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BEHAVIOURAL THEMATIC ANALYSIS OF A SAMPLE OF SOUTH AFRICAN SERIAL RAPE CASES

Abstract

A sample of serial rape cases (n = 23) consisting of 205 individual cases of rape that occurred in South Africa from 1996 to 2014 were studied with the aim of determining whether specific behavioural dimensions of offending could be identified in serial rape offences within the South African context and whether such dimensions are consistent and distinct across series. Despite the increase in empirically based research on behavioural consistency of serial offenders, the application of these findings in different cultural contexts is limited. Behavioural variables were derived through content analysis of case files and police dockets which recorded the crime scene actions, and the behavioural dimensions were analysed through multidimensional scaling (MDS) analysis. Frequency analysis was conducted to ascertain the central behavioural elements as well as to identify low frequency behaviours that have higher distinction value. Two MDS solutions identified three behavioural dimensional themes - Sexualised, Impersonal, and Hostile. The themes showed similar behavioural characteristics as identified in previous research. The findings did illustrate that behavioural elements exhibited by serial offenders in South Africa can be characterised in accordance with thematic classifications

Keywords: Case linkage; behavioural thematic dimensions; multidimensional scaling; serial rape; behaviour-based classifications

INTRODUCTION

Rape has been the emphasis of numerous research projects that attempt to account for the behaviours exhibited by the offenders during the commission of the crimes (Santtila, Junkkila, & Sandnabba, 2005:87). Serial rape, which has become a potent criminal influence which has spread through society, is an extreme form of rape and behavioural expression (Hazelwood & Burgess, 1987:18; Turvey, 2011:534). The nature and characteristics of serial rape offences are such that individual offenders can be responsible for a multitude of crimes and can commit multiple rapes over extended periods of time without being identified and apprehended (De Wet, 2008:3; Hazelwood & Burgess, 1987:19; Santtila et al, 2005:88; Turvey, 1997:13; Woodhams & Labuschagne, 2012a:2). Establishing a practical and functional definition encompassing the actions of a serial rapist, like with any serial crime, can be a complex undertaking. Authors such as Hazelwood and Warren (2001:127) classify a serial rapist as an individual who has raped at least 10 times, others such as Turvey (1997:10; 2011:542), define a serial rapist as someone who has raped two or more victims during different incidents. Decreasing the 'number' of rapes/incidents of a criminal series, can be viewed as an attempt to be more proactive with regards to criminal investigations. Within the current context, a serial rapist is defined as: A person, who rapes (non-consensual form of sexual penetration e.g. forced vaginal penetration), two or more victims (usually strangers to the offender), on different occasions, and is successful in evading law enforcement over extended periods (De Wet, 2008:8-9).

STATEMENT OF THE PROBLEM

One of the most significant obstacles for law enforcement officials when engaging with incidences of serial rape is identifying and distinguishing serial rape cases (Santtila et al, 2005:88; Turvey, 2011:534). The failure to recognise and identify related cases and individualised patterns linking the crimes together is known as linkage blindness (Egger, 1984:341; Turvey, 2011:535). Linkage blindness can be defined as an investigative breakdown where investigators fail to recognise patterns linking one crime with another in a series (Gerberth, 1995:46). Although systems exist which can individualise physical evidence - such as DNA and fingerprints - to individual offenders (Hazelwood & Warren, 2004:308; Kocsis, 2007:117) in serial rape offences, physical evidence is mostly not available and the offender is unknown to the victims (De Wet, 2008:9; Santtila et al., 2005:88). In cases where physical evidence is absent and the victim cannot identify the attacker, behavioural evidence is a viable option to link offences to a single offender. The growing awareness of the potential serial nature of sexual crimes

prompted increased research to establish scientific and behavioural methods to link crimes committed by a single perpetrator (Douglas, Burgess, Burgess, & Ressler, 1992:23-24; Hazelwood & Warren, 2004:313). Behavioural analysis allows investigators to construct a behavioural profile by focussing on behaviours exhibited during the incidents, to explore the likelihood that a series of crimes had been committed by a single offender (Grubin, Kelly, & Brunsdon, 2001:4-6; Hazelwood & Warren, 2004:314). The focus is on identifying constant but distinct behavioural patterns exhibited by an offender during the crimes allowing investigators and researchers to distinguish one perpetrator's crimes from those of another (Bennell, Mugford, Ellingwood, & Woodhams, 2014:27). Although research on behavioural consistency has accumulated, there are certain limitations, especially with regard to the applicability of the findings to different contextual settings (Woodhams & Labuschagne, 2012a). Most research has been limited to the United Kingdom (UK) and other European and American samples thus limiting the potential effectiveness within other settings, especially within diverse cultural settings. There is a limited amount of empirically based research on identifying and categorising behavioural variables of individual serial rape offenders within the South African context. This lack of knowledge hampers the identification of behavioural evidence left behind by perpetrators, which ultimately leads to insufficient analysis and identification of offence-linked behaviours.

BEHAVIOURAL LINKAGE ANALYSIS

Linkage analysis is practised by various law enforcement agencies around the world. The process generally involves assessing behavioural similarity (behavioural analysis) and distinctiveness of crime behaviours to link the crimes together and determine whether a series of crimes have been committed by a specific offender (Hazelwood & Warren, 2004:313; Woodhams, & Labuschagne, 2012a:8). The inference is that because of behavioural similarity across incidences, the crimes could be linked together, and it is probable that the same perpetrator committed the crimes (Kocsis, 2007:119). The central hypothesis of behavioural linking is that a perpetrator will behave similarly across his series of crimes and will also act differently from other perpetrators (Santtila et al, 2008:246). Linkage analysis can be utilised in two manners, *proactively* where databases of unsolved criminal cases are examined to possibly identify groupings of crimes committed by a single offender. In most cases, case linkage is *reactive* where multiple active offences/cases are scrutinised to ascertain whether the incidences can be attributed to one offender (Woodhams & Labuschagne 2012b:86). Linkage analysis has been aligned with criminal profiling forming an essential part of the profiling process (Kocsis, 2007:120). Profiling and behavioural linkage operate with two core assumptions - behavioural consistency and inter-individual behavioural variation (Alison, Bennell, Mokros, & Ormerod, 2002:117; Woodhams & Labuschagne, 2012a:2). The offender consistency supposition entails a degree of consistency displayed by the offender in the manner in which he or she commits their crimes across a series. Research has shown that individuals will have consistent strategies in their actions and reactions to specific situational contexts (Salfati & Canter, 1999:394). Behavioural consistency across the crime series can be attributed, to a certain degree, to individual sexual fantasies of the perpetrators. The fantasy behaviours exhibited is the link between the motivation to engage in the sexual act and the individual behaviour (Harbers, Deslauriers-Varin, Beauregard, & Kemp, 2012:261; Hazelwood & Warren, 2001:128). Fantasy can also affect how the offender acts and interacts with the intended victims during the commission of the crime. The core theme of the perpetrator's sexual fantasy remains relatively static, but the complexity of the fantasy can and does change (Woodhams & Labuschagne, 2012b:86). Differential Reinforcement Theory also suggests that individuals learn behaviour through trial and error and that behaviours which resulted in a positive outcome will be repeated (Harbers et al, 2012:262). The implication for the offender consistency supposition is that the offender repeatedly displays individualised behaviours within the same type of crime (Harbers, et al, 2012:262; Kocsis, 2007:121). The second supposition relates to variation and distinctiveness in the manner which the perpetrators commit their individual offences (Woodhams & Labuschagne, 2012b:86). To effectively link offences to an individual offender, the perpetrator must show distinctive behavioural patterns (Kocsis, 2007:121). Behavioural variation between individuals necessitates a measure of distinctiveness exhibited by individual offenders. If all serial rapists commit their individual crimes in similar manners one would never be able to differentiate one crime from another. Subsequently behaviours which occur with high frequency during the commission of a crime have little value for linking and profiling offences (Bennell & Canter, 2002:156; Santtila, Pakkanen, Zappala, Bosco, Valkama, & Mokros, 2008:250; Woodhams & Labuschagne,

2012a:8). Personality Psychology asserts that how individuals perceive situations will vary from individual to individual and the resulting behavioural dimensions are representations of the total experiences of the individual and a manifestation of the dynamic and underlying personality system (Shoda & Mischel, 2000:408). The resulting behaviour can be viewed as “behavioural signatures” which contain clues or indicators to the personality system itself, as such inter-individual variation within any given situation would be expected (Mischel, Mendoza-Denton, & Shoda, 2002:50; Woodhams, Bull, & Hollin, 2007:120; Shoda & Mischel, 2000:410). For linkage analysis to be successfully determined, it is essential that the perpetrators exhibit both consistent and distinctive behavioural patterns (Herbers et al, 2012; Kocsis, 2007:122; Santtila et al, 2005:89).

BEHAVIOURAL DIMENSIONS CLASSIFICATIONS

The criminal behaviour of sexual offenders, especially serial sexual offenders, can be conceptualised according to a variety of classifications and behavioural and motivational themes exhibited during the offences (Holmes & Holmes, 2002:234). Inferences relating to motivations and internal psychological processes are not easily made by those who do not have clinical training and often can only be verified after the perpetrator is apprehended (Canter & Heritage, 1990:185; Häkkinen, Lindlöf, & Santtila, 2004:18). Rather than attempting to infer indistinct motivations and personality traits from behavioural characteristics, classifications emphasising observable features may potentially be more useful in criminal investigations. Focussing on observable behaviour exhibited during the commission of the crimes would allow for a wider range of behaviours associated with rape to be incorporated in the analysis, providing a better understanding of the offender (McCabe & Wauchope, 2005:236; Santtila et al, 2008:246). Research has suggested that rapes can be classified based on observable crime scene actions, and that behavioural dimensions can be identified within which behavioural characteristics can be categorised (Goodwill, Alison, & Beech, 2009:511).

The most recognised and known behavioural typology is the classification developed by Groth, which classifies the rapist’s motivations into – anger, power, and sadistic desires (Growth, Burgess, & Holmstrom, 1977:1242; Groth & Birnbaum, 1979:12-13; Robertiello, & Terry, 2007:509). Numerous classifications developed from this typology and schemas such as Hazelwood and Burgess’s (1987:19) classification system classed rapist’s behaviour into four subtypes - power–reassurance, power–assertive, anger–retaliatory, and anger–excitation. Prentky and Knight (1991:649) argued that power and sexual elements are not removed from each other and that elements such as anger and sadistic motivations can overlap. The Massachusetts Treatment Centre: Rapist Typology (MTC:R3) was developed and proposed four primary motivations for rape, grounded in multiple sources which included detailed clinical and criminal files, standardised tests, clinical interviews, and self-report instruments (Greenall & West, 2007:152; Pardue & Arrigo, 2008:380). The MTC:R3 comprises four rapist types – opportunistic, pervasively-angry, sexual, and vindictive – each type is further divided into nine subtypes with specific behavioural motivations that differentiate the individual behavioural patterns (Knight, 1999:311). Although the various classification systems focus on variants of behaviour of aggression and/or sexual acts, the thematic and typological groupings are generally similar (Goodwill et al, 2009:510). The models and typologies focus on specific behavioural aspects to surmise the motivational characteristics of the individual offenders. Behavioural dimensions can be expressed in a variety of behaviourally characteristic ways, as the underlying motivation for the behaviour can be impacted and determined by a collection of motivational aspects (Goodwill et al, 2009:511; McCabe & Wauchope, 2005:236). Motivations might not be necessarily obvious and evident in the behaviour exhibited during the commission of the crime (Sturidson, Långström, Grann, Sjöstedt, Åsgård, & Aghede, 2006:223). Employing a thematic or behavioural dimension approach can provide an adequate framework for differentiating the behaviour of individual offenders (Santtila et al., 2005:89-90; Yokota, Fujita, Watanabe, Yoshimoto, & Wachi, 2007:843). Behavioural dimensions would allow researchers and investigators to examine the variety of behaviours and actions exhibited by the perpetrators as a whole and to not simply focus on singular behavioural elements (Bateman & Salfati, 2007:528). Such dimensions may be more effectual, as they can incorporate situational and contextual factors which could impact the behaviours and actions characteristic of the same behavioural dimension (Bateman & Salfati, 2007:529). Behavioural dimension descriptions grounded in existing motivational models and classification schemes will allow for the incorporation of empirically derived behavioural

characteristics and behavioural clusters prominent in the behavioural matrix of the individual perpetrator. Therefore, any analysis will not only examine individual behaviours but rather clusters of behaviours that point to the same underlying psychological meaning and compliment the motivational systems (Canter, Bennell, Alison, & Reddy, 2003:158; Salfati & Bateman, 2005:122).

CLASSIFICATION MODELS OF SERIAL RAPE BEHAVIOURS

Focussing on the actions and the interactions of the perpetrator serves more than a pragmatic function. The range of behaviours exhibited by offenders can indicate modes of interpersonal interactions which contain distinguishing thematic behavioural styles characteristic to an offender (Canter, 2000:9; Canter & Heritage, 1990:187; Yokota et al., 2007:842). Several typologies and behavioural models have attempted to characterise rapists according to the aggressive and sexual motivations underlying the rapes (McCabe & Wauchope, 2005:238). *Instrumental* and *expressive* aggression is underscored by the hypothesis that power, anger, and sexuality are central components of all forcible acts of rape (Groth et al., 1977:1239). The instrumental aggression axis characterises the violent act as serving a purpose specifically to achieve a perceived goal such as sexual intercourse or money. The motivation behind expressive aggression is the actual violent act itself and the aim is inflicting pain or harm on the intended victim (Fromm, 1973:358; Salfati, 2003:495; Salfati & Bateman, 2005:124; Santtila et al., 2008:156). **Aggression** can be divided into five sub-types - the *opportunistic type* typifies an impulsive offender whose primary motivation is satisfying a specific need or desire, in the case of the serial rapist that need is usually sexual gratification. The 'rape' is usually ancillary to another crime and not overly ritualistic or fantasy driven. Any aggression exhibited would be instrumental and not overly aggressive, allowing the offender to achieve their goal (Knight, Warren, Reboussin, & Soley, 1998:49; Salfati & Bateman, 2005:125). The *power-reassurance type* is highly sexualised and exhibits distinct underlying fantasy elements. The underlying purpose is resolving feelings of self-doubt and reassuring the perpetrators masculinity. The perpetrator will attempt to involve the victim instructing them to engage in some pseudo interaction indicative of an intimate relationship (Douglas et al, 1992:295; Hazelwood & Warren, 2001:130). The attack is characterised by a minimal force and levels of aggression however, it can increase (Groth et al., 1977:1240; Savino & Turvey, 2005:276). The *power-assertive type* does not exhibit any fantasy elements. The victim is viewed merely as an object to be used for personal gratification. The ultimate aim is domination and an attempt to belie underlying feelings of inadequacy and prove virility (Graney & Arrigo, 2002:96; Savino & Turvey, 2005:280). The levels and types of violence would be seen as expressive, and the offender will employ moderate to excessive levels in order to ensure victim compliance (Hazelwood & Warren, 2001:128). The *anger-retaliatory type* is generally described as highly aggressive, and the attack will be characterised as physically brutal (Groth & Birnbaum, 1979:88; Groth et al, 1977:1241). The aim is to inflict pain and physically harm the victim. Any sexual assault is not rooted in gratification but rather used as a weapon. The levels of aggression are expressive and viewed as an explosion of anger (Hazelwood, 2001:129; Salfati & Bateman, 2005:123). The *sadistic type* is characterised by high levels of violence which are excessive, and the sexual gratification of the offender is connected to inflicting pain and suffering on the victim (Burgess et al, 2001:172). Sexual arousal and pleasure are derived from inflicting acts of cruelty and humiliation (Shaffer & Penn, 2006:74). Sexual behaviours can include cutting or mutilating part of the body, usually erogenous zones, and object insertion is often observed (Douglas et al, 1992:296; Savino & Turvey, 2005:294).

The **sexual interactions** offenders engage in during the commission of the crime can also be classified into behavioural dimensions. The *intercourse* dimension can be described as impulsive acts where the sexual act is usually an addition to another crime such as robbery (Hazelwood & Warren, 2001:130). Minimal levels of force are employed by the perpetrator as the intent is simply to secure compliance from the victim (De Wet, 2008:66). The *attempted intimacy* dimension is characterised by behaviour suggesting a person-orientated relationship between the offender and the victim. Sexually assaulting the victim is the main focus but, the perpetrator will also attempt to involve the victim in the sexual activity and require the victim to participate in the activities (Kocsis et al., 2002:164). There is no intention to physically harm the victim. Any physical force is simply aimed at ensuring victim compliance (Canter, 2000:17; Kocsis et al., 2002:163). This dimension correlates with the behavioural patterns observed in the power-reassurance type. The *selfish* behavioural dimension is characterised by

interactions where the victim is viewed as “a means to an end” and an object the perpetrator can use for their own sexual gratification (Canter, 2000:16; Canter & Heritage, 1990:194). The perpetrator will be sexually selfish, physically abusive, and the victim will be subjected to repeated sexual assaults aimed to degrade and humiliate the victim and ensure personal gratification (Graney & Arrigo, 2002:125). This dimension can be associated with the power-assertive type. The *brutality* behavioural dimension is characterised by high levels of force and overt aggression and is distinguished by an explosive release of anger intended to harm the victim (Kocsis et al., 2002:162; Palermo & Kocsis, 2005:204; Salfati & Bateman, 2005:123). This type is generally aligned with the anger-retaliatory type. The *sexual sadism* dimension – correlating strongly with the sadistic type – is characterised by sexual and sadistic fantasies compelling the perpetrator to act out their fantasies in order to be sexually satisfied (Knight, 1999:312; Palermo & Kocsis, 2005:204). The behavioural dimension is characterised by excessive levels of violence and aggression which is eroticised (Groth et al., 1977:1242).

Although research has indicated that sexual assaults can exhibit clusters of characteristic behaviours, no two offenders are alike (Groth & Birnbaum, 1979:101). The variants of behaviours exhibited are infinite, and a variety of motivations and meanings can be inferred. Subsequently, no single offender will completely ‘fit’ or be classified into a single type. It is also highly probable that the offender will exhibit elements from multiple categories. The proposed models are not exhaustive and are only a general guide that can be utilised to establish which typology or combination is best representative of the individual rapist. Empirically examining the observable behaviours exhibited by the perpetrator and the behaviour reported by the victims will lead to behavioural classification systems which could compliment the motivational systems (Canter et al., 2003).

AIMS OF THE STUDY

The aims of the study are to determine whether specific behavioural dimensions of offending – for example instrumental and expressive aggression and types of sexual behaviour – could be identified in serial rape offenders within the South African context and whether such thematic dimensions are consistent and distinct across series to potentially allow for behavioural linkage of offences. Behavioural crime linkage is a domain within behavioural profiling which utilises observable crime features to link crimes which were committed by the same offender (Santtila et al., 2008:245). It is generally agreed by researchers that serial rape offenders, specifically incidences of stranger rape, do exhibit a degree of variability between the individual offenders and that behavioural dimensions can be identified describing the differences between offenders (Canter et al., 2003; Santtila et al., 2005:89). Core assumptions of linkage analysis – consistency and distinctiveness – can tentatively be applied to incidences of serial rape in South Africa (Woodhams & Labuschagne, 2012b:96). Despite the increased scientific and empirical interest in the use of behavioural evidence during serial rape investigations there is limited utility and generalisation of such research within the South African context. The South African context presents with unique situational and social-cultural elements that compound the problem of a dearth of scientific research, especially when attempting to identify and link cases to an individual offender. Research focussing specifically on identifying distinct behavioural dimensions of serial rape offences within the South African context would allow for the linking of cases sooner and provide a framework for investigators to recognise, collect, and conceptualise relevant behavioural evidence.

DATA SET

The data set consisted of 205 cases committed by 23 individual offenders. All the cases included in the study were cases in which a guilty conviction had been handed down to the perpetrators in court. The data sample was selected by utilising the stratified random sampling method which involves selecting a sample from identifiable groups which are homogeneous in terms of quantifiable traits and characteristics (Black, 1999). All the cases met the criteria for rape as defined by South African Criminal Law (Sexual Offences and Related Matters) Amendment Act (2007)¹ and aligned with the

¹ Sexual Offences and Related Matters Amendment Act (2007), Subsection 1 of the Act: Any act which causes penetration by any extent whatsoever by – (a) the genital organs of one person into or beyond the genital organs, anus, or mouth, of another person; (b) any other part of the body of one person or, any object,

definition for serial rape listed previously. The offender data sample consisted of 17 Black-African, 4 Coloured² (mixed-race), and 2 White offenders. The average age of the Black-African perpetrators was 33 years, the mixed-race offenders 23 years of age, and the White offenders 28 years. In all cases the victims were females and perpetrators were all males. One hundred and forty-three (70%) of the victims were Black-African, 35 (17%) were mixed-race females, and 27 were White (13%). Permission was obtained from the research Division of the South African Police Service (SAPS) for access to individual case files and dockets from the Investigative Psychology Section (IPS).

DATA SELECTION

The primary source of data was solved case files which were classified as serial rape cases by the IPS. Primary documentation which consisted of official police dockets, court reports, and other relevant information such as victim accounts, court transcripts, and evaluation reports compiled by social workers and psychologists (if available) was the primary source of information. Official documentation, which is generally produced for a limited audience, may include court transcripts, police reports, financial records, crime statistics, and similar documents (Berg, 2004:254). The case dockets contain information relating to the criminal behavioural patterns which were used to identify the thematic behavioural dimensions as well as the linkage analysis of the individual cases.

METHOD

A descriptive quantitative methodology allowed the researcher to identify and describe the behavioural dimensions exhibited by the perpetrators as well as empirically substantiate the possible behavioural linkage. Quantitative content analysis is a technique which systematically and objectively provides descriptions of content by segmenting the manifest content into units/variables and assigning these units/variables to categories or themes and providing totals for each category or theme (Binsbergen, 2013:13; Rourke & Anderson, 2004:6). This technique is appropriate for identifying the behavioural variables and categorical themes, and allows for a wider range of behaviours exhibited during the incident to be incorporated in the behavioural dimensions, allowing for a better understanding of the individual offender and the exhibited behavioural dimensions. The required behavioural variables reflecting the various elements of the offences were coded based on previous research on behavioural linking and offender differentiation (e.g. Canter, 2000:15; Salfati & Bateman, 2005:128; Santtila et al., 2005:92; Santtila et al., 2008:251). Fifty behavioural crime scene variables (Appendix 1) relating to serial rape offences were identified. These variables were categorised under three primary categories: Method and location of approach and attack location; Method of control; sexual and verbal interactions. The general fields are grounded in existing theoretical concepts – Modus operandi, ritual, and signature behaviour – and encompass offences-related information, victim characteristics, as well as situational variables (Hazelwood & Warren, 2004:308; Santtila et al., 2008:246). The variables were quantified as dichotomous and coded as either present during the offence (1) or absent (0). Due to the nature of police case files, which are not necessarily compiled for research purposes, the absence of a behaviour can mean that the specific behaviour was not exhibited or that the behaviour was not captured. No identifying information was included throughout the data collection and analysis process to ensure anonymity of both the victims and the offenders.

including any part of the body of an animal, into or beyond the genital organs or anus of another person; or (c) the genital organs of an animal into or beyond the mouth of another person.

² Population distributions in South Africa are closely associated with political constructs which originated in the Apartheid era. The Coloured construct denotes an individual of mixed race for example Black African father and White mother

STATISTICAL ANALYSIS

The statistical analysis consisted of a frequency analysis of the identified behavioural variables as well as a Multidimensional scaling (MDS) analysis. Frequency analysis allowed the researcher to establish which behaviours could be considered as 'core behavioural variables' i.e. central features associated with serial rape offences. Frequency analysis also allowed the researcher to identify specific behavioural patterns and cluster exhibited by individual offenders across the rape series. MDS can be described as a set of multivariate techniques utilised to explore and illustrate the underlying structures in data sets (Sturidsson et al., 2006:225). MDS is an exploratory technique that condenses large quantities of data, plotting the data as points in an n-dimensional space. It allows for the identification of major patterns among latent variables and re-contextualises them as patterns rather than factors (Ding, 2006:227; Giguère, 2006:26; Jaworska, & Chupetlovska-Anastasova, 2009:2-3). A strength of MDS is that it illustrates the configuration of variables as they exist in the data set and how they can be interpreted in relation to each other (Ding, 2006:228). The data points distribution of MDS in any configuration (dimensional distribution; groupings or clusters of variables; regional dispersal) which will emerge seems unlikely to be the result of chance, and can provide formative information (Borg & Groenen, 2005:4-5). Variables that characterise specific dimensions are likely to co-occur in the same region of the n-dimensional plot. This regional hypothesis that common thematic elements will co-occur in the same multidimensional space has successfully been utilised in previous thematic studies (Plutchik & Conte, 1997:188-189; Salfati & Canter, 1999:399; Salfati & Taylor, 2006:116) and is an appropriate method for interpreting the co-occurrence of behavioural variables. The aims of the study are to determine whether specific behavioural dimensions of offending could be identified in serial rape offences within the South African context and whether such thematic dimensions are consistent and distinct across series, which could allow for behavioural linkage of offences. MDS is predicated on the idea that each data point can be mapped exactly into the corresponding distance, thus eliminating any element of error. However, no data is error-free, and MDS utilises statistical concepts of errors to make the representations as precise as possible. The Stress function is like correlation coefficients but looks at the badness of fit rather than the goodness of fit. The smaller the values the better the solution represented, but higher values do not necessarily point toward a bad fit (Borg & Groenen, 2005:9). The Stress solution can be influenced by several elements, such as the number of variables, the degree of error in the data, and the strength of the theoretical framework utilised for interpretation (Borg & Groenen, 2005:253). In the current study, the data originated from official police case dockets that were not compiled according to research protocols or for research purposes. It was therefore expected that there would be some degree of error or 'noise' that could impact the Stress functions. A Stress-I level of 0.2 is acceptable for archival files such as police dockets and case files, provided that the dimensional representations 'plots' produced meaningful interpretations.

DATA ANALYSIS

Frequency analysis

The first step in establishing specific behavioural dimensions of offending was to analyse the frequencies of the 50 behavioural crime scene variables (Appendix 1) across the entire data set (205 cases). This step served a dual purpose – to illustrate the frequency of variables throughout the data set and to highlight the 'core' behavioural variables. Core behavioural variables for example vaginal penetration, are central elements associated with rape and although they serve little in terms of differentiating offenders, are central to incidents of rape. The frequency analysis also allowed the researcher to determine the behaviours required to differentiate between offenders and to highlight the consistency of the behavioural variables exhibited by the offenders. The behavioural variables were presented in two ways – the percentage of frequency among rapes and the percentage frequency among the offenders.

Table 1
Methods and location of approach and attack location

Behavioural variables	% of Rapes (n=197)	% of Offenders (n=23)
Outside	79.7	91.3
Isolated	77.2	91.3
Same	53.8	69.6
Different	46.2	65.2
Blitz	45.7	47.8
Con	41.6	56.5
Public	22.8	52.2
Inside victim's house	14.7	26.1
Surprise	12.2	30.4
Break In	7.6	17.4
Car	4.6	17.4
Inside perpetrators house	1.0	4.3

Table 1 illustrates that most of the serial rape offences typically occurred outside (79.7%) in isolated (77.2%) areas and the most frequently utilised method of approach is the blitz attack. In 53% of the incidents the offender approached and attacked the victim in the same location.

Table 2
Methods of control

Behavioural variables	% of Rapes (n=197)	% of Offenders (n=23)
Weapon displayed	34.5	60.9
Single _violence	32.0	82.6
Verbal threat _weapon	30.5	91.3
Verbal threats	25.9	52.2
Slapping or hitting	15.7	60.9
Assault	13.7	56.5
Dragged	12.2	43.5
Multiple_ violence	10.7	52.2
Strangulation	7.1	34.8
Kicked	2.5	26.1

The most common method of controlling the victim (Table 2) was simply displaying a weapon, a single act of violence, or a combination of verbal threats involving a weapon of some sort.

Table 3
Sexual act and verbal interaction

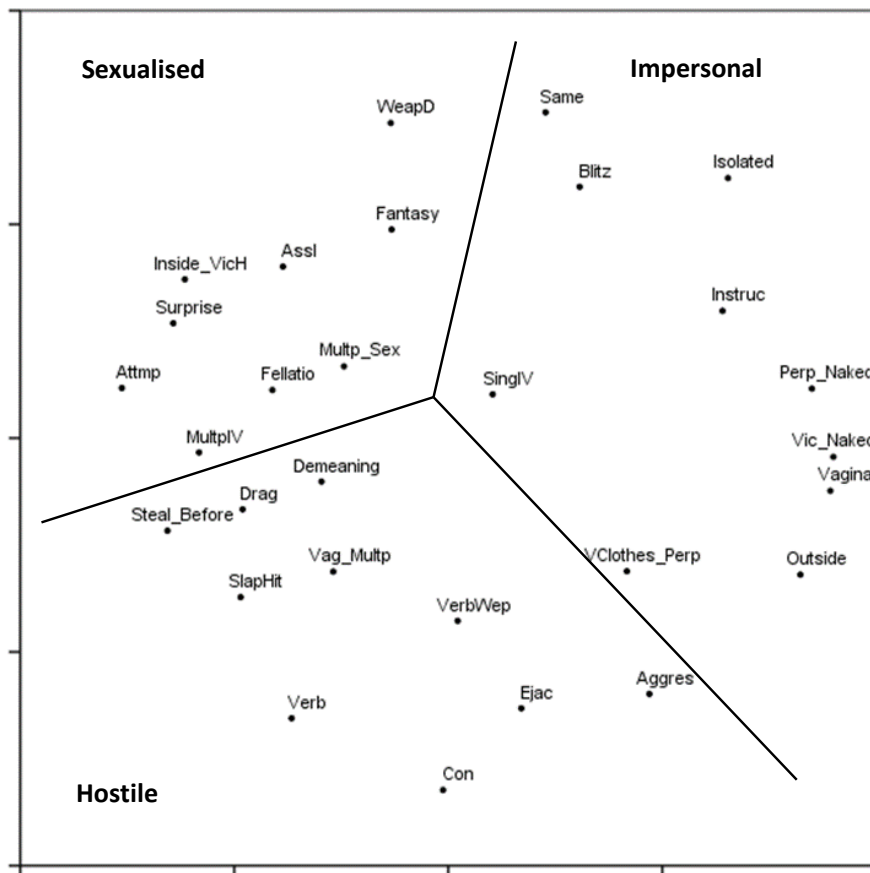
Behavioural variables	% of Rapes (n=197)	% of Offenders (n=23)
Victim naked	87.8	100.0
Vaginal	86.3	100.0
Perpetrator naked	78.7	95.7
Vaginal penetration front	78.7	100.0
Instruction	63.5	87.0
Aggressive	55.3	91.3
Victims' clothes removed by perpetrator	48.7	91.3
Ejaculation	39.6	82.6
Victim removed her own clothes	39.1	73.9
Fantasy	22.3	21.7
Multiple sexual acts	17.3	52.2
Vaginal penetration	16.2	52.2
Demeaning	15.0	56.5
Attempted rape	12.7	60.9
Victim was clothed	12.2	60.9
Steal before	11.7	39.1
Steal after	11.2	47.8
Fellatio	10.7	39.1
Vaginal penetration from the back	9.1	21.7
Pad	8.6	34.8
None	8.6	47.8
Perpetrator was clothed	7.6	34.8
Anal	6.6	26.1
Sexual assault	6.1	34.8
Digit	4.6	26.1
Breast fondling	4.6	26.1
Anal penetration multiple	1.5	4.3

Table 3 shows that the most frequent sexual behaviours observed involved vaginal penetration where the perpetrator raped the victim face-to-face and both the victim, and perpetrator were naked. The perpetrators gave the victims explicit sexual instructions in more than 50% of the incidences and were also verbally aggressive to the victim.

Multidimensional analysis

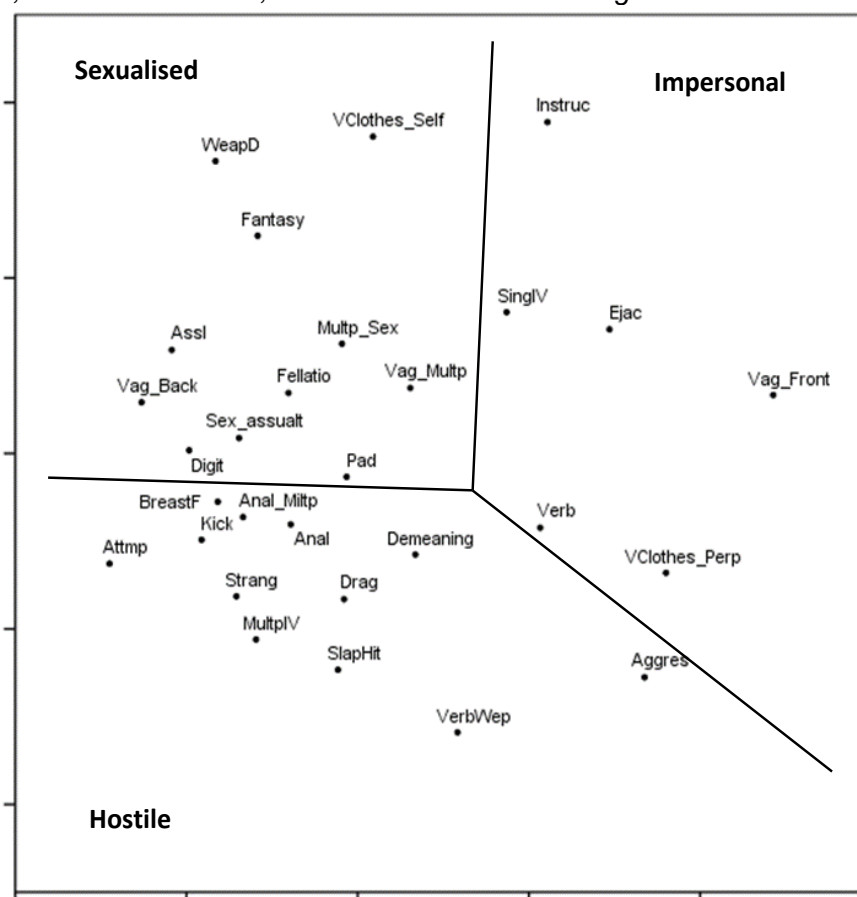
For the purposes of the MDS analysis 197 cases were analysed. Eight cases were not included, as more than 80% of the identified behavioural variables were missing. Several bivariate two-dimensional scaling (MDS) analyses utilising the PROXAL model for SPSS were conducted to establish the underlying structure of the offences and the behavioural characteristics exhibited during the commission of the acts. In an MDS representation, the closer two points are, the higher the likelihood that they will co-occur and conversely the further they are apart the less likely they are to co-occur (Borg & Groenen, 2005:253). Previous research has shown that data is likely to coalesce into discernible patterns (Canter et al., 2003; Häkkänen et al., 2004:23-24; Salfati, 2003:500; Salfati & Canter, 1999:400; Santtila et al., 2005:91). However, there is no inevitable relationship between the variables, and as such the data points can take on various representations, groupings, or clusters (Borg & Groenen, 2005:263).

Figure 1
General behavioural dimensions



Twenty-nine variables of the fifty identified behavioural variables were selected for analysis across the 197 cases which represented the **general behavioural dimensions** associated with serial rape incidences. The variables encompassed elements from the methods of approach and victim acquisition to methods of control and the sexual interactions. Fourteen variables were discounted as they occurred in less than 10% of the offences and were committed by less than 25% of the perpetrators. The MDS solution had an S-Stress of 0.14 and a Stress-I value of 0.2 which would indicate a reasonable degree of fit. The high frequency variables (75% incidences - 90% offenders) clustered geographically close together on the right of the n-dimensional space. The remaining variables were spread out across the dimensional space in expected special distributions. For example, the con method of approach (using some form of subterfuge to approach the victim) is diametrically different from the blitz and surprise methods of approach (use of sudden and overpowering force) and as such would not be expected to be in the same general area. The MDS configuration (Figure 1) illustrates distinct regions of the solution space. In accordance with the regional hypothesis, it can be inferred that the dispersal of the variables is representative of behavioural themes – Sexualised, Impersonal, and Hostile.

Figure 2
Sexual behaviour, methods of control, and verbal interaction during sex



A second MDS analysis (Figure 2) was conducted focussing on the **sexual behaviour, the methods of control, and the verbal interaction** between the perpetrator and the victims during the sexual contact. Twenty-nine of the variables related to the methods of control (Table 1) and the sexual act and verbal interaction (Table 2). Both low and high frequency behavioural variables (observed in figure 1) indicative of offender motivation was also included. This solution did not include the *Vaginal* variable but did incorporate the *vaginal penetration from the front* (Vaginal_Front) and *vaginal penetration from the back* (Vaginal_Back) as the distinction could possibly relate to a distinct behavioural dimension. A similar discernible pattern of occurrence was observed which correlated with the three dimensions identified in the general behavioural dimension MDS - Sexualised, Impersonal, and Hostile. The MDS solution had an S-Stress score of 0.15 and a Stress-I value of 0.2 which would indicate a reasonable degree of fit.

DISCUSSION

The frequency analysis of all 50 behavioural variables showed that behavioural clusters/dimensions could be identified. The core behavioural features exhibited by more than 85% of the offenders and observed across more than 75% of the rape cases is consistent with previous research (De Wet, 2008:185; Woodhams & Labuschagne, 2012a:12) where the majority of the attacks occurred outside in isolated locations and vaginal penetration occurred in the majority of the cases. The offenders made aggressive and threatening comments in 55% of the incidents and gave the victims specific instructions

during 63% of the rapes. The most frequent method of control employed by over 60% of the perpetrators was the offender displaying a weapon (34%) to ensure victim compliance.

Although high-frequency behaviours have limited differentiating value (Salfati & Bateman, 2005:130) they can be useful differentiating between offence types. For example, single-event and serial rape might share a subset of core behaviours – forced sexual intercourse – whereas the combination of specific features – for example specific types of forced sexual intercourse and offence location - can assist in differentiating potential single-event rape cases and serial rape cases. Low frequency behaviours have greater value as they would indicate that only certain offenders perform those (for example specific sexual acts) (Bateman & Salfati, 2007:532). These behaviours are also more useful as indications of offender motivation and feature prominently in the individual classification (Salfati, 2003:508; Salfati & Bateman, 2005:132). The data set illustrated that the behaviours which occurred in the 40% to 70% frequency band, represented behaviours relating to the methods of approach and the locations of the attacks. The behavioural variables found in the 10% to 40% frequency ranges are associated with the levels and types of aggression the perpetrators employed to subdue victims and ensure victim compliance. This frequency band contained the more distinctive and less conventional physical violence actions exhibited by the offenders. The behaviours observed in the 10% or less frequency band involves more specific and less stereotypical types of sexual behaviours such as multiple anal penetrations, breast fondling, and digit insertion. This would indicate that serial rape offences within the South African context do exhibit discernible and distinct behavioural clusters and show a degree of behavioural consistency across offences, thus allowing the crimes of one offender to be distinguished from other offenders who commit similar types of crimes. The behavioural clusters also align with existing research on behavioural typologies and models of serial rape offenders and offences relating to the basic features of the offence and methods of operating (Burgess et al., 2001; Hazelwood & Burgess, 2001:127; Palermo & Kocsis, 2005:198; Savino & Turvey, 2005:276; Turvey, 2003:553).

Using MDS solutions allowed the latent structures of the data to emerge and be interpreted, in that offender-victim interactions across the rape incidents could be categorised within distinct behavioural groupings and that such groupings be indicative of a type of behavioural theme (Salfati & Taylor, 2006:117). Three behavioural dimensions- **Sexualised, Impersonal, and Hostile** – were observed in similar regions on both MDS n-dimensional spaces. The regions were established by examining the potential psychological meaning of the individual variables as well as the inferred meaning between variables in the dimension.

The **Sexualised** region contain behaviours indicative of the underlying sexual motivation. Behaviours in this dimension would be highly sexualised and fantasy driven (Hazelwood & Warren, 2001:128). Five variables related specifically to the sexualised dimension:

- Fantasy
- Multiple vaginal penetrations
- Multiple sexual acts
- Fellatio
- Weapon displayed

The offence will likely feature varied sexual contact – digit insertion, forced fellatio, and vaginal penetration from the back (Ainsworth, 2005:103-105) and the perpetrator will attempt to engage the victim during the sexual contact. The dimension correlates with selfish-assertive and the power-reassurance typologies.

The **Impersonal** dimension would include less aggressive behaviours, single acts of violence or verbal threats, and methods of control simply to ensure sexual compliance. Behaviours in this dimension are indicative of a detached interaction with the victim (Canter & Heritage, 1990:200). Six variables are associated with the impersonal dimension:

- Vaginal penetration from the front
- Victims clothes are removed by the perpetrator
- Single acts of violence
- Verbally threatening
- Ejaculation
- Instructions during the sexual act

The offence is characterised by single acts of violence aimed at ensuring victim compliance any interactions are solely to facilitate the act and vaginal penetration and the gratification of the offender is the primary objective (Canter & Heritage, 1990:201; Palermo & Kocsis, 2005:199). The impersonal dimension shares behavioural similarities with the intercourse (Kocsis et al., 2002:164) and the impersonal interaction patterns where the sexual act is in addition to another crime (Canter & Heritage, 1990:201).

The **Hostile** region comprised of behaviours that are physically aggressive and would also include multiple acts of violence. This behavioural dimension is characterised by an aggressive offence style (Häkkinen et al., 2004:24). Six variables support the hostile theme:

- Aggressive verbal interaction
- Demeaning or insulting comments
- Multiple aggressive and violent behaviours
- Kicking
- Multiple anal penetrations
- Slapping or hitting the victim

The dimension is characterised by increased levels of aggression generally exhibited by the offender before any sexual contact. The attack aims to demean and degrade the victim in some way (Kocsis et al., 2002:165). Any interactions between the offender and victims are aggressive in nature and any sexual activity serves as a means to further demean and degrade the victim (Savino & Turvey, 2005:286). This dimension shares similar behavioural traits with the brutality behavioural pattern and the anger-retaliatory type.

CONCLUSION AND IMPLICATION OF FINDINGS

In sum, the main aim of the present study was to examine whether behavioural dimensions of offending could be identified in serial rape offences within the South African context. The findings illustrate that the criminal behaviour of serial rapists in South Africa can be classified according to identifiable and distinctive behavioural dimensions. These dimensions incorporate elements from distinct, but interrelated, aspects of the crime patterns of individual offenders. The research also illustrated that it is possible to characterise the crime scene behaviour according to thematic classifications, which correlates with findings from previous studies (Canter et al., 2003; Salfati, 2003:501; Santtila et al., 2005:102). The dimensions also align with the theoretical classifications developed by previous authors (Burgess et al., 2001:167-176; Groth et al., 1997:1239; Kocsis et al., 2002:160). Behavioural classifications heighten our theoretical understanding of rape incidences and assist in applying the findings within real world investigative settings (Häkkinen et al., 2004:28). Such empirically based analysis will also address the credibility of evidence presented during court proceedings (Alison et al., 2003:173). Identifying distinctive behavioural dimension not only provides a new, more integrated way of thinking about serial rape, but can also assist in identifying individual cases and assist in behavioural linking of serial rape offences in the absence of physical evidence.

There are some limitations in the current research that need to be highlighted. The material for the present study consisted mostly out of case dockets and case files and individual victim accounts. As indicated by Alison et al., (2001:250) victim accounts can be potentially disordered, therefore some behavioural variables might have been present during the incidents but were not recorded. Police case files are also not generated for research purposes (Häkkinen et al., 2004:29; Santtila et al., 2005:102). Therefore, there is a possibility that some data was not recorded in the case files. The sample size ($n = 23$ series), although similar in size, and in some cases larger than other similar types of research ($n =$

16, Santtila et al., 2005; $n = 22$ series, Woodhams & Labuschagne, 2012a), is still small, which means that a complete range of offence behaviours most likely was not included. Further research is recommended, which include larger data sets allowing for more series of rapes to be compared. Increasing the number of offenders will allow for a higher degree of accuracy and potential generalisability of the findings to the larger population.

REFERENCE LIST

- Ainsworth, P. B. 2005. *Offender profiling and crime analysis*. Portland, Oregon: Willian Publishing.
- Alison, L., Bennell, C., Mokros, A. & Ormerod, D. 2002. The personality paradox in offender profiling: A theoretical review of the processes involved in deriving background characteristics from crime scene actions. *Psychology, Public Policy, and Law*, 8(1), 115–135.
- Alison, L., Smith, M. D., Eastman, O. & Rainbow, L. 2003. Toulmin’s philosophy of argument and its relevance to offender profiling. *Psychology Crime and Law*, 9, 173–184.
- Alison, L. J., Snook, B., & Stein, K. L. 2001. Unobtrusive measurement: Using police information for forensic research. *Qualitative Research*, 1(2), 241-254.
- Bateman, A. L., & Salfati, C. G. 2007. An examination of behavioral consistency using individual behaviors or groups of behaviors in serial homicide. *Behavioral Sciences & the Law*, 25(4), 527-544.
- Bennell, C., & Canter, D. V. 2002. Linking commercial burglaries by modus operandi: Tests using regression and ROC analysis. *Science & Justice*, 42(3), 153-164.
- Bennell, C., Mugford, R., Ellingwood, H. & Woodhams, J. 2014. Linking crimes using behavioural clues: Current levels of linking accuracy and strategies for moving forward. *Journal of Investigative Psychology and Offender Profiling*, 11(1), 29-56.
- Berg, B. L. 2004. *Qualitative research methods: For the social sciences*. (5th ed.). Boston: Pearson.
- Binsbergen, J. 2013. *Quantitative content analysis, New Media Methods*, Masters of Media Web, 23 Sep 2013. <https://www.digitalmethods.net/MoM/QuantContentAnalysis>
- Borg, I. & Groenen, P. J. 2005. *Modern multidimensional scaling: Theory and applications*. Springer Science & Business Media.
- Burgess, A. W., Hazelwood, R. R. & Burgess, A. G. 2001. Classifying rape and sexual assault. (Pp. 165-176). In R. R. Hazelwood & A. W. Burgess (Eds.), *Practical aspects of rape investigation: A multidisciplinary approach* (3rd ed.). New York: CRC Press.
- Canter, D.V. 1995. Psychology of offender profiling. (Pp. 171 – 206). In R. Bull & D. Carson (Eds), *Handbook of psychology in legal contexts*. Chichester: Wiley.
- Canter, D. (2000). Offender profiling and criminal differentiation. *Legal and Criminological Psychology*, 5(1), 23-46.
- Canter, D. V., Bennell, C., Alison, L. J. & Reddy, S. 2003. Differentiating sex offences: A behaviorally based thematic classification of stranger rapes. *Behavioral sciences & the law*, 21(2), 157-174.
- Canter, D. & Heritage, R. 1990. A multivariate model of sexual offence behaviour: Developments in ‘offender profiling’. I. *The Journal of Forensic Psychiatry*, 1(2), 185-212.
- Criminal Law (*Sexual offenses and Related Matters*) Amendment Act (2007).
- De Wet, J. 2008. *An exploratory analysis of serial rape in South Africa* (Doctoral dissertation, University of Pretoria).
- Ding, C. S. 2006. Multidimensional scaling modelling approach to latent profile analysis in psychological research. *International Journal of Psychology*, 41(3), 226-238.

- Douglas, J. E., Burgess, A. W., Burgess, A. G., & Ressler, R. K. 1992. *Crime classification manual: A standard system for investigating and classifying violent crimes*. San Francisco, CA: Jossey-Bass.
- Egger, S. A. 1984. A working definition of serial murder and the reduction of linkage blindness. *Journal of Police Science and Administration*, 12(3), 348-357.
- Fromm, E. 1973. *The anatomy of human destructiveness*. London: Penguin Books.
- Geberth, V. J. 1995. Criminal personality profiling: The signature aspect in criminal investigation. *Law and Order*, November 1995, 45-49.
- Giguère, G. 2006. Collecting and analyzing data in multidimensional scaling experiments: A guide for psychologists using SPSS. *Tutorials in Quantitative Methods for Psychology*, 2(1), 27-38.
- Goodwill, A. M., Alison, L. J., & Beech, A. R. 2009. What works in offender profiling? A comparison of typological, thematic, and multivariate models. *Behavioral sciences & the law*, 27(4), 507-529.
- Graney, D. J. & Arrigo, B. A. 2002. *The power serial rapist. A criminology-victimology typology of female selection*. Springfield, Illinois: Charles C. Thomas Publishers.
- Greenall, P. V., & West, A. G. 2007. A study of stranger rapists from the English high security hospitals. *Journal of sexual aggression*, 13(2), 151-167
- Groth, A. N., Burgess, A. W. & Holmstrom, L. L. 1977. Rape: power, anger, and sexuality. *American Journal of Psychiatry*, 134(11), 1239-1243.
- Groth, N., & Birnbaum, H. J. 1979. *Men who rape: The psychology of the offender*. New York, NY: Plenum.
- Grubin, D., Kelly, P., & Brunson, C. 2001. *Linking serious sexual assaults through behaviour*. London, UK: Home Office.
- Häkkinen, H., Lindlöf, P. & Santtila, P. 2004. Crime scene actions and offender characteristics in a sample of Finnish stranger rapes. *Journal of Investigative Psychology and Offender Profiling*, 1(1), 17-32.
- Harbers, E., Deslauriers-Varin, N., Beauregard, E. & Kemp, J. J. 2012. Testing the behavioural and environmental consistency of serial sex offenders: A signature approach. *Journal of Investigative Psychology and Offender Profiling*, 9(3), 259-273.
- Hazelwood, R. R. & Burgess, A. W. 1987. An introduction to the serial rapist: Research by the FBI. *FBI Law Enforcement Bulletin*, September, 16-24.
- Hazelwood, R. R. & Warren, J. I. 2001. The relevance of fantasy in serial sexual crime investigations (pp. 127-130). In R. R. Hazelwood, & A. W. Burgess (Eds.), *Practical aspects of rape investigation: A multidisciplinary approach*. Boca Raton FL: CRC Press.
- Hazelwood, R. R., & Warren, J. I. 2004. Linkage analysis: Modus operandi, ritual, and signature in serial sexual crime. *Aggression and Violent Behaviour*, 8, 587-598.
- Holmes, R. M. & Holmes, S. T. 2002. *Sex crimes: Patterns and behaviour*. (2nd ed.). Thousand Oaks, CA: Sage.
- Jaworska, N. & Chupetlovska-Anastasova, A. 2009. A review of multidimensional scaling (MDS) and its utility in various psychological domains. *Tutorials in Quantitative Methods for Psychology*, 5(1), 1-10.
- Knight, R. A. 1999. Validation of a typology for rapists. *Journal of Interpersonal Violence*, 14(3), 303-330.

- Knight, R. A., Warren, J. I., Reboussin, R. & Soley, B. J. 1998. Predicting rapist types from crime-scene variables. *Criminal Justice and Behavior*, 25(1), 46-80.
- Kocsis, R. N. 2007. *Criminal Profiling. International theory, research*. Totowa, New Jersey: Humana Press.
- Kocsis, R. N., Cooksey, R. W. & Irwin, H. J. 2002. Psychological profiling of offender characteristics from crime behaviors in serial rape offences. *International Journal of Offender Therapy and Comparative Criminology*, 46(2), 144-169.
- McCabe, M. P. & Wauchope, M. 2005. Behavioural characteristics of rapists. *Journal of sexual aggression*, 11(3), 235-247.
- Mischel, W., Mendoza-Denton, R. & Shoda, Y. 2002. Situation-behavior profiles as a locus of consistency in personality. *Current Directions in Psychological Science*, 11(2), 50-54.
- Palermo, G.B. & Kocsis, R.N. 2005. *Offender profiling: an introduction to the sociopsychological analysis of violent crime*. Springfield, Illinois: Charles Thomas.
- Pardue, A. & Arrigo, B. A. 2008. Power, anger, and sadistic rapists: Toward a differentiated model of offender personality. *International journal of offender therapy and comparative criminology*, 52(4), 378-400
- Plutchik, R. & Conte, H. R. 1997. *Circumflex Models of Personality and Emotions*. Washington, DC: American Psychological Association.
- Prentky, R. A. & Knight, R. A. 1991. Identifying critical dimensions for discriminating among rapists. *Journal of Consulting and Clinical Psychology*, 59, 643-661.
- Robertiello, G., & Terry, K. J. 2007. Can we profile sex offenders? A review of sex offender typologies. *Aggression and Violent Behavior*, 12(5), 508-518.
- Rourke, L., & Anderson, T. 2004. Validity in quantitative content analysis. *Educational Technology Research and Development*, 52(1), 5-18.
- Salfati, C. G. 2003. Offender interaction with victims in homicide: A multidimensional analysis of frequencies in crime scene behaviours. *Journal of Interpersonal Violence*, 18, 490-512.
- Salfati, C. G. & Bateman, A. L. 2005. Serial homicide: An investigation of behavioural consistency. *Journal of Investigative Psychology and Offender Profiling*, 2(2), 121-144.
- Salfati, C. G. & Canter, D. V. 1999. Differentiating Stranger Murders: Profiling Offender Characteristics from Behavioral Styles. *Behavioral Sciences and the Law*, 17, 391-406.
- Salfati, C. G. & Taylor, P. 2006. Differentiating sexual violence: A comparison of sexual homicide and rape. *Psychology, Crime & Law*, 12(2), 107-125.
- Santtila, P., Jukkila, J. & Sandnabba, N. K. 2005. Behavioural linking of stranger rapes. *Journal of Investigative Psychology and Offender Profiling*, 2(2), 87-103.
- Santtila, P., Pakkanen, T., Zappala, A., Bosco, D., Valkama, M. & Mokros, A. 2008. Behavioural crime linking in serial homicide. *Psychology, Crime & Law*, 14(3), 245-265.
- Savino, J. O. & Turvey, B. E. 2005. *Rape investigation handbook*. San Diego, CA: Elsevier Academic Press.
- Shaffer, L. & Penn, J. 2006. A comprehensive paraphilia classification system. (pp. 69-94). In E.W. Hickey. (Ed.). *Sex crimes and paraphilia*. Upper Saddle River, NJ: Pearson, Prentice Hall.
- Shoda, Y. & Mischel, W. 2000. Reconciling contextualism with the core assumptions of personality psychology. *European journal of Personality*, 14, 407-428.

- Sturidsson, K., Långström, N., Grann, M., Sjöstedt, G., Åsgård, U. & Aghede, E. 2006. Using multidimensional scaling for the analysis of sexual offence behaviour: A replication and some cautionary notes. *Psychology, Crime & Law*, 12(3), 221-230
- Turvey, B. E. 1997. *Behavior evidence: Understanding motive and developing suspects in unsolved serial rapes through behavioral profiling*. Retrieved November 12, 2005, from Forensic Solutions LLC <http://www.corpus-delecti.com/rape.html>
- Turvey, B. E. 2011. *Criminal profiling: An introduction to behavioral evidence analysis (2nd ed.)*. San Diego, CA: Academic Press.
- Woodhams, J. & Labuschagne, G. 2012a. South African Serial Rapists the Offenders, their Victims, and their Offenses. *Sexual abuse: A journal of research and treatment*, 24(6), 544-574.
- Woodhams, J. & Labuschagne, G. 2012b. A test of case linkage principles with solved and unsolved serial rapes. *Journal of police and criminal psychology*, 27(1), 85-98.
- Woodhams, J., Bull, R. & Hollin, C. R. 2007. Case linkage: Identifying crimes committed by the same offender. (Pp 117–133). In R.N. Kocsis (ed) *Criminal profiling: International theory, research and practice*. Totowa, New Jersey: Humana Press.
- Yokota, K., Fujita, G., Watanabe, K., Yoshimoto, K. & Wachi, T. 2007. Application of the behavioral investigative support system for profiling perpetrators of serial sexual assaults. *Behavioral Sciences & the Law*, 25(6), 841-856.

Appendix 1

Behavioural dimension variables reflecting crime scene actions

Behavioural variables -Variable description

Methods and location of approach and attack location

Confidence - Approach style involved some form of deception to approach and interact with the victim

Surprise - Approach style involves the perpetrator waiting for or ambushing the victim

Blitz - Approach involves direct physical force to subdue and overpower the victim

Public_Space_Approach -Victim was approached in a public space where there were several other people

Isolated_Approach - Victim was approached/attacked in an isolated location such as an open field

Approach_Location_Same - The location where the offender approaches the victim and the attack occurred were the same

Approach_Location_Different - The location where the offender approached the victim differed from the attack location

Break-In - Offender broke into the victim's home

Inside_Victim's_House - Attacks occurred inside the victim's home or a dwelling

Inside_Perpetrator's_House - Attacks occurred inside the offender's home or a dwelling

Outside - Attacks occurred outside in open areas

Attack_Car - The offender raped/assaulted the victim inside a car

Methods of Control

Verbal_Threat - The offender threatens the victim with physical violence to ensure compliance

Weapon_displayed - The offender displays a weapon to ensure compliance

Verbal_Threat_Weapon - The offender threatens the victim with a weapon (gun or knife) to ensure compliance

Single_Violence - The offender performed a single act of violence to ensure compliance

Multiple_Violence - The offender performed multiple acts of violence

Strangled - The offender strangled the victim

Dragged - The offender dragged the victim

Slapped/Hitting - The offender slapped the victim to ensure compliance

Kicked - The offender kicked the victim

Assaulted - The offender inflicted non-fatal wounds on the victim. For example, stabbing at the victim with a knife or hitting the victim with a firearm or with a rock or with a discarded bottle

Sexual act and verbal interactions

Attempted rape - Offender attempted to rape the victim

Digit_Insertion -The offender inserted his fingers into the victim

Fellatio -The offender inserted his penis into the victim's mouth

Breast_Fondled - The offender fondled the victim's breasts

Vaginal_Front - Vaginal penetration was achieved with the victim facing the offender

Vaginal_Back - Vaginal penetration was achieved with the victim facing away from the offender

Vaginal_>1 - The victim was penetrated/raped more than once during the same incident

Anal - Anal penetration was achieved by the offender

Anal_>1 - The offender penetrated the victim anally multiple times during the same incident

Sexual assault - The offender forces / engages in sexual behaviour with the victim other than sexual penetration or oral sex

Several_Acts - The offender engaged in different forms of sexual contact with the victim during the same incident

Pad - Offender placed something (piece of clothing, plastic bag, cardboard) on the ground for the victim to lay on

Ejaculate - The offender ejaculated inside the victim

Multiple sexual act - Several sexual acts were attempted/achieved

Victim_Clothes_Offender - The offender removed the victim's clothing
Victim_Clothes_Self - The victim removed her own clothing
Offender_Clothed - The offender was partially/fully clothed during the rape
Offender_Naked - The offender was naked during the rape
Victim_Participate (instructed) -The offender instructs the victim to participate in the rape. For example, pull up her legs or lay in a certain position.
Fantasy -The offender instructed the victim to participate during the rape. For example, to move with during the rape or hold him like he was her boyfriend/husband. The offender gives the victim specific instructions indicative of some sexual fantasy
Aggressive -The offender made aggressive and threatening comments during the act
Demeaning -The offender made demeaning or insulting comments before the act (this would include profanities directed against the victim or women in general)
Complimentary -The offender compliments the victim
None - There is no verbal interaction between the victim and the offender during the sexual acts
Steal_Before - The offender had stolen items from the victim before the attack
Steal_After - The offender had stolen items from the victim after the attack
Leave_Victim_Naked - The offender leaves the victim at the scene naked
Leave_Victim_Clothed - The offender makes the victim get dressed before he leaves her at the scene
