

South African Serial Homicide: Consistency in Victim Types and Crime Scene Actions Across Series

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Abstract

Key to understanding the significance of behavioural evidence for linkage purposes is in establishing how consistently an offender displays the same or similar behaviours across their series. There have however to date been very few studies aiming at identifying salient components of offending behaviour that can be used reliably for linking individual crimes as part of a single series. In addition, studies that have been conducted have all dealt with serial homicide in the Western world and have been based on small samples of cases from each country. Some of the recent literature has started to disentangle some of these salient features, notably the victim, violence levels, control, and planning. The current study focused on evaluating the consistency of these features across series, using a sample of serial homicides from South Africa consisting of 30 offenders with a total of 283 victims and 235 crime scenes. Results indicate that the level of interaction with the victim may be influential to the stability or instability of offending patterns across the series. How offenders approach planning in their offence also showed a certain degree of consistency, with patterns of violence being the least consistent across the series of all components tested. Copyright © 2014 John Wiley & Sons, Ltd.

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INTRODUCTION

Linkage analysis is a central part of the investigative process when investigators are faced with a possible series of related offences. This is often the first step when attempting to

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identify a series, especially where forensic results, such as DNA, are still outstanding, or not available (Labuschagne, 2010). In countries such as South Africa, one of the few in Africa with forensic DNA capabilities, results can take months to process because of backlogs, or bodies are often not discovered immediately with the result that potential evidence that could be used for linkage purposes is compromised. Investigators in these circumstances need to determine which offences could be the work of one offender and thereby need to be allocated to a task team for investigation. Furthermore, this helps guide investigators as to which types of cases need to be enquired about in neighbouring policing areas. Currently, the only type of linkage analysis performed in courtrooms is what is performed so under the legal principle of 'similar fact evidence' or 'other crime evidence' where forensic evidence is lacking, which relies on cases being linked on similar attributes related to the type of victim, location, or behaviours engaged in by the offender. However, although evidence such as this is currently used in South Africa and some other countries, there is no empirical literature to support any behavioural elements of this concept. There is therefore a great need for research-based evidence to support such input in investigations and trial proceedings.

There have been very few studies aiming at identifying salient components of offending behaviour that can be used reliably for linking individual crimes as part of a single series. Woodhams, Hollin, and Bull (2007) did a review and concluded that there had been only 11 studies up to that time that dealt with empirical and methodological issues in linking (Bennell & Canter, 2002; Bennell & Jones, 2005; Canter *et al.*, 1991; Green, Booth, & Biderman, 1976; Grubin, Kelly, & Brunson, 2001; Hammond, 1990; Salfati & Bateman, 2005; Santtila, Fritzon, & Tamelander, 2005; Santtila, Junkkila, & Sandnabba, 2005; Woodhams & Toye, 2007 – as cited by Woodhams *et al.*, 2007). By 2010, only another 4 have been published (Bateman & Salfati, 2007; Santtilla *et al.*, 2008; Sorochinski & Salfati, 2010; Woodhams, Hollin, & Bull, 2008). Another few papers have been published in 2011; however, none were on serial homicide. However, one paper on linking rapes in solved and unsolved South African rape series was published by Woodhams and Labuschagne (2011).

Of the aforementioned papers, only four have dealt with serial homicide (Bateman & Salfati, 2007; Salfati & Bateman, 2005; Santtilla *et al.*, 2008; Sorochinski & Salfati, 2010). All of these papers have dealt with serial homicide in the Western world and have been based on samples of cases from each country. No study to date has looked at consistency in serial homicide empirically in other areas of the world where national and cultural norms may have an influence on overall patterns, and as such, there is no real understanding of the similarities and differences in consistency patterns across nations.

Key to understanding the significance of behavioural evidence for linkage purposes is in establishing how consistently an offender displays the same or similar behaviours across their series. Some of the recent literature has started to disentangle some of these salient features, notably the victim, violence levels, control, and planning. These aspects of homicide have been independently highlighted in previous literature as crucial in analysing offenders' behaviours and, when taken together, cover the entire set of behaviours exhibited in an act of homicide.

In a review of the key features of the literature, Sorochinski and Salfati (2010) outlined that it is argued within the social cognitive literature (e.g. Carver & Scheier, 1983; Showers & Cantor, 1985) that in achieving a higher goal, people often set smaller, more concrete goals that would allow them to better adjust to the situation. In line with this argument, whilst the ultimate goal of the serial offender may be the successful commission of multiple homicides, the behaviours that comprise each homicide can be divided into subgroups, each of which deals with specific aspects, or goal, of the offence, such as victim target, interactional behaviours, or location, and involves making specific cognitive decisions.

The victim

Karmen (1983) discussed the vulnerability of an individual or group and stated that 'certain lifestyles expose individuals and their possessions to greater threat and danger than others' (p. 241 as cited in Egger, 2002). Salfati (2008) additionally stressed the importance of understanding the patterns of consistency in victim targeting. Canter (2000) argued that the way an offender interacts with their victim depends on the role the offender assigns to the victim and proposed three possible roles: victim as a person—where the victim has some personal significance to the offender; victim as a vehicle—where the offender uses the victim as a vehicle through whom for getting what they want; and victim as an object—where the offender handles the victim as though they are an inanimate object doing things to the victim rather than with the victim. This framework based on rape was later supported in a study of victim–offender interaction in homicide (Salfati & Canter, 1999) and attempted homicide (Fritzon & Ridgway, 2001), and previous work by Canter, Alison, Alison, and Wentink (2004) has been reinterpreted by Canter and Youngs (2012) within this framework. Horning, Salfati, and Labuschagne (2015) further tested this model on serial homicide in South Africa and found that two types emerged, which centred on the offender–victim interaction: victim as vehicle, which centred on power/control, extensive interaction with the victim, and victim significance, and victim as object, which focused on gain, minimal interaction whilst the victim is alive and depersonalization. Of the total sample, 85.7% (259/302) of the incidents could be classified as predominantly belonging to either victim as object or victim as vehicle crime scene themes. These findings they suggested indicated that the victim as object/vehicle dichotomy was a very good representation of serial homicide offending in South Africa and may be a useful classification to determine consistency across the violent crime series.

Planning

Behaviours that have focused on issues of how much an offender is cognitively engaged with their behaviours has been a focus since the start of modern profiling and the original work by Ressler, Burgess, and Douglas (1986) on the organised and disorganised crime scene and associated offenders. Although the original idea gave shape to how we may want to approach the analysis of criminal behaviour by looking at crime scene indicators, subsequent work evaluating the model (e.g. Canter *et al.*, 2004) highlighted that the lack of validity and reliability of the behaviours analysed lent a certain degree of invalidity to the study.

Recently, Sorochinski and Salfati (2010) highlighted planning as a focus of highly cognitive behaviours. They surmised that planning comprised behaviours related to the timing and location of the homicide and its subsequent cover-up. These behaviours can be differentiated on the basis of two cognitive strategies. First, pre-offence planning aimed at preparatory actions leading up to the commission of the crime for the successful completion thereof (referred to as pre-offence planning or plans), and second, pre-offence planning for actions to be taken after the commission of the crime (referred to as post-offence planning or plans), for successful evasion of identification and arrest. Here, it can be stated that the offender's goals are to facilitate the completion of the homicide and to avoid subsequent detection. As explained by Showers and Cantor (1985), individuals have the flexibility to adapt their old strategies and learn new ones in accordance with their acquired experience. Thus, it can be hypothesised that a change from one strategy to

the other within this behavioural subgroup may be due to learning and experience. In the US sample (Sorochinski & Salfati, 2010), it was found that indeed most offenders who change their planning strategy across the series do so from first to second offence, supporting the learning hypothesis. Sorochinski *et al.* (2015) conducted a classification study to determine if the behaviours of South African offenders could be similarly differentiated into two distinct planning strategies. Results indicated that, whilst the pre-offence planning was similarly evident in the South African sample, there was almost no post-offence planning. Whereas US offenders often engaged in 'post-offence planning', South African offenders did all their planning before the offence so that once the offence was committed; there was no need to engage in further planned actions (e.g. the body was already at the dumping site, in a secluded location). The South African serial homicide offender essentially transports his body to the disposal site whilst the victim is still alive and so does not need to engage in risky behaviour of spending unnecessary time with a dead body transporting it or burying it.

Rather, the offenders could more reliably be differentiated into either pre-offence planning or no planning at all. It was concluded that these differences between the US and South African offenders are due to environmental constraints and specifics. In study 2 of the present paper, additional results of the consistency pattern analysis in the planning behavioural subgroup in South African offenders are presented.

Violence

The element that aims to measure the nature and the force of the violence in crimes has been extensively looked at in the literature. Studies have specifically focused on the sexual elements and the nature of the violence as it pertains to psychopathology and sadism (Bradford, 2006; Bradford, Fedoroff, & Firestone, 2008; Geberth & Turco, 1997; Knight & Prentky, 1990; Knight, Warren, Reboussin, & Soley, 1998; Ochberg *et al.*, 2004; Porter & Porter, 2007; Porter, Woodworth, Earle, Drugge, & Boer, 2003; Prentky & Knight, 1991; Stone, 2009). These studies, however, mainly highlight the clinical side of the violence expressed, its connection to various types of personality disorders (e.g. narcissistic personality disorder, antisocial personality disorder, or Hare's concept of psychopathy), and the motivation behind it. Few studies (e.g. Knight & Prentky, 1990; Knight *et al.*, 1998; Prentky & Knight, 1991) have examined violent behaviours specifically in the context of developing offender taxonomies; however, these have generally been concerned with rape offences rather than homicide. Other studies have looked at giving an overview of the frequency at which different types of weapons and methods of killing occur (e.g. Bateman & Salfati, 2007). Bateman and Salfati in the same study also highlight that variables dealing more specifically with control were one of the few categories of behaviours that show indications of consistency in serial homicides. Paramelle and Salfati (2007) in an exploration of how clinical concepts can be used as a bases for interpreting behaviours in serial homicide also discuss the overlap between violence and control, as do Brannen and Salfati (2009) in their work on rape and serial rape.

Recently, Sorochinski and Salfati (2010) have aimed to look at the more cognitive aspects of violence and divide the category of violence into two separate types. In the first type, process oriented, the offender may engage in a substantial amount of violence that does not result in a rapid death or, to the contrary, use methods that result in a quick kill. The second type, goal oriented, they suggest is associated with considerably more control on the part of the offender (Hickey, 2006). Sorochinski and Salfati (2010) showed that each of these may be conceptualised as a distinct cognitive strategy, namely, 'pre-offence

planning’—plans for steps to be taken prior to the crime (e.g. bringing a weapon to scene, avoidance of leaving forensic trace evidence, etc.)—and post-offence planning—plans for steps to be taken after the crime for the purpose of prevention of discovery of the crime and possible identification and arrest (e.g. removing forensic evidence, transporting the body away from the scene, etc.).

Evidence of change due to situational factors may be most likely within this subgroup because of potential victim resistance and other unexpected circumstances that may lead the offender to adjust their cognitive strategies in accordance with the situational constraints. Additionally, change may be evidenced as loss of control by the offender, as proposed by Hickey (2006), who argued that the offender’s need for control and their feelings of loss of control may result in behavioural changes, such as increased violence and the increase in killing rate and sloppiness (i.e. use of higher risk behaviours). Keppel and Walter (1999), in their classification of sexual homicide offenders, differentiate between those offenders who planned both the rape and the murder from those who only planned the rape with the murder being a spontaneous act. In line with these theories, Sorochinski and Salfati (2010) found that offenders’ behaviours at each crime scene could be reliably differentiated into either goal-oriented or process-oriented violence, but the offenders were least consistent in their wounding strategies (compared with other behavioural subgroups) because of high likelihood of situational factors forcing the change. In addition, it was found that offenders were more likely to change from goal oriented to process oriented than the vice versa, possibly, confirming the loss of control hypothesis. Sorochinski *et al.* (2015) recently found that South African offenders’ behaviours could similarly be classified into either of the two wounding strategies. In the present paper, study 2 will present the result of the consistency and change analysis across the series of South African serial homicide offenders.

AIMS

This study focused on determining the factors that may be useful to look for consistency across series. The first aim (study 1) aimed to investigate whether offenders were consistent in victim choice across their series, and analysis was conducted to examine two aspects of victim consistency. The first centred on whether offenders were consistent in the specific victim-based crime scene type they used (victim as object or victim as vehicle). The second focused specifically on victimology characteristics only. The second aim (study 2) explored whether specific subsets of behaviours would remain consistent across an offender’s series, notably behavioural evidence of planning and violence (control).

METHODS

Data

The data were from closed, fully adjudicated serial homicide cases obtained from the Investigative Psychology Section of the South African Police Service (SAPS). This Section was created in 1996 in response to the increase in murder series detected by the SAPS. This Section assists nationally in the investigation of serious offences, including serial homicide and has a comprehensive archive of cases files from South Africa (1953–2007). Files were

archived at SAPS Head Office in Pretoria, South Africa. Files typically contained medical examiner and investigative reports, offender confessions, witness statements, statements by victim's family (if identified), live victim accounts, and forensic reports, such as DNA/ballistics, crime scene and autopsy photographs, and the investigation diary.

From 1953 until 2007, there were 53 series in total in South Africa, involving 77 offenders with approximately 557+ victims. Of these, nine series had been lost or destroyed and could not be recovered. Four series were unobtainable during the timescale of the study. Five of the series involve team killers and two were awaiting trial, and these series were not included in the current study. Of these, 33 solved serial homicide series from 1953 to 2007 with a total of 302 victims (254 crime scenes) were available for analysis. Of the total sample, three series were eliminated because the order in which the victims were killed was not known. This resulted in a sample of 30 offenders with a total of 283 victims (235 crime scenes). Of these, four series only had only two crime scenes in total (eight victims). The remaining 26 series had a minimum of three crime scenes (275 victims). Twenty two of the series had four or more crime scenes (263 victims).

Data for study 1 was victim focused; that is, the analysis of thematic behavioural consistency was at the victim level, and therefore, crime scene behaviours were not consolidated at the crime scene level, but rather unique pairings of offenders and victims were analysed. For example, if there were multiple victims at one crime scene, the analysis would include a separate analysis of each offender–victim interaction as the offender may perceive victims differently.

Data for study 2 was crime scene based; that is, it examined the consistency and change patterns of offenders' planning and violence behaviours across their first two, three, and four *crime scenes*. In order to avoid disproportionate weight being given in the analyses to cases where multiple victims were murdered at the same crime scene, the cases were reduced to one data row in one of two ways. In cases where it was determined that only one victim was the main target of the offender and the other one/s were incidental (e.g. the offender was targeting a female victim at her own residence but did not expect that the victim's brother would also be there at the time of attack; the offender thus killed the brother and the target victim), only the information about behaviours related to the target victim were used in the analyses. In cases where both victims were the intended targets of the offender, all behaviours that the offender engaged in towards either victim were collapsed into one single case for analyses (i.e. if the offender used a knife to murder one victim and a blunt object to murder the other one, both stabbing and blunt force were coded as wounding types in the case).

For these reasons, the subsets of data used for each study varied slightly. Each study however looked at consistency across different series length, notably the first two crime scenes in a series, the first three, and the first four. A summary of these are given in the succeeding texts.

Data analysing consistency across the first two crime scenes

Study 1: Thirty series with the first two crime scenes, which included 60 offender–victim interactions. Of the 60, five crime scenes involved multiple victims. As this study was victim based, offender–victim interactions were analysed as unique pairings.

Study 2: Thirty series with the first two crime scenes, which included 30 offenders with 60 crime scenes. Of the 60, five crime scenes involved multiple victims. As this study was crime scene based, the scenes were reduced to a single data row in the way described in the Section on Data.

Data analysing consistency across the first three crime scenes

- Study 1: Twenty-six series with the first three crime scenes, which included 78 offender–victim interactions. Four series were not eligible for analysis because these series only had two victims.
- Study 2: Twenty-five series with the first three crime scenes, which included 25 offenders and 75 crime scenes. Five series were eliminated from this analysis because they consisted of only two crime scenes. This included the same four that were eliminated in study 1, with the addition of one more case where two of the three victims in this series were killed during the same episode—that is, this series only had two crime scenes (because of the emphasis in study 2 being on the offenders’ progress from crime scene to crime scene, rather than from victim to victim).

Data analysing consistency across the first four crime scenes

- Study 1: Twenty series with the first four crime scenes, which included 80 offender–victim interactions. In addition to eliminating eight series because the offender had less than four separate crime scenes, a further two more series were eliminated because the victim order at the fourth offence was unclear.
- Study 2: Nineteen series with the first four crime scenes, which included 19 offenders and 76 crimes scenes. In addition to eliminating the same 10 series as in study 1 because of the series containing less than four separate crime scenes or because of the order of crimes being unknown, one additional series was eliminated because, whilst there were four victims, there were only three crime scenes.

Sample demographics

The offender and victim demographics used for the current study are based upon the series of 30 serial homicide offenders with a total of 283 victims.¹

Offenders

All 30 offenders in the present study were men. The age of the offender at the start of their series was known in 27 of the 30 cases and ranged from 18 to 42 years ($M = 28.7$, $SD = 6.0$; median = 30). Sixty-three percent (19/30) of the offenders were Black, 27.7% (8/30) White, and 10% (3/30) coloured.² On the basis of the racial distribution in the South African population,³ Whites are somewhat overrepresented (27.7% of the sample here but 7.7% of the overall population). Of the offenders whose marital status was known, 45% (9/20) had a boyfriend or girlfriend, 30% (6/20) were single, 15% (3/20) married, and 5% (1/20) were divorced or separated. Of the 26 offenders, for whom occupation was known

¹The sample demographics reported are based upon the entire series of the 30 offenders; however, later analyses will be on subsamples of these series.

²In the South African context, the term *coloured* refers to an ethnic group of people who possess some degree of sub-Saharan ancestry but not enough to be considered Black under South African law. They are technically mixed race and often possess substantial ancestry from Europe, Indonesia, India, Sri Lanka, Bangladesh, Maldives, Nepal, Madagascar, Mozambique, Mauritius, St. Helena, and Southern Africa but have their own unique cultural identity.

³Midyear population estimate 2007. Official Statistics South Africa.

at the time of their arrest, 50% (13/26) of the offenders were labourers, 38.5% (10/26) were unemployed, and one offender was a DJ in a night club, and one was a traditional healer.⁴

Victims

Thirty-six percent (103/283) of the known victims were men and 63.6% (180/283) were women. Of the 283 victims for whom age was known, age ranged from 7 months to 85 years ($M = 31.2$, $SD = 16.1$; median = 27.5). Of the known victims, 75% (212/279) were Black, 12.4% (35/279) coloured, 8.1% (23/279) White, 2.5 (7/279) Indian, and 0.7% (2/279) Asian. These numbers are generally proportionate to the overall racial composition in South Africa. Of the victims whose marital status was known, 48% (48/153) had a boyfriend or girlfriend, 19.1% (54/153) were single, 14% (41/153) married, 2.1% (6/153) divorced or separated, 1.1% (3/153) widowed, and 0.4% (1/153) were cohabitating or living with a partner. In terms of victim's occupation that were known, 22.6% (64/165) were unemployed, 13.1% (37/165) labourers, 9.5% (27/165) other, 8.8% (25/165) students, 2.8% (8/165) prostitutes, and 1.4% (4/165) professionals.

Measurement instrument

The variables used in this study were coded using the Homicide Profiling Index Version 4[©] (HPIv4). The HPIv4 has been specifically designed to be used with police case files and consists of 217 variables, 147 of which are in a dichotomous or categorical form, 38 of which are measurements, for example, age, distance, number of arrests, etc., and 32, which are qualitative. The variables in the HPIv4 account for behavioural indicators of crime scene actions, for example, location, weapons, forensics, control and sexual behaviours, and post-mortem behaviours, and detailed demographics of the offender and the victim. Each variable has a detailed description and guidelines that coders follow in order to reliably code the presence of the variable. Most variables are constructed such that they must be measured according to a strict category of either present, absent, or unknown and such dichotomous coding allows for a more objective analysis (Salfati & Canter, 1999). All variables were coded in a dichotomous form with 1 signifying present and 0 referring to the absence of the behaviour or characteristic. Because of unclear evidence in some of the files, when a behaviour or characteristic is unknown, this may signify either absence or may indicate that the information was missing in the file. In order to establish the inter-rater reliability for the present study, four coders independently coded two serial homicide cases with a total of 12 victims. Analyses were conducted to determine how often raters agreed on the coding of each variable. The overall agreement was 79%. Most common errors occurred when raters disagreed on whether the variable was not present (0) or missing (999) in the file. These categories, however, are most commonly merged for the purposes of further analyses. When the 'not present' and 'missing' categories were collapsed, rater agreement increased to 89.5%. Errors were extensively reviewed and discussed to resolve questionable issues, and several variable definitions were clarified as a result. Variables related to the specific study were selected from the full dataset that had been coded with the HPI and described in the succeeding texts.

⁴Traditional healers (in South Africa known as Sangomas and Inyangas) have been administering health for centuries. They use plants, roots, and animals to make their medicine and in some instances consult with ancestors to determine the cause of an individual's problems.

Variables for study 1 consistency in victim choice

The variables for this study were based on those used in Horning *et al.* (2015) who used the same data as that in the current study and identified two specific types that which centred on the offender–victim interaction; victim as vehicle, which centred on power/control, extensive interaction with the victim, and victim significance; and victim as object, which focused on gain, minimal interaction whilst the victim is alive and depersonalization.

The variables that make up the victim as object/vehicle classification can be seen in Table 1. The specific definitions of the specific victim types that were included in the two subtypes are included in the succeeding texts, alongside their relative frequencies in the dataset. All of frequencies for each of the variables in this section are based on the full sample of 30 offenders with all 283 victims in the sample (235 crime scenes).

Men (36.4% [103/283]⁵)

In previous studies on serial homicide, the majority of victims were women (Salfati *et al.*, 2015). Over a third of this subsample was men. Further, all of the serial homicide offenders in this sample were men; therefore, these incidents involve men attacking other men. Offenders targeting men was in the victim as object theme (Table 1), which may indicate that offenders who chose men may have been seeking ulterior gains such as items of value, and according to some of the case materials, some of the offenders would take the victim's female companion and rape her. In any of these scenarios, offenders did not spend much time with the male victim and may have used him for ulterior gains, that is, theft, status, or sex.

Table 1. Crime scene behaviours and victim characteristics by theme (on the basis of 283 unique offender–victim pairings or interactions)

	Victim as object	Valid (%)	Victim as vehicle	Valid (%)
Pre-crime	Approach surprise	26.4	Approach con/lure	47.5
	Approach blitz	26.4		
During crime	Stole (item of value)	42.5	Isolated location	42.8
	Firearm	33.2	Vaginal sex	38.4
	Single wound	32.7	Stole (personal item)	25.5
	Victim in his or her residence	15.6	Strangled	24.4
	Occurred in public view	9.0	Bound	8.9
	Watched couple have sex	2.0	Anal sex	7.9
	Foreign object	1.0	Gagged	4.5
			Covered victim's face	2.7
			Asphyxiated	2.2
Post-crime	Wounded post-mortem	3.5	Blindfolded	0.4
	Dismembered	1.2	Hid/covered victim's body	19.4
			Transported victim's body	7.1
			Posed victim's body	4.2
			Covered face post-mortem	4.1
			Necrophilia	1.6
Victim types	Victim male	36.4	Victim: unidentified	17.7
	Victim live female	13.8	Victim: child (≤ 16 years)	16.2
	Victim apart of a couple	13.4	Victim: woman looking work	15.5
			Victim: prostitute	5.4

Couples (13.4% [38/283])

Couples indicate that there were two people involved in a romantic relationship, and they were attacked whilst together. Couples were also in the victim as object theme (Table 1). According to the case materials, sometimes, these incidents involved the offender murdering the men and then only raping the woman (in a few cases, the offender would watch them have sex at a lover's lane location beforehand), or in other incidents, they were both swiftly assaulted and/or killed.

Live victims (19.1% [54/283])

Live victim incidents occurred within the serial homicide series. In 29 incidents, the victim was raped but not murdered.⁶ In 25 incidents, the victim was assaulted but did not die as the result of the attack. These attacks may be fundamentally similar to the homicides in the general modus operandi (Horning *et al.*, 2015). The live victim incidents involving women was in the victim as object theme (Table 1) and either involved the attack of a couple or a lone woman and often the focus was on raping the victim.

Children (16.2% [43/232]⁷)

For purposes of this study, children were victims ages 17 years and younger. Prior researchers have theorised that children may be targeted for sexual reasons or because they are easier to control and dominate (Egger, 2002; Hickey, 2006). Children were in the victim as vehicle theme (Table 1), which involved extensive interaction and often had a focus of power and control over the victim. Of the 43 incidents, 28 of the children were alone, 13 were with at least one other person, and 2 were missing information. Of the 13 incidents involving multiple victims, one incident involved two children together and another involved four victims where three victims were children and the oldest was 19 years old. In the other cases, the children were with adults. Even in the cases involving adults, the dyad or where the adult was with multiple children may have rendered the group an easier target because of the vulnerability of the child(ren).

Female victims seeking employment (15.5% [30/193]⁸)

The female victim was actively seeking employment and the offender promised the victim work. The unemployment rate in South Africa is 26–27%,⁹ and consequently, there is a high rate of poverty, and people who are in need of employment. In this cultural context and amongst those who are in a lower socioeconomic bracket, it is not unusual to be offered some form of employment by a stranger. Some serial homicide offenders have used this point of vulnerability as a way of luring their willing victims to follow them to more isolated locations, a similar con is often used in rape series in South Africa (De Wet, Potgieter, & Labuschagne, 2010; Woodhams & Labuschagne, 2011). Woman looking for work was in the victim as vehicle theme (Table 1), and these interactions were generally

⁵The victim characteristics reported are based upon the entire series of the 30 offenders; however, later analyses will be on subsamples of these series.

⁶In some of these incidents, the victim was raped and assaulted. For purposes of this analysis, the rape was counted and not the assault.

⁷In 232 of the 283 incidents, it was known the victim's age was known.

⁸In 193 of the 283 incidents, it was known whether the victim was a woman looking for work.

⁹Midyear population estimate 2007. Official Statistics South Africa.

extensive at the pre-crime stage because the offender had to successfully con the victim and sometimes would take her long distances to a supposed job. Furthermore, the victim as vehicle theme generally involved extensive interaction at all crime phases, including during crime and post-mortem.

Prostitutes (5.4% [8/147]¹⁰)

In other countries, prostitutes are more often targeted by serial homicide offenders (Salfati, Labuschagne, Horning, Sorockinski, & De Wet, 2015). The offenders approach with these victims may be similar to how South African serial homicide offenders manipulate women looking for work (Salfati *et al.*, 2015). Prostitutes were also in the victim as vehicle theme.

Unidentified victims (17.7% [50/283])

In South Africa, most legal citizens are fingerprinted very young, when applying for an identity document. Anyone seeking legal employment must present their South African identification document. Further, in the case of a homicide, SAPS compares the homicide victim's fingerprints to the Department of Home Affairs fingerprint database in order to quickly identify the victim. A victim whose fingers are intact at the point of discovery, that is, not decomposed or burned and whose fingerprints cannot be matched on the fingerprint database, may be from a more marginalised group, such as an illegal immigrant or from a rural area and therefore not documented. These victims were in the victim as vehicle theme along with the other vulnerable or marginalised victim types (Table 1).

Variables for study 2 consistency in planning and violence

The variables for this study were based on those used in Sorochinski *et al.* (2015) who used the same data as that in the current study and looked at the importance of planning (pre-offence planning aimed at preparatory actions leading up to the commission of the crime and pre-offence planning for actions after the commission of the crime) and violence (goal and process oriented) as key actions as a focus for linking.

The variables that make up the planning and wounding behavioural subgroups can be seen in Tables 4 and 4a. The specific definitions of the variables that were included in the two subtypes are included in the succeeding texts, alongside their relative frequencies in the dataset. All of frequencies for each of the variables in this section are based on the full sample of 30 offenders with all 283 victims in the sample (235 crime scenes).

Planning

The offender's degree of success in reaching the overarching goal (i.e. the continued commission of homicides) is contingent upon their ability to choose the best strategy in planning each of their crimes that would enable them to not only complete the present homicide but also successfully evade capture (thus allowing them to commit subsequent crimes). Sorochinski and Salfati (2010) and Sorochinski *et al.* (2015) showed that each of these may be conceptualised as a distinct cognitive strategy, namely, pre-offence planning—plans for steps to be taken prior to the crime (e.g. bringing a weapon to scene, avoidance of leaving forensic trace evidence, etc.)—and post-offence planning—plans for steps to be taken after the crime for the purpose of prevention of discovery of the crime and

¹⁰In 147 of the 283 incidents, it was known that the victim was a prostitute.

possible identification and arrest (e.g. removing forensic evidence, transporting the body away from the scene, etc.). In terms of risk for the offender associated with the planning behaviours (that may be part of the decision-making process in choosing the best strategy), there were also two distinct varieties. The pre-planning theme included behaviours associated with higher risk for the offender during the actual commission of the crime (e.g. committing the crime during the daylight, evidence of forced entry, etc.), while post-planning theme included behaviours that pose risk after the crime has already been committed (e.g. spending time at the crime scene and revisiting the crime scene). Changes within this group may represent learning and proficiency (e.g. if offenders display more of the planning behaviours as the series progress).

Wounding

The offender's goal of killing the victim may be achieved using different strategies, some of which may be more efficient than others. Sorochinski and Salfati (2010) and Sorochinski *et al.* (2015) showed that two distinct behavioural themes were evident, each of which reflects a different cognitive strategy. The first theme, 'process oriented', included behaviours associated with a lengthy type of murder (e.g. multiple wounds, stabbing, wounding to the neck, pelvic region, etc.). These behaviours are also commonly associated in the clinical literature (e.g. Holmes & Holmes, 1998) with sexualized murder. The second theme, 'goal oriented', included behaviours associated with a quick kill (e.g. shooting, bludgeoning, wounding to the head and face, etc.). These behaviours are also associated with more control of the scene by the offender (i.e. shooting someone with a gun is a much more controlled act with less possibility for unexpected events happening than stabbing someone multiple times). Changes within this subgroup may be associated with the loss of control (Hickey, 2006) and situational factors (e.g. victim's resistance).

RESULTS

Study 1: consistency in victim selection

Consistency in victim selection

Each offence was classified using the victim as object/vehicle classification system (Horning *et al.*, 2015). The criterion for assigning a crime to one of the themes was using the most stringent criteria currently being employed in classification work, notably that the per cent in one theme had to be twice the amount in the other theme (Salfati, 2000; Salfati & Bateman, 2005; Trojan & Salfati, 2009). On the basis of this classification, 29.5% (23 of 78) of the incidents¹¹ were within the victim as object theme, 51.3% (40 of 78) in the vehicle theme, 17.9% (14/78) were hybrids, and 1.3% (1/78) did not contain variables from either theme. Behavioural consistency was then calculated by percentage across the first two, three, and four offences in order to illustrate the progression of consistency across the series. For each of the offences, the type of victim selected was additionally identified.

Consistency in victim-based behavioural themes across the first two offences: Overall, thematic behavioural consistency across the first *two* offences¹² was 60% (18 of 30 series)

¹¹These calculations were based upon the 30 offenders' first three incidents.

¹²For purposes of this analysis, the terms *offence* and *incident* indicates a unique victim-offender pairing. Although some crime scenes involved multiple victims, each offender-victim exchange was analysed separately.

Table 2. Behavioural consistency (victim as object/vehicle model)

	First two offences (<i>n</i> = 30)	First three offences (<i>n</i> = 26)	First four offences (<i>n</i> = 20)
Victim as vehicle (%)	36.7	30.8	25.0
Victim as object (%)	23.3	19.2	20.0
Overall consistency (%)	60.0	50.0	45.0

(Table 2). When looked at in terms of the type of theme, 23.3% (7/30) of offenders consistently used the victim as object theme, and 36.7% (11/30) of offenders consistently used the victim as vehicle theme.

Consistency in victim-based behavioural themes across the first three offences: Overall, thematic behavioural consistency across the first *three* offences was 50% (13 of 26 series). In terms of thematic consistency, 19.2% (5/26) of offenders used the victim as object theme, whilst 30.8% (8/26) of offenders consistently used the victim as vehicle theme.

Consistency in victim-based behavioural themes across the first four offences: Overall, thematic behavioural consistency across the first four offences was 45% (9/20). Twenty percent (4/20) of offenders were consistent in their use of the victim as object theme, and 25% (5/20) were consistent in their use of the victim as vehicle theme.

Summary of consistency in victim-based behavioural themes

In sum, over 50% of offenders consistently used themes within the victim as object/victim as vehicle dichotomy across the first three crimes, and this is higher than any prior studies analysing behavioural consistency (using one typology) across serial homicide series (Bateman & Salfati, 2007; Salfati & Bateman, 2005). The victim as vehicle theme (centred on power and control, extensive interaction with the victim, and targeting vulnerable victims) was the more consistently used theme overall; however, as the series moved forward, there was a decrease in offenders' consistent use of this theme (Table 2). This may in part be because some offenders with series of shorter lengths were consistently using this theme. Two offenders consistently using the victim as vehicle theme had only two victims in their series, and two offenders also consistent in this theme had only three victims. These offenders may have been apprehended more quickly because of the extensive interaction with victims and therefore the high risk involved in this theme. However, three offenders who consistently used this theme across the series had more than 10 victims, and unfortunately, the full length of the series was unknown in each of these cases. Two of these offenders with high victim counts took all of their victims to extremely isolated locations, that is, a sugarcane field and a quarry and this may have enabled them to persist in this theme without detection. Although those using the victim as object theme had lower percentages of overall consistency across the first two, three, and four offences, most of those who began to consistently use the victim as object theme persisted in this theme across their series.¹³

¹³Seven offenders used the victim as object theme across the first two offences, five persisted across the first three offences, and the four remaining eligible incidents remained consistent across the first four offences (one was eliminated from the calculation because they only had three victims).

Table 3. Victim type consistency^a

	First two offences (n = 30)	First three offences (n = 26)	First four offences (n = 20)
Male (%)	13.3	11.5	10.0
Couples (%)	3.3	0	0
Live victims (%)	6.7	3.8	0
Vulnerable victims (%)	40.0	30.8	20.0
Overall consistency (%)	60.0	42.3	25.0

^aOne offender consistently targeted young boys. The breakdown of victim consistency by type includes his consistency in both targeting vulnerable victims and men across the first two, three, and four offences. However, in the total percentages for victim consistency, this offender is only counted once.

Consistency in selection of specific victim types

Additional analysis was conducted to look more specifically at individual victim characteristics. The specific victim characteristics included were male victims, couples, live victims, and vulnerable victims.¹⁴

Consistency in victim types across the first two offences: Across the first two incidents, 60% (18/30)¹⁵ were consistent in the type of victim that they selected. Table 3¹⁶ shows that 13.3% (4/30) of offenders consistently targeted men across the first two offences. Three percent (1/30) of offenders targeted couples and 6.7% (2/30) had live victims across the first two offences. Across the first two offences, 40% (12/30) of offenders consistently targeted vulnerable victims. Prostitutes, women looking for work, children, and the unidentified were most often consistently targeted in the sample.

Consistency in victim types across the first three offences: Across the first three incidents, 42.3% (11/26)¹⁷ consistently targeted a particular type of victim. Eleven percent (3/26) of offenders selected men across the first three offences. Offenders did not consistently target couples after the first two incidents, and 3.8% (1/26) of offenders had live victims across the first three incidents. Across the first three offences, 30.8% (8/26) of offenders consistently targeted vulnerable victims.

Consistency in victim types across the first four offences: Across the first four incidents, 25% (5/20)¹⁸ consistently targeted a particular type of victim. Ten percent (2/20) of offenders consistently chose men across the first four incidents in the series. Offenders did not consistently target couples after the first two victims, or they did not consistently have live victims after the first three incidents. Twenty percent (4/20) of offenders selected vulnerable victims across the first four offences.

Summary of consistency of targeting of victim type across the series

Men were not consistently targeted by offenders at a high rate and only a few persisted in this theme. Consistently targeting couples and live female victims across the series rarely

¹⁴Vulnerable victims include prostitutes, women looking for work, children, and the unidentified.

¹⁵One offender consistently targeted young boys. The breakdown of victim consistency by type includes his consistency in both targeting vulnerable victims and men across the first two, three, and four offences. However, in the total percentages for victim consistency, this offender is only counted once.

¹⁶Please note that the victim subgroups in this table are not mutually exclusive.

¹⁷One offender consistently targeted young boys. The breakdown of victim consistency by type includes his consistency in both targeting vulnerable victims and men across the first two, three, and four offences. However, in the total percentages for victim consistency, this offender is only counted once.

¹⁸Ibid.

occurred. In the case of the couples, it may be incidental, and in the case of the live victims, it may be situational (i.e. offenders were not able to complete the homicide), or their primary goal was rape. Offenders tended to consistently target vulnerable victims in the beginning of the series; however as the series progressed, offenders changed pattern. and there was a substantial decrease in procuring vulnerable victims. It may be in the beginning that offenders are operating in a way, or place, that they are comfortable with and target these types of victims because they are easily accessible, and then offenders may become bolder or more experimental in their victim selection as the series continues. Victim consistency across the first two offences was comparable with that of thematic consistency (victim as object/vehicle dichotomy) in terms of overall consistency. However, there was a sharper decrease in victim consistency as the series progressed.

Study 2: consistency in crime scene actions

Sorochinski *et al.* (2015) proposed crime scene classification schemes based on specific subgroups of crime scene behaviours, notably by focusing on the issue of planning and wounding patterns. The current study aimed to look at the consistency patterns across the series, using these behavioural same criteria that had originally been used to allocate each crime scene to a crime scene theme.

Consistency in crime scene actions: planning

In accordance with the framework in Sorochinski *et al.* (2015), crime scenes were classified into either of two dominant themes: pre-offence planning and post-offence planning (see Table 4a for the full list of variables included in each theme). In addition, on the basis of the findings from Sorochinski *et al.* (2015), crime scenes that did not show any of the planning behaviours were classified into no planning theme. As discussed by Sorochinski *et al.* (2015), differences in the environment and where the crimes are

Table 4a. Planning behaviours

Variable name	<i>n</i> = 75	Total (%)
Pre-offence planning		
Weapon brought to scene	27	36.0
Crime occurred during the day	17	22.7
Body found inside	8	10.7
Body found in victim's residence	8	10.7
Evidence of forced entry	4	5.3
Forensic evidence avoidance	4	5.3
Preparatory acts	1	1.3
		69.3 unknown
Post-offence planning		
Body hidden post-mortem	11	14.7
Arson	5	7.2
Body found in a car	4	5.3
Body transported	4	5.3
Revisited crime scene	5	6.7
Forensic evidence removal	2	2.7
Spent time at the crime scene	5	6.7
Body found in offender's residence	0	0.0
Staging crime scene	0	0.0
		81.3 unknown
		70.7 unknown
		58.7 unknown

Table 4b. Wounding behaviours

Variable name	<i>n</i> = 75	Total (%)
Goal-oriented wounding		
Injury to face	24	32.0
Injury to head	29	38.7
Blunt instrument	26	34.7
Manual wounding	18	24.0
Shooting	10	13.3
Asphyxia	2	2.7
Process-oriented wounding		
Multiple wounds distributed	31	41.3
Strangulation	27	36.0
Injury to neck (strangulation)	20	26.7
Injury to torso	16	24.5
Stabbing	12	16.0
Injury to neck (stabbing)	9	12.0
Injury to pelvis	4	5.3

Table 4c. Planning behavioural subgroup—classification of crimes in inconsistent series

Series	First offence	Second offence	Third offence	Fourth offence
1	Pre-plan	Pre-plan	Pre-plan	No plan
2	Pre-plan	Pre-plan	Pre-plan	Hybrid
3	No plan	No plan	No plan	Post-plan
4	No plan	No plan	No plan	Pre-plan
5	Hybrid	Pre-plan	Pre-plan	Pre-plan
6	Pre-plan	No plan	No plan	No plan
7	No plan	Pre-plan	No plan	No plan
8	Post-plan	Post-plan	Hybrid	Post-plan
9	Pre-plan	Hybrid	No plan	No plan
10	No plan	No plan	Pre-plan	Pre-plan
11	No plan	Post-plan	No plan	Pre-plan
12	Pre-plan	Post-plan	Pre-plan	Hybrid

Consistent in three out of four crime scenes: 8/12 (67%)—3 (pre-plan), 4 (no plan), and 1 (post-plan).

Consistent in two out of four crime scenes: 4/12 (33%)—2 (pre-plan) and 2 (no plan).

committed in the South Africa (as opposed to the US) suggest that more planning to cover-up a crime is necessary within the US environmental context; whilst in South Africa, the natural environment serves as a cover-up of its own (i.e. finding a body in a maize or sugarcane field or a deserted open space is very difficult, and there is very little chance to collect forensic evidence such as fingerprints, and thus, if the crime occurred there, there is little need to undertake any further actions to cover-up or avoid detection).

Consistency in planning across the first two offences: Across the first two offences, of the 30 offenders included in the analysis, 16 (53.3%) offenders consistently displayed the same planning theme. Of those, eight (50%) consistently engaged in pre-offence planning behaviours, three (18.8%) engaged in post-offence planning, and five (31.3%) consistently did not display any planning behaviours.

Table 4d. Wounding behavioural subgroup—classification of crimes in inconsistent series

Series	First Offence	Second Offence	Third Offence	Fourth Offence
1	Goal	Process	Process	Process
2	Process	Hybrid	Hybrid	Hybrid
3	Goal	No wounds	Goal	Goal
4	No wounds	Goal	Goal	Hybrid
5	Hybrid	Goal	Goal	Hybrid
6	No wounds	Process	Process	Hybrid
7	Process	Process	Goal	Hybrid
8	Goal	Goal	No wounds	Hybrid
9	Goal	No wounds	Goal	Process
10	Process	Hybrid	Process	No wounds
11	Process	Goal	Hybrid	Hybrid
12	Goal	Hybrid	Process	Goal

Consistent in three out of four crime scenes: 3 (25%)—1 (process), 1 (goal), and 1 (hybrid).

Consistent in three out of four crime scenes: 9 (75%)—3 (process), 5 (goal), and 1 (hybrid).

Consistency in planning across the first three offences: Across the first three offences, of the 25 offenders included in the analysis, nine (36%) remained consistent in the planning theme they displayed. Offenders were either consistently pre-planning the offence (6; 24%) or consistently displaying the lack of planning (3; 12%). None of the offenders consistently displayed the post-planning dominant theme.

Consistency in planning across the first four offences: Across the first four offences, of the 19 offenders in this analysis, seven (37%) displayed complete consistency. Of those, six (86%) displayed pre-offence planning and one (14%) displayed the lack of any of the planning behaviours. In terms of change patterns, Table 4b shows the classification of each crime in the 12 series that were not completely consistent in the four crime scene analysis; all of the offenders who were deemed inconsistent still displayed the same dominant planning theme in two (4; 33%) or three (8; 67%) of the four offences analysed (highlighted in bold in the table). Four offenders were consistent across their first three offences but changed their planning strategy for the fourth offence. Overall, for the planning behavioural subgroup, these patterns may be regarded as evidence of trial and error process and learning on the part of the offender, consistent with the conclusions from the Sorochinski and Salfati (2010) study using a US sample of serial homicides.

Consistency in crime scene actions: planning

Consistent with the framework proposed by Sorochinski and Salfati (2010) and Sorochinski *et al.* (2015), crime scenes were classified into two dominant wounding strategies: goal oriented and process oriented (see Table 4b for a full list of variables included in each theme).

Consistency in weapon use and wounding across the first two offences: Across the first two crime scenes, of the 30 series included in the analysis, 11 (37%) were consistent in the wounding strategy they chose. Of those, seven (64%) were consistently process oriented in their wounding pattern and four (36%) were consistently goal oriented.

Consistency in weapon use and wounding across the first three offences: Consistency analysis across the first three offences was conducted on 25 series. Of those, eight

offenders (32%) were consistent in their wounding strategy, with half of those being consistently process oriented and half being goal oriented.

Consistency in weapon use and wounding across the first four offences: Of the 19 series that were analysed for consistency across the first four crime scenes, seven (37%) of offenders were found to consistently display the same wounding strategy. Of those, four offenders (57%) were consistently process oriented and three (43%) were consistently goal oriented. Looking at the patterns of change across the four crime scenes in series that did not display consistency in the wounding theme (Table 4c), all those offenders who did not display complete consistency displayed the same theme in at least two out of the four crimes analysed. As can be seen in Table 4c, showing the classification of the crimes in those series where complete consistency was not found, the majority of these offenders changed their wounding strategy going from first to second offence. Sorochinski and Salfati (2010) found that in the US sample, offenders were also least consistent in this behavioural subgroup in their transition from first to second offence; however, they were more likely to revert back to their initial strategy for the third offence, rather than continue on with the second one. Further, in the US sample, a loss of control on the part of the offender was suggested because of their likelihood of switching from goal-oriented to process-oriented wounding but not the other way around. Such pattern is difficult to see in the South African sample. A more detailed examination of the wounding behaviours in future studies is needed in order to establish whether these behaviours are displayed in any reliably consistent pattern or are so much dependent on the situational factors (e.g. victim's resistance, etc.) that they should only be examined in relation to other behaviours and case facts (e.g. bringing a weapon, type of victim, etc.) and cannot be solely relied upon for an analysis of consistency.

Summary of behavioural patterns—comparing south Africa with the US

Levels of consistency and change in the South African sample were compared with the previously found levels of consistency within a US sample (Sorochinski & Salfati, 2010). As this study was based on the first three scenes in a series, only the sample of 25 series of the first three scenes in the series was used.

Table 4d shows the per cent of offenders that were consistent in their dominant theme in each of the behavioural subgroups in the South African sample compared with the US sample (Sorochinski & Salfati, 2010). Overall, whilst the general pattern of consistency (i.e. wounding subgroup being the least consistent and planning behavioural subgroup being the more consistent) remained the same for the two samples, South African offenders were somewhat less consistent than US offenders in both of the behavioural subgroups.

A cross-tabulation analysis was conducted in order to determine whether offenders who were consistent in their dominant theme in one behavioural subgroup were also consistent in the other behavioural subgroup. Tables 5a and 5b show the per cent of offenders who were consistent across two of the subgroups or only in one behavioural subgroup in the South African sample as compared with results from a US sample (Sorochinski & Salfati, 2010). Given the overall lower levels of consistency in the South African sample, it is unsurprising that here too, South African offenders show somewhat lower results. In the US sample, it was found that whilst few offenders are consistent across both wounding and planning behavioural subgroups, 79% are consistent in at least one of the subgroups. The South African sample, again, shows a similar pattern with 72% of offenders being consistent in at least one of the behavioural subgroups but only 12% being consistent in both.

Table 5a. Per cent of offenders who displayed complete consistency in each behavioural subgroup in US and South African samples

	US sample	South African sample
Planning (%)	42	36
Wounding (%)	32	32

Table 5b. Per cent of offenders who displayed complete consistency across behavioural subgroups in US and South African samples

	US sample	South African sample
1 subgroup (%)	68	60
2 subgroups (%)	10.5	12

Whilst this percentage is lower than the US, it is still considerably higher than what was previously reported in studies of behavioural consistency in serial homicide (Bateman & Salfati, 2007; Salfati & Bateman, 2005) and confirms that it is promising to search for consistency in small behavioural subgroups rather than looking at all of the crime scene behaviours together.

In addition, within the planning behavioural subgroup, none of the South African offenders consistently employed the post-offence planning strategy, and instead, a subgroup of offenders consistently did not display any planning. However, the behavioural change patterns in planning were similar between the two samples and suggest an evolving learning process in the way offences are planned for both US and South African offenders. Similar to US, in the South African sample, the wounding behavioural subgroup was the least consistent, which is likely because of situational factors affecting this behavioural subgroup, and underlines the importance of considering these when analysing wounding behavioural patterns of serial offenders.

DISCUSSION

Key to understanding the significance of behavioural evidence for linkage purposes is establishing how consistently an offender displays the same or similar behaviours across their series. This study focused on evaluating the efficacy of factors such as the victim, type of violence, and planning in testing consistency across an offender's series.

Of these, three series were eliminated because the order in which the victims were killed was not known. This resulted in a final sample of 30 offenders with a total of 283 victims (235 crime scenes). To date, this is the most complete dataset of serial homicides collected from one country, representing not only a subsample but the full sample of offences identified and solved. As such, the results can be stated to be applicable to the South Africa serial homicide population as a whole.

Using the victim as object/vehicle model to test whether offenders engaged in certain subtypes of victim-defined crime scene patterns showed that 85.7% of all crime scenes in the sample could be classified as showing a dominant type (Horning *et al.*, 2015). Of these, almost two-third of the cases showed a dominant victim as vehicle theme. When looking at the consistency levels with which offenders engaged in victim-defined crime scene actions, these were much higher (50%) than those previously reported in the

literature for series consisting of three crime scenes, using the same stringent criteria (13%, Salfati & Bateman, 2005). This may be due to the different quality of the data used, the models used to define subtypes, or it may be a reflection of the nature of South African cases themselves. Further analysis would need to be undertaken in order to test this further.

Interestingly, when the stability of consistency levels were looked at as the series progressed, there was a dramatic decline, from 60% when looking at the first two crime scenes in a series to 45% when looking at the first four crime scenes in a series.

A lower per cent of offenders used the victim as object theme. However, many of those that began with this theme remained consistent. Conversely, offenders who engaged in victim as vehicle theme remained less consistent as the series progressed. These results may indicate that an offender's focus and involvement with the victim may be influential in consistency patterns. It may be that those who are consistently not focused on the interaction with the victim (victim as object) do not generally change pattern, whereas those engaging more extensively with victims (victim as vehicle) may have an increased risk of detection, which may explain the decrease of the use of this theme as series progressed, or it may be a more psychological reflection of an offender's move to one type of interaction to another because of a shift in the offender's victim-focused needs. This lends an additional level of complexity to the analysis and definition of consistency, by incorporating change as possibly being part of a consistency pattern (Salfati, 2008). Testing this alongside looking at further refining more salient behaviours for linking may help us in disentangling this question.

Using a more detailed analysis of specific victim characteristics, in isolation of other crime scene actions in the second part of the victim-based analysis, did not yield more consistent patterns but did provide additional interesting results in relation to the significance of victim features as a focus for looking at an offender's consistency across their series.

When the stability of individual victim features were looked at as a whole in relation to consistency level as the series progressed, the decrease in consistency was even more marked, from 60% when looking at the first two crime scenes in a series to 25% when looking at the first four crime scenes in a series. Most of the individual victim features (couples, live, and vulnerable) that were key in defining each of the victim-based types (object/vehicle) were in of themselves not stable as the series progressed, with the exception of targeting men, which although occurred at a very small rate overall, did remain at similar consistency levels throughout the series, even as the series progressed. Consistently targeting couples and/or live female victims across the series rarely occurred. This may indicate that selecting couples and/or live women may be experimental to offenders or a case of the second victim being in the wrong place at the wrong time with the wrong person. In the case of the couples, it may be incidental, and in the case of the live victims, it may be situational (i.e. offenders were not able to complete the homicide), or their primary goal was rape. Or it may be an 'additional bonus' for those offenders whose primary aim was the homicide. Offenders tended to consistently target vulnerable victims in the beginning of the series; however as the series progressed, offenders changed pattern, and there was a substantial decrease in procuring vulnerable victims. It may be in the beginning that offenders are operating in a way, and in an area, in which they are comfortable and target these types of victims because they are easily accessible, and then, offenders may become bolder or more experimental in their victim selection as the series continues. These are all patterns that need to be explored further as we move forwards in elucidating victim-focused consistency patterns in serial homicide.

These results support the original conclusions made by Bateman and Salfati (2007) who looked at consistency levels in individual actions across series and who also found very low levels of consistency when focusing on individual isolated features and who recommended that moving from an individual behaviour focus to a theme-based or type-based focus would be more useful as it would be able to factor in behavioural change because of the situation or interaction with the victim.

Another possible explanation to change patterns as the series moved forward may be that offenders changed interaction patterns (both thematically and in terms of length of offence) in response to the type of victim selected, and this should be explored in more depth. Results therefore suggest again that thematic stability or instability across the series may be due to the type of victim chosen, and the questions remain whether identifiable patterns may be determined on the basis of these changing features as the series develops.

The study also looked at more crime scene focused actions (Sorochinski & Salfati, 2010) to test whether offenders engaged in certain subtypes of crime scene patterns, such as planning (pre/post) and weapon use and wounding behaviours (goal/process), in consistent ways.

In terms of planning, very few offenders displayed what are typically regarded in the US as planning behaviours related to events occurring after the homicide, and the few who displayed this theme early on in their series did not persist as the series developed over time. However, as discussed by Sorochinski, Salfati and Labuschagne (2015), it may be that South African serial homicide offenders engage in more post-offence behaviours at the pre-offence stage, for example, they transport the victim to the ultimate body disposal site whilst the victim is still alive, for example, as a ruse for employment, and prior to engaging in the crime. About a quarter to a third of offenders (depending on the length of the series analysed, the proportions vary from about 25% to 37%) consistently displayed pre-offence planning behaviours throughout their series. The number of offenders who consistently displayed the lack of any planning behaviours decreased gradually as the number of homicides per series that were analysed increased (i.e. five offenders were consistently not displaying any planning across the first two offences, three—across the first three offences—and only one across the first four offences). This pattern suggests that a certain degree of prior planning is necessary for offenders to be able to ‘successfully’ continue their series for a longer period.

In terms of change patterns, all of the offenders who were deemed inconsistent still displayed the same dominant planning theme in two (33%) or three (67%) of the four offences analysed. Overall, for the planning behavioural subgroup, these patterns may be regarded as evidence of trial and error process and learning (Canter & Youngs, 2003) on the part of the offender, consistent with the conclusions from the Sorochinski and Salfati (2010) study using a US sample of serial homicides.

In terms of weapon use and the styles of wounding exhibited, consistency levels remained similar as the series developed over time, with about a third of offenders displaying consistency overall. Of these, almost twice as many displayed process-oriented wounding in comparison with goal-oriented wounding, suggesting again an importance of the interaction of the victim. Whether offenders engaged in one type or another, consistency figures remained similar as series lengthened, with a slight increase in goal-directed themed actions. For those cases that displayed inconsistency in series of four crime scenes, the majority changed their wounding strategy going from first to second offence.

A more detailed examination of the wounding behaviours in future studies is needed in order to establish whether these behaviours are displayed in any reliably consistent pattern

or are so much dependent on the situational factors (e.g. victim's resistance, etc.) that they should only be examined in relation to other behaviours and case facts (e.g. bringing a weapon, type of victim, etc.) and cannot be solely relied upon for an analysis of consistency.

Overall, the vast majority of offenders exhibit thematic consistency in at least one subgroup of behaviours, namely, either in how they approach planning their offence or in the way violence is exhibited. Most behavioural variability was found in the second offence of the series. Moreover, the findings in the present study looking at South African offenders are consistent with what has previously been found in a sample of US serial homicide offenders. These results suggest that, whilst it is important to take into account the cultural and environmental specifics, frameworks for studying offenders' behaviours are fairly generalizable across samples.

Conclusion

Serial homicide is a crime that knows no national boundaries. In some countries, there has been a great deal of research about the phenomenon; in others, there has been very little. South Africa has had more than its fair share of such offenders, yet to date the body of research focusing on South African serial murder has been limited and consisted primarily of small scale studies with limited practical application. Furthermore, no research has focused on issues of linkage and consistency. In Sub-Saharan Africa, SAPS has the most advanced forensic capabilities of any law enforcement agency, including two forensic DNA laboratories; however, in many cases, standard linking methods (DNA, fingerprints, and ballistics) are not available because of the circumstances under which the crime is committed and the delay in body recovery, or results may take months to become available. The current research has highlighted avenues of exploration for establishing other empirically based strategies for linking, notably regarding the scope of linking cases through focusing on specific subtypes of offence behaviours. This is relevant for investigators initially conducting the investigation and later to prosecutors during the trial of the offender.

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