening the victim, fleeing after victim resistance, covering the victim's face, using moderate force, and negotiating with and reassuring the victim.

The anger-retaliatory and anger-excitation rapist types are harder to draw out from the current data. However, it seems those behaviours in the hostile and aggressive as well as control subtypes discussed above may be indicative of the anger type, with the distinction between retaliatory and excitation subtypes being dependent on the level of force or violence and the underlying motivation, whether it be out of pervasive anger (retaliatory) or an underlying fantasy of harm (excitation). Indeed, some of the variables found do fit with previous literature stating that anger-retaliatory rapes may show a blitz approach style, immediate use of force, high level of force, and ripping victim's clothing, while anger-excitation rapes may show a con approach, degrading and humiliating language (demeaning), and taking trophies.

There was some overlap between the variables theoretically attributed to the anger subtypes here and Bennett's (2005) validation of the anger type, such as the use of multiple offence locations and brutal force. Interestingly, the use of restraints and blindfold in Bennett's multidimensional scaling were attributed to anger rapists, whereas they have here been theorised for power rapists (although previous research has placed them in both types). This variation may be due a difference in the offence context of the behaviours (as they are both lower frequency behaviours), as they may be more common among anger rapists but still used by power rapists. As the anger-excitation (sadistic) rapist is thought to be the least common rapist type, it is understandable that few variables indicative of this offender would be present in the current research. Additional validation of the Groth typology (with an emphasis on the subtypes) could help tease this apart further, as well as provide empirical support for the above suggested groupings of behaviours with rapist types.

Through this discussion it is clear that the behavioural themes of escape or criminal sophistication and sex are not limited to one rapist type, as these behaviours are seen across all types to different degrees. Furthermore, as will be discussed shortly, many of the behaviours within the escape or criminal sophistication theme were more common among serial rapists than non-serial rapists. Further analysis of the Groth typologies could explore this, examining behaviours of each subtype within both serial and non-serial rapist samples to see if any of the subtypes are more frequently serial or non-serial rapists.

Although it was outside the scope of this research to validate behavioural themes within this sample, it is a potential route for future research. Validating these behavioural themes within Australian rapists can provide further insight into offender behaviour. It can determine which behaviours cluster together and whether there are sub-types within the

themes, as was found in Grubin et al. (2001). Furthermore, this analysis could assess consistency of behavioural themes to determine if serial offenders are consistent within themes across their series, consistent across individual behaviours across series, or consistent among clusters of behaviours within sub-themes, each of which has been supported in previous research (e.g. Corovic et al., 2012; Grubin et al., 2001; Hewitt & Beauregard, 2014; Kocsis et al., 2002; Park et al., 2008). This research could be paired with further validation of the Groth typology of rapists within Queensland to provide further support for the expected behaviours of each rapist type. This could also explore whether one type is more consistent than the others, whether there are significant variables that can be used to assist investigators in identifying a rapist type (and subsequently providing a starting parameter from which to search for case linkages), or whether there are variables that are high frequency across rapist types that should not be used to distinguish between them.

Stranger Rape Behaviour.

The analysis of variable frequencies provides an overview of the base rates of stranger rape behaviours and characteristics in Queensland. As variables across all levels of frequency were significantly different between serial and non-serial rape offences, this shows that a behaviour cannot be ruled out when distinguishing between serial and non-serial rape or attempting to identify a serial rapist simply because it is of low or high frequency. Indeed, it may be in the lower frequency behaviours that evidence of an offender signature can be seen. Behaviours that have a low base rate but are shown consistently across a series of offences could be a good preliminary indication of a serial rapist, providing further justification for a case linkage analysis.

The importance of this can be seen within this dataset by the fact that 19 of the 81 low frequency variables were found to be statistically significantly different between serial and non-serial offences. These include characteristics of the offender, such as the offender having a potential financial motivation for the offence, contacting the victim via the internet, contacting the victim after the offence to remind or threaten of the offence, and using a con of solicitation for sex or posing as an authority figure. Significant low frequency characteristics of the initial contact location include the offender gaining entry to the initial contact scene by forcing an insecure door or window or being let in by a third person, the initial contact occurring at the victim's workplace, and the offender choosing the initial contact location. Assault variables include anilingus, verbal abuse, and the offender requiring the victim to perform an act other than positioning, fellatio, foreplay, or intimacy. Finally, the significant low frequency precautionary behaviours include the offender administering a drug to the victim, using a condom, disabling lighting, giving a false name, and deterring victim reporting of the offence. That almost a quarter of the low frequency variables were significantly different between serial and non-serial rapists shows just how important it is to have an understanding of base rates of behaviours within a jurisdiction so as to better analyse a behaviour's relative importance.

On the other hand, high frequency (> 50%) behaviours provide a snapshot of serial rape in Queensland. Overall, stranger rape in Queensland occurs during the week, in a residential neighbourhood, indoors. More often than not, the victim, but not the offender, is familiar with the initial contact scene, and the initial contact, assault, and release all occur at the same location, without witnesses to the assault. Most assaults end with the offender releasing the victim (compared to the victim escaping or being rescued). Offenders choose their victims opportunistically and use a con approach style. During the assault, the majority

of offenders use minimal force, present as neutral towards the victim (through their projection of themselves, a lack of anger shown, and a neutral demeanour towards the victim), and do not negotiate with or attempt to reassure the victim. Most victims sustain injuries as a result of the attack, although they are typically not blunt force trauma or injuries to the face. The majority of victims engage in resistance, whether it be passive (not complying with demands), verbal (arguing or negotiating), or physical (struggling, fighting, or attempting to escape), and many instances of resistance result in a reaction by the offender. Frequently, the assault involves both the victim's and offender's clothing being removed by the offender (without damage to the victim's clothing) and includes vaginal intercourse. It is, however, an important reminder that the offences on which this snapshot is based are completed, solved stranger rapes. The behaviours of offenders who were unsuccessful for whatever reason in their attempts at rape are not considered, and the high frequency variables discussed may be limited by this.

Of note is the relative lack of unique features of stranger rape. Although popular media and the variety of rape myths within society might portray stranger rape as highly violent, with unusual offender behaviour, use of weapons and restraints, and stalking a particular victim, this is not supported by the data. In fact, some of the most common features of stranger rape in Queensland are the lack of such characteristics. In at least 80% of cases in this sample the offender did not display unusual characteristics, did not bite the victim, did not show sexual dysfunction, did not cover the victim's face, blindfold or gag the victim, did not use restraints, and did not take any of the victim's belongings. In over 75% of offences, no weapon was used, and the offender did not contact the victim outside the offence. The majority of offences did not involve the use of a car. The only high-frequency sexual behaviour was vaginal-penile penetration, and most offenders did not require the

victim to complete any specific positions, scripting, fellatio, foreplay, or acts of intimacy. Although this sample was made up purely of stranger rapists, the lack of stereotypically defining features shows how inaccurate the real rape stereotype, other rape myths, and popular media are when portraying stranger rape.

Although this research is limited in its generalisability because all offences are within Queensland, some of the behavioural frequencies found in this research are similar to the larger scale project comparing 542 solved and unsolved Queensland stranger rapes (Chiu & Leclerc, 2019) as well as the research by Bennett (2005) examining 200 Australian stranger rape offences (including solved and unsolved) in ViCLAS (before the VSCD was introduced). Those variables that were collected across at least two of the studies are presented in Table 16 to allow for a comparison of base rates. Bennett's sample included both serial and non-serial rapes, and it is likely that Chiu & Leclerc's does as well, although it is not specified. As Bennett's (2005) research validated the behaviours of power and anger rapists as proposed by previous research, there are naturally fewer variables collected, whereas the current research and Chiu and Leclerc (2019) examined a wide variety of offence variables taken directly from the VSCD entry.

Table 16
Comparison of Behavioural Frequencies Across Studies

Variable	Davidson (In Progress) N=250	Chiu & Leclerc (2019) N=542	Bennett (2005) N=200
	Overall Frequency Percentage (%)		
<i>Offender and Victim Characteristics</i>			
Offender Under the Influence of Drugs or Alcohol	45.2*	21.8 [#]	--
<i>Initial Contact Scene Characteristics</i>			
Initial Contact Indoors	55.6*	41 [#]	--
Initial Contact Outdoors	44.4*	57.9 [#]	--

...Table 16 continues on next page...

Variable	Davidson (In Progress)	Chiu & Leclerc (2019)	Bennett (2005)
	N=250	N=542	N=200
Overall Frequency Percentage (%)			
Initial Contact Scene: Residential Neighbourhood	56.4	50.2 [#]	--
Initial Contact Scene: Business or Public Building	37.2	--	23.5
Initial Contact Scene and Assault Scene - Same Location	51.6	70.8 [#]	--
Vehicle Used	32 [*]	25.5 [#]	--
<i>Assault Scene Characteristics</i>			
Offence at Night	--	67.2	47.5
Multiple Offence Sites	4.4	29.5 [#]	4.5
Assault Scene Witnesses	28.4 [*]	29.3 [#]	--
Assault Scene Outdoors	41.2	19.2	--
Assault Scene Living Quarters	24	8.7 [#]	--
Assault Scene - Living Quarters: Victim's Residence	10	--	39.5
Assault Scene and Release Scene - Same Location	83.6	90.4	--
<i>Offence Behaviours and Characteristics</i>			
Approach Style: Con	64	40.6 [#]	41
Approach Con: Offender Asked Victim for Help, Assistance, or Information	6.8	10.5	--
Approach Con: Solicitation for Sex	7.6 [*]	3.9	--
Approach Con: Pose as Authority Figure	4 [*]	0.4	--
Approach Con: Other Con	3.6	11.3	--
Approach Style: Surprise	34.4	50.2 [#]	39.5
Approach Surprise: Offender Sneaked Up on or Grabbed Victim	14.4	32	--
Approach Surprise: Victim Was Asleep	19.6	15.3	--
Approach Style: Blitz	1.6	6.5	19.5
Contact End: Escape	16 [*]	19.9 [#]	--
Contact End: Release	75.2 [*]	62.7	--
Contact End: Rescue	8.8	13.8 [#]	--
Weapon Threatened (But Not Seen)	2.4	2.6	7
Weapon Displayed (But Not Used)	8.4	5.2	--

...Table 16 continues on next page...

Variable	Davidson (In Progress)	Chiu & Leclerc (2019)	Bennett (2005)
	N=250	N=542	N=200
	Overall Frequency Percentage (%)		
Weapon Intentionally Used by Offender	12.8*	8.5	--
Offender Brought Weapon	17.2*	--	22.5
Weapon Found at Scene	3.6	--	6
Weapon Type: Stabbing	20.4*	11.8	--
Victim Sustained No Injuries	44.8	50.6	--
Victim Sustained Minor Injuries (No Medical Treatment Required)	40.4	30.6	--
Victim Sustained Moderate Injuries (Required Outpatient Treatment)	13.2	12.9	--
Minimal Force Used by Offender	78.8	75.5 [#]	--
Moderate Force Used by Offender	19.6	--	19.6
Force Used Immediately	21.6*	38.6 [#]	--
Force Used After Contact but Before Sex Act	24	24.5	--
Force Used During Sex Act	28.8*	15.3 [#]	--
Force Used Upon Victim Resistance	19.2	10.1	--
Items Taken by Offender	20	4.8	21
<i>Offender and Victim Interaction</i>			
No Victim Resistance (Followed Instructions or Demands)	25.2	13.5	--
Victim Resistance: Verbal (Argued or Negotiated)	34	26.9	--
Victim Resistance: Physical (Struggled, Fought, or Attempted Escape)	37.6*	44.8 [#]	--
Offender Ignored Victim Resistance	21.6	--	23.5
Offender Negotiated with Victim After Victim Resistance	6.8	--	5.5
Offender Fled or Ceased to Demand After Victim Resistance	10.8*	28.6 [#]	12.5
Offender Threatened After Victim Resistance (Victim or 3rd Party)	13.6	--	46
<i>Sexual Behaviours</i>			
Assault Category: Anal Sex	18.8	5.9	15.5
Assault Category: Beating	4.8	8.3 [#]	--

...Table 16 continues on next page...

Variable	Davidson (In Progress) N=250	Chiu & Leclerc (2019) N=542	Bennett (2005) N=200
	Overall Frequency Percentage (%)		
Assault Category: Biting	9.2	3	--
Assault Category: Choking	14	5.5	--
Assault Category: Cunnilingus	15.2	5.5	11
Assault Category: Digital Penetration (Vaginal or Anal)	36	17.9	--
Assault Category: Fellatio	29.6*	12.5 [#]	32.5
Assault Category: Fondling	33.6*	52	--
Assault Category: Hair Pulling	7.6	4.8	--
Assault Category: Kissing	36.8*	18.3 [#]	--
Assault Category: Masturbation	11.6	10	--
Assault Category: Slapping	4	2.8	--
Assault Category: Vaginal Intercourse	70.4	33.2 [#]	67.5
Assault Category: Verbal Abuse	2.4*	1.5	--
Foreign Object Inserted	3.6	1.3	2.5
Evidence of Ejaculation: Elsewhere	8.4	--	6.5
Dysfunction: Unable to Obtain and/or Sustain Erection	9.2	--	22
Dysfunction: Retarded Ejaculation	6.4	--	4
Clothing Removed	82.4	--	67
Clothing Removed How: Cut or Torn	8.8	--	15.5
<i>Offender Precaution and Control Behaviours</i>			
Evidence of Offender Precautions	40*	28.4	--
Precautions: Administer Drug	3.6*	2	--
Precautions: Bound	6.8	2.8	--
Precautions: Condom	5.6*	2.6	--
Precautions: Disabled Lights	2.4*	3.1	--
Precautions: Gave False Name	7.2*	2.4	--
Precautions: Mask	4.4	4.4	--
Precautions: Removed Evidence	5.6	1.3	--
Restraints Used	8.4	3.7	8.4
Victim's Face Covered	6.4	5.9	12
Blindfold Applied Quickly (As Soon as Possible After Initial Assault)	3.2	1.8	--
Victim Gagged	11.2	6.1	--

Note. *Variable statistically significantly different between serial and non-serial offences. [#]Variable statistically significantly different between solved and unsolved offences.

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It is worth noting the likelihood that the current research and the research of Chiu and Leclerc (2019) share cases as both data sets come from the VSCD, although the larger dataset of Chiu and Leclerc, the different sampling methods used across studies, and the fact that the current research includes cases created by the author make comparing the results worthwhile. Furthermore, the 2005 research by Bennett was not restricted to Queensland, so similarities in frequencies provide evidence of the potential generalisability of the current research.

This comparison provides an additional presentation of base rates of behaviours. Although it is outside the scope of this thesis to analyse all the similarities differences across studies, including an analysis to determine if the differences are statistically significant, there are a couple interesting points. Overall, the current study shows higher rates of offender precautions compared to Chiu and Leclerc (2019). This could be due to the focus on serial rape within this sample and may provide further support for the argument that serial rapists engage in planning and precautions. As Chiu and Leclerc compared solved and unsolved offences, it could be hypothesised that unsolved offences would show higher rates of precautions, although this does not appear to be the case. The two precaution behaviours assessed by Bennett (2005), restraints used and victim blindfolded, have similar and higher (respectively) rates compared to the current research.

Each project found different rates of approach style. The current research found that 64% of offences used a con approach style, which was the approach style about 40% of the time in the other two studies. On the other hand, the majority of offences in Chiu and Leclerc (2019) used a surprise approach style. Interestingly, the rate of a blitz approach style was almost 20% in Bennett's (2005) research, compared to 6% in Chiu and Leclerc and almost 2% in the current research. The higher rate of blitz approach in Bennett's study could

be due to the earlier date of this research. As ViCLAS was introduced in Australia in 1997, the type of offences uploaded by the time of Bennett's data collection may have conformed more to the stereotypical stranger rape offence. Since its introduction, ViCLAS has been expanded (and replaced by the VSCD in 2010) to include a wider variety of offences, and aims to capture every stranger rape, regardless of specific behavioural elements.

A subset of variables is worth discussing as 12 variables were found to be significantly different between serial and non-serial rapes in the current project as well as significantly different between solved and unsolved rapes in Chiu and Leclerc (2019).

Intuitively, it could be expected that more non-serial rapes shared characteristics with solved offences, whereas serial rapes would show characteristics of unsolved offences.

However, this does not appear to be the case. Five variables were significant to non-serial and solved offences, three to non-serial and unsolved, two to serial and solved, and two to serial and unsolved offences. The five non-serial solved variables were the offender being under the influence of drugs or alcohol, the initial contact between victim and offender occurring indoors, there being potential witnesses at the assault scene, the offender using force during the sex act, and the offender kissing the victim. The two serial unsolved variables were the initial contact occurring outdoors and the offender using force immediately.

Intuitively, the offender being under the influence of drugs or alcohol and potential witnesses to the assault would result in a higher number of offences being solved, while the initial contact occurring outdoors makes sense for unsolved offences as there may be less opportunity for witnesses. The initial contact occurring indoors and the use of immediate force are deserving of further exploration as an indoor contact scene may either increase or decrease the likelihood of witnesses, depending on specific location, and if the force used

was designed to protect the offender's identity, it could contribute to the difficulty of solving an offence.

The three behaviours that were indicative of non-serial rape in the current research and unsolved offences in Chiu and Leclerc (2019) are noteworthy. These include the victim engaging in physical resistance, the offender fleeing or ceasing his demands in response to victim resistance, and the victim escaping. Although all offences in the current research were solved, these variables being more common among unsolved offences may indicate that some rapists classified as non-serial may actually engage in additional rapes that remain unsolved. Indeed, this is one of the inherent limitations of researching non-serial rape, it can never be known for certain if the offender is truly a one-time offender.

It is important to note that the discussion of the similarities and differences across these studies is currently limited to the theoretical realm. Nonetheless, it presents worthwhile observations. Further research could expand on this by analysing the frequencies of serial versus non-serial rape characteristics within a larger sample that includes solved and unsolved offences. This could further illuminate whether there are variables that are unique to serial unsolved, serial solved, non-serial unsolved, and non-serial solved offences.

Serial versus Non-Serial Rape

The first research question asked whether there was a group-level distinctiveness between serial and non-serial rapists. The short answer to this is yes. Chi-square analyses between serial and non-serial rapists resulted in 67 behaviours and variables that were statistically significantly different between the groups, with phi values ranging from low to moderate. The 67 variables, as well as the significant demographic differences, are presented in Table 17.

Table 17*Variables Unique to Serial or Non-Serial Rape*

Serial Rape	Non-Serial Rape
<i>Offender Characteristics</i>	
Offender White	Offender Asian
Offender Mean Age: 32	Offender Mean Age: 29
Offender Displayed Unusual Characteristics	Offender Under the Influence of Drugs or Alcohol
Victim Selection: Pre-Targeted	Victim Selection: Opportunistic
Potential Motive: Financial	
<i>Victim Characteristics</i>	
Victim Lifestyle: Prostitute	Victim Incapacitation: Alcohol
Victim Familiar with Initial Contact Scene	Victim at Initial Contact Scene for General Socialising
<i>Initial Contact Scene Characteristics</i>	
Initial Contact Scene Chosen by Offender	Offender Gain Entry to Initial Contact Scene: Building Was Open to Public
Offender Gain Entry to Initial Contact Scene: Forced Entry	Offender Gain Entry to Initial Contact Scene: Let in by 3rd Person
Initial Contact Outdoors	Initial Contact Indoors
Initial Contact Outdoors: Paved/Public Street or Parking	Initial Contact Scene - Business: Bar/Tavern/Nightclub
Initial Contact Scene - Business: Victim's Workplace	Initial Contact Scene Witnesses
Vehicle Used	
Vehicle Owned by Offender	
<i>Assault Scene Characteristics</i>	
Offence on Weekday	Offence on Weekend
Assault Scene Vehicle	Assault Scene Witnesses
<i>Offence Behaviours and Characteristics</i>	
Approach Con: Solicitation for Sex	Approach Con: Socialising/Bar/Feign Interest
Approach Con: Pose as Authority Figure	Contact End: Escape
Contact End: Release	DNA Available
Weapon Involved	Force Used During Sex Act
Weapon Intentionally Used by Offender	Offender Displayed No Overt Anger
Offender Brought Weapon	Offender Projected Neutral Image
Offender Removed Weapon	Offender Demeanour Towards Victim: Neutral
Weapon Type: Stabbing	
Force Used Immediately	
Offender Displayed Some Anger	
Offender Projected Macho Image	
Offender Demeanour Towards Victim: Demeaning	

...Table 17 continues on next page...

Serial Rape	Non-Serial Rape
<i>Offender and Victim Interaction</i>	
Evidence of Offender Attitude Change	Victim Resistance: Physical (Struggled, Fought, Attempted Escape)
Attitude Change: Escalation of Behaviour	Offender Fled/Ceased to Demand After Victim Resistance
Contact Outside Offence	
Contact Before Offence	
Means of Contact: Phone	
Means of Contact: Internet	
Contact Nature: Wishing to Meet	
Contact Nature: Reminder/Threaten of Offence	
<i>Sexual Behaviours</i>	
Assault Category: Anilingus	Assault Category: Kissing
Assault Category: Fellatio	
Assault Category: Fondling	
Assault Category: Verbal Abuse	
Offender Require Victim Performance (Of Any Kind)	
Offender Require Victim to Perform Fellatio	
Offender Require Other Act by Victim	
Clothing Removed: Victim Disrobed Self	
<i>Offender Precaution and Control Behaviours</i>	
Evidence of Offender Precautions	
Precautions: Administer Drug	
Precautions: Condom	
Precautions: Disabled Lights	
Precautions: Gave False Name	
Precautions: Deter Victim Reporting (Threaten, Pose as Police, etc.)	
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These results illuminate the differences between serial and non-serial rapists within Queensland. The serial rapist is evidenced by preparation, planning, and control, which is seen in the offender choosing the initial contact location as somewhere away from potential witnesses, using a vehicle, posing as an authority figure to initiate contact with the victim, having contact with the victim via phone or internet before the offence, using weapons that

the offender brought with him to control the victim, and the varied use of precautions. The serial rapist used force immediately to ensure control of the victim and presented as more macho than non-serial rapists. Furthermore, that victims were more likely to be familiar with the initial contact scene indicates the serial rapists are confident in their ability to control their victims.

Another variable found in the current research that may be indicative of higher levels of control among serial rapists is the victim removing her own clothes. This was more common in serial rape offences compared to non-serial rape. Getting the victim to remove her own clothing could be a means of control as it is more difficult for a victim to attempt to escape while in the process of removing her clothing, it could be a protection method for the offender as a victim might be more likely to try and physically resist if the offender is in closer proximity and focused on removing clothing, or it could relate to the offender's motivation and fantasy of power. Whether the victim removed her own clothing under direct threat or direction from the offender or out of fear of retribution or violence is unknown. Regardless, this level of compliance by the victim is evidence of a higher degree of control by the offender in serial rape compared to non-serial rape. These findings are in line with previous research finding consistent themes within serial rapist behaviour of control, planning, and forensic awareness (Canter et al., 2003; Corovic et al., 2012; Grubin et al., 2001; Park et al., 2008; Rossmo, 2009; Slater et al., 2015).

There are numerous factors that could contribute to and explain the greater evidence of control by serial rapists. Serial rapists are, on average, older than non-serial rapists. Although the mean age of serial rapists is only three years older, it is statistically significant. As they are older, serial rapists may be more experienced, in general and in regard to sexual offending, which may raise their confidence. The finding within the current

research that serial rapists are older than non-serial rapists mirrors that of previous research (Lovell et al., 2017; Miller, 2014). Furthermore, as it is believed that serial offenders are higher in conscientiousness than non-serial offenders, they could be more deliberate in their behaviours, especially those controlling and precautionary behaviours which ensure the successful completion of the rape and fulfillment of their fantasy.

The higher degree of control can also be explained by rational choice theory. As the serial rapist learns which behaviours result in a successful offence or fulfill his fantasy, he will rationally choose to repeat those behaviours. The increased experience across his offences may result in a higher degree of control. Routine activity theory can also be seen through the control exhibited by serial rapists. As a serial rapist grows more confident in his abilities across his offences as well as more driven to offend, he may change his lifestyle and routine to increase his opportunities to offend.

The fact that the serial offenders in this sample had lower rates of alcohol involvement in their offences indicates that serial rapist may operate within the context of goal-directed, conscientious, and rational behaviour. Although both victim and offender were more likely to be under the influence of alcohol or drugs in non-serial rape, serial rapists were more likely to intentionally administer a drug to their victim, often combined with alcohol. This further illustrates the conscientious and rational behaviour of the serial rapist. However, this finding deserves further analysis because two prolific offenders within this sample engaged in this behaviour, which could bias this finding. An examination of their series in detail and a re-analysis of the role of drugs and alcohol outside of these two offenders would provide further information. It does need to be acknowledged that, for this sample, determining whether the offender was under the influence of drugs or alcohol was

based upon the subjective assessment of the victim, so there is a high potential for error.

Nevertheless, this is an area that warrants further study.

In this sample, the serial rapists present as more aggressive, as shown by the presence of weapons and threats, verbal abuse, anger and escalating behaviour, immediate application of force, projection of a macho image, and demeaning interactions with the victim. Again, this is in line with previous research describing serial rape themes of violence and hostility (Canter et al., 2003; Corovic et al., 2012; Häkkänen et al., 2004; Park et al., 2008; Rossmo, 2009; Santtila et al., 2005; Woodhams & Labuschagne, 2012), and the findings of Lovell and colleagues (2017) of increased weapon use and threats within serial rapists. Whether the higher aggression and violence among serial rapists is instrumental to ensure control or expressive as part of the fantasy can only be speculated in this sample, although most likely it is both. Without speaking directly to offenders, this distinction cannot be known for certain. However, the use of weapons, threats, and immediate application of force are often shown as control behaviours, whereas verbal abuse and demeaning interactions are more indicative of an underlying theme of power or anger.

On the other hand, non-serial rapists in Queensland show a more opportunistic and interpersonal offence style. The initial contact frequently occurred in social locations that were either open to the public or a third party let the offender in. Additionally, other people were often present during the initial contact between victim and offender. As the serial rapist exhibits precautionary and controlling behaviours, conversely the non-serial rapist shows a significant lack of such behaviour. Indeed, there were five precautionary behaviours that were significantly more common among serial rapists, while non-serial rapists did not have a single significant precautionary behaviour, showed the most force during the actual sex act, and were more likely to leave DNA at the scene. This may indicate that non-serial

rapists are less knowledgeable regarding forensic evidence, are less experienced, or are not motivated to avoid identification.

Non-serial rapists were less aggressive, with no overt anger or weapon use, a lack of escalating behaviour, and more frequent fleeing the offence location when faced with victim resistance. Furthermore, victim resistance and escape were more common in non-serial rape. This could be due to a number of factors, such as the higher levels of violence, threats, weapons, and macho persona in serial rape resulting in more compliance by the victim, or the lack of the above factors in non-serial rape emboldening victims to resist and attempt escape.

Both the victim and offender were more likely to be under the influence of alcohol or drugs in non-serial rape than in serial rape offences. The frequency of alcohol use in non-serial offences mirrors the general finding of alcohol involvement in rape (Horvath & Brown, 2007; Lalumière et al., 2005; Maier, 2014; Orthmann & Hess, 2013), although it contradicts the findings of Balteri and Andrade (2007), who did not find a difference in alcohol use between serial and non-serial rapists. Drug and alcohol use impair an individual's ability to engage in goal-directed behaviours, resulting in higher reliance on habitual and impulsive responses. Furthermore, stressful and taxing situations can result in falling back on habitual behaviours (Wood & Rüniger, 2016). As non-serial rapists do not have the potential experience and confidence of serial rapists, the act of engaging in rape may be a relatively more stressful situation for non-serial rapists. The lower number of behavioural variables significant to non-serial rapists may be indicative of reliance on habitual and impulsive behaviours, compared to the higher variety of behaviours which serial rapists conscientiously and deliberately choose.

Intuitively, serial rapists seem to exemplify the power-assertive rapist type, while non-serial rapists exemplify the power-reassurance rapist. The power-assertive rape centres around power and control, shown by a macho persona, dominance over his victims, use of force, violence, and verbal threats to gain and maintain control, ensuring the offence location is secure, and engaging in behaviours to assist in the completion of the rape (Miller, 2014; Robertiello & Terry, 2007; Turvey & Freeman, 2011; Zaitchik & Mosher, 1993). Within this sample, the serial rapist showed control related behaviours in the use of instrumental and immediate violence, choosing the initial contact scene, pre-targeting his victim, using a vehicle, projecting a macho image, and the use of precautionary behaviours, which matches the power-assertive rapist type.

The power-reassurance rape centres around fantasies of consensual intercourse, evidenced by complimenting, reassuring, and negotiating with the victim, engaging in foreplay, and lacking in control and violent behaviours unless necessary in the face of resistance (Canter & Youngs, 2009; Miller, 2014; Turvey & Freeman, 2011). Although there are fewer behaviours indicative of the power-reassurance rapist seen within this sample, non-serial rapists showed a lack of violence and aggression, were more likely to kiss their victim, and were more likely to flee when faced with victim resistance. These findings may be indicative of a higher percentage of serial rapists being classified as power-assertive and a higher percentage of non-serial rapists being classified as power-reassurance which deserves further exploration.

Of note is the number of significant variables that had low instances ($n < 5$), or no instances, in the non-serial offender group. These variables include *the victim having a lifestyle as a prostitute, the offender choosing the initial contact scene location, the offender posing as an authority figure to approach the victim, the initial contact occurring at the*

victim's work, the offender gaining entry to the initial contact scene by force, the assault including anilingus or verbal abuse, the offender requiring the victim to engage in specific performance other than fellatio, foreplay, or intimacy, the offender contacting the victim via the internet, the offender contacting the victim after the offence to remind or threaten the offence, and the offender engaging in the precautions of administering a drug to the victim, using a condom, disabling lighting, giving a false name, or deterring victim reporting of the offence. There were only two significant variables that had counts lower than five in the serial rapist group but higher than five in the non-serial rapist group: *the offender being Asian and the offender gaining entry to the initial contact scene by being let in by a third person.*

These variables deserve further exploration considering their association with serial rapists, although for many of them the counts are relatively low in the serial offender group as well (11 of the 16 previously mentioned variables were low frequency variables within serial offender group). It is worth a further examination of these variables using alternative statistical techniques to investigate any additional patterns or predictive power. Firstly, it is important to analyse the frequencies of these variables within the individual offender series, as more consistent behaviour within a small group of offenders could account for these findings. The low frequency variables overall (including those with very low counts that were excluded from analyses within this project) could further be examined for consistency across offence series, which could evidence signature related behaviours. Consistent behaviours could indicate the underlying fantasy of an offender or be useful for linking the work of a single offender. These variables may be able to be incorporated in a statistical prediction rule to assist in the earlier detection of serial rapists. However, it is critical to be

wary about over-emphasising the importance of such low-frequency behaviours and variables.

Although improving current methods and developing new ways to investigate, identify, and apprehend serial offenders is paramount, of equal if not greater importance is to work towards preventative measures. Although an analysis of rape prevention was outside the scope of this thesis, it is worth noting some of the findings regarding rape and serial rape offending, as there were several significant variables within this project which could inform environmental criminology and prevention efforts. As serial rapists were more likely to have initial contact with their victim outside on a public street or parking lot, this could have implications for crime prevention methods. This finding, as well as the increased frequency of assaults within a vehicle for serial rape mirror those findings by Lovell et al. (2017) in the USA. Further examination of the specific initial contact locations within the serial rapist population could illuminate any trends or patterns and provide targeted prevention strategies, such as increased lighting or CCTV. Additionally, the finding that both victims and offenders were more likely to be under the influence of drugs or alcohol within the non-serial rape group could prompt rape prevention strategies targeted towards responsible consumption of alcohol and the importance of explicit consent.

Finally, the finding that serial rapists had significantly more prostitutes as victims compared to non-serial rapists has implications for policy regarding safety of prostitutes, which will be discussed shortly. The fact that just over half of all offences occurred on a weekday, in a residential neighbourhood, and indoors makes overall rape prevention harder to address as community deterrents such as increased lighting, promotion of responsible alcohol consumption, and increased safety for prostitutes may not have much impact on the majority of offences.

Comparison of Research Globally.

Few studies around the world (Corovic et al., 2012; Park et al., 2008; Slater et al., 2015) have empirically tested whether serial and non-serial rapists are statistically distinct in their offence behaviours, and these researchers have found mixed results. The findings of the current research project have similarities and differences compared to the three previously discussed studies, which can be seen in Table 18.

Within Australia and the UK, serial rapists were more likely to use solicitation for sex to find a victim. Indeed, this was the only significant difference between serial and non-serial rapists in the UK (Slater et al., 2015). This con approach style differs from the findings within the USA and Sweden, where serial rapists were more likely to engage in a surprise or blitz approach style (Corovic et al., 2012; Park et al., 2008). Moreover, in 22 of the serial offences in the current sample, the victim worked as a prostitute, compared to only three non-serial offences. Within Australia and the UK, certain forms of prostitution are legal, whereas in the USA and Sweden it is still illegal (House Affairs Committee, 2016; Prostitution Licensing Authority, 2006; Waltman, 2011). These cultural differences could impact victim reporting, as prostitutes may feel more comfortable coming forward and reporting rape in a country in which their profession is recognised as a legitimate source of income and does not have the associated stigma that prostitution carries in other countries.

Table 18*Contrast of Serial and Non-Serial Rapist Behaviours Across Countries*

	<i>Australia</i>	<i>United States of America</i>	<i>United Kingdom</i>	<i>Sweden</i>
	Davidson (in progress)	Park et al. (2008)	Slater et al. (2014)	Corovic et al. (2012)
<i>Approach Style</i>				
Solicitation	Serial	--	Serial	--
Blitz/Surprise	--	Serial	--	Serial
Con	--	--	--	--
<i>Control Behaviours</i>				
Threaten Victim	--	Non-Serial	--	Serial
Deter Victim	Serial	Serial	--	--
Resistance				
Gag/Smother Victim	--	Serial	--	Serial
Use of Weapon	Serial	--	--	Serial
Hit or Kick Victim	--	Non-Serial	--	--
<i>Sexual Behaviours</i>				
Complete Rape	--	Serial	--	Serial
Fondling Victim	Serial	Serial	Serial ^a	--
Induce Victim	Serial	Non-Serial	Serial ^a	Serial
Participation				
Make Sexual	--	Non-Serial	Serial ^a	--
Comments				
Give Orders	--	--	--	Serial
<i>Criminal Sophistication</i>				
Forensic Awareness	Serial	Serial	--	Serial
<i>Interpersonal Behaviours</i>				
Interpersonal Involvement	--	Non-Serial	--	Non-Serial
Ask Victim Questions	--	Serial	--	--
Kiss Victim	Non-Serial	--	--	Non-Serial
Use of Alcohol	Non-Serial	--	--	Non-Serial
Steal from Victim	--	--	--	Serial

Note. This table is not inclusive of all results of the current study, only those results which overlap with previous studies.

^aApproached but did not achieve statistical significance.

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Of further interest within the current study is that the victims who worked as prostitutes operated either as street prostitutes or sole-operator prostitutes. None of the prostitutes in this sample worked in brothels. In Queensland, street prostitution is illegal,

and sole-operator prostitutes are forbidden to work with other individuals (including potential security) (Prostitution Licensing Authority, 2006). This finding is worth exploring further as it could provide opportunities for crime prevention strategies. It is hypothesised that the structure, security, and legitimacy of brothels, in which clients must provide identification increases the risk to potential offenders such that they do not offend in brothels. On the other hand, prostitutes working on the street or as sole-operators are high-risk victims and easier targets for serial offenders. This increased level of safety for women in brothels could be used to encourage more prostitutes to join brothels, which can minimise further victimisation. Furthermore, exploring this line of research could influence and inform policy, guiding a discussion around allowing sole-operator prostitutes to work in pairs or employ security.

There was only one shared significant result across Australia, the USA, and Sweden: serial offenders display more forensic awareness or criminal sophistication than non-serial rapists. These findings support the learning theories and rational choice theory of crime, as well as the behavioural theme of control within serial rape. As serial offenders learn from their offences, they recognise those behaviours which contributed to the success of their crime, increasing their sophistication and rationally choosing to repeat those goal-directed behaviours. This finding also highlights the additional difficulty of investigating serial rape. Serial rapists who learn from prior offences, amend their behaviour, and potentially intentionally alter their behaviour to deceive investigators are harder to identify, and the task of linking their offences will be additionally complicated. Furthermore, forensic awareness and criminal sophistication could be related to conscientiousness and deception, highlighting a need for additional research in this area to assist with investigative practice and facilitate the early detection and apprehension of serial rapists. If it can be determined

whether precautionary behaviours are used for intentionally deceiving an investigation rather than simply avoiding detection, it can provide useful insights for investigators in how to interpret these behaviours in future offences.

Australian and Swedish rapists share similarities in that serial rapists are more likely to use a weapon, induce victim participation, and display forensic awareness or criminal sophistication, whereas non-serial rapists were more likely to kiss their victim and use alcohol within their offence. Although inducing victim participation may seem to be an intimate behaviour, it was an index variable that combined the two variables of *oral sex by the victim* and *masturbation of the offender by the victim* (Corovic et al., 2012). These behaviours are more indicative of the power and control of the serial rapists, whereas kissing the victim is indicative of pseudo-intimacy within non-serial rapists. In the current research, serial offenders were more likely to require the victim to perform fellatio, which is a further similarity between Swedish and Australian serial rapists.

The use of weapons within serial offences is worth further discussion. This variable was not statistically significant within the USA sample but was indicative of serial offenders in both Australia and Sweden. Although the weapon of choice in Sweden is unclear, the weapon of choice in most Australian sexual assaults is a knife (Moran, 1993). In both Australia and Sweden, it is illegal for individuals to own a firearm except in certain circumstances, with strict laws and regulations around licencing, storage, transportation, and use (Lemieux, Bricknell, & Prenzler, 2015). Conversely, firearm ownership is commonplace in the USA and laws are more lenient regarding licencing and storage, with more guns than people in the country (120 guns for every 100 people) (Karp, 2018; La Fond, 2005; Lemieux et al., 2015; Moran, 1993; Planty et al., 2016). The lack of significance of weapon use between serial and non-serial rapists in the USA is supported by previous

research on weapon use in rape, finding that stranger rapist used a gun in about 10% of offences, compared to 6% for the overall rapist population (La Fond, 2005). Use of a weapon is a good way to ensure control and compliance by a victim, so the increased weapon use within serial rape is further evidence of an offender who engages in planning and control behaviours.

In both Australia and the USA, serial offenders are more likely to engage in fondling the victim and deterring victim resistance. Deterrence efforts include violence, threats of violence, threats against family and friends, requests, and manipulations. The specific method of deterrence was not collected for either study so cannot be commented on except to highlight the need for further research. The higher rate of fondling in serial rape within Australia is an interesting finding especially because non-serial rapists were more likely to kiss the victim. Fondling and kissing are both interpersonal behaviours that traditionally indicate intimacy, so it may be expected for them to have similar frequencies. One potential explanation is that both violent and pseudo-intimate behaviours can be coded as fondling in the VSCD, and there is no distinction between the two forms. Fondling that is gentle and more like a caress indicates intimacy, whereas fondling that includes hard squeezing or twisting of breasts is violent. Thus, the difference between serial and non-serial rapists regarding fondling may be a function of the data organisation within the database rather than a legitimate difference in offender behaviour.

There are several similarities and differences across the USA and Sweden. In both countries, serial rapists were more likely to complete the rape, gag or smother the victim, and show forensic awareness, whereas non-serial rapists were more likely to engage in interpersonal involvement with the victim. Like the results of the current research within Australia, these findings are indicative of a serial offender who engages in more planning

and control. However, in Sweden, serial rapists were more likely to use threats to control the victim as well as induce victim participation, both of which were indicative of non-serial rapists within the USA.

Some of the difficulties in comparing results across countries (as discussed in Chapter One) relate to the statistical factors of how the data are collected and the substantive factors of the culture from which the data originate (Von Hofer, 2000). Each country has different legal definitions and laws, crime databases, and investigative techniques. There are also a variety of social, political, religious, and cultural factors, such as attitudes towards sexual encounters, sexual norms, attitudes towards women, availability of weapons, attitudes towards violence, socio-economic conditions, income inequality, social integration versus disorganisation, and levels of effectiveness and corruption within jurisdictional systems (Fajnzyblber, Lederman, & Loayza, 2002; Neapolitan, 1999; Woodhams & Labuschagne, 2012). All these factors impact sexual assault, victim reporting, and investigations within a nation. Because of the differences across countries, results from one country cannot be assumed to generalise to other countries. Relying on research from other countries brings risks of inaccurate information and can result in inappropriate decisions or even mistakes of identification and miscarriages of justice. The comparisons across countries, with a discussion around the cultural similarities and differences, helps contextualise the different rape behaviours. Furthermore, the variety of variable collection and coding presents an argument for more attempts towards cohesion across collection databases and the upgrading and amending of these repositories based on the research findings across countries.

Predicting Serial versus Non-Serial Rape

The second research question asked whether serial versus non-serial rape classification could be predicted based upon offence behaviours, and again, this was confirmed. The binary logistic regression analysis resulted in a model that was significant, with eight significant variables, that correctly classified 87.4% of serial rapists and 88.2% of non-serial rapists, with an overall accuracy of 87.8%. In comparison, Corovic et al. (2012) conducted a regression analysis, finding three significant variables and correctly classifying 63% of serial rapists and 96.5% of non-serial rapists, with an overall accuracy of 80.4%. There are a couple factors that could contribute to the higher level of accuracy in the current research. Firstly, because of the larger sample size (250 offences compared to 66 offences) this study was able to include more variables in the logistic regression analysis, which could increase the model's ability to distinguish between offences. This project included 24 offence variables, compared to the 13 variables in Corovic and colleagues' research. Additionally, the 13 variables in Corovic et al.'s research were chosen based upon theoretical literature, while the current project used statistical analyses to drive the variable selection. Through the statistically driven method to select variables, all variables included in the regression were already deemed statistically significant within the sample. This is the most likely reason for the difference in discrimination accuracy. Finally, Corovic et al.'s variables were limited to offender behaviours, whereas the current project included variables related to the victim and the initial contact scene. These factors could also influence the difference between accuracy levels seen, as there can be significant differences between serial and non-serial rapists in multiple areas of an offence.

The regression analysis in this research resulted in eight variables that were significant predictors of offence classification. Five variables were indicative of serial rapes

while the other three were indicative of non-serial rapes. The five that were weighted towards serial offences include *the offender fondling the victim, the offender requiring the victim to engage in an act other than fellatio, intimacy, or foreplay, the offender projecting a macho image of himself during the offence, contact (not in person) between victim and offender before the offence, and the victim disrobing herself during the offence*. These results give further support to the behavioural theme of control presented earlier. A serial rapist who contacts his victim before a rape shows evidence of forethought and planning around his offence. The macho image projected by an offender has been discussed as a controlling behaviour and is indicative of power-assertive rapists. Although neither of these variables are specifically controlling behaviours, taken together they present an offender who knows what he is doing, and acts deliberately accordingly. Further analyses could examine the co-occurrence of these variables, as if they frequently co-occur in serial rape, it could provide a useful heuristic for the early identification of a serial rapist.

The victim disrobing herself may be a means of control by the offender as it limits the victim's ability to resist or escape, or it may be indicative of an underlying fantasy of the offender. Further exploration of this variable, and the context surrounding the victim's disrobing, would provide clarification, and it may very well be that this variable fits in either category depending on the offender. Additionally, the other two sexual variables, fondling, and requiring a different act could benefit from further exploration, especially in regard to their interpretation and co-occurrence with other variables. Within this sample, fondling can represent a pseudo-intimate act, as caressing the breasts, or an aggressive act of forcibly squeezing them. The offender requiring a different act by the victim was an overall low frequency variable, and the acts ranged from the victim washing and drying the offender, to

screaming the offender's name, to signing up for a mobile phone for the offender, so the usefulness of these variables is questionable from an investigative perspective.

The remaining three variables were indicative of non-serial offences, and include *the offender being under the influence of drugs or alcohol*, *the offender displayed some anger during the offence*, and *the offender kissed the victim*. Similar to the results of Corovic et al. (2012), the combination of the offender being under the influence of drugs and kissing the victim further highlight the impulsive and opportunistic nature of non-serial offending and may indicate more of an underlying theme of pseudo-intimacy compared to the control and power evidenced by serial rapists.

One significant variable influenced the model in an unexpected way. Through the chi-square analysis, *the offender displayed some anger* was more prevalent within the serial rapist group. However, within the regression analysis, it was indicative of non-serial rapists. This indicates that the interaction between predictor variables in the regression model may result in a confounding or suppression effect. A further examination of the relationships and interactions between variables could provide insight into the specific cause of this variable predicting non-serial rapists in the regression rather than serial rapists as found through the chi-square analysis. Furthermore, this finding highlights the need to assess the individual weights of behaviours in any further development of prediction tools.

The strongest predictors of serial offences were the offender projecting a macho image and the offender requiring the victim to engage in an act other than fellatio, intimacy, or foreplay. However, both of these variables had extremely wide confidence intervals. There was only once non-serial offence in the final regression data set in which the offender required the victim to engage in a unique act. This affects the confidence interval and odds ratio. Thus, further exploration of these variables using other statistical methods and larger

sample sizes is necessary. The strongest predictor of non-serial rapists was whether the offender was under the influence of drugs or alcohol. This variable had an odds ratio of .05, indicating that offences in which the offender was under the influences were twenty times more likely to be a non-serial offence. However, this variable generally relies on the subjective assessment of the victim. Further research could corroborate this finding through offender interviews.

Overall, the results of the binary logistic regression are promising and indicate the potential for further work in the development of statistical prediction models to more quickly identify potential serial rapists. Indeed, the fact that the ROC analysis using the predicted probabilities produced by the regression model resulted in a higher level of discrimination accuracy provides further support for the ability to predict offence type based on offence variables and behaviours and presents an argument for using a threshold-independent method to conduct such predictions. More work is needed, however, including validation studies with additional Australian samples and a more in-depth analysis of variable interpretation and individual behavioural weights.

The ability of the regression model to accurately distinguish between serial and non-serial rapes has positive implications for investigations. Using offence characteristics and behaviours to predict whether an offence is the work of a serial offender means that investigators may be able to identify serial rapists more quickly, before multiple offences have occurred. As the identification of potential serial offenders within Queensland falls to the small team in the BSU, any tool that can assist in this process will ease pressure on the BSU. Furthermore, if this process can be automated to some degree it can help guide investigative direction and provide a starting point for potential case linkage analysis. If a serial offender can be identified earlier in his series, it can result in the more efficient

allocation of resources and potential collaboration between jurisdictions. Furthermore, if an automated form of predicting whether an offence is the work of a serial offender can be tied into databases such as the VSCD, those offences could be flagged in a national database, letting multiple jurisdictions know simultaneously about a potential serial rapist, which could prompt simultaneous case linkage analyses.

Consistency and Distinctiveness of Stranger Rapists

The final research question asked whether the theories of offender consistency and distinctiveness and the accuracy of case linkage practice were supported within this research sample. Again, the simple answer is yes. Overall, serial rapists displayed higher behavioural similarities across their linked offence pairs compared to unlinked offence pairs of non-serial rapists, as shown by an analysis of Jaccard's coefficients. The mean Jaccard's coefficient for linked serial offences ($M = .456$) and unlinked offences ($M = .255$ for all offenders, $M = .252$ for serial offenders) is in line with previous research, with Jaccard's coefficients for linked serial offences ranging from .39 to .52 and unlinked pairs ranging from .17 to .34 (Bennell et al., 2009; Bennell, Gauthier, et al., 2010; Mokros & Alison, 2002; Tonkin et al., 2017; Slater et al., 2015; Woodhams and Labuschagne, 2012; Woodhams et al., 2007; Woodhams et al., 2018). In this sample, linked serial rape offences had the highest mean Jaccard's coefficient, followed by the non-serial unlinked offences, and finally, serial unlinked offences had the lowest Jaccard's coefficient, and the difference between each group was statistically significant. This not only supports consistency but also supports distinctiveness of serial offenders.

As serial offenders engage in more consistent behaviours across their offences compared to non-serial offenders, it would be expected that unlinked serial rape pairs would be less similar than unlinked pairs of non-serial offenders. Indeed, this was found in

the current sample. Group-level consistency and distinctiveness state that non-serial rapists behave more similarly to one another, whereas serial rape offenders have more unique behavioural patterns (less similarity between offenders) yet more consistency within their own individual series. This was supported by the current research in which the unlinked serial pairs had the lowest Jaccard's value and the linked serial pairs had the highest. This finding also mirrors the results found by Slater et al. (2015).

Consistency and distinctiveness of serial stranger rape can also be theoretically supported in this research project through an examination and discussion of variables frequencies. There were over twice as many variables that were statistically significant for serial rape offences ($n = 49$) as there were for non-serial rapes ($n = 22$). Furthermore, there was a higher percentage of variables unique to non-serial rapes that were present in over 50% of offences (but less than 50% in serial rapes). Forty-one per cent ($n = 9$) of the variables unique to non-serial rape had frequencies over 50%, compared to 14% ($n = 7$) of variables unique to serial rape. There is a small amount of overlap in that two statistically significant high frequency serial rape variables (*offender was white* and *offender released victim after assault*) and three statistically significant high frequency non-serial rape variables (*victim selection was opportunistic*, *offender showed no overt anger*, and *offender's demeanour towards the victim was neutral*) were also high frequency in the other offender group. However, this does not belittle the difference in the amount of high frequency variables across groups. Additionally, there was a higher number of statistically significant low frequency (below 10%) behaviours among serial rapes ($n = 11$, 22%) compared to non-serial rapes ($n = 1$, 4%).

The higher concentration of a smaller number of common variables among non-serial rapes supports the hypothesis that non-serial rapists engage overall in more similar

behaviours to one another. This hypothesis is also supported by the finding that non-serial offence pairs had a higher Jaccard's coefficient than offence pairs by different serial offenders. The higher Jaccard's coefficient of non-serial rapes and the higher frequencies of a smaller number of variables indicates that non-serial rapists do indeed rely more frequently on more common behaviours. On the other hand, the greater variety in offence variables and higher number of low frequency variables among the serial rape group supports distinctiveness of serial rapists. As serial rapists are engaging in more diverse behaviours at lower frequencies, this indicates that serial rapists are distinct not only to non-serial rapists (as a group) but also to their fellow serial rapists (supporting individual distinctiveness).

Although it was outside the scope of this research to test the ability to distinguish between different serial offenders, this is nonetheless positive support for individual distinctiveness. This has implications for both further research and investigative practice. Additional research could explore the consistency of individual behaviours within offence series (similar to Grubin et al., 2001) and the distinctiveness of those behaviours across offenders. If individual distinctiveness continues to be supported and the knowledge and understanding grows, it can assist investigators in more accurately identifying serial rapists more quickly as well as help them distinguish between offenders if faced with multiple serial rapists operating in the same area at the same time.

Case Linkage of Stranger Rape

In answering the third research question, this project assessed case linkage accuracy within this sample by incorporating Jaccard's coefficients into an ROC analysis. In response to the calls to increase ecological validity, this project ran two ROC analyses. The first followed earlier methodological approaches of using serial offender data only, while the

second incorporated non-serial offender data. Rather than only use the more ecologically valid method of including all offenders, both approaches were used in order to address whether there is a significant difference in the ability to link cases between methods. Both analyses resulted in excellent levels of linkage accuracy, with the serial only analysis producing a higher AUC (.919) than the analysis including all offences (AUC = .913). Although this difference was not statistically significant, it, combined with the Jaccard's coefficient results, provides theoretical support for consistency and distinctiveness. As serial rapists are believed to have consistency and distinctiveness in their offending (evidenced by linked serial offence pairs having the highest Jaccard's and unlinked serial offence pairs having the lowest), the increased variance between linked and unlinked Jaccard's coefficients within the serial only ROC analysis should result in an increased ability to differentiate between offence pairs. As this was seen in the comparison of AUC values between serial only and all offence ROC analyses, it provides support for consistency and distinctiveness. However, because the difference between AUC values was not statistically significant, this support should not be overstated.

The AUC values found within this research are higher than the previous research, which found AUC values ranging from .75 - .87. However, because the current study had a relatively small number of linked offences (only 0.43% of all possible links were positive links), this may inflate the levels of linking accuracy. Nevertheless, accurate case linkage was established within this sample of Queensland rapists. This provides additional validity to case linkage practice using ROC analysis. Additionally, the ROC analysis that was run using the predicted probabilities produced by the regression analysis provides further support for case linkage. This ROC analysis had equal numbers of serial and non-serial offences, which helps address the aforementioned limitation of low number of linked offences using

Jaccard's coefficient. The regression ROC actually had a higher AUC value (.953) than the Jaccard's ROC (.913), which indicates that the reliance on specific behaviours to distinguish between offence types may produce a stronger discrimination accuracy than relying on the composite similarity score between two offences. This bodes well for the countries and jurisdictions that do not have a database-assisted method of case linkage such as the calculation and analysis of Jaccard's coefficients, as it indicates that the departments that engage in the more traditional case linkage method of comparing behaviours across offences may be confident in the accuracy of their methods.

Determining an appropriate threshold for identifying links based on Jaccard's coefficient was assessed both by a pre-determined false alarm rate of 15% (following Woodhams et al., 2018), as well as by examining the value that resulted in maximisation of hits with minimisation of false alarms through Youden's index. Using all offence data and a false alarm level of 15% resulted in a Jaccard's coefficient of .339, and a hit rate of 85%, whereas Youden's index determined a threshold level of .326, resulting in a hit rate of 86.6% and a false alarm rate to 18.1%. These results are in line with other research, as Bennell et al. (2009) set a false alarm rate of 20%, which produced a Jaccard's coefficient of .37, and Woodhams et al. (2018) found a hit rate of 71% when using a pre-determined false alarm rate of 15%. Bennell and colleagues (2009) established that a Jaccard's coefficient of .33 as a threshold value produced a maximisation of hits at 72% and minimisation of false alarms at 32%. Slater et al. (2015) found a Jaccard's coefficient of .24 resulted in a hit rate of 79% and also correctly identified 79% of unlinked pairs (false alarm rate of 21%). Furthermore, the current finding of a Jaccard's coefficient of .326 as the ideal threshold value supports the argument of Bennell et al. (2009) that high levels of inter-offence consistency are not

necessary for accurate case linkage. As Jaccard's coefficients range from zero to one, a value of .326 does not represent a high degree of similarity.

Using Youden's index to determine the most appropriate threshold resulted in better linkage accuracy of serial offences regardless of whether serial only offence pairs or all offence pairs were included. This method correctly identified 116 linked pairs (while incorrectly classifying 18 linked pairs as unlinked), whereas setting an acceptable false alarm level of 15% resulted in 112 correctly identified linked pairs (with 22 misses) when serial only offences were used and 110 correctly identified linked pairs (with 24 misses) when all offences were included. On the other hand, setting an acceptable false alarm level of 15% resulted in more accurately identifying unlinked offence pairs (higher correct rejection rate).

Bennell et al. (2009) argue that although both approaches to determining a threshold level produce accurate results, the best approach would consider the base rates of behaviours within the jurisdiction along with a cost-benefit analysis of the linking decisions. They do, however, acknowledge the difficulty in determining the cost of a falsely linked case, although this analysis would be beneficial to both academics and practitioners. It could be argued that within investigative practice, the costs and risks associated with missing linked offences are higher than incorrectly identifying an unlinked offence as linked. A missed link could result in a serial rapist remaining undetected for longer, increasing the risk of additional victims. While incorrectly believing a one-off offence may be part of a series may increase the cost of an investigation (including the time, manpower, and resources dedicated to the investigation), this is arguably the less detrimental outcome.

From a research perspective, however, it may be more beneficial to use a predetermined acceptable false alarm level of 15%, as this resulted in higher discrimination accuracy overall. Because case linkage research generally involves many more unlinked

offence pairs than linked offence pairs, higher levels of absolute accuracy may be more important. In the current project, the overall accuracy with the predetermined false alarm level was 85%, whereas using a threshold level determined by Youden's results in an overall accuracy of 82%. The difference of three per cent in the current research equate to an additional 933 offence pairs being correctly identified. This project had a total of 31,125 offence pairs, which is small compared to the recent work of Woodhams et al. (2018), who had over 3.4 million offence pairs. An increased accuracy of three per cent with that data set mean an additional 102,187 offence pairs being accurately distinguished. Although these differences need further exploration and empirical evidence, it is suggested that a threshold determined by Youden's be adopted if investigations use these case linkage methods, whereas a pre-determined threshold remain the norm in research.

The excellent accuracy levels of the ROC analyses in this research also have positive implications for investigative practice. The high AUC values for the regression-based ROC and the Jaccard's-based ROC support both the traditional case linkage methods and the automated case linkage methods. This makes an argument for the integration of automated case linkage practice into databases such as the VSCD to assist behavioural analysts in their case linkage analyses. Automated linkage processes could reduce the strain and workload of behavioural analysts, and act as a tool for providing preliminary linkage decisions. Potential links determined through an automated process would provide analysts with a pool from which to conduct more in-depth linkage analysis for an investigation, rather than the analyst having to comb through the database and manually select linkage criteria.

Limitations

As with all serial offender research, the biggest limitation is the difficulty in knowing for certain whether a non-serial rapist truly is a single rape offender, or whether that is just

the first offence they have been caught for. As self-report studies have shown, men often engage in behaviours that qualify as sexual assault without repercussions, or even without acknowledging the behaviour as sexual violence, and serial rapists often report more offences than they have been convicted of (Groth et al., 1982; Lisak & Miller, 2002; Weinrott & Saylor, 1991). To try and minimise the risks associated with this limitation, the current study assessed the charge history, rather than conviction reports, of all offenders, and excluded any non-serial offenders with any prior sexual offences (whether contact or no-contact). The rationale for this is that an offender with a prior charge for indecent exposure and a single charge of rape is more likely to have engaged in other sexual offending without being caught. Despite the precautions taken to minimise this risk, it is still a noted limitation of this research.

Because most non-serial offences included in this sample were already uploaded to the VSCD, there is a chance that this could influence the results. Although the Behavioural Specialist Unit within the QPS aims to capture every stranger sexual assault, the reliance on investigators to enter the offences on the VSCD contributes to offences being missed. The offences that do get uploaded into the VSCD may conform more to the stereotype of a stranger rape offence than the offences that do not get added. Thus, there could be behavioural differences between those offences that do and do not get uploaded. Unfortunately, this is not something that could be tested easily, although future research could examine any behavioural differences between offences in the VSCD and offences in QPRIME.

Another limitation related to the VSCD which could impact case linkage and further research is the VSCD entry form. Previous research with ViCLAS analysts has highlighted the inability to search the ViCLAS database for repeated behaviours within an offence, compare

repeated behaviours across a series of offences, and search for the order in which behaviours occurred during an offence (Davies, Alrajeh, et al., 2018). These critiques are valid within the VSCD as well. Furthermore, there are several variables which are open to subjective interpretation and thus result in unclear answers. Variables that would benefit from being re-written, re-structured, or given an additional follow-up question include the presence of fondling, the victim removing her own clothing, the offender deterring victim reporting, the presence of digital penetration (unclear whether vaginal or anal penetration), force used during sex, and whether the offender was under the influence of drugs or alcohol. As the VSCD has not been updated since 2010, it may be time to reassess the current knowledge base, update the VSCD and clarify any unclear questions like those mentioned. It is, however, important to consider the impact that any updates or changes might have on cases that already exist in the database (Davies, Alrajeh, et al., 2018).

A final set of limitations to this research project related to the restricted sample used. As this data set was limited to Queensland offences through the ethics approval process, generalising the findings should be done with caution until further validation studies in other Australian states and territories can be conducted. This research project also used only solved offences. This has been highlighted as a criticism within sexual assault, consistency and distinctiveness, and case linkage research. However, as this was the first examination of serial versus non-serial rape and case linkage in Australia, it was important to have an established knowledge base of serial and non-serial offences. This ground truth can be achieved by using solved offences. Additionally, the inclusion of two serial and three non-serial rapists who each offended against two victims in a single offence could have impacted the results of the analyses. Further research could examine these offences as case studies to assess any unique behavioural patterns. This sample was also restricted to

completed rapes, stranger offences, and adult offenders. Therefore, future research should increase ecological validity by incorporating unsolved offences, acquaintance rape, attempted rape and other sexual assault, and even juvenile offenders.

Within the logistic regression analysis, the lack of cross-validation is noted as a limitation. For the results to be generalisable, a validation study using a different sample of Australian rapists should be conducted. Finally, regarding the ROC analysis using Jaccard's, the sample size is a limitation. Although the AUC values found indicated excellent linking accuracy, it is important to bear in mind that the high AUC may be due to the low number of linked offences compared to unlinked offences, as over 99% of all possible offence pairs included in the ROC analysis were unlinked.

It is worth noting that the interrater reliability assessment in this research only examined the entries between the author and the head of the BSU. This analysis was done because it is critical to ensure that any database entries created by the author conformed to the standards of the BSU. As the author was trained by the head of the BSU in the quality control process as well as completed the Behavioural Comparative Case Analysis (BCCA) course taught by the BSU, it is expected that there would be high rates of agreement between these two raters. Additionally, within the assessment of interrater reliability, open response questions were not compared. Most of the questions within the VSCD form are tick-box options, with open response sections for a narrative summary and sequence of events. Not exploring the open responses could inflate the results of agreement analysis because the open response questions are highly subjective so have a higher risk of non-occurrence between investigators. As the narrative summary and sequence of events were not examined in the current research, not including them in the interrater reliability assessment is not a serious concern. However, the agreement assessment of this research

should not be interpreted as an analysis of the interrater reliability of the VSCD. Because VSCD entries initially rely on the investigating officer to complete the entry, it is important to assess the interrater reliability across multiple investigators and BSU staff. However, as Davies et al. (in press) highlight, interrater reliability studies examine the agreement of an initial entry before a quality control check has been completed. Most case linkage units, like the BSU, engage in a quality control process, which is expected to catch and resolve any discrepancies and errors in the initial entry.

Shifting Conceptions

Much like Shoda and Mischel's (2000) push to shift the conception of a situation towards a construct based upon psychologically active ingredients, there is a current push to reconceptualise consistency away from a single-behaviour approach to a dimensional understanding of behavioural domains. This can assist in the understanding of rape behaviour and overall offending patterns. Grubin et al.'s (2001) Home Office study examined offender behaviours both individually and across domains and found more evidence for consistency across thematic groupings than across individual behaviours. In their review of previous research on behavioural domains of rapists, Santtila et al. (2005) concluded that finding behavioural consistency across behavioural domains, but not necessarily individual behaviours, supports offender distinctiveness. This is because an offender may display different behaviours across offences but still show an overall consistent manner.

Much of the previous research has found overlaps in behaviours across dimensions rather than consistency in a single behavioural domain. This led to categorising offences as mixed or hybrid, minimising researchers' ability to identify behavioural consistency. Indeed, this complication can be seen in the current project through the overlap in behaviours that

may be assigned to either a control or aggressive theme, or a control or sex theme.

Furthermore, this argument for the reconceptualising of consistency falls in line with the basic premise of Mischel and Shoda's CAPS theory, that individuals are characterised by stable yet distinctive patterns of variability in their actions, thoughts, and feelings across different situations (Shoda & Mischel, 2000). As it has previously been shown that variability in behaviour is not only common but also stable, it follows that this approach should be adopted within criminology to analyse and discuss offending behaviours.

In a recent analysis, Sorochinski and Salfati (2018) argue for the reconceptualisation of consistency as a dynamic concept to be used to assess the progression of behaviours across identifiable trajectories. As consistency can be seen in complex ways rather than the simple repetition of individual behaviours, it is important to acknowledge and analyse consistency as an overall construct. This is useful from a motivational point of view to examine the changes in behaviour between and across thematic groupings. Sorochinski and Salfati also highlight the importance of examining behavioural themes as dimensions rather than all-or-none types, as the elements of aggression and violence, power and control, and sexual gratification are present to some degree in the majority of sexual offences.

Sorochinski (2015) and Sorochinski and Salfati (2018) identified the qualitative (subtype) and quantitative (degree) distinctions between groups of offences and individual offences. They concluded that the behavioural dimensions of violence and control might best be conceptualised and analysed on a quantitative level, assessing the degree of behaviour, whereas sexual behaviours are more apt for qualitative analysis in terms of a specific subtype of behaviour displayed. Although no offenders showed consistency across all themes of behaviours throughout their offences, over half remained consistent in at least one behavioural domain (Sorochinski & Salfati, 2018), which supports Grubin et al.'s (2001)

finding that the majority of offenders remained consistent within a single domain, while about a quarter of offenders were consistent across all domains in at least two offences. Instead, when offenders did not display inherent consistency, they followed a specific trajectory of change within each behavioural dimension.

The current research supports the suggestion of examining behavioural themes as dimensions rather than all-or-none types. Across the different domains of control, escape, sex, and style, there appeared to be additional sub-themes of hostility and aggression, confidence, and intimacy. Although the division of these themes and emergence of the sub-themes were directed by previous research, they have not been validated. The further exploration of offence behaviours in Australia could validate these proposed themes and sub-themes. The analysis of behavioural consistency across themes could also replicate the methods of Sorochinski and Salfati (2018) and explore whether there are different offenders who are more or less consistent across or within behavioural themes or domains. Within Australia, using the Groth typology as a further filter by which to compare could provide further useful information for the QPS as to whether the different offender types vary in consistency of behaviour. Finally, it could assess whether each theme is best utilised as qualitative or quantitative. This could further assist investigative practice as the emergence qualitative themes in an offence can provide preliminary indications of rapist type or serial versus non-serial offender, followed by a more quantitative analysis to begin a case linkage analysis.

Future Directions

First and foremost, to expand on this research project is to validate the current findings in other states and territories across Australia. This would not only present additional support for the current findings and increase the comprehensive understanding

of serial rape in Australia, but would also allow for a larger data set with which to examine case linkage accuracy. If the current findings were successfully validated throughout Australia, then the author proposes the development of a statistical prediction rule (SPR) or computer algorithm to assist in the early identification of potential serial rapists. This approach has begun to be used more frequently recently, with promising results. Yokota et al. (2007) used an SPR to assess which offender in a database each index crime was most likely to belong. The top 5% of offenders in the rank-order list were examined, and for 24 of the 81 offences, the actual offender was correctly rank-ordered number one. However, the author envisages an SPR for practical, rather than empirical, applications that would operate automatically within police reporting databases. This SPR would be based upon the results of the regression analysis within this research and would have the aim of determining if an unknown offence belong to a serial or non-serial offender classification.

The creation of a statistical package or algorithm that could be integrated within police reporting databases would further support proactive and evidence-based policing. In creating a statistical prediction rule, each piece of evidence is weighed according to the unique amount it contributes to the predictive model for the expected outcome, based upon the probabilities and base rates of the evidence as well as the ground truth of the event (Swets et al., 2000b). It is proposed that this type of package would be automated such that it would examine new stranger rape offences as they are reported, comparing offence behaviours to the base rates of behaviours and the results of research such as the current project. This SPR would then flag those cases that show behaviours indicative of serial rapists.

This could alleviate the pressure of offence monitoring on the small number of BSU analysts by providing real-time input on potential serial offenders. The early identification of

potential serial offenders provides numerous benefits to police departments, such as facilitating the allocation of resources and encouraging inter-jurisdictional collaboration. Furthermore, flagging a potential serial offender based on behaviour could result in earlier identification of offenders, minimising further victimisation.

There are additional avenues for research that have been described throughout this chapter thus far, which will now be summarised. A further examination of the interrater reliability of the VSCD form using a range of investigators would provide a more ecologically valid exploration of this process, as not all investigators complete the BCCA course or receive training on the process of completing a VSCD entry. It is also worth exploring the reliability and content of the open-ended response questions within the VSCD database. Furthermore, additional research could include a qualitative analysis of the narrative summary, verbal behaviour of the offender, and sequence of events to further highlight any behavioural or verbal themes and provide additional insight into the interaction between victim and offender. Understanding the order of behaviours as well as any factors that precipitated a change in behaviour is useful for understanding rapist behaviour and for case linkage. Further research could also increase ecological validity by incorporating unsolved offences, acquaintance rape, attempted rape and other sexual assault, and even juvenile offenders.

Distinctiveness is not a clear-cut and singular phenomenon and is deserving of further research. As it is intrinsically tied to behavioural consistency, it is challenging to tease the two concepts apart to test distinctiveness on its own. Distinctiveness has been supported in part by confirming consistency and showing that paired offences by a serial rapist are more similar than non-serial offences and also through comparing serial and non-serial offence behaviours. While it is crucial to case linkage to be able to identify those

offences that are similar and thus thought to be the work of a single offender, it is also important to be able to identify the series of one serial offender compared to the series of a different offender. Individual distinctiveness is difficult to examine and support, in part because this type of distinctiveness was historically thought to be seen through signature. When specific behavioural elements are seen across a series of crimes, the analyst can more easily confirm the work of a single offender. However, as has previously been argued, elements of signature are often missing or can be the same as MO, so cannot be relied on for the general practice of case linkage. Thus, individual distinctiveness needs to be assessed in greater detail and supported.

Individual distinctiveness is important from both a theoretical and practical perspective, as it is possible to have more than one operating serial sexual assault offender at a time. In these instances, it is crucial to be able to differentiate between series to help with the investigations. This is a problematic aspect of distinctiveness to study because of the low frequency of serial rapists as well as the methodological challenges with this type of research. To the author's knowledge, no research has examined the discrimination accuracy of individual offender series. Conceptually, this research could mirror the work of Mischel and Shoda's CAPS research by examining the behavioural responses of individual offenders across different offences and examining the psychologically salient elements of the interactions. However, the retroactive nature of this research would present additional complications.

A future way to examine individual distinctiveness that the author proposes is by using multidimensional scaling (MDS) to compare the behavioural patterns of serial offences with non-serial offences. To support distinctiveness, it would be expected that the non-serial offenders generally show more similar behavioural patterns (group consistency) to

one another while serial offenders show generally more distinct behavioural patterns compared to other serial and non-serial offenders. Although this may seem in contrast to the support demonstrated by Jaccard's coefficient results, Jaccard's is examining the consistency between two offences by the same offender, while MDS will be used to examine one offender's behavioural pattern compared to a different offender's behavioural pattern. Ideally, behavioural consistency would be seen within a serial offender's series, but that consistency would not be replicated by another serial offender, whereas non-serial offenders would share the same high base rate behaviours across their offences. Thus, the results from the analysis of Jaccard's coefficients paired with the results from the MDS could support both consistency and distinctiveness. Furthermore, the results of the Jaccard's analysis within the current research and the work of Slater et al. (2015) support this hypothesis, with linked serial pairs having higher Jaccard's coefficients than non-serial pairs, which in turn have higher Jaccard's than unlinked serial pairs.

MDS could also be used to explore behavioural themes within both serial and non-serial rapists within Australia, which can allow for further consideration of behavioural consistency and distinctiveness. The use of MDS to analyse offence behaviours of different rapist typologies within Australia has been examined previously (McCabe & Wauchope, 2005a). Thus, further analysis using the current and future samples could provide validation to McCabe & Wauchope's (2005) findings as well as increase the understanding of rapist behaviour in Australia. Furthermore, as the BSU uses the Groth typology of rapists as a tool to prioritise cases for linkage analysis, there is a possibility of examining behavioural consistency within the different types. This could provide further empirical validation for the Groth typology as well as inform the BSU as to the unique behaviours of each offender type. Although it has been determined that the inclusion of all behavioural variables is best for

case linkage, an examination of behavioural themes is still important to the understanding of rapist behaviour.

Conclusion

This thesis has provided a comprehensive review of rape, including prevalence, classification methods, behaviour, and investigation, as well as addressed some of the knowledge gaps of serial rape behaviour and case linkage practice within Australia through the original quantitative research project. As there has been an increase in research on the practice of case linkage, it is essential not only to validate case linkage as an investigative tool within Australia but also to support the underlying concepts of behavioural consistency and distinctiveness within serial and non-serial rapist populations. Furthermore, as societies and cultures continue to grow and change, so too do the opportunities for rape and the behaviours exhibited by rapists. Thus, the understanding of sexual assault must also evolve.

For these reasons, Chapter One began with an in-depth discussion of the current and changing nature of rape around the world, and more specifically within Australia. Because the rates of rape in Australia are higher than global averages, it is crucial to explore the potential explanations for this. Chapter One began by highlighting the elements of sexual behaviour. It then explored the different cultural factors that contribute to rape-prone societies before reviewing rape myths. Chapter One also provided definitions of the important terms within this thesis, such as rape, stranger rape, and serial rape. Finally, Chapter One presented an overview of the prevalence of rape, both globally and within Queensland, Australia, as well as introduced rape victims and offenders, concluding with an introduction to serial rape.

Chapter Two reviewed the various methods of classifying rapists. It began with a brief discussion of the biological, psychological, and social theories of rape, as these theories form the foundation of which further classification methods have been developed. It also summarised theories on serial offending as they apply to serial rape. Chapter Two then

highlighted rapist motivation, the role of the victim, and the importance of the person-situation interaction in rape offences. It then shifted to the examination of rapist typologies and classification methods, with a focus on the types of power-assertive, power-reassurance, anger-retaliatory, and anger-excitation, as these types are used by the BSU in Queensland.

Chapter Three then examined the various elements of behaviour, beginning with the role of personality psychology and the development of the cognitive-affective personality systems theory. It then reviewed habitual behaviour, addictive behaviour, and conscientious and deceitful behaviour, all of which can impact a rape investigation and case linkage. Furthermore, an offender's behavioural consistency and distinctiveness rely on the interplay between an offender's mental scripts, habits, and motivations, and the environment and people with which he is interacting. The empirical support for consistency and distinctiveness within rape was discussed in detail. Chapter Three concluded with the current understanding of rape behaviour, and an overview of the research to date on the distinction between serial and non-serial rapists was presented.

This thesis then provided an overview of rape investigations in Chapter Four, from the traditional investigative methods to the emergence of behavioural analysis methods such as profiling to the current practice of case linkage. Chapter Four began with an explanation on the importance of logic in investigations. It then highlighted the importance of evidence and verifying rape complaints, before discussing the development of behavioural investigative methods such as criminal investigative analysis, investigative psychology, and the idiographic methods of behavioural evidence analysis and applied crime analysis. This chapter ended with a thorough exploration of case linkage. Case linkage has had increasing empirical support, with its functionality shown for interpersonal as well as

high-volume offences. With the increasing development of case linkage databases and methods, it is quickly becoming the gold standard for serial crime identification. This chapter discussed the practice of and research on case linkage. The increasingly ecologically valid research methods provide strong support for the use of case linkage in practice, although there are still some noted limitations. There have been particularly promising results within the UK examining the ability of case linkage databases and practices to identify linked offences based on behaviour, and the development of automated proactive methods are not far off. However, there is still room for additional research and improvement, especially in countries such as Australia, where the empirical evidence is not on par with global standards. Chapter Four concluded with a discussion around the different limitations of consistency and distinctiveness and case linkage research.

Chapters Five, Six, and Seven were dedicated to the original research designed and completed by the author. The methodology was detailed in Chapter Five. This project analysed the offence behaviours of both serial and non-serial rapists across 250 offences in Queensland. Chapter Five began by recapping the goals of this project, including the three research questions which asked whether serial and non-serial rapists would behave distinctly, whether serial versus non-serial rape classification can be predicted based on offence variables, and whether consistency, distinctiveness, and case linkage would be supported within this sample. It then highlighted the expected results, before detailing the data collection and analysis procedures. Appendices A-E provide supporting information through the data collection process. This project used three main statistical analyses to answer the research questions: chi-square analysis, logistic regression, and an analysis of Jaccard's coefficients and ROC analysis.

Chapter Six presented the results of the statistical analyses conducted, including an overview of behavioural frequencies, chi-square, logistic regression, Jaccard's coefficients, and ROC analyses. It began by presenting the demographic information of serial and non-serial rapists and their victims. Chapter Six then presented the frequencies of offence variables. For ease of interpretation, frequencies were presented as low (less than 10%), medium (between 10-50%) and high (above 50%), and the frequencies of variables unique to either serial or non-serial rapists were also presented. Chapter Six then presented the results of the chi-square analysis. Originally there were 67 variables that were statistically significantly different between serial and non-serial rapes. Due to the high number of crosstabs run, an adjusted alpha level of .01 was adopted, resulting in 45 significant variables. Then the process of selecting variables for the regression analysis was detailed, including a multicollinearity analysis and discussion of the excluded variables. Chapter Six then presented the results of the logistic regression analysis, which was able to distinguish between serial and non-serial rapes with an overall accuracy of 87.8%. Eight variables were found to be significant predictors of serial versus non-serial offences. Chapter Six concluded by presenting the results of the Jaccard's coefficient and ROC analyses. Overall, serial rapes had higher Jaccard's coefficients than non-serial rapes, and the use of Jaccard's coefficient to distinguish between serial and non-serial rapes resulted in an excellent level of discrimination accuracy.

Chapter Seven provided a thorough discussion of the results and implications of this research. It began with an exploration of stranger rape within Queensland, including a theoretical discussion on behavioural themes within the current data, the application of the Groth typology within the sample, and a quantitative discussion on stranger rape behaviours. Chapter Seven then discussed the results of the first research question, namely

that there is a significant difference between serial and non-serial rape. Serial rape within Queensland is evidenced by preparation, planning, and control while non-serial rape is more opportunistic and pseudo-intimate. The implications of these findings were discussed, including the individual variables that are unique to each offence group, their usefulness for investigations, and how they compare to similar research globally. Chapter Seven then detailed the results of the second research question, highlighting the fact that serial versus non-serial rape classification can indeed be predicted based on offence variables. The eight significant predictors and their implications for investigations were discussed, and the results of this project were compared to previous research. This chapter then presented the results of the final research question, showing that behavioural consistency, distinctiveness, and case linkage were all supported within this sample. Serial rapists displayed behavioural consistency across offences, and the data evidenced the distinctiveness of these offenders as well. These findings mirror and support previous research, as do the results of the ROC analysis. The determination of the most appropriate threshold for determining links was also discussed. Chapter Seven then detailed the limitations of the current research, including the inherent difficulties of researching serial and non-serial rape, limitations due to the database, and limitations due to the data set. This chapter then briefly mentioned the argument for reconceptualising behavioural themes. Finally, Chapter Seven concluded with a discussion around and suggestions for future research, including the long-term goal of the development of a statistical prediction package to be incorporated with police reporting databases.

This research is an Australian first, as the distinctiveness of serial rape behaviours and practice of case linkage of rape offences had not previously been examined. For this reason, this thesis contributes to the global knowledge and fills a significant knowledge gap

of serial rape behaviour by providing a further understanding of the Australian context. The presentation of variable frequencies provides an initial understanding of base rates of stranger rape within Queensland, and is a tangible evidence base that investigators and analysts can use to further knowledge and compare behaviours of a new rape offence. As a comprehensive review of stranger rape in Australia is lacking, this is a significant contribution of this project. The presentation and discussion of the offence characteristics that are unique to serial and non-serial rapes, along with the significant predictor variables can be used in case linkage analysis or within investigations as a preliminary indication of a serial rapist. Furthermore, throughout this thesis the implications and results have been discussed from both research and practical perspectives, making the findings applicable and relevant to both academics and practitioners.

As this thesis addressed deficiencies in previous research and followed ecologically valid methods, it has paved the way for further research in Australia. The next suggested research projects are an analysis of behavioural consistency within series (including the co-occurrence of variables) and a validation study of this research with a sample outside of Queensland. Upon the replication of results and increased understanding of behavioural consistency, the author plans to create a statistical prediction rule which can be integrated with general police reporting databases, automatically assessing new stranger rape offences for serial rape characteristics and flagging those offences with a higher probability for serial rape. This would significantly assist investigative practice and reduce the workload of the Behavioural Specialist Unit. It is hoped that the increased understanding of serial rape behaviour and support for case linkage practice advance police capability to identify and apprehend serial rapists more quickly, ultimately contributing to the reduction in prolific offending and the minimisation of future victimisation and sexual violence.

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Appendix A: Coding Booklet

Note: For brevity, variables have largely been kept in their original form (which includes multiple response options for each variable) within this appendix. Before any analyses were conducted using any of these variables, there were first dummy coded to keep all data dichotomous. Through the dummy coding, variables with multiple responses were recoded into new variables with the target response coded as 1 and all other responses coded as 0.

OffType (Serial vs Non-serial Offender)		OffLiveFriend (Offender Living with Friend [including girlfriend/boyfriend])
0	Non-Serial	
1	Serial	0 No
		1 Yes
Weekend (Offence Occurred on Weekend)		OffLiveNoOne (Offender Living with No One)
0	No	
1	Yes	0 No
		1 Yes
Off_Race (Offender Race)		OffLiveParents (Offender Living with Parents)
1	White	
2	Aboriginal/Torres Strait Islander	0 No
3	Other	1 Yes
4	Asian (Inc. oriental and mid-eastern)	OffLiveRelative (Offender Living with Other Relative)
5	Unknown	
		0 No
OffenceTravel (More than one location used?)		1 Yes
0	No	OffLiveRoommate (Offender Living with Roommates)
1	Yes	
		0 No
OffMaritalStatus (Offender Marital Status)		1 Yes
1	Single	OffLiveSpouse (Offender Living with Spouse/DeFacto)
2	Married/De Facto	
3	Separated/Divorced	0 No
4	Other	1 Yes
5	Unknown	OffLiveUnknown (Unknown Offender Living Situation)
OffLiveDependant (Offender Living with Dependant)		0 No
		1 Yes
0	No	
1	Yes	

OffEmployment (Offender Employment Status)

- | | |
|---|---------------------|
| 1 | Employed |
| 2 | Unemployed |
| 3 | Criminal Enterprise |
| 4 | Unknown |
| 5 | Student |

OffLife_Alcohol (Offender Lifestyle: Alcohol Abuser)

- | | |
|---|-----|
| 0 | No |
| 1 | Yes |

OffLife_Average (Offender Lifestyle: Average Citizen)

- | | |
|---|-----|
| 0 | No |
| 1 | Yes |

OffLife_Criminal (Offender Lifestyle: Criminal Activity)

- | | |
|---|-----|
| 0 | No |
| 1 | Yes |

OffLife_Dealer (Offender Lifestyle: Drug Dealer)

- | | |
|---|-----|
| 0 | No |
| 1 | Yes |

OffLife_Drug (Offender Lifestyle: Drug Abuser)

- | | |
|---|-----|
| 0 | No |
| 1 | Yes |

OffLife_Night (Offender Lifestyle: Night Person)

- | | |
|---|-----|
| 0 | No |
| 1 | Yes |

OffLife_Party (Offender Lifestyle: Likes to Socialise/Party)

- | | |
|---|-----|
| 0 | No |
| 1 | Yes |

OffLife_Reclusive (Offender Lifestyle: Reclusive)

- | | |
|---|-----|
| 0 | No |
| 1 | Yes |

OffLife_Transient (Off Lifestyle: Transient)

- | | |
|---|-----|
| 0 | No |
| 1 | Yes |

OffLife_Unknown (Off Lifestyle: Unknown)

- | | |
|---|-----|
| 0 | No |
| 1 | Yes |

OffTransBicycle (Offender Transportation Method: Bicycle)

- | | |
|---|-----|
| 0 | No |
| 1 | Yes |

OffTransDrive (Offender Transportation Method: Drive)

- | | |
|---|-----|
| 0 | No |
| 1 | Yes |

OffTransHitch (Offender Transportation Method: Hitchhikes)

- | | |
|---|-----|
| 0 | No |
| 1 | Yes |

OffTransRely (Offender Transportation Method: Relies on Others)

- | | |
|---|-----|
| 0 | No |
| 1 | Yes |

OffTransPublic (Offender Transportation Method: Public Transportation)

- | | |
|---|-----|
| 0 | No |
| 1 | Yes |

OffTransWalk (Offender Transportation Method: Walk)

- | | |
|---|-----|
| 0 | No |
| 1 | Yes |

OffTransUnknown (Offender
Transportation Method Unknown)

0 No

1 Yes

HabitBisexual (Offender Habit: Bisexual)

0 No

1 Yes

HabitExhibitionist (Offender Habit:
Exhibitionist)

0 No

1 Yes

HabitHetero (Offender Habit:
Heterosexual)

0 No

1 Yes

HabitHomosexual (Offender Habit:
Homosexual)

0 No

1 Yes

HabitPromiscuous (Offender Habit:
Promiscuous)

0 No

1 Yes

HabitVoyeur (Offender Habit: Voyeur)

0 No

1 Yes

HabitUnknown (Offender Habit:
Unknown)

0 No

1 Yes

OffPossession (Offender in Possession of
Other's Items)

0 No

1 Yes

OffDrugs (Offender Under the Influence of
Drugs or Alcohol)

0 No

1 Yes

OffUnusual (Offender Unusual
Characteristics)

0 No

1 Yes

VictimSex (Victim Sex)

1 Female

2 Male

VictimRace (Victim Race)

1 White

2 Aboriginal/Torres Strait
Islander

3 Oriental/Asian

4 Unknown

5 Other

VicMaritalStatus (Victim Marital Status)

1 Single

2 Married/De Facto

3 Separated/Divorced

4 Other (includes Widowed)

5 Unknown

VicLiveAdChild (Victim Living with Adult
Children)

0 No

1 Yes

VicLiveDependant (Victim Living with
Dependant)

0 No

1 Yes

VicLiveFriend (Victim Living with Friend
[Including Girlfriend/Boyfriend])

0 No

1 Yes

VicLiveNoOne (Victim Living with No One)

0 No

1 Yes

VicLiveParents (Victim Living with Parents)

0 No

1 Yes

VicLiveRelative (Victim Living with
Relative)

0 No

1 Yes

VicLiveRoommate (Victim Living with
Roommate)

0 No

1 Yes

VicLiveSpouse (Victim Living with Spouse
or DeFacto)

0 No

1 Yes

VicLiveUnknown (Unknown Victim Living
Situation)

0 No

1 Yes

VicOccupation (Victim Occupation)

1 Student

2 Post-secondary Student

3 Employed

4 Sex Trade Worker
(Prostitute)

5 Unemployed

6 Unknown

VicDrives (Victim Transport: Drives)

0 No

1 Yes

VicHitchhike (Victim Transport:
Hitchhikes)

0 No

1 Yes

VicRely (Victim Transport: Relies on
Others)

0 No

1 Yes

VicTaxi (Victim Transport: Taxi)

0 No

1 Yes

VicWalks (Victim Transport: Walks)

0 No

1 Yes

VicPublic (Victim Transport: Public
Transportation)

0 No

1 Yes

VicUnknown (Victim Transport: Unknown)

0 No

1 Yes

VicLifeAlcohol (Victim Lifestyle: Alcohol
Abuser)

0 No

1 Yes

VicLifeAverage (Victim Lifestyle: Average
Citizen)

0 No

1 Yes

VicLifeCriminal (Victim Lifestyle: Criminal Activity)

0 No

1 Yes

VicLifeDrug (Victim Lifestyle: Drug Abuser)

0 No

1 Yes

VicLifeNight (Victim Lifestyle: Night Person)

0 No

1 Yes

VicLifeParty (Victim Lifestyle: Party/Socialise)

0 No

1 Yes

VicLifeProstitute (Victim Lifestyle: Prostitute)

0 No

1 Yes

VicLifeTransient (Victim Lifestyle: Transient)

0 No

1 Yes

VicLifeUnknown (Victim Lifestyle: Unknown)

0 No

1 Yes

IncapacitationAdolescent (Victim Incapacitation: Adolescent)

0 No

1 Yes

IncapacitationAlcohol (Victim Incapacitation: Alcohol)

0 No

1 Yes

IncapacitationDrug (Victim Incapacitation: Drug)

0 No

1 Yes

IncapacitationElderly (Victim Incapacitation: Elderly)

0 No

1 Yes

IncapacitationHealth (Victim Incapacitation: Poor Health)

0 No

1 Yes

IncapacitationMental (Victim Incapacitation: Mental Illness or Disability)

0 No

1 Yes

CrimeclassSexual (Expanded Crime Classification)

1 Sexual Assault

2 Break, enter & sexual assault

3 Sexual assault with weapon or aggravation

4 Date rape

5 Abduction & sexual assault

MotiveBurglary (Additional Motive: Burglary)

0 No

1 Yes

MotiveFinancial (Additional Motive: Financial)

0 No

1 Yes

MotiveDrug (Additional Motive: Obtain Drugs)

- 0 No
- 1 Yes

MotiveKidnap (Additional Motive: Kidnapping)

- 0 No
- 1 Yes

MotiveRobbery (Additional Motive: Robbery)

- 0 No
- 1 Yes

WasVehicleUsed (Was Vehicle Used?)

- 0 No
- 1 Yes

Ownership (Vehicle Ownership)

- 1 Owned by offender
- 2 Borrowed/rented
- 3 Stolen
- 4 N/A (no vehicle used)

ICNeighbourhood (Initial Contact Scene (IC) Neighbourhood)

- 1 Residential
- 2 Retail/business
- 3 Commercial/industrial
- 4 Park/recreational
- 5 Farm/agricultural

ICPotentialWitness (IC Potential Witness)

- 1 Area was essentially deserted
- 2 Other people present in immediate area
- 3 Unknown

ICOutdoors (Initial Contact Outdoors)

- 0 No
- 1 Yes

InitialGainEntry (Initial Contact Offender's Entry Method)

- 1 Through insecure door/window
- 2 Forced entry
- 3 Let in by victim
- 4 Let in by third person
- 5 Building was open to the public
- 6 Offender lived/worked in the building
- 7 Unknown
- 8 NA (Outdoor Initial Contact)

OffenderICFamiliar (Offender IC Scene Familiarity)

- 0 No
- 1 Yes

ICLivingQuarters (Initial Contact Living Quarters)

- 0 No
- 1 Yes

IC_LQ_Loc (IC Living Quarters Location)

- 1 Victim's residence
- 2 Offender's residence
- 3 Other residence
- 4 N/A - Initial Contact elsewhere

ICBusiness (Initial Contact Business or Public Building)

- 0 No
- 1 Yes

IC_Business_Loc (IC Business Location)

- 1 Victim's workplace
- 2 Offender's workplace
- 3 Motel/hotel
- 4 Bar/Tavern/Nightclub
- 5 Other
- 6 N/A - Initial Contact elsewhere

ICVehicle (Initial Contact Vehicle)

- 0 No
- 1 Yes

ICOutdoor (Initial Contact Outdoors)

- 0 No
- 1 Yes

IC_Outdoor_Loc (IC Outdoor Location)

- 1 Paved/public street/parking area
- 2 Pathway (access, footpath, jogging, bike)
- 3 Public park
- 4 Other
- 5 N/A - Initial Contact elsewhere

VictimICRelationship (Victim IC Relationship)

- 1 Familiar
- 2 Socialising
- 3 Location chosen by offender
- 4 Unfamiliar
- 5 Unclear relationship

IC_AS_Same (Initial Contact/Assault Scene (AC) Same Location?)

- 0 No
- 1 Yes

ASMultipleSites (Multiple Offence Sites)

- 0 No
- 1 Yes

ASIndoorsorOutdoors (AS Indoors or Outdoors))

- 0 Outdoors
- 1 Indoors

Off.ASGainEntry (Off. AS Gain Entry)

- 1 Through an insecure door or window
- 2 Let in by the victim
- 3 Offender lived/worked in the building
- 4 Let in by a third person
- 5 Key
- 6 Building was open to the public
- 7 N/A - Assault scene same as Initial Contact

ASPotentialWitness (AS Potential Witness)

- 1 Area was essentially deserted
- 2 Other people were present in the immediate area
- 3 Unknown

Off.ASFamiliarity (Offender AS Scene Familiarity)

- 0 No
- 1 Yes

Off_VicASmeans (Offender Means to Get Victim to AS)

- 1 Con/manipulation
- 2 Force/threat
- 3 N/A - AS same as IC

ASLivingQuarters (Assault Scene Living Quarters)

0 No
1 Yes

AS_LQ_Loc (AS Living Quarters Location)

1 Victim's residence
2 Offender's residence
3 Other residence
4 N/A - IC elsewhere

ASBusiness (Assault Scene Business/Public Building)

0 No
1 Yes

ASVehicle (Assault Scene Vehicle)

0 No
1 Yes

ASOutdoor (Assault Scene Outdoor)

0 No
1 Yes

HowContactEnd (How Contact End)

1 Release
2 Escape
3 Rescue/Interruption

RS_IC_Same (Release Scene/Initial Contact Same Site)

0 No
1 Yes

RS_AS_Same (Release Scene/Assault Scene Same Site)

0 No
1 Yes

Weapon (Weapon Involved?)

0 No
1 Yes

WeaponInvolved (Weapon Involvement Level)

0 Not involved or threatened
1 Threatened, not displayed
2 Displayed
3 Intentionally used by the offender

WeaponOrigin (Weapons Used Origin)

1 Brought to scene
2 Found at scene
3 Both brought and found
4 N/A - No weapon used

WeaponRecovered (Weapon Recovered)

0 No
1 Yes
2 N/A - No weapon used

WeaponBludgeon (Weapon Type: Bludgeon)

0 No
1 Yes

WeaponFirearm (Weapon Type: Firearm)

0 No
1 Yes

WeaponLigature (Weapon Type: Ligature)

0 No
1 Yes

WeaponStabbing (Weapon Type: Stabbing)

0 No
1 Yes

WeaponUnusual (Weapon Type: Unusual)

0 No
1 Yes

BluntTraumaExtent (Blunt Trauma Extent)

- 0 None
- 1 Minimal
- 2 Moderate

FacialInjury (Facial Injury?)

- 0 No
- 1 Yes

OffenderBite (Offender Bite Victim?)

- 0 No
- 1 Yes

UnusualTraumaNone (Unusual Trauma None)

- 0 No
- 1 Yes

DNAAvailable (DNA Available?)

- 0 No
- 1 Yes

OffendersSelection (Offender's Victim Selection)

- 1 Opportunistic
- 2 Victim targeted (pre-planned)
- 3 Unknown

ApproachCon (Approach Style Con)

- 0 No
- 1 Yes

ApproachConType (Approach Con Type)

- 1 Offered help/job/assistance/drugs/ etc
- 2 Asked for help/information/ assistance
- 3 Solicitation for sex
- 4 Socialising/bar/feign relationship
- 5 Pose as authority figure
- 6 Other con
- 7 N/A - other approach style

ApproachSurprise (Approach Style: Surprise)

- 0 No
- 1 Yes

ApproachSurpriseType (Approach Surprise Type)

- 1 Victim was asleep
- 2 Sneaked up/lay in wait/grabbed/other
- 3 N/A - other approach style

ApproachBlitz (Approach Style: Blitz)

- 0 No
- 1 Yes

ForceAmount (Force Amount)

- 1 Minimal (just enough to keep control of victim)
- 2 Moderate (beyond the necessary amount)
- 3 Unknown

ForceUsedWhen (Force Used When)

- 1 Immediately upon contact with victim
- 2 After contact but prior to sexual acts
- 3 Only upon victim resistance
- 4 During sexual acts
- 5 After sexual acts

InjuryExtent (Injury Extent)

- 0 No injuries
- 1 Minor (no medical treatment required)
- 2 Moderate (required outpatient treatment)
- 3 Severe (required hospitalisation)

OffendersAngerExtent (Offenders Anger Extent)

- 0 No overt anger
- 1 Some anger
- 2 Overwhelming anger

VictimResistance (Resistance Offered)

- 0 None (followed instructions/demands)
- 1 Passive (did not comply)
- 2 Verbal (argued/negotiated)
- 3 Physical (struggled, fought or attempted to escape)

ReactiontoResistance (Offender Reaction to Resistance)

- 0 N/A - No victim resistance
- 1 Ignored
- 2 Fled
- 3 Threatened victim
- 4 Threatened 3rd party
- 5 Used force
- 6 Negotiated with victim
- 7 Ceased to demand

AssaultAnalIntercourse (Assault Category: Anal)

- 0 No
- 1 Yes

AssaultAnilingus (Assault Category: Anilingus)

- 0 No
- 1 Yes

AssaultBeating (Assault Category: Beating)

- 0 No
- 1 Yes

AssaultBiting (Assault Category: Biting)

- 0 No
- 1 Yes

AssaultChoking (Assault Category: Choking)

- 0 No
- 1 Yes

AssaultCunnilingus (Assault Category: Cunnilingus)

- 0 No
- 1 Yes

AssaultCutting (Assault Category: Cutting)

- 0 No
- 1 Yes

AssaultDigital (Assault Category: Digital Penetration [Vaginal or Anal])

0 No

1 Yes

AssaultFellatio (Assault Category: Fellatio)

0 No

1 Yes

AssaultFondling (Assault Category: Fondling)

0 No

1 Yes

AssaultForeign (Assault Category: Foreign Object Insertion)

0 No

1 Yes

AssaultHairPulling (Assault Category: Hair Pulling)

0 No

1 Yes

AssaultHand (Assault Category: Hand or Fist Insertion)

0 No

1 Yes

AssaultKissing (Assault Category: Kissing)

0 No

1 Yes

AssaultMasturbation (Assault Category: Masturbation)

0 No

1 Yes

AssaultPinching (Assault Category: Pinching)

0 No

1 Yes

AssaultSimulated (Assault Category: Simulated Intercourse)

0 No

1 Yes

AssaultSlapping (Assault Category: Slapping)

0 No

1 Yes

AssaultStabbing (Assault Category: Stabbing)

0 No

1 Yes

AssaultSuffocation (Assault Category: Suffocation)

0 No

1 Yes

AssaultVaginal (Assault Category: Vaginal Intercourse)

0 No

1 Yes

AssaultVerbal (Assault Category: Verbal Abuse)

0 No

1 Yes

AssaultUnusual (Assault Category: Unusual)

0 No

1 Yes

SemenIdentified (Semen Identified)

0 No

1 Yes

SemenLocation (Semen Identified Location)

0	N/A - No semen identified
1	In vagina
2	In anus
3	In mouth

Ejaculation (Evidence of Ejaculation)

0	No
1	Yes

EjaculationBody (Ejaculation: Body)

0	No
1	Yes

EjaculationClothing (Ejaculation: Clothing)

0	No
1	Yes

EjaculationElsewhere (Ejaculation: Elsewhere)

0	No
1	Yes

SexualDysfunct (Evidence of Sexual Dysfunction)

0	No
1	Yes

DysfunctErection (Unable to Obtain and/or Sustain Erection)

0	No
1	Yes

DysfunctRetardedEjac (Retarded Ejaculation)

0	No
1	Yes

DysfunctConditionEjac (Conditional Ejaculation [Example: Fellatio, Penetration from Behind])

0	No
1	Yes

OvercomeDysfunction (Evidence Offender Attempted to Overcome Dysfunction)

0	No
1	Yes

OvercomeDysMethod (Offender Method to Overcome Dysfunction)

0	N/A - No overt dysfunction
1	Forced the victim to perform fellatio
2	Forced the victim to meet a specified condition/position
3	Masturbated self
4	Increased violence toward the victim
5	Nothing
6	Multiple methods used

ForeignObjectInserted (Foreign Object Inserted)

0	No
1	Yes

AttitudeChange (Evidence of Offender Attitude Change)

0	No
1	Yes

AttitudeChangeType (Escalation/De-Escalation of Behaviour)

0	N/A - No overt attitude change
1	Escalating behaviours
2	De-escalating behaviours
3	Displayed both escalation and de-escalation

Prior to Attitude Change (Prior to Attitude Change)

0	N/A - no attitude change
1	Victim resistance (any kind)
2	Victim manipulation (mock offender, request, play along, etc.)
3	End of encounter
4	Other

Require Performance (Require: Performance)

0	No
1	Yes

Require Fellatio (Require: Fellatio)

0	No
1	Yes

Require Position (Require: Positioning, Action, or Scripting)

0	No
1	Yes

Require Intimacy (Require: Intimacy [Kissing, Cuddling, Stroking, etc.])

0	No
1	Yes

Require Foreplay (Require: Foreplay [Masturbate Self, Offender, Licking/Cunnilingus, etc.])

0	No
1	Yes

Require Other (Require: Other Act by Victim)

0	No
1	Yes

Talk About Self (Offender Talk About Self)

0	Did not talk about self at all
1	Made reference to self in passing
2	Talked about self - not excessive
3	Talked about self mostly/excessively
4	Unknown

Question Victim (Question Victim)

0	No questions about the victim's personal life
1	Asked a question or two in passing
2	Asked questions, but the victim did not think it dominated the offender's interest
3	Asked many questions about the victim's life and victim believed it was of major interest to the offender
4	Unknown

Image Projected (Image Projected)

1	Pseudo-sensitive
2	Neutral
3	Macho

Demeanour Towards Victim (Demeanour Towards Victim)

1	Pseudo-complimentary
2	Neutral
3	DemEANING

NegotiationExtent (Negotiation Extent)

- 0 No negotiation between the offender and the victim
- 1 Some negotiation between the offender and the victim
- 2 Extensive negotiation between the offender and the victim

ReassuranceEffort (Reassurance Effort)

- 0 No attempt to reassure the victim
- 1 Some attempts to reassure the victim
- 2 Repeated attempts to reassure the victim

OutsideContact (Contact Outside of Offence)

- 0 No
- 1 Yes

ContactBefore (Contact Before Offence)

- 0 No
- 1 Yes

ContactAfter (Contact After Offence)

- 0 No
- 1 Yes

MeansofContactAd (Means of Contact: Newspaper Ad)

- 0 No
- 1 Yes

MeansofContactPersonal (Means of Contact: Personal)

- 0 No
- 1 Yes

MeansofContactPhone (Means of Contact: Phone)

- 0 No
- 1 Yes

MeansofContactInternet (Means of Contact: Internet)

- 0 No
- 1 Yes

ContactNatureWish (Contact Nature: Wishing to Meet)

- 0 No
- 1 Yes

ContactNatureApologising (Contact Nature: Apologising)

- 0 No
- 1 Yes

ContactNatureExplicit (Contact Nature: Sexually Explicit)

- 0 No
- 1 Yes

ContactNatureReminder (Contact Nature: Reminding or Threatening the Attack)

- 0 No
- 1 Yes

ContactNatureOther (Contact Nature: Other)

- 0 No
- 1 Yes

ItemsTaken (Items Taken by Offender)

- 0 No
- 1 Yes

ClothingRemoved (Clothing Removed?)

- 0 No
- 1 Yes

ClothingRemVicNaked (Victim Already Naked)

- 0 No
- 1 Yes

ClothingRemOffenderSelf (Clothing:
Offender Disrobed Self)

0 No

1 Yes

ClothingRemOffenderVictim (Clothing:
Offender Disrobed Victim)

0 No

1 Yes

ClothingRemVictimOffender (Clothing:
Victim Disrobed Offender)

0 No

1 Yes

ClothingRemVictimself (Clothing: Victim
Disrobed Self)

0 No

1 Yes

ClothingRemUnknown (Clothing:
Unknown Removal)

0 No

1 Yes

HowRemovedNoDamage (How Removed:
No Damage)

0 No

1 Yes

HowRemovedTorn (How Removed: Torn
or Cut)

0 No

1 Yes

HowRemovedUnknown (How Removed:
Unknown)

0 No

1 Yes

Precautions (Evidence of Offender
Precautions)

0 No

1 Yes

PrecautionsAdministeredDrug
(Precautions: Administered Drug)

0 No

1 Yes

PrecautionsBound (Precautions: Bound)

0 No

1 Yes

PrecautionsCondom (Precautions:
Condom)

0 No

1 Yes

PrecautionsCoveredEyes (Precautions:
Covered Eyes)

0 No

1 Yes

PrecautionsDisabledLights (Precautions:
Disabled Lights)

0 No

1 Yes

PrecautionsDisabledPhone (Precautions:
Disabled Phone)

0 No

1 Yes

PrecautionsFalseName (Precautions: False
Name)

0 No

1 Yes

PrecautionsForcedBath (Precautions:
Forced Bath)

0 No

1 Yes

PrecautionsCoveredMouth (Precautions:
Covered Victim's Mouth)

0 No

1 Yes

Appendix B: Coding Created for Open Response: "Victim's Relationship to Initial Contact Scene"

Coding Key:

- 1 = Victim familiar with location
- 2 = Victim at location for general socialising
- 3 = Victim directed to location by offender
- 4 = Victim unfamiliar with location
- 5 = Victim relationship to location not clear or unknown

Case	Victim Relationship to Initial Contact Scene	Coding Assigned
1	Taken there by a male friend.	2
2	99	3
3	Unknown	5
4	Unknown	5
5	99	1
6	Shopping in vicinity.	5
7	99	1
8	99	1
9	Place of work - single operator prostitute.	1
10	Victim hitch-hiking to Brisbane.	4
11	99	1
12	Victim parked vehicle in carpark and went shopping.	5
13	99	1
14	Victim was window-shopping and using public phone.	5
15	99	1
16	Walking home.	1
17	99	1
18	Adjacent to route of victim walking from a party to her home.	1
19	Road providing access between home and school.	1
20	Walking to friend's house.	1
21	Victim's usual hang-out area.	1
22	Route used to walk to and from town centre by victim.	1
23	Drinking with friends.	2
24	Regular drinking place.	1
25	Walking along footpath.	5
26	Victim walking home from nightclub.	1
27	Walking along beach.	1
28	Resided in same street.	1
29	Usual route home.	1
30	99	1
31	In park with friends.	2
32	The victim was soliciting on the street corner.	1
33	Prostitute stroll.	1

Coding Key:

- 1 = Victim familiar with location
- 2 = Victim at location for general socialising
- 3 = Victim directed to location by offender
- 4 = Victim unfamiliar with location
- 5 = Victim relationship to location not clear or unknown

Case	Victim Relationship to Initial Contact Scene	Coding Assigned
34	99	1
35	Went to night club to see friends.	2
36	99	1
37	Walking in Southport area when she became lost.	4
38	Hitching a ride home.	4
39	99	1
40	99	1
41	Attended for job interview.	3
42	Went there for job interview.	3
43	First time victim had used path as walking route.	4
44	Victim's bike path.	1
45	Victim attended offender's boat for a job interview.	3
46	Usual walking route.	1
47	Walks dog in reserve.	1
48	Invited to attend by offender.	3
49	99	1
50	Jogging trail.	1
51	Usual path she walks to work.	1
52	Victim walking to work.	1
53	Using public telephone.	5
54	Victim hanging with friends in park.	2
55	99	1
56	99	1
57	Victim attended hotel for friend's wedding.	2
58	99	1
59	Meeting address was picked by offender.	3
60	99	1
61	The victim was out nightclubbing then walking home.	1
62	Pub located close to where victim was living.	1
63	99	1
64	Victim was staying at the motel whilst working as a prostitute from this location.	1
65	99	1
66	99	1
67	99	1
68	Went there with friend.	2

Coding Key:

- 1 = Victim familiar with location
 2 = Victim at location for general socialising
 3 = Victim directed to location by offender
 4 = Victim unfamiliar with location
 5 = Victim relationship to location not clear or unknown

Case	Victim Relationship to Initial Contact Scene	Coding Assigned
69	99	1
70	99	1
71	Job interview.	3
72	Meeting place chosen by offender.	3
73	Meeting location chosen by offender.	3
74	Flew in to meet offender for language exchange.	3
75	99	1
76	Met offender there for date.	3
77	99	1
78	Victim is street prostitute in the area.	1
79	Victim is a street prostitute in the area.	1
80	Meeting location chosen by offender.	3
81	Few houses down from victim's home.	1
82	Victim stopped there after hearing noise on front wheel of car.	4
83	Victim's brother's residence.	1
84	Walking with boyfriend.	5
85	99	1
86	99	1
87	Directed there by offender.	3
88	Directed there by offender.	3
89	Directed there by offender.	3
90	99	1
91	Massage stall in markets.	4
92	Attending markets.	4
93	Walking home.	1
94	Drinking and playing pokies.	2
95	99	1
96	99	1
97	Attended for ultrasound.	1
98	Attended for an ultrasound.	1
99	Attending for ultrasound exam.	1
100	Victim's next-door neighbour's house.	1
101	99	1
102	99	1
103	Victim walking home from friend's house.	1
104	99	1

Coding Key:

1 = Victim familiar with location

2 = Victim at location for general socialising

3 = Victim directed to location by offender

4 = Victim unfamiliar with location

5 = Victim relationship to location not clear or unknown

Case	Victim Relationship to Initial Contact Scene	Coding Assigned
105	Victim and offender agreed to meet there.	3
106	99	1
107	99	1
108	Went with family for drinks.	2
109	Amenities used by victim.	4
110	Walking along path to bus stop.	5
111	Walking from train station.	5
112	Used it as a regular place to solicit clients for prostitution.	1
113	Victim uses the area to solicit clients for the purpose of prostitution.	1
114	Used area as a place to solicit clients for sex.	1
115	Victim used the area to solicit clients for prostitution.	1
116	Used area as a place to solicit clients for sex.	1
117	99	1
118	99	1
119	Place of illegal work - street sex worker.	1
120	Lives nearby, arranged to meet offender there.	3
121	Walking home from shops.	1
122	99	1
123	Mother resided at apartment block.	1
124	99	1
125	99	1
126	Street prostitute.	1
127	Went to pub with friend.	2
128	Frequents the hotel.	1
129	99	1
130	Victim visited nightclub.	2
131	99	1
132	Victim's boyfriend's house.	1
133	99	1
134	Walking past: needed toilet.	4
135	99	1
136	Victim's friend's home.	1
137	Looking for friend.	4
138	Attending work function.	5
139	Night spot - entertainment.	2

Coding Key:

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3 = Victim directed to location by offender

4 = Victim unfamiliar with location

5 = Victim relationship to location not clear or unknown

Case	Victim Relationship to Initial Contact Scene	Coding Assigned
140	Visitor to area.	4
141	Victim's mum's friend's house.	1
142	99	1
143	Victim was at nightclub.	2
144	99	4
145	Friend of occupant of house.	1
146	Arranged to meet there.	3
147	Nearby hotel, to backpacker hostel she was staying at.	2
148	Victim was drinking at night club.	2
149	Waiting for train home.	5
150	Dancing at night club.	2
151	Walking home from being at a club.	1
152	Victim there with friends.	2
153	Using public toilet.	4
154	99	1
155	99	1
156	Meeting client.	1
157	Customer/Visitor.	4
158	Hitchhiker going to relative's house.	4
159	99	1
160	At RSL with friends.	2
161	99	1
162	Usual walking route to shops.	1
163	Used public toilets.	4
164	Victim was lost.	4
165	Friends of victim reside at premises.	1
166	Looking for her vehicle last seen parked nearby.	4
167	Near hotel visited by victim.	2
168	None - visitor to area.	4
169	Patron of the night club.	2
170	Was walking home from friend's house.	1
171	99	1
172	99	1
173	99	1
174	Victim was standing in carpark thinking.	5
175	99	1

Coding Key:

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5 = Victim relationship to location not clear or unknown

Case	Victim Relationship to Initial Contact Scene	Coding Assigned
176	99	1
177	Babysitting at that location.	1
178	Walking route home.	1
179	99	1
180	Jogging route.	1
181	Patron.	2
182	99	1
183	An area where victim drinks with friends.	2
184	99	1
185	Social, having drinks with friends at bar.	2
186	99	1
187	99	1
188	99	2
189	Friends with offender's sister and brother.	2
190	Usual hangout of victim.	1
191	Victim walks her dog along the beach daily.	1
192	Retired Service League.	2
193	Catching a cab home after drinking.	4
194	Works and resides at the offence location.	1
195	Usual walking route to and from work.	1
196	Road that she resided on.	1
197	99	1
198	99	1
199	99	1
200	99	1
201	Street to walk home from nightclub to staff accommodation where she resides.	1
202	99	1
203	99	2
204	A place to go for a drink.	2
205	Offender is groundsman of showgrounds.	4
206	Lives on same street, going for walk after fight with mom.	1
207	99	1
208	Gone out with friends.	2
209	Using this route to walk home to avoid contact with police.	4
210	Hotel attended by victim and friends.	2

Coding Key:

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2 = Victim at location for general socialising

3 = Victim directed to location by offender

4 = Victim unfamiliar with location

5 = Victim relationship to location not clear or unknown

Case	Victim Relationship to Initial Contact Scene	Coding Assigned
211	Victim was jogging on the road.	1
212	Shopping.	5
213	99	1
214	Returned from holiday on flight, needed ride to hostel.	4
215	99	1
216	99	5
217	99	1
218	Victim was socialising at nightclub.	2
219	Patron	2
220	99	4
221	99	1
222	Walked there after party.	2
223	Sitting after being denied entry to club.	2
224	Sitting outside nightclub intoxicated.	2
225	Patron.	2
226	Usually frequented park.	2
227	99	3
228	99	1
229	Offence location is victim's friend's house.	1
230	Walking home.	1
231	Night club.	2
232	Via speaking to offender on-line (GRINDER app).	3
233	99	1
234	99	1
235	Drinking with friend.	2
236	Drinking and socialising with family/friends.	2
237	Out drinking.	2
238	Attended for party, friend of host.	2
239	Wandering the city.	4
240	99	1
241	Attended with friend.	2
242	99	1
243	Walked there with sister.	2
244	99	1
245	99	1
246	Socialising with friends.	2

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- 1 = Victim familiar with location
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- 4 = Victim unfamiliar with location
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Case	Victim Relationship to Initial Contact Scene	Coding Assigned
247	Out drinking with friends.	2
248	Attended for party.	2
249	Waiting for ride with friends.	2
250	99	1

Note. Any responses stating 99 originally contained missing info, so the author went back to original case files to fill in the appropriate coding. Responses were taken directly from the VSCD form, so language choice and amount of description were dependent on the individual who initially completed the form.

Appendix C: Coding Created for Open Question: "What Happened Prior To Attitude Change?"

Coding Key:

- 1 = Victim resistance (verbal, physical, etc. [any resistance])
 2 = Victim manipulation, request, mocking, questioning (involvement other than resistance)
 3 = End of encounter
 4 = Other event or action preceded change of attitude

Case	What Happened Prior to Attitude Change?	Coding Assigned
1	--	--
2	--	--
3	--	--
4	--	--
5	--	--
6	--	--
7	--	--
8	--	--
9	Victim resisted offenders demands. Offender's penis fell out of victim's anus.	1
10	--	--
11	The offender was trying to sound innocent to victim. Offender got very angry when victim escaped from him. The offender apologised to victim for spilling a drink over her.	1
12	--	--
13	The victim started crying.	2
14	Victim mentioned having bad few days, having a miscarriage and being in lots of pain.	2
15	--	--
16	--	--
17	Victim told offender to fuck off. Victim refused to perform fellatio.	1
18	--	--
19	--	--
20	Victim attempted to push the offender away from her, offender responded by getting angry, saying 'don't do that again,' 'turn around' in an angry tone, and grabbing and forcing the victim to bend over.	1
21	Victim pointed out size of offender's penis and inability to maintain an erection.	2
22	Victims suggests, 'Why don't we meet some time and do it nicely'. Victim said she couldn't get her boots off, zipper was stuck and, offender let her go.	2

Coding Key:

1 = Victim resistance (verbal, physical, etc. [any resistance])

2 = Victim manipulation, request, mocking, questioning (involvement other than resistance)

3 = End of encounter

4 = Other event or action preceded change of attitude

Case	What Happened Prior to Attitude Change?	Coding Assigned
23	Victim asked where they were going and why he hadn't bought her a packet of cigarettes.	2
24	Victim stated she needed to go to toilet. Stated to offender that he had just had sex with her twice and he should trust her.	2
25	--	--
26	Victim screamed for help.	1
27	--	--
28	Victim went to walk into her residence. Offender then pushed victim into carpark before she could leave.	1
29	Victim said 'no' or 'stop' or cried out in pain.	1
30	Victim was calling for assistance and offender became agitated.	1
31	Victim moved her head to the side to enable her to breath & offender thought she had looked at him.	4
32	He gave the victim her clothes back and she started to get dressed after the sexual act was over.	3
33	Victim continued to scream despite offender telling her not to, so offender produced knife to make her be quiet. After ejaculation and rape component of offence ended, offender apologised, saying 'I'm sorry for what I put you through, but I had to teach you a lesson'	1, 3
34	--	--
35	--	--
36	Victim did not give answer the offender wanted so he punched her in the stomach. Victim gagged and cried from forced fellatio, offender wiped away her tears and said 'please don't cry, you'll make me sad' victim wiped ejaculate from her mouth on a towel instead of rinsing her mouth with water - offender got very angry. Victim was coached in what to say and offender would punch victim if she did not comply or say things in the right way.	1
37	Victim attempted to escape.	1
38	Victims did not understand what offender said and wanted.	4
39	The victim grabbed her child, begging for her not to be hurt. Offender responded that she was fine in a different voice than he had been using (had previously been deepening/rasping his voice).	2
40	Victim child woke up.	1
41	--	--
42	--	--

Coding Key:

1 = Victim resistance (verbal, physical, etc. [any resistance])

2 = Victim manipulation, request, mocking, questioning (involvement other than resistance)

3 = End of encounter

4 = Other event or action preceded change of attitude

Case	What Happened Prior to Attitude Change?	Coding Assigned
43	--	--
44	--	--
45	--	--
46	--	--
47	The victim bit or attempted to bite offender on the stomach, then seized the offender by the testicles and twisted hard.	1
48	Victim began playing along and trying to gain offender's trust.	2
49	--	--
50	--	--
51	--	--
52	During victim's struggles she kicked a colour bond gate that opened and made lots of noise. Offender stopped, slapped victim and said, 'shut up, just shut up' (victim had been struggling and screaming prior to this but offender did not react until she kicked the gate).	1
53	Directive: Offender followed victim into her bedroom and turned off lights. Victim requested lights be turned back on, to which the offender slapped the victim and told her to be quiet. Less angry: victim crying led offender to stopping with penetration momentarily (3 separate times).	1, 2
54	--	--
55	--	--
56	--	--
57	--	--
58	--	--
59	Victim rejected a drink supplied to her.	1
60	Victim woke up.	1
61	--	--
62	The victim continued to refuse his advances. The victim called a friend of hers and the friend called back - offender then started to strangle the victim. Offender became 'nicer' after strangling her, and after she seemed to get to a breaking point where she said she would do anything.	1
63	--	--

Coding Key:

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3 = End of encounter

4 = Other event or action preceded change of attitude

Case	What Happened Prior to Attitude Change?	Coding Assigned
64	Offender had pushed the victim's legs over toward her shoulders causing her pain. Victim has told the offender his time was up, and he left to shower before returning with an axe. Victim later said she wouldn't tell anyone. Offender responded he couldn't trust her and lunged at her, choking her and threatening her up close with the axe, saying he couldn't afford to trust her.	4
65	He was refused sex without protection.	1
66	Offender was asking for sex and was allowed into premises. Offender has then become violent and carried out rapes/assaults as soon as victim removed her clothing.	4
67	Victim refused to have sex - offender began strangling victim. Victim didn't place offender's penis in her anus fast enough - offender grabbed her by throat again and squeezed.	1
68	Victim forcefully refused anal intercourse and asked to leave.	1
69	The victim faked having a heart attack and asked him to leave.	2
70	--	--
71	Voice called out from the boat that sounded like offender's son. Offender startled and removed his hand from victim's underwear.	4
72	--	--
73	--	--
74	--	--
75	--	--
76	When offender couldn't get projector to work, he got frustrated and angry. When offender couldn't get victim's bra unclipped he got frustrated, started pulling roughly at it. When victim told offender to lie down on the bed, he seemed to get excited and said 'ok'.	2, 4
77	--	--
78	--	--
79	--	--
80	Victim went to other room to get condoms.	2
81	Victim was asking if the offender was finished.	2

Coding Key:

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2 = Victim manipulation, request, mocking, questioning (involvement other than resistance)

3 = End of encounter

4 = Other event or action preceded change of attitude

Case	What Happened Prior to Attitude Change?	Coding Assigned
82	Victim was struggling with offender. Offender initially punched victim in face. Victim continued to struggle and offender held knife up to her, cutting her cheek (victim ceased struggling at this point). Offender appeared to get frustrated and angry when removing victim's pants to find leggings on underneath.	1
83	--	--
84	When victim's boyfriend did not return from getting drugs for offender, offender made hostages walk to another house on the street and back.	4
85	--	--
86	Victim questioned offender's credentials, asked offender to produce identification.	2
87	Any time the victim would argue with offender or try to leave the offender would threaten the victim with violence or manipulate the victim by making her feel guilty ('are you just going to leave me here? Do you not like me?') or telling her she had to stay in order to sort out the phones.	1
88	Victim would refuse offender's requests or talk to her family or take too long in the toilet, etc. Any time the offender suspected the victim of trying to get help or get away.	1
89	Victim threatened to tell police about rape.	1
90	Any time victim tried to walk away from offender he would threaten her and remind her he knows where she lives.	1
91	Victim stopped offender from full digital penetration. Offender responded by stopping all massaging, patting the victim down, hitting her chest and leaving.	1
92	--	--
93	--	--
94	--	--
95	Offender began talking about how he hated women, they were sluts, and he had been ripped off before.	4
96	Victim wasn't performing fellatio how offender wanted, so he pushed her down in attempt to undress her. When victim began to struggle and scream, he punched her in the face. When victim continued to struggle and scream despite being punched by offender, he fled.	1

Coding Key:

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2 = Victim manipulation, request, mocking, questioning (involvement other than resistance)

3 = End of encounter

4 = Other event or action preceded change of attitude

Case	What Happened Prior to Attitude Change?	Coding Assigned
97	--	--
98	--	--
99	--	--
100	The victim faked an asthma attack to stop the assault. This woke up her child and she fed him. Offender allowed her to leave to get her asthma puffer and then as she was feeding her son he came out and kissed her neck, asking her to come back to bed after. When victim pretended her father had a heart attack and she had to leave, offender allowed her to leave, asking if he should go with her, that she shouldn't be alone when she was upset.	2
101	--	--
102	Each time the victim tried to escape or didn't follow his directions, the offender responded with violence, then returned to the 'calm' manner of before.	1
103	Sometimes nothing, like a switch got flicked. Other times, when the victim wasn't do what he wanted or wouldn't comply with his demands.	1, 4
104	Victim began crying. Victim attempted to unlock her car door.	1
105	--	--
106	--	--
107	--	--
108	After anal intercourse offender cradled victim in his arms, saying 'I'm sorry baby' (this happened twice). Offender seemed to get more excited and rougher the more pain he caused the victim.	3, 4
109	--	--
110	The victim attempted to remove the offender's hand from around her mouth. The offender became angry and slapped the victim twice across the face.	1
111	Offender asked victim if she liked it and she replied 'no.'	1
112	The victim failed to comply with the offenders demands and attempted to push him away.	1
113	Victim failed to comply with offender's direction to get into his vehicle.	1
114	Non-compliance by the victim to the offender's demands.	1
115	Victim attempted to read the piece of paper with police insignia on it that the offender had given to her whilst in his vehicle.	2

Coding Key:

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3 = End of encounter

4 = Other event or action preceded change of attitude

Case	What Happened Prior to Attitude Change?	Coding Assigned
116	Non-compliance by the victim to the offender's demands.	1
117	--	--
118	Offender withdrew his penis from victim's vagina.	3
119	Offender attitude was of normal sex-worker client. Became aggressive at location of sexual act when demanding sexual acts.	4
120	--	--
121	Victim refused to stay with him.	--
122	--	--
123	--	--
124	--	--
125	They moved from the lounge room to the bedroom.	4
126	--	--
127	Victim refused sexual advances.	1
128	Offender grabbed victim and started to pull off her clothes. Victim fought back and offender pushed her on the ground and said, 'open your mouth bitch and I'll kill you.'	1
129	--	--
130	--	--
131	--	--
132	--	--
133	The offender was telling too much about himself, and he's afraid the victim will tell all this to the police.	4
134	--	--
135	--	--
136	--	--
137	Victim screamed for help.	1
138	Victim told him to stop, tried to get out of the bed.	1
139	The victim screamed.	1
140	--	--
141	--	--
142	--	--
143	--	--
144	--	--
145	--	--
146	--	--
147	--	--

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Case	What Happened Prior to Attitude Change?	Coding Assigned
148	--	--
149	--	--
150	--	--
151	The victim tried to persuade the offender to stop what he was doing which made him become angry and directive. After the rape he became apologetic.	2, 3
152	--	--
153	--	--
154	Victim tried to sit up.	1
155	--	--
156	Victim started crying - offender would become calmer towards victim and hug her. Victim wanted to get clothing from bag - offender threatened that victim was trying to get something to stab him and punched her in the face.	2
157	--	--
158	--	--
159	Offender ejaculated then wiped the ejaculate off the victim's stomach and told victim 'you'd better wash the sheets bitch.'	4
160	--	--
161	He ejaculated into the victim's vagina and withdrew his penis.	3
162	--	--
163	After the rape, when victim asked for assistance to call an ambulance.	2
164	Offender found victim's mobile phone after she had told him she didn't have it with her.	2
165	--	--
166	Victim had last seen offender prior to being unconscious when he was offering her and her husband a lift- he was polite and nice. When the victim woke up with her pants off in the rear of his car victim and offender started yelling at each other after victim started questioning offender about being in the car without her husband.	1
167	The victim physically and verbally attempted to escape. Victim tried to call out to passers-by.	1
168	--	--

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Case	What Happened Prior to Attitude Change?	Coding Assigned
169	Victim denied the offender's requests for sex, this resulted in the assault.	1
170	--	--
171	When the victim tried to make the offender leave, he became violent, smashing her head on the ground, saying he didn't want to leave as there were police outside. After victim gave in and had sex with the offender, the offender apologised for hitting the victim. He said it was because she bit him.	1, 3
172	--	--
173	--	--
174	--	--
175	--	--
176	--	--
177	--	--
178	--	--
179	The offence itself, ejaculation.	3
180	The offender choked the victim into unconsciousness and when she awoke he apologised for his actions.	3
181	--	--
182	--	--
183	--	--
184	Male members of the public including the victim's boyfriend came across the victim and offender after hearing her muffled screams and ran toward the offender causing him to flee.	1
185	--	--
186	--	--
187	--	--
188	--	--
189	Victim woke up, pushed offender away and told him to stop as he was getting married in two weeks.	1, 2
190	--	--
191	Victim knocked the UDL cans out of the offender's hand by accident as she was trying to defend herself.	1
192	--	--
193	--	--
194	--	--

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3 = End of encounter

4 = Other event or action preceded change of attitude

Case	What Happened Prior to Attitude Change?	Coding Assigned
195	When victim's boyfriend yelled at offender and approached him.	4
196	--	--
197	After being pushed around and threatened the victim stopped struggling and said, 'I'll do anything.' Offender said, 'okay, okay' then gently picked up victim and placed her back on the bed.	2
198	--	--
199	--	--
200	--	--
201	--	--
202	Victim asked to go and wash her hands (Offender said ok, but I'm coming with you). Victim told offender he hurt her (Offender said I'm sorry).	2
203	--	--
204	--	--
205	--	--
206	--	--
207	Offender confronted by the victim and her boyfriend.	1
208	Intercourse ceased.	3
209	--	--
210	--	--
211	The victim was running with an aggressive blue heeler dog. The victim has released the dog which has attacked and bitten the offender. The victim was screaming.	1
212	Offender lost small bag of cannabis that he was about to smoke.	4
213	--	--
214	--	--
215	--	--
216	--	--
217	--	--
218	--	--
219	--	--
220	Violence against the offender by the victim.	1
221	--	--
222	Victim said she would not go to offender's house with him.	1
223	--	--
224	--	--

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Case	What Happened Prior to Attitude Change?	Coding Assigned
225	--	--
226	--	--
227	Victim got up to walk away from offender. Offender told her to 'fuck off and sleep in the other room.'	3
228	Victim attempted to get away.	1
229	Some level of resistance from the victim as in her statement.	1
230	Victim tried to close her mouth as offender was kissing her to avoid the kiss (offender became angry and more aggressive). Victim attempted to get her phone to get help (offender ceased intercourse to grab her phone and smash it, then commenced intercourse).	1
231	The victim told the offender she had to leave and got up to leave.	1
232	--	--
233	Each time the victim struggled or tried to get away, offender would grab her and threaten to kill her.	1
234	The victim asked the offender 'can you please make it wet down there or something' (offender responded by choking her harder and saying 'don't tell me what to do or you will suffer the consequences').	2
235	--	--
236	--	--
237	--	--
238	Victim awoke and yelled at offender to stop (offender stated that previously she had thrown her leg over him and made noise, he did not know she was asleep).	1
239	--	--
240	--	--
241	Victim redressed and tried to leave after vaginal penetration. Offender said, 'let's just talk' and lay down on victim's lap.	3
242	--	--
243	--	--
244	--	--
245	--	--
246	--	--
247	--	--

Coding Key:

1 = Victim resistance (verbal, physical, etc. [any resistance])

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3 = End of encounter

4 = Other event or action preceded change of attitude

Case	What Happened Prior to Attitude Change?	Coding Assigned
248	Victim continued to say she wanted to go back to the party and got agitated.	1
249	Victim awoke and pushed offender off her.	1
250	Victim asked him to not rape her and told him she was a virgin. Offender stopped and said, 'I won't do this to you, I didn't do anything, I didn't touch you, I didn't hurt you.'	2

Note. -- denotes cases with no change of attitude or missing information. Responses were taken directly from the VSCD form, so language choice and amount of description were dependent on the individual who initially completed the form.

Appendix D: Coding Created for Open Response: "Require Performance Description"

Coding Key:

1 = Require fellatio

2 = Require specific performance, position, or scripting

3 = Require foreplay (masturbation of victim or offender, cunnilingus, etc.)

4 = Require intimacy (kissing, cuddling, stroking back, etc.)

5 = Require other

-- = No performance required

Case	Require Performance Description	Coding Assigned
1	Fellatio	1
2	--	--
3	Got victim to undress herself and masturbate herself	3
4	--	--
5	Wanted the victim to pose for photographs. At one point during cunnilingus, offender wanted victim to put her arms up in front of her eyes. Offender kept calling the victim 'Maureen' throughout the offence.	3, 4, 5
6	--	--
7	Told victim to roll onto back.	2
8	--	--
9	--	--
10	Wanted victim to perform fellatio.	1
11	Required victim to perform fellatio.	1
12	--	--
13	Required specific positions, required fellatio.	1, 2
14	Perform fellatio.	1
15	--	--
16	--	--
17	Required fellatio.	1
18	--	--
19	--	--
20	Fellatio (consensual) before the offence. Required victim to turn around.	1, 2
21	Perform fellatio.	1
22	--	--
23	Perform fellatio. Wanted victim to play with herself. Wanted victim to hug him.	1, 3, 4
24	--	--
25	--	--
26	--	--
27	--	--
28	Roll over onto her stomach.	2
29	--	--
30	--	--

Coding Key:

1 = Require fellatio

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3 = Require foreplay (masturbation of victim or offender, cunnilingus, etc.)

4 = Require intimacy (kissing, cuddling, stroking back, etc.)

5 = Require other

-- = No performance required

Case	Require Performance Description	Coding Assigned
31	--	--
32	Swallow his semen.	4
33	Perform fellatio and also adopt various sexual positions as directed.	1, 2
34	Kept getting the victim to kiss him whilst he raped her.	4
35	--	--
36	Made the victim respond with scripted phrases (i.e. offender said, "I will not hurt you, I do not want to cause you pain why?" Victim had to respond "as long as I do what I am told" offender would then say "good girl"). Offender told the victim to kiss him like she was making love to him i.e. tongue kissing. Offender made victim fellate him in front of a mirror and watch herself doing this, in the mirror. Offender made the victim spread her buttocks several times, exposing her anus. Victim forced to respond to question "what am I going to do now?" with answers "fuck me in the arse or fuck me in the cunt." Victim forced to digitally penetrate her own anus.	1, 2, 3, 4
37	Required victim to perform fellatio and put her hands on his stomach and play with his testicles.	1, 3, 4
38	Ordered victims to lick his balls, lick his anus, give him 'blowjobs' and told them to say that they like it etc.	1, 2, 3
39	--	--
40	--	--
41	--	--
42	--	--
43	--	--
44	--	--
45	--	--
46	--	--
47	--	--
48	Required 'doggie' style intercourse while victim looked at him. Required victim to lay down to perform fellatio on him. Required '69.' Required victim to be on top for anal intercourse. Required victim to keep looking at him during anal intercourse.	1, 2, 3
49	--	--
50	--	--
51	--	--
52	--	--

Coding Key:

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3 = Require foreplay (masturbation of victim or offender, cunnilingus, etc.)

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5 = Require other

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Case	Require Performance Description	Coding Assigned
53	--	--
54	--	--
55	--	--
56	Asked her if he could look at her. Asked her if she would perform oral sex. Asked her not to involve the police. Asked her to help look for his knife.	1, 4, 5
57	--	--
58	--	--
59	--	--
60	--	--
61	--	--
62	--	--
63	--	--
64	Fellatio.	1
65	--	--
66	Required fellatio a number of times as his penis became flaccid. Required showers as well in which the victim washed and dried the offender.	1, 5
67	--	--
68	Offender asked victim to choke him and spit on him.	5
69	--	--
70	--	--
71	--	--
72	--	--
73	--	--
74	--	--
75	Required victim to play with his nipples. Required fellatio.	1, 3
76	Forced fellatio, placed victim in positions.	1, 2
77	--	--
78	Required fellatio.	1
79	Required fellatio.	1
80	Required her to lick him and perform oral sex.	1, 3
81	Required victim to perform fellatio, to lay in back seat of car and to put his penis in her vagina.	1, 2
82	--	--
83	--	--
84	--	--

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5 = Require other

-- = No performance required

Case	Require Performance Description	Coding Assigned
85	--	--
86	Required fellatio.	--
87	Required the victim to sign up for new mobile phone plans under her name, saying he would transfer them to his business. Forced fellatio on first rape.	1, 5
88	Required her to perform fellatio during 2nd rape. Required her to sign up for multiple phone plans so he could get new phones and sell them.	1, 5
89	Required victim to wear a skirt to their meeting.	5
90	Required her to scream his name, moan, etc. (unknown if she complied). Required victim to gamble, give him money.	4, 5
91	Required her to turn over so she was lying on her back.	2
92	Required victim to roll onto her back.	2
93	Required fellatio.	1
94	--	--
95	Required fellatio.	1
96	Required fellatio. When that wasn't to his standard, he attempted to undress the victim.	1
97	Required victim to roll onto her stomach.	2
98	Required her to lay on her stomach.	2
99	--	--
100	--	--
101	--	--
102	Required her to be on her hands and knees, then on her back during the intercourse. Required victim drive him around.	2, 5
103	Required fellatio. Required victim to sit over him in the bath for sex, then required the victim to lay down in the bath for sex.	1, 2
104	Required victim to go with him to the ATM where he used her bank card to withdraw cash. Required victim to kiss him whenever cab drove past.	4, 5
105	--	--
106	--	--
107	Instructed her to kneel, perform fellatio, lie down, take her pants off.	1, 2
108	Forced positioning and fellatio.	1, 2
109	The victim was forced to stroke the skin of the offender's back in an up and down motion whilst the offender was having vaginal intercourse with the victim in the missionary position.	4

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5 = Require other

-- = No performance required

Case	Require Performance Description	Coding Assigned
110	The offender required the victim to sit on top of the offender during intercourse, the offender said to the victim 'I want to see you come'. The offender made the victim masturbate and perform fellatio on him.	1, 2, 3, 4
111	Suck his neck.	4
112	Squeeze his nipples hard give him a head job.	1, 3
113	Fellatio.	1
114	Bite and squeeze his nipples. Perform fellatio. Perform masturbation.	1, 3
115	Offender required victim to call him 'sir.' Offender required victim to perform fellatio. Offender required victim to spit semen out.	1, 2
116	Bite his nipples. Perform fellatio. Masturbate him.	1, 3
117	--	--
118	--	--
119	Required victim to take her clothes off and get in positions (i.e. lean over the boot).	2
120	--	--
121	--	--
122	--	--
123	--	--
124	--	--
125	--	--
126	--	--
127	--	--
128	Fellatio.	1
129	--	--
130	Required victim to perform oral sex.	1
131	--	--
132	--	--
133	Masturbate him and assist him to insert his penis into her vagina.	2, 3
134	--	--
135	--	--
136	--	--
137	Give me a kiss and I'll go.' 'Are you enjoying me fucking you? Say you are enjoying me fucking you.' 'Buck with me.'	2, 4
138	--	--
139	--	--

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Case	Require Performance Description	Coding Assigned
140	Offender told victim to spread legs.	2
141	--	--
142	Victim was required to masturbate offender.	3
143	--	--
144	--	--
145	--	--
146	--	--
147	--	--
148	--	--
149	--	--
150	--	--
151	Required victim to kiss him, perform fellatio on numerous occasions, to sit on top of him and 'fuck' him, to play with herself.	1, 2, 3, 4
152	--	--
153	Offender told victim to get on top. Offender told victim to suck his 'cock / dick'. Offender told victim to grab his balls. Offender told victim to sit on his face.	1, 2, 3
154	--	--
155	required victim to perform fellatio on two occasions.	1
156	--	--
157	--	--
158	Fellatio.	1
159	--	--
160	--	--
161	--	--
162	--	--
163	--	--
164	--	--
165	Required the victim's assistance to put his penis into her vagina.	2
166	--	--
167	--	--
168	--	--
169	--	--
170	--	--
171	--	--

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3 = Require foreplay (masturbation of victim or offender, cunnilingus, etc.)

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Case	Require Performance Description	Coding Assigned
172	Required victim to lick his penis.	1, 3
173	Wanted oral sex.	1, 3
174	--	--
175	--	--
176	Asked victim to kiss him.	4
177	--	--
178	--	--
179	--	--
180	Asked for fellatio (not performed). Told victim to get on her knees.	1, 2
181	Requested oral sex.	1
182	Offender ordered the victim into the shower. Offender ordered the victim out of the shower. Offender order the victim to her knees and ordered her to perform fellatio on him. Offender ordered the victim to kiss him back and to put her tongue in his mouth. Most of the intercourse was with victim bent over and offender behind her.	1, 2, 4, 5
183	--	--
184	Required victim to stand in a certain position so he could insert his penis into her vagina from behind.	2
185	--	--
186	--	--
187	Asked victim to take off her clothes.	2
188	Kiss and fellate offender.	1, 4
189	Require victim to say, 'I'm being fucked up the arse and I'm enjoying it.'	2
190	--	--
191	--	--
192	--	--
193	--	--
194	--	--
195	--	--
196	--	--
197	--	--
198	--	--
199	--	--
200	--	--
201	--	--

Coding Key:

1 = Require fellatio

2 = Require specific performance, position, or scripting

3 = Require foreplay (masturbation of victim or offender, cunnilingus, etc.)

4 = Require intimacy (kissing, cuddling, stroking back, etc.)

5 = Require other

-- = No performance required

Case	Require Performance Description	Coding Assigned
202	--	--
203	--	--
204	--	--
205	--	--
206	--	--
207	--	--
208	--	--
209	--	--
210	--	--
211	--	--
212	--	--
213	--	--
214	--	--
215	--	--
216	--	--
217	--	--
218	--	--
219	--	--
220	--	--
221	--	--
222	--	--
223	--	--
224	--	--
225	--	--
226	--	--
227	--	--
228	--	--
229	--	--
230	Pull down pants, bend over, lie down.	2
231	--	--
232	--	--
233	--	--
234	--	--
235	--	--
236	--	--

Coding Key:

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2 = Require specific performance, position, or scripting

3 = Require foreplay (masturbation of victim or offender, cunnilingus, etc.)

4 = Require intimacy (kissing, cuddling, stroking back, etc.)

5 = Require other

-- = No performance required

Case	Require Performance Description	Coding Assigned
237	--	--
238	--	--
239	--	--
240	--	--
241	Required 69, required fellatio, made victim assume position for anal intercourse.	1, 2
242	--	--
243	--	--
244	--	--
245	--	--
246	Fellatio and masturbate the offender.	1, 3
247	--	--
248	--	--
249	--	--
250	--	--

Note. -- denotes cases with no requirements or cases with missing information. Responses were taken directly from the VSCD form, so language use and amount of description were dependent on the individual who initially completed the form.

Appendix E: Variables with Counts of ≤ 5 in Both Offence Groups

Victim Incapacitation: Adolescent
Victim Incapacitation: Elderly
Victim Incapacitation: Health
Victim Incapacitation: Mental
Potential Motive: Drug
Potential Motive: Kidnap
Initial Contact at Farm/Agricultural Land
Initial Contact at Motel/Hotel
Initial Contact Business: Offender's Work
Initial Contact Outdoor: Public Park
Initial Contact Outdoor: Other
Offender Gain Entry to Initial Contact: Offender Lived/Worked in the Building
Offender Assault Scene Gain Entry: Through Insecure Door/Window
Offender Assault Scene Gain Entry: Let in by 3rd Person
Offender Assault Scene Gain Entry: Key
Offender Assault Scene Gain Entry: Building Was Open to Public
Weapon Threatened but Not Displayed
Weapons Used Found at Scene
Weapons Used Both Brought and Found
Weapon Type: Bludgeon
Weapon Type: Firearm
Weapon Type: Ligature
Weapon Type: Unusual
Victim Sustained Unusual Trauma
Approach Style: Blitz
Force Used After Sex
Victim Sustained Severe Injury (Required Hospitalisation)
Offender Displayed Overwhelming Anger
Victim Resistance Passive: Did Not Comply with Commands
Offender's Reaction to Victim Resistance: Threaten 3rd Party
Offender's Reaction to Victim Resistance: Cease to Demand
Assault Category Cutting
Assault Category Foreign
Assault Category Hand/Fist Insertion
Assault Category Pinching
Assault Category Simulated Intercourse
Assault Category Stabbing
Assault Category Suffocation
Semen Identified Anus
Semen Identified Mouth
Offender Method to Overcome Dysfunction: Masturbated Self
Offender Method to Overcome Dysfunction: Victim Forced to Meet Specific Condition
Offender Method to Overcome Dysfunction: Increasing Violence
Offender Method to Overcome Dysfunction: Nothing Done
Offender Method to Overcome Dysfunction: Multiple Methods Used

Offender Showed Both Escalation and De-escalation of Behaviour

Offender Asked Many Questions About the Victim's Life and Victim Believed it Was of Major Interest to the Offender

Means of Contact: Newspaper Ad

Means of Contact: Internet

Contact Nature: Apologising

Contact Nature: Sexually Explicit

Clothing Removed: Victim Disrobed Offender

Clothing Removed: Victim Was Already Naked

Precautions: Disabled Phone

Precautions: Forced Bath

Precautions: Gloves

Precautions: Secure Escape Route

Restraints Used: Brought by Offender

Blindfold Applied Immediately (Before Victim Could See Offender)

Blindfold Applied During Assault (After Victim Witnessed Offender)

Clothing Missing

Appendix F: Lifestyle Characteristics, Transportation Methods, and Sexual Habits of All Offenders and Victims

	Offenders				Victims			
	Serial (n = 46)		Non-Serial (n = 125)		Serial (n = 127)		Non-Serial (n = 128)	
	n	% of Cases	n	% of Cases	n	% of Cases	n	% of Cases
<i>Lifestyle Characteristics</i>								
Alcohol Abuser	25	20.3%	24	19.2%	6	4.8%	8	6.4%
Average Citizen	36	29.3%	36	28.8%	86	68.3%	93	74.4%
Criminal Activity	63	51.2%	38	30.4%	3	2.4%	4	3.2%
Drug Abuser	24	19.5%	28	22.4%	14	11.1%	8	6.4%
Drug Dealer	0	0.0%	5	4.0%	0	0.0%	0	0.0%
Likes to Socialise/Party	11	8.9%	23	18.4%	12	9.5%	26	20.8%
Night Person	27	22.0%	8	6.4%	0	0.0%	8	6.4%
Prostitute	0	0.0%	0	0.0%	22	17.5%	3	2.4%
Reclusive	4	3.3%	2	1.6%	0	0.0%	0	0.0%
Transient	7	5.7%	7	5.6%	3	2.4%	7	5.6%
Unknown	17	13.8%	37	29.6%	14	11.1%	10	8.0%
<i>Transportation Method</i>								
Bicycle	11	8.9%	3	2.4%	0	0.0%	0	0.0%
Drives	88	71.0%	49	39.2%	35	28.0%	26	20.3%
Hitchhikes	2	1.6%	0	0.0%	5	4.0%	0	0.0%
Relies on Others	12	9.7%	13	10.4%	33	26.4%	22	17.2%
Public Transportation	6	4.8%	11	8.8%	19	15.2%	28	21.9%
Taxi	0	0.0%	0	0.0%	13	10.4%	16	12.5%
Walks	34	27.4%	35	28.0%	54	43.2%	59	46.1%
Unknown	25	20.2%	49	39.2%	36	28.8%	29	22.7%
<i>Sexual Habits</i>								
Bisexual	6	4.8%	0	0.0%				
Exhibitionist	2	1.6%	0	0.0%				
Heterosexual	110	88.0%	105	84.0%				
Homosexual	0	0.0%	6	4.8%				
Promiscuous	9	7.2%	2	1.6%				
Voyeur	6	4.8%	0	0.0%				
Unknown	8	6.4%	14	11.2%				

Note. Percentages can total above 100% as an offender or victim can count multiple characteristics for each offence. Sexual habit information was not collected for victims.

Appendix G: Summary of Counts, Chi-Square, P-values, Fisher's Exact, and Phi Values for All Compared Variables

Variable	Serial	Non-serial	χ^2 (df = 1)	p	P (Fisher's exact)	Φ
Offence Occurred on Weekend	44	64	6.52	.011	--	-.16
Motive Burglary	6	9	0.64	.424	--	-.05
Motive Financial	7	0	7.20	.--	.014	.17
Motive Robbery	11	5	2.40	.121	--	.10
*Offender Under the Influence of Drugs or Alcohol	33	80	35.67	.000	--	-.38
*Offender Displayed Unusual Characteristics	19	6	7.51	.006	--	.17
Victim Sex: Female	124	119	3.67	--	.120	.12
*Victim Lifestyle: Prostitute	22	3	16.04	.000	--	.25
*Victim Incapacitation: Alcohol	19	62	33.77	.000	--	-.37
*Was Vehicle Used?	54	26	14.41	.000	--	.24
*Vehicle Owned by Offender	30	13	8.12	.004	--	.18
*Initial Contact (IC) Witnesses	42	75	17.50	.000	--	-.27
Initial Contact Outdoors	65	46	5.85	.016	--	.15
*Offender IC Gain Entry: Forced Entry	13	1	10.90	.001	--	.21
Offender IC Gain Entry: Via Insecure Door or Window	15	21	1.17	.280	--	-.07
Offender IC Gain Entry: Let in by Victim	11	6	1.58	.209	--	.08
*Offender IC Gain Entry: Let in by Third Person	2	12	7.57	.006	--	-.17
*Offender IC Gain Entry: Building Open to Public	15	33	8.35	.004	--	-.18
Initial Contact Living Quarters	49	45	0.27	.601	--	.03
IC Victim's Residence	38	29	1.65	.199	--	.08
IC Other Residence	5	11	2.40	.121	--	-.10
Initial Contact Business or Public Building	41	52	2.07	.150	--	-.09
*IC Business: Bar, Tavern, or Nightclub	9	32	15.43	.000	--	-.25
IC Business: Victim's Work	10	3	3.98	.046	--	.13
Initial Contact Vehicle	12	6	2.16	.142	--	.09
IC Outdoor: Pathway	7	2	2.88	--	.172	.11

Variable	Serial	Non-serial	χ^2 (df = 1)	ρ	P (Fisher's exact)	Φ
*IC Outdoor: Public Street or Parking	47	23	11.43	.001	--	.21
Victim Familiar with IC	81	61	6.52	.011	--	.16
*Victim at IC for General Socialising	9	39	23.21	.000	--	-.31
*Offender Chose IC Location	17	4	8.79	.003	--	.19
Victim IC Unfamiliar	8	16	2.95	.086	--	-.11
Initial Contact/Assault Scene (AC) Same Location?	66	63	0.14	.704	--	.02
Multiple Offence Sites	8	3	2.51	--	.133	.10
AS Indoors	69	77	1.22	.269	--	-.07
*Assault Scene (AS) Witnesses	26	46	7.10	.008	--	-.17
Offender Used Con to Get Victim to AS	35	46	2.21	.137	--	-.09
Offender Used Force to Get Victim to AS	24	16	1.91	.168	--	.09
Assault Scene Living Quarters	25	35	2.19	.139	--	-.09
Assault Scene Business/Public Building	10	8	0.24	.625	--	.03
Assault Scene Vehicle	23	12	4.02	.045	--	.13
*Contact End: Release	104	84	8.58	.003	--	.19
Contact End: Escape	13	27	5.83	.016	--	-.15
Contact End: Rescue	8	14	1.79	.180	--	-.09
Release Scene and Initial Contact Same Site	74	66	1.20	.274	--	.07
Release Scene and Assault Scene Same Site	98	111	3.40	.065	--	-.12
*Weapon Involved?	40	19	9.78	.002	--	.20
*Offender Brought Weapon	32	11	12.39	.000	--	.22
*Offender Removed Weapon	31	10	12.87	.000	--	.23
Weapon Recovered	5	6	0.1	0.758	--	-0.02
Weapon Displayed	12	9	0.47	.494	--	.04
*Weapon Intentionally Used by Offender	25	7	11.61	.001	--	.22
*Weapon Type: Stabbing	36	15	10.86	.001	--	.21
Minimal Blunt Trauma	24	15	2.38	.123	--	.10
Facial Injury?	21	15	1.12	.291	--	.07
Offender Bite Victim?	10	14	0.81	.368	--	-.06

Variable	Serial	Non-serial	χ^2 (df = 1)	ρ	P (Fisher's exact)	Φ
DNA Available?	44	64	6.52	.011	--	-.16
*Victim Selection: Opportunistic	81	116	29.33	.000	--	-.34
*Victim Selection: Pre-Targeted	43	5	37.23	.000	--	.39
Approach Style Con	74	86	2.50	.114	--	-.10
Con: Offender Offer Help/Info/Drugs to Victim	17	29	3.84	.050	--	-.12
Con: Solicitation for Sex	14	5	4.61	.032	--	.14
Con: General Socialising/Bar/Feign Interest	21	37	5.75	.017	--	-.15
*Con: Pose as Authority Figure	10	0	10.42	.001	--	.20
Approach Style Surprise	47	39	1.13	.287	--	.07
Surprise: Offender Sneaked Up on or Grabbed Victim	22	14	2.08	.150	--	.09
Moderate Force Used	26	23	0.23	.633	--	.03
Force Used Immediately	34	20	4.63	.031	--	.14
Force Used After Contact Before Sex Act	35	25	2.19	.139	--	.09
Force Used Upon Victim Resistance	28	20	1.65	.199	--	.08
*Force Used During Sex Act	26	46	7.80	.005	--	-.18
No Injuries	52	60	1.04	.309	--	-.06
Minor Injury (No Medical Treatment Required)	55	46	1.35	.246	--	.07
Moderate Injury (Required Outpatient Treatment)	16	17	0.04	.852	--	-.01
*Offender: No Overt Anger	79	101	9.60	.002	--	-.20
*Offender: Some Anger	44	24	8.08	.004	--	.18
No Victim Resistance (Followed Instructions/Demands)	37	26	2.57	.109	--	.10
Victim Resistance: Verbal (Argued/Negotiated)	45	40	0.45	.504	--	.04
Victim Resistance: Physical (Struggled, Fought, Attempted Escape)	39	55	4.36	.037	--	-.13
Offender Ignore Victim Resistance	22	32	2.36	.124	--	-.10

Variable	Serial	Non-serial	χ^2 (df = 1)	ρ	P (Fisher's exact)	Φ
Offender Flee/Cease demand from Victim Resistance	8	19	5.02	.025	--	-.14
Offender Threaten After Victim Resistance	22	12	3.40	.065	--	.12
Offender Use Force After Victim Resistance	39	31	1.27	.260	--	.07
Offender Negotiate with Victim After Resistance	10	7	0.57	.451	--	.05
Assault Category: Anilingus	7	0	7.20	--	.014	.17
Assault Category: Beating	8	4	1.40	.237	--	.08
Assault Category: Biting	10	13	0.43	.512	--	-.04
Assault Category: Choking	21	14	1.63	.202	--	.08
Assault Category: Cunnilingus	22	16	1.12	.291	--	.07
Assault Category: Digital Penetration (Vaginal or Anal)	47	43	0.28	.598	--	.03
Assault Category: Fellatio	46	28	6.22	.013	--	.16
Assault Category: Fondling	50	34	4.59	.032	--	.14
Assault Category: Hair Pulling	13	6	2.79	.095	--	.11
Assault Category: Kissing	37	55	5.57	.018	--	-.15
Assault Category: Masturbation	18	11	1.91	.167	--	.09
Assault Category: Slapping	6	4	0.42	.519	--	.04
Assault Category: Vaginal Intercourse	86	90	0.21	.647	--	-.03
Assault Category: Verbal Abuse	6	0	6.15	--	.029	.16
Assault Category: Unusual Semen Identified	12	7	1.42	.233	--	.08
Evidence of Ejaculation	29	37	1.41	.235	--	-.08
Ejaculation: Body	24	20	0.44	.506	--	.04
Ejaculation: Elsewhere	7	10	0.57	.451	--	-.05
Evidence of Sexual Dysfunction	13	8	1.30	.254	--	.07
Retarded Ejaculation	23	18	0.73	.393	--	.05
Conditional Ejaculation (Example: Fellatio, Penetration from Behind)	7	9	0.27	.605	--	-.03
Evidence Offender Attempted to Overcome Dysfunction	6	2	2.07	--	.281	.09
Foreign Object Inserted	19	12	1.80	.179	--	.09
	3	6	1.04	--	.500	-.06

Variable	Serial	Non-serial	χ^2 (df = 1)	ρ	P (Fisher's exact)	Φ
*Evidence of Offender Attitude Change	66	44	7.86	.005	--	.18
*Attitude Change: Escalation of Behaviour	53	27	12.43	.000	--	.22
Attitude Change: De-Escalation of Behaviour	18	21	0.27	.601	--	-.03
Attitude Change Due to Victim Resistance (Any Kind)	38	25	3.73	.053	--	.12
Attitude Change Due to Victim Manipulation (Mock Offender, Request, Play Along, etc.)	15	8	2.41	.121	--	.10
Attitude Change Due to End of Encounter	3	6	1.01	--	.500	-.06
Attitude Change Due to Other	9	4	2.07	.150	--	.09
*Require: Performance (Of Any Kind)	56	24	18.82	.000	--	.27
*Require: Fellatio	38	13	15.40	.000	--	.25
Require: Positioning, Action or Scripting	21	13	2.18	.140	--	.09
Require: Intimacy (Kissing, Cuddling, Stroking, etc.)	11	5	2.40	.121	--	.10
Require: Foreplay (Masturbate Self, Offender, Licking/Cunnilingus, etc.)	13	5	3.83	.050	--	.12
*Require: Other Act by Victim	12	1	9.82	.002	--	.20
Offender Did Not Talk About Self at All	63	58	0.40	.527	--	.04
Offender Made Reference to Self in Passing	27	24	0.22	.638	--	.03
Offender Talked About Self - Not Excessive	16	21	0.79	.373	--	-.06
Offender Talked About Self Mostly/Excessively	8	2	3.75	.053	--	.12
No Questions About the Victim's Personal Life	60	58	0.06	.800	--	.02
Asked Questions, But the Victim Did Not Think It Dominated the Offender's Interest	27	22	0.64	.426	--	.05

Variable	Serial	Non-serial	χ^2 (df = 1)	ρ	P (Fisher's exact)	Φ
Image Projected: Pseudo-Sensitive	11	17	1.45	.229	--	-.08
*Image Projected: Neutral	62	89	12.19	.000	--	-.22
*Image Projected: Macho	52	19	21.42	.000	--	.29
Demeanour Towards Victim: Pseudo-Complimentary	8	6	0.30	.582	--	.04
*Demeanour Towards Victim: Neutral	96	113	8.43	.004	--	-.18
*Demeanour Towards Victim: Demeaning	21	6	9.34	.002	--	.19
No Negotiation Between the Offender and the Victim	69	71	0.16	.686	--	-.03
Extensive Negotiation Between the Offender and the Victim	6	2	2.00	--	.281	.09
No Attempt to Reassure the Victim	73	81	1.49	.223	--	-.08
Some Attempts to Reassure the Victim	46	32	3.35	.067	--	.12
Repeated Attempts to Reassure the Victim	5	9	1.28	.258	--	-.07
Contact Outside of Offence	38	21	6.44	.011	--	.16
*Contact Before Offence	31	12	10.14	.001	--	.20
Contact After Offence	15	11	0.69	.407	--	.05
*Means of Contact: Phone	27	7	13.62	.000	--	.23
*Means of Contact: Internet	13	0	13.71	.000	--	.23
*Contact Nature: Wishing to Meet	29	6	17.58	.000	--	.27
Contact Nature: Reminding or Threatening the Attack	6	0	6.15	--	.029	.16
Contact Nature: Other	6	7	0.08	.776	--	-.02
Items Taken by Offender	28	22	0.90	.343	--	.06
Clothing Removed?	107	99	1.77	.184	--	.08
Clothing: Offender Disrobed Victim	69	79	1.66	.198	--	-.08
*Clothing: Victim Disrobed Self	34	13	11.56	.001	--	.22
How Removed: No Damage	93	84	1.57	.211	--	.08
How Removed: Torn or Cut	10	12	0.20	.655	--	-.03

Variable	Serial	Non-serial	χ^2 (df = 1)	ρ	P (Fisher's exact)	Φ
*Evidence of Offender Precautions	70	30	26.67	.000	--	.33
*Precautions: Administered Drug	9	0	9.34	--	.003	.19
Precautions: Bound	11	6	1.58	.209	--	.08
*Precautions: Condom	12	2	7.57	.006	--	.17
Precautions: Covered Eyes	14	7	2.55	.110	--	.10
Precautions: Disabled Lights	6	0	6.15	--	.029	.16
Precautions: Gave False Name	14	4	5.99	.014	--	.16
Precautions: Covered Victim's Mouth	9	6	0.64	.424	--	.05
Precautions: Mask	8	3	2.34	.123	--	.10
Precautions: Removed Evidence	9	5	1.21	.271	--	.07
Precautions: Offender Conceal Identity or Face	7	2	2.88	--	.172	.11
*Precautions: Deter Victim Reporting (Threaten, Pose as Police, etc.)	10	0	10.42	.001	--	.20
Offender Record Offence (Photos or Victim Details)	8	4	1.40	.237	--	.08
Restraints Used	14	7	2.55	.110	--	.10
Restraints Used: Found at Scene	12	5	3.09	.079	--	.11
Victim Gagged	16	12	0.64	.422	--	.05
Victim's Face Covered	10	6	1.10	.294	--	.07
Victim Blindfolded	14	7	2.55	.110	--	.10
Blindfold Applied Quickly (As Soon as Possible After Initial Assault)	7	1	4.65	--	.066	.14

Bolded variables are significant at $p < .05$. * Significant at $p < .01$

Appendix H: Summary of Correlations and Reasoning Behind Inclusion or Exclusion for Significant Variables

Variable	<i>r</i> >.70	Correlation >.70 with Which Variable(s)?	Include/Exclude for Regression: Why?
Offence Occurred on Weekend		None	Not significant at $p < .01$. EXCLUDE
Offender Under the Influence of Drugs or Alcohol		None	INCLUDE
Offender Displayed Unusual Characteristics		None	Too much variability. EXCLUDE
Potential Motive: Financial		None	Speculation. Also, zero count for non-serial. EXCLUDE
Victim Lifestyle: Prostitute	.71	Approach_Solicitation	Higher phi value. INCLUDE
Victim Incapacitation: Alcohol		None	INCLUDE
Was Vehicle Used?		None	INCLUDE
Vehicle Owned by Offender		None	Determined after investigation. EXCLUDE
Initial Contact (IC) Witnesses		None	INCLUDE
Initial Contact Outdoors		None	NOT significant at $p < .01$. EXCLUDE
Offender IC Gain Entry: Forced Entry		None	INCLUDE
Offender IC Gain Entry: Let in by Third Person		None	NOT significant at $p < .01$. EXCLUDE
Offender IC Gain Entry: Building Open to Public	.80	IC_BarTavClub	Lower phi value. EXCLUDE
Initial Contact at Bar, Tavern, or Nightclub	.80	ICEntry_openpublic	Higher phi value. INCLUDE
IC Business: Victim's Work		None	Not significant at $p < .01$. EXCLUDE
IC Outdoors: Public Street or Parking		None	INCLUDE
Victim Familiar with IC		None	Not significant at $p < .01$. EXCLUDE

Variable	$r > .70$	Correlation $> .70$ with Which Variable(s)?	Include/Exclude for Regression: Why?
Victim at IC for General Socialising		None	INCLUDE
Offender Chose IC Location		None	INCLUDE
Assault Scene (AS) Witnesses		None	Lower phi value. EXCLUDE
Assault Scene: Vehicle		None	Not significant at $p < .01$. EXCLUDE
Contact End: Release	-.76	Escape	Higher phi value. INCLUDE
Contact End: Escape	-.76	Release	Lower phi value. EXCLUDE
Weapon Involved?	.91	WeaponStabbing	Less subjective, easier to accurately capture. INCLUDE
	.82	Weapon_OffBrought	
	.80	Weapon_RemByOff	
Offender Brought Weapon	.82	Weapon	More subjective, harder to accurately capture. EXCLUDE
	.86	Weapon_RemByOff	
	.80	WeaponStabbing	
Offender Removed Weapon	.86	Weapon_OffBrought	More subjective, harder to accurately capture. EXCLUDE
	.80	Weapon	
	.79	WeaponStabbing	
Weapon Intentionally Used by Offender		None	INCLUDE
Weapon Type: Stabbing	.91	Weapon	Weapon Involved more beneficial to investigation as it captures multiple weapon types. EXCLUDE
	.80	Weapon_OffBrought	
	.79	Weapon_RemByOff	
DNA Available?		None	Not significant at $p < .01$. EXCLUDE
Victim Selection: Opportunistic	-.94	VicTargeted	Determined after investigation. EXCLUDE
Victim Selection: Pre-Targeted	-.94	VicSelectOpp	Determined after investigation. EXCLUDE
Con: Solicitation for Sex	.71	VicLifeProstitute	Lower phi value. EXCLUDE
Con: General Socialising /Bar/Feign Interest		None	Not significant at $p < .01$. EXCLUDE

Variable	<i>r</i> >.70	Correlation >.70 with Which Variable(s)?	Include/Exclude for Regression: Why?
Con: Pose as Authority Figure		None	Zero count for non-serial. EXCLUDE
Force Used Immediately		None	Not significant at $p < .01$. EXCLUDE
Force Used During Sex Act		None	Too subjective. EXCLUDE
Offender: No Overt Anger	-.98	OffAnger_Some	Less important for linkage. EXCLUDE
Offender: Some Anger	-.98	OffAnger_None	More important for linkage. INCLUDE
Victim Resistance: Physical (Struggled, Fought, Attempted Escape)		None	Not significant at $p < .01$. EXCLUDE
Offender Flee or Cease to Demand from Victim Resistance		None	Not significant at $p < .01$. EXCLUDE
Assault Category: Anilingus		None	Zero count for non-serial. EXCLUDE
Assault Category: Fellatio	.72	RequireFellatio	Lower phi value. EXCLUDE
Assault Category: Fondling		None	Compare with previous research that found this variable significant. INCLUDE
Assault Category: Kissing		None	Compare with previous research that found this variable significant. INCLUDE
Assault Category: Verbal Abuse		None	Zero count for non-serial. EXCLUDE
Evidence of Offender Attitude Change	.77	Escalating_AttitudeChange	Lower phi value. EXCLUDE
Attitude Change: Escalation of Behaviour	.77	AttitudeChange	Higher phi value. INCLUDE
Require: Performance	.74	RequireFellatio	Incorporates all requirements. EXCLUDE

Variable	$r > .70$	Correlation $> .70$ with Which Variable(s)?	Include/Exclude for Regression: Why?
Require: Fellatio	.72	AssaultFellatio	Higher phi value. INCLUDE
Require: Other Act by Victim		None	INCLUDE
Image Projected: Neutral	-.78	OffImage_Macho	Lower phi value. EXCLUDE
Image Projected: Macho	-.78	OffImage_Neutral	Higher phi value. INCLUDE
Demeanour Towards Victim: Neutral	-.79	OffDemeanour_Demeaning	Lower phi value. EXCLUDE
Demeanour Towards Victim: Demeaning	-.79	OffDemeanour_Neutral	Higher phi value. INCLUDE
Contact Outside of Offence	.82 .71 .73	ContactBefore MeansofContactPhone ContactNatureWish	Lower phi value. EXCLUDE
Contact Before Offence	.82 .70	OutsideContact ContactNatureWish	Higher phi value. INCLUDE
Means of Contact: Phone	.82 .71	ContactNatureWish OutsideContact	Higher phi value. Collinearity resolved. INCLUDE
Means of Contact: Internet		None	Zero count for non-serial. EXCLUDE
Contact Nature: Wishing to Meet	.82 .73 .70	MeansofContactPhone OutsideContact ContactBefore	Collinear with ContactBefore. More subjective. EXCLUDE
Contact Nature: Reminding or Threatening the Attack		None	Zero count for non-serial. EXCLUDE
Clothing: Victim Disrobed Self		None	INCLUDE
Evidence of Offender Precautions		None	INCLUDE
Precautions: Administered Drug		None	Zero count for non-serial. EXCLUDE
Precautions: Condom		None	Not significant at $p < .01$. EXCLUDE
Precautions: Disabled Lights		None	Zero count for non-serial. EXCLUDE

Variable	$r > .70$	Correlation $> .70$ with Which Variable(s)?	Include/Exclude for Regression: Why?
Precautions: Gave False Name		None	Determined after investigation. EXCLUDE
Precautions: Deter Victim Reporting (Threaten, Pose as Police, etc.)		None	Zero count for non-serial. EXCLUDE

Note. N = 250. The order of variables matches the order in which they appear through the VSCD form and the subsequent data set. Variables were not grouped by any system. Positive phi values are indicative of serial rapist and negative phi values are indicative of non-serial rapists.

^aSignificance determined by Fisher's Exact Statistic. * $p < .05$, ** $p < .01$, *** $p < .001$

Appendix I: Preliminary Binary Logistic Regression Predicting Serial versus Non-Serial Rapists (Before Outliers Removed) and Casewise List of Outliers

Predictor	Serial Versus Non-Serial Rapists				
	β	SE β	Wald's χ^2	e β (OR)	95% CI
Offender Under the Influence of Drugs or Alcohol	-1.54	0.41	13.85**	0.21	[0.10, 0.48]
Victim Lifestyle Prostitute	0.99	1.00	0.98	2.68	[0.38, 18.98]
Victim Incapacitation: Alcohol	-0.68	0.47	2.14	0.51	[0.20, 1.26]
Was Vehicle Used?	-0.16	0.44	0.14	0.85	[0.36, 2.01]
IC Witnesses	-0.22	0.43	0.28	0.80	[0.35, 1.84]
Offender IC Gain Entry: Forced Entry	2.16	1.15	3.52	8.64	[0.91, 82.20]
IC Business: Bar, Tavern, or Nightclub	-0.63	0.67	0.87	0.54	[0.14, 1.99]
IC Outdoor: Public Street or Parking	0.86	0.46	3.49	2.37	[0.96, 5.85]
Victim at IC for General Socialising	0.02	0.61	0.00	1.02	[0.31, 3.39]
Offender Chose IC Location	1.64	1.00	2.69	5.16	[0.73, 36.67]
Contact End: Release	0.32	0.45	0.50	1.38	[0.57, 3.36]
Weapon Involved?	-0.08	0.64	0.02	0.93	[0.26, 3.27]
Weapon Intentionally Used by Offender	-0.08	0.82	0.01	0.92	[0.18, 4.61]
Offender: Some Anger	-0.92	0.64	2.12	0.40	[0.11, 1.38]
Assault Category: Fondling	0.92	0.44	4.42*	2.50	[1.06, 5.86]
Assault Category: Kissing	-0.75	0.42	3.22	0.47	[0.21, 1.07]
Attitude Change: Escalation of Behaviour	0.14	0.48	0.08	1.15	[0.45, 2.94]
Require: Fellatio	0.20	0.59	0.12	1.22	[0.38, 3.91]
Require Other Act by Victim	2.62	1.34	3.82	13.69	[0.99, 189.03]
Image Projected: Macho	2.06	0.72	8.22**	7.86	[1.92, 32.15]
Demeanour Towards Victim: Demeaning	0.11	0.85	0.02	1.12	[0.21, 5.86]
Contact Before Offence	1.09	0.66	2.73	2.99	[0.82, 10.93]
Means of Contact: Phone	0.68	0.82	0.68	1.97	[0.39, 9.92]
Clothing: Victim Disrobed Self	1.04	0.52	4.04*	2.82	[1.03, 7.77]
Evidence of Offender Precautions	0.49	0.42	1.32	1.63	[0.71, 3.74]

Note. N = 250. 25 variables included. OR= Odds Ratio. CI = Confidence Interval. All variables entered upon step 1. Negative β values are indicative of non-serial offences, positive β values are indicative of serial offences. * P < .05, ** P < .01, *** P < .001

The model was significant χ^2 (25, N = 250) = 141.40, p < 0.001. Hosmer and Lemeshow test, χ^2 (8) = 5.64, p = 0.69, indicating good fit. The model explained between 43.2% (Cox and Snell R square) and 57.6% (Nagelkerke R square) of the variance between serial and

non-serial rapists. Overall, the model correctly classified 84% of offenders, correctly classifying 81.6% of serial rapists and 86.4% of non-serial rapists.

Casewise List of Binary Logistic Regression Outliers

Case	Observed Group	Predicted	Predicted Group
6	S	0.101	O
35	S	0.139	O
51	S	0.129	O
54	S	0.067	O
57	S	0.058	O
94	S	0.037	O
149	O	0.882	S
156	O	0.905	S
170	O	0.874	S
176	O	0.836	S
195	O	0.967	S
232	O	0.854	S

Note. S=Serial Rapist. O= Non-Serial Rapist. Cases with studentized residuals greater than 2.000 are listed. All cases misclassified.

Appendix J: Variables Included in Jaccard's Calculation

Offence on Weekday
 Offender: White
 Offender: Aboriginal
 Offender: Asian
 Offender Under the Influence of Drugs or Alcohol
 Victim Was Female
 Victim Lifestyle: Prostitute
 Victim Incapacitation: Adolescent
 Victim Incapacitation: Alcohol
 Victim Incapacitation: Drug
 Victim Incapacitation: Elderly
 Victim Incapacitation: Poor Health
 Victim Incapacitation: Mental
 Potential Motive: Burglary
 Potential Motive: Financial
 Potential Motive: Drug
 Potential Motive: Kidnap
 Potential Motive: Robbery
 Vehicle Used
 Initial Contact Scene Witnesses
 Initial Contact Outdoors
 Offender Gain Entry to Initial Contact Scene: Forced Entry
 Offender Gain Entry to Initial Contact Scene: Via Insecure Door/Window
 Offender Gain Entry to Initial Contact Scene: Let in by Victim
 Offender Gain Entry to Initial Contact Scene: Let in by 3rd Person
 Offender Gain Entry to Initial Contact Scene: Building Open to Public
 Offender Gain Entry to Initial Contact Scene: Lived/Worked in Building
 Offender Familiar with Initial Contact Scene
 Initial Contact Scene: Living Quarters
 Initial Contact Scene: Victim's Residence
 Initial Contact Scene: Offender's Residence
 Initial Contact Scene: Other Residence
 Initial Contact Scene: Business/Public Building
 Initial Contact Scene Business: Bar Tavern Nightclub
 Initial Contact Scene Business Location: Victim's Work
 Initial Contact Scene Business Location: Offender's Work
 Initial Contact Scene Business Location: Motel/Hotel
 Initial Contact Scene: Vehicle
 Initial Contact Scene Outdoor: Pathway
 Initial Contact Scene Outdoor: Public Street or Parking
 Initial Contact Scene Outdoor: Public Park
 Victim Familiar with Initial Contact Scene
 Victim at Initial Contact Scene for General Socialising
 Offender Chose Initial Contact Scene Location
 Victim Unfamiliar with Initial Contact Scene

Initial Contact Scene and Assault Scene Same Location
Multiple Offence Sites
Assault Scene Witnesses
Offender Familiar with Assault Scene
Offender Used Con to Get Victim to Assault Scene
Offender Used Force to Get Victim to Assault Scene
Assault Scene: Living Quarters
Assault Scene: Business/Public Building
Assault Scene: Vehicle
Assault Scene: Outdoor
Contact End: Release
Contact End: Escape
Contact End: Rescue
Release Scene and Initial Contact Scene Same Location
Release Scene and Assault Scene Same Location
Weapon Involved?
Offender Displayed Weapon (But Did Not Use)
Offender Intentionally Used Weapon
Offender Brought Weapon
Offender Removed Weapon
Weapon Type: Bludgeon
Weapon Type: Firearm
Weapon Type: Ligature
Weapon Type: Stabbing
Weapon Type: Unusual
Minimal Blunt Trauma
Moderate Blunt Trauma
Victim Sustain Facial Injury
Offender Bite Victim
Approach Style Con
Con: Offender Offer Help/Info/Drugs to Victim
Con: Offender Ask Victim for Help/Info/etc
Con: Solicitation for Sex
Con: General Socialising/Bar/Feign Interest
Con: Pose as Authority Figure
Approach Style Surprise
Surprise: Offender Sneaked Up on or Grabbed Victim
Approach Blitz
Minimal Force Used
Moderate Force Used
Force Used Immediately
Force Used After Contact Before Sex Act
Force Used Upon Victim Resistance
Force Used During Sex Act
Force Used After Sex Act
No Injuries
Minor Injury (No Medical Treatment Required)

Moderate Injury (Required Outpatient Treatment)
Severe Injury (Required Hospitalisation)
Offender Displayed No Overt Anger
Offender Displayed Some Anger
Offender Displayed Overwhelming Anger
No Victim Resistance (Followed Instructions/Demands)
Victim Resistance Verbal (Argued/Negotiated)
Victim Resistance Physical (Struggled, Fought, Attempted Escape)
Offender Ignore Victim Resistance
Offender Flee/Cease demand from Victim Resistance
Offender Threaten After Victim Resistance
Offender Use Force After Victim Resistance
Offender Negotiate with Victim After Resistance
Assault Category Anal
Assault Category Anilingus
Assault Category Beating
Assault Category Biting
Assault Category Choking
Assault Category Cunnilingus
Assault Category Cutting
Assault Category Digital Penetration (Vaginal or Anal)
Assault Category Fellatio
Assault Category Fondling
Assault Category Foreign Object Insertion
Assault Category Hair Pulling
Assault Category Hand or Fist Insertion
Assault Category Kissing
Assault Category Masturbation
Assault Category Pinching
Assault Category Simulated Intercourse
Assault Category Slapping
Assault Category Stabbing
Assault Category Suffocation
Assault Category Vaginal Intercourse
Assault Category Verbal Abuse
Assault Category Unusual
Semen Identified
Evidence of Ejaculation
Ejaculation Body
Ejaculation Clothing
Ejaculation Elsewhere
Evidence of Sexual Dysfunction
Unable to Obtain and/or Sustain Erection
Retarded Ejaculation
Conditional Ejaculation (Example: Fellatio, Penetration from Behind)
Evidence Offender Attempted to Overcome Dysfunction
Foreign Object Inserted

Evidence of Offender Attitude Change
Attitude Change Escalation of Behaviour
Attitude Change De-Escalation of Behaviour
Attitude Change Due to Victim Resistance (Any Kind)
Attitude Change Due to Victim Manipulation (Mock Offender, Request, Play Along, etc.)
Attitude Change Due to End of Encounter
Require Performance
Require Fellatio
Require Positioning, Action or Scripting
Require Intimacy (Kissing, Cuddling, Stroking, etc.)
Require Foreplay (Masturbate Self, Offender, Licking/Cunnilingus, etc.)
Require Other Act by Victim
Offender Did Not Talk About Self at All
Offender Made Reference to Self in Passing
Offender Talked About Self - Not Excessive
Offender Talked About Self Mostly/Excessively
No Questions About the Victim's Personal Life
Asked a Question or Two in Passing
Asked Questions, But the Victim Did Not Think It Dominated the Offender's Interest
Asked Many Questions About the Victim's Life and Victim Believed it Was of Major Interest to the Offender
Offender Image Projected: Pseudo-Sensitive
Offender Image Projected: Neutral
Offender Image Projected: Macho
Offender Demeanour Towards Victim: Pseudo-Complimentary
Offender Demeanour Towards Victim: Neutral
Offender Demeanour Towards Victim: Demeaning
No Negotiation Between the Offender and the Victim
Some Negotiation Between the Offender and the Victim
Extensive Negotiation Between the Offender and the Victim
No Attempt to Reassure the Victim
Some Attempts to Reassure the Victim
Repeated Attempts to Reassure the Victim
Contact Outside of Offence
Contact Before Offence
Contact After Offence
Means of Contact Newspaper Ad
Means of Contact Personal
Means of Contact Phone
Means of Contact Internet
Contact Nature Wishing to Meet
Contact Nature Apologising
Contact Nature Sexually Explicit
Contact Nature Reminder/Threaten
Contact Nature Other
Items Taken by Offender
Clothing Removed

Victim Already Naked
Clothing Removed: Offender Disrobed Self
Clothing Removed: Offender Disrobed Victim
Clothing Removed: Victim Disrobed Offender
Clothing Removed: Victim Disrobed Self
How Removed No Damage
How Removed Torn or Cut
Evidence of Offender Precautions
Precautions Administered Drug
Precautions Bound
Precautions Condom
Precautions Covered Eyes
Precautions Disabled Lights
Precautions Disabled Phone
Precautions False Name
Precautions Forced Bath
Precautions Covered Victim's Mouth
Precautions Gloves
Precautions Mask
Precautions Removed Evidence
Precautions Offender Conceal Identity/Face
Precautions Deter Victim Reporting (Threaten, Pose as Police, etc.)
Precautions Attempt to Secure Escape Route
Offender Record Offence (Photos or Victim Details)
Restraints Used
Restraints Used Brought by Offender
Restraints Used Found at Scene
Victim Gagged
Victim's Face Covered
Victim Blindfolded
Blindfold Applied Immediately (Before Victim Could See Offender)
Blindfold Applied Quickly (As Soon as Possible After Initial Assault)
Blindfold Applied During Assault (After Victim Witnessed Offender)