

**VIOLENCE AGAINST WOMEN:
EPIDEMIOLOGY AND PATHOLOGY OF FEMICIDES AND
SUSPECTED SEXUAL HOMICIDES IN CAPE TOWN:
A 10-YEAR FOLLOW-UP STUDY**



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Signed by candidate

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ABSTRACT:

Background: Violence against women (VAW) is the most pervasive human rights abuse and a global health threat. The most extreme forms of physical and sexual violence are the intentional killing of a woman (femicide), rape and sexual assault. Some women are victims of both, in the form of rape homicide, preferably termed 'sexual homicide' in this study.

Motivation: Martin's research in 1999 reported a rape homicide incidence rate of 12.3/1000 female rapes reported to the police in Cape Town while the National study performed by Abrahams et al in 1999 reported an incidence rate of 10.9/1000 female rapes reported to the police in South Africa (SA). Another SA National study by Abrahams et al reported a female homicide incidence rate of 24.7/100,000 female population and intimate femicide incidence rate of 8.8/100,000 female population in 1999. These high incidence rates, definitional problems, methodological limitations, changes in the law, and inconsistent management of suspected sexual homicides motivated the author to undertake this follow-up study.

Objectives: To describe the epidemiology and pathology of femicides in Cape Town and thereby identify risk factors, magnitude and criteria for suspected sexual homicides.

Hypothesis: Sexual homicides are more common than previously reported and often these victims incur multiple injuries.

Design and Methodology: This is a retrospective descriptive study. Data was collected from autopsy reports of female bodies admitted at Salt River Forensic Pathology Laboratory in Cape Town from the years 2000 to 2009. A 10-year period improves the sample size and the validity of the results. A pre-validated data collection tool similar to the one used in the 1999 National study was used to allow for reliable comparisons.

Limitations: Time constraints led to inadequate information on perpetrators of femicides and therefore a report on intimate femicide is limited in this study.

Main findings and Discussion: Results showed an average femicide incidence rate of 12.4/100,000 female population in Cape Town Western Metropole which is half the



South African national incidence for 1999, equates to the 2009 national rate and is almost five times the global average. Sexual homicide was suspected in 19.9% of all femicides, slightly higher than the 16.3% previously reported by Martin for Cape Town. The median age of victims was 32 years. Most femicide victims died from gunshot injuries (35.2%) followed by those who were stabbed (29.6%), while the majority (35.7%) of victims of suspected sexual homicide died from asphyxial deaths, including strangulation. Taking specimens for the Sexual Assault Evidence Collection Kit correlated significantly with genital (77.7%) and anal injuries (64.5%), and 41% of femicide victims had alcohol levels above 0.05g%.

Conclusion: The incidence of femicide and sexual homicide in Cape Town is higher than previously reported. Gun violence and alcohol abuse are persistent problems.

Recommendations: Findings should be used to motivate for intersectoral collaboration in the form of female homicidal death review (FHDR) teams. These teams should aim to develop standardised guidelines for the forensic management, prosecution, prevention and monitoring strategies for femicides and sexual homicides in South Africa.



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LIST OF ABBREVIATIONS

CJS- Criminal Justice System

COCT- City of Cape Town

CPA- Criminal Procedure Act

DOH- Department of Health

DV- Domestic violence

FCA-Firearm Control Act

FCL- Forensic Chemistry laboratory

FME- Forensic Medical Examiner or practitioner (clinical)

FMP- Forensic Medical Practitioner (pathological, authorised to perform autopsies)

DFMT- Division of Forensic Medicine and Toxicology

FPS- Forensic Pathology Service

GBV- Gender-based violence

HPCSA-Health Professions Council of South Africa

I/O- Investigating Officer

IF- Intimate Femicide



IPH- Intimate partner homicide
IPV- Intimate Partner violence
LCRC- Local Criminal Records Centre
MP- Medical Practitioner
PM- Post mortem, used interchangeably with 'autopsy'
RH- Rape homicide
RTA- Road Traffic Act
SA- South Africa/n
SAPS- South African Police Service
SOP- Standard Operating Procedure
SRFPL- Salt River Forensic Pathology Laboratory
UN- United Nations
UNDOC- UN Office on Drugs and Crime
USA- United States of America
VAW- Violence against women
WC- Western Cape
WHO- World Health Organisation

GLOSSARY OF TERMS:

For the purposes of this dissertation the following terms have specified meaning:

Child homicide- non-accidental killing of a child less than 18 years of age due to violent acts of another person, regardless of their relationship to the child and their intended outcome of the inflicted violence; that is, the perpetrator's legal status is irrelevant.

Domestic violence- abusive behaviour whether physical, sexual, psychological or financial between people who are in a domestic relationship as defined in the Domestic Violence Act 116 of 1998, SA, and encompasses children and elderly abuse.

Ever-partnered woman: Any woman who has or has had an intimate partner, *regardless* of marital status, duration of such an intimate relationship or sexual orientation of the woman or her partner.

Femicide- intentional killing of a woman or girl, regardless of the victim-perpetrator relationship.



Homicide- intentional unlawful killing of one person by another, using any means.

Intimate partner violence- abusive violence perpetrated by the victim's current or former partner regardless of marital status, including rejected would-be lover in hetero- or homosexual relationships.

Manner of death- circumstances surrounding the death, typically classified into unnatural (may be homicide, accident or suicide), natural or undetermined causes.

Method of death- refers to whatever means or mechanism of fatal injury were used, and therefore refers to the type of weapon used to kill.

Pathologist- Forensic Medical Practitioner (FMP) authorised to perform medico-legal post-mortems regardless of level of academic qualification.

Primary cause of death- underlying violent injury that initiated the sequence of events leading to death.

Sexual homicide- female homicide associated with evidence of sexual behaviour or activity by the perpetrator, which may have occurred at any time (before, during or after) or throughout the murder, as observed at the crime scene or on the victim's body.

Sexual violence- includes rape and sexual assault as defined in the Criminal Law Amendment Act 32, 2007 in South Africa, also known as the Sexual Offences and Related Matters Amendment Act (SORMA), enacted on 16 December 2007. For the sake of brevity in this report, this act will henceforth be referred to as the Sexual Offences Act (SOA), 2007.

KEYWORDS

Epidemiology, autopsy, femicide, injury, pathology, sexual, alcohol, gunshot



Chapter 1 : INTRODUCTION

1.1 BACKGROUND AND DEFINITIONS:

Irrespective of cultural or socio-economic status, giving birth to a child and the fear of violence by men remain the two unifying experiences for women across the world¹. Death resulting from interpersonal violence most commonly affects young men but fatal violence from gender-based violence (GBV) is disproportionately directed at women because of their sex, and more specifically, their gender²⁻⁵. Increasingly, GBV is recognized as a serious public health concern and a global human rights issue^{6, 7}. Violence against women (VAW) is the most common form of GBV, occurs frequently in the home⁸⁻¹⁰ and is mostly perpetrated by intimate partners^{6, 11, 12}. This typology of violence comprises threats or acts of physical, sexual or psychological harm to women and girls of all ages. The true magnitude and the cost of VAW are difficult to measure as studies focus on different aspects thereof. It has been reported that at least one in five women worldwide have been physically and/or sexually abused by a man or men at some point of their lifetime¹. Growing research on VAW is commendable but is biased towards developed countries.

Available research shows that while some countries show declining levels of fatal VAW especially that perpetrated by intimate partners, South African women remain at high risk for intimate homicide and sexual violence^{13, 14}. Sexual violence is an important spectrum of VAW and may be perpetrated by intimate partners or strangers. Although sexual assault and rape are the most severe forms of sexual violence, measuring their true magnitude remains challenging due to high levels of underreporting. Sexual violence may result in a range of sequelae like unwanted pregnancies and unsafe abortions which may lead to death^{4, 6, 15}.

Violence against women can be summarised according to the modified typology of violence^{5, 16} as depicted in Figure 1.1 below:



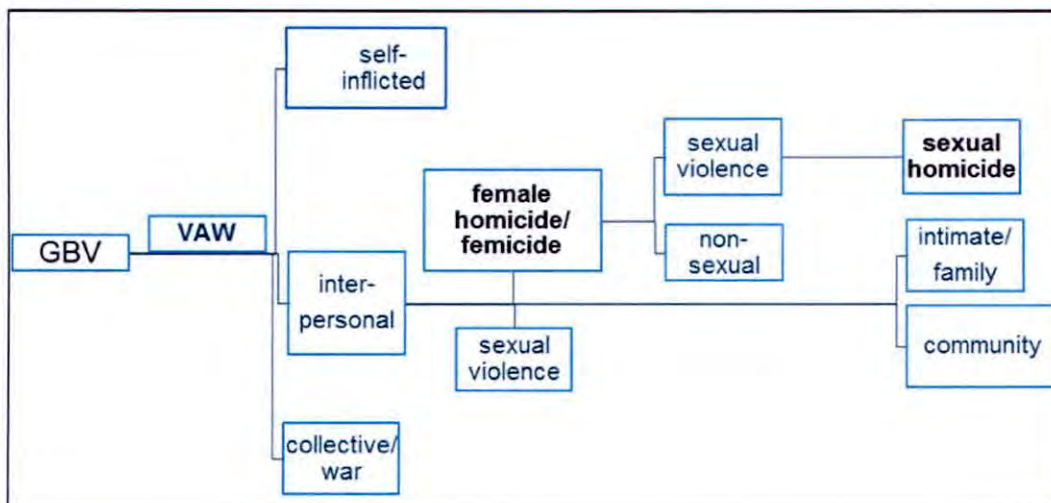


Figure 1.1: Modified typology of violence as adopted from Krug et al (2000) and Krantz et al (2005)

As can be seen in Figure 1.1 above, interpersonal violence in the context of VAW may result in female homicide (femicide) and sexual violence; the latter includes rape and sexual assault. Femicide and sexual violence are the two extreme forms of VAW. At the most extreme, these violations occur collectively in the form of ‘rape homicide’ which in this dissertation is preferably termed ‘sexual homicide’. The preferred use of this term is largely motivated by the legal redefinition of rape and sexual assault in the Sexual Offences Act, 2007¹⁷ and is discussed further in the second chapter of this report.

1.2 MOTIVATION FOR THE STUDY:

The South African and international media constantly report on the three typologies of VAW comprising rape, sexual assault and murder of women. The most part of the year 2013 and latter part of 2014 in particular were populated by global media headlines involving the killing of two South African (SA) women namely Annene Booysen and model Reeva Steenkamp; the latter was killed by her Paralympian athlete boyfriend Oscar Pretorius. The gang-rape and murder of Jyoti Sign Pandey in India also made news in 2013. These three cases are likely to be remembered for years due to the extensive media coverage and protracted legal battles that had nations cemented to their television screens. However, they represent only a small tip of the iceberg of the true incidence of VAW. High incidence rates of femicide and sexual violence have



also been recorded by the South African Police Service (SAPS) in their annual crime reports^{18, 19} and other researchers in the country^{13, 20}. These reports have been of great interest and concern to the author as they appear to be higher in the Western Cape (WC) province (location of this study) than elsewhere in the country.

1.2.1 Persistent lack of standardised protocols for managing sexual violence in forensic pathology:

In cases of sexual violence it remains unknown which perpetrators will kill their victim after sexually assaulting or raping them^{13, 21, 22}. The outcome of fatal sexual violence depends on the offender's modus operandi which may be one of the two scenarios: firstly, the intent to rape with death as an outcome or secondly, the intent to murder with rape as a component¹³. Until court proceedings are underway it is impossible for the clinical forensic medical examiner (FME) or pathologist (forensic medical practitioner authorised to perform autopsies, FMP) to differentiate these two situations. The degree of physical and/or sexual violence inflicted on the victim will determine whether the victim will survive and present to the clinical FME or present with immediate or delayed death to the pathologist. On the other hand, the culpability of the offender to murder or rape is strictly determined by the courts.

In the clinical setting victims of sexual violence are treated as an emergency according to standardised provincial guidelines. Therefore, considering the possible fatal outcome of sexual violence both clinicians and pathologists should equally be aware of the current management protocols, injury patterns sustained by victims of sexual violence and their responsibilities in subsequent legal proceedings. Victims of fatal sexual violence should therefore be similarly treated as an emergency by the pathologist and the investigating officer with imminent attendance and investigation of the crime scene, followed by an autopsy and collection of relevant forensic evidence.

Currently clear policies, standardised protocols^{23, 24} and a plethora of literature guide the management of rape and sexual assault victims in the clinical setting. Recommendations on the management of suspected sexual homicide cases were



previously made by Martin in her thesis in 1999¹⁴ and reiterated by others^{13, 25, 26}. The recommendations are necessary to ensure crucial evidence is not lost and the victims' and their families' claim to justice is not compromised. Notwithstanding this, to date the Forensic Pathology Service (FPS)ⁱ does not have official guidelines for managing femicide and sexual homicide cases.

While operational research has contributed to the recent improvements and implementation of standardised processes and procedures in the death investigation processes by the FPS and the police²⁷, these improvements and protocols have not involved sexual homicide cases. To date, there is still no uniform agreement on the definition or criteria for a 'rape homicide' case amongst pathologists; the term is not legally defined in South Africa (SA). Such deaths are not routinely recorded as disaggregated statistics by the South African Police Service (SAPS) or any institution in this country.

Moreover, the extent to which appropriate investigations will be performed to exclude a possible sexual crime in each femicide case remains at the sole discretion of the pathologist performing the autopsy. The author finds it perplexing that research and policy guidelines are well-established with regards to the management of victims of sexual violence in clinical practice and yet these are lacking in cases where such victims are killed. In the author's experience these deaths are not rare, and when detected, tend to attract media attention which often compels the pathologists and police to actively investigate a possible sexual element to the killing. In this era of evidenced-based medicine, this lack of standardised management guidelines amongst pathologists is compounded by the relative paucity of research on the subject.

Martin's study¹⁴ is the first in SA to describe the epidemiology and pathology of rape homicides in Cape Town. Using a similar data collection tool developed by Martin a National study on female homicides, including rape homicides in SA was conducted¹³. From this study, the findings on female mortality from intimate partner violence (IPV)

ⁱ Forensic Pathology Service- a professional, scientific medico-legal service established in 2006 within the Department of Health that is legally mandated to investigate all unnatural deaths.



in SA were also published²⁰. These two studies used mortuary-based data between 1996 and 1998 for the Cape Town study and from 1999 for the National studies. To compare changes in trends of previous findings the National study was repeated in 2009²⁸ and included child homicides²⁹. However, the ten-year gap, small sample sizes, definitional problems and methodological challenges limited the extent to which these studies' findings could be applied and compared to other research²⁸.

These research gaps together with the continued lack of standardised protocols for the management of suspected sexual homicides by pathologists across SA, and the changes in the legal definition of rape in the SOA of 2007¹⁷ motivated the author to undertake this follow-up study. Any efforts to develop preventive strategies that can be implemented to mitigate against future femicides and sexual homicides will require updated and accurate research into these deaths³⁰.

1.3 STUDY AIMS AND OBJECTIVES:

The aims of this study are threefold: firstly, to add to our current understanding of femicides and sexual homicides by describing the magnitude and pathology thereof in Cape Town. Secondly, this study aims to describe the risk factors for these cases in order to identify possible preventative strategies. Thirdly, this dissertation aims to propose the criteria for identification of sexual homicide cases and thereby suggest recommendations towards appropriate management protocols thereof.

1.4 CONCLUSION- SCOPE OF THE REPORT:

Following on studies by Martin¹⁴ and Abrahams et al^{13, 20, 28}, hereafter referred to as 'parent' studies, this dissertation will henceforth continue with review of the literature on VAW, with specific reference to femicide and sexual homicide in Chapter 2. Chapter 3 presents the methodological approach adopted in this study. The study results are presented in Chapter 4 while the analysis and discussion thereof are presented in Chapter 5. The last chapter of this report concludes by making recommendations for management of femicides with a focus on identifying those at high risk for concomitant sexual violence.



Chapter 2 : LITERATURE REVIEW

2.1 INTRODUCTION:

This chapter will first outline the literature search strategy and then go on to discuss the global, South African (SA) and local context of violence against women (VAW). Due to their extreme nature, intimate femicide (IF) and sexual violence in the form of rape are the most studied consequences and typologies of VAW, and the most reasonably quantifiable measures thereof. Therefore, the definitions and risk factors for femicide and sexual violence form the focus of this literature review, and limitations of published research on the subject are briefly highlighted.

The literature cited in this chapter emanates from the desire to understand the scale of fatal VAW, especially femicide and sexual violence against victims of any age. The risk factors for femicide and sexual homicide are presented using the ecological conceptual framework based on the hypothesis that individuals and their environments are complimentary but co-dependent and dynamic factors within a sphere, mutually changing each other over time^{31, 32}. Although not universally accepted, this conceptual framework allows us to engage with both feminist and traditional world views on possible causes of femicide^{16,33}. This engagement allows us to appreciate the complex nature of risk factors for VAW within society, and thus helps us to plan prevention strategies accordingly^{12, 16, 31, 32, 34}. However, a full discussion of the entire framework is beyond the scope of this report.

2.2 RECORD OF LITERATURE SEARCH STRATEGY:

In conducting the literature search I first obtained copies of the three studies upon which this dissertation is based as a follow-up. The copy of Martin's 1999 thesis report¹⁴ was reproduced with her permission while articles on the other two National femicide and rape homicide studies were accessed using Google scholar. The index citations of these three articles were perused and those identified to be relevant to this dissertation were retrieved using Google scholar and PubMed.



The research topic was then fragmented into keywords, for example: <murder, homicide, killing, femicide> which were used to conduct a literature search in the main databases including PubMed, Scopus and Cochrane library. Limitations were set to articles published in English, available online and published between 1980 and 2014. Combining keywords used as Mesh and sub-headings retrieved lists of relevant articles. Abstracts of these articles were perused to identify articles appropriate and relevant to this dissertation. Only those articles with full texts available online or in hard-copies at the Health Science library at the University of Cape Town (UCT) were included in the final review cited in this report. Additionally reference lists and index citations of retrieved original and review articles were searched to identify additional articles, largely using Google Scholar. In addition to online journal articles, other sources used included published and unpublished dissertations on the internet, academic reports, textbooks and unpublished correspondence and policy documents circulated within the Forensic Pathology Service (FPS). The EndnoteX7.2.1™ software was used as the electronic referencing manager.

2.3 OVERVIEW OF MAGNITUDE OF VIOLENCE AGAINST WOMEN

2.3.1 Global context

Fatal violence is categorised into three typologies depending on who the offender is; these are: interpersonal homicide, suicide, and collective/war-related killings^{16, 35} (see Figure 1.1 above). Irrespective of the typology and the victims' sex, violence can be further categorised according to its nature into the three types comprising physical violence, sexual violence and psychological abuse³⁶. Women and men of all ages are affected by all three typologies of violence; however, men form the majority of victims and offenders of homicidal deaths.

In 2012 the estimated global male homicide rate of 12.3/100,000 was four times higher than the female homicide rate of 2.7/100,000². Notably, homicide affecting men is mostly related to gangsterism, organised crime or war^{2, 35}. In contrast, women are persistently affected by interpersonal homicide perpetrated by intimate partners and family members^{3, 4, 11, 36-39}, termed intimate partner homicide (IPH). The



disproportionate incidence rate of female intimate homicide (intimate femicide, IF) is irrespective of society's prevalent risk and protective factors including economic development and political status, which may mitigate against levels of other forms of fatal violence^{2, 33}.

It has been reported that at least one in three women across the world will suffer physical and/or sexual abuse by the current or former intimate partner in their lifetime^{7, 37}. Multi-country studies have shown that the lifetime risk for ever-partnered women to experience some form of physical and/or sexual violence ranged from 10% to as high as 71%^{4, 33, 40, 41}. On the other hand, a case-control study from the United States of America (USA) estimates the lifetime risk of severe injury from domestic violence (DV) to be almost 10%⁴⁰. In 2012 the United Nation's Centre of Disease Control (UNODC) reported that globally women accounted for two thirds (43,600) of fatal intimate and family-related homicide². Of these, approximately half (47%) are killed by intimate partners alone making IF the leading cause of female homicidal death globally^{2, 31, 37} and in countries like South Africa²⁸, the USA^{42, 43} and New Mexico⁴⁴.

Many authors believe this represents the tip of the iceberg as homicide is usually a culmination of chronic abuse; non-lethal VAW is more prevalent but is usually unreported^{16, 37, 38, 45, 46}. These figures indicate that fatal VAW, including IPV is inevitable worldwide¹² and women in SA appear to be at similar or higher risk of mortality from VAW compared to those in other countries.

2.3.2 South African context

2.3.2.1 Femicides:

South Africa (SA) is populated by an extremely violent society^{33, 47, 48}. Like many countries emerging from violent political conflict SA is still characterised by instability associated with the legacy of apartheid^{49, 50}. This has been linked to the current levels of interpersonal violence from which women are not spared^{50, 51}. A recent three-province study in SA found that one in four women (24.6%) will be physically abused



in their lifetime³³. In 1999 the first National femicide study in SA reported an incidence rate of 24.7/100,000 for women 14 years and older. This rate is six times higher than the global rate of 4.0/100,000 female population as estimated in 2000 by the World Health Organisation (WHO)⁵². The femicide incidence rate in SA reduced by 47.8 % to 12.9/100,000 in 2009 but was still five times higher than the global rate of 2.7/100,000 reported in 2012²⁸, and almost six times the rate of 2.3/100,000 reported in 2008 in the USA⁴².

These high levels of homicide are not unique to SA; some countries in Central America and the Caribbean have similar homicide rates^{2, 53}. However, it is alarming that while published data shows stabilizing and decreasing trends of femicide in general^{13, 37-39, 42, 54} IF rates in this country are disproportionately increasing^{2, 28, 37, 42}. The incidence rates of IF from the SA national studies were 8.8/100,000 in 1999 and 5.6/100,000 in 2009²⁸. Available data shows that the IF rate reported for SA in 2009 is sixty-five times higher than rate in Southern Denmark in the same year (0.2/100,000)⁵⁵, thirty-times higher than that of Portugal in 2013 (0.44/10,000)⁵⁶, and twenty-six times higher than that that of Finland over a 10 year period from 1995 to 2004⁵⁷. If the greater proportion of IF cases in 2009 (57.1%) compared to 50.3% in 1999 is considered, IF remains the leading cause of female homicidal mortality in SA^{28, 58}.

The disproportionately increasing trend of IF noted in SA was also observed in the USA where increases by 7% from 38% in 1995 to 45% in 2008 were recorded⁴². However, the increase observed in SA is far worse in terms of total percentage (57.1% compared to 45% for the USA). This is further supported by the South African Police Service (SAPS) reports of a 5.6% increase in homicides of adult women in the 2010/2011 financial year despite the general decrease of homicidal deaths by 3.4% in SA¹⁹. While the author suspects that a significant proportion of adult females in SA may be killed by their partners, it is not possible confirm this as regrettably, the SAPS (as the primary source of crime statistics in SA) does not record separate statistics on the victim-perpetrator relationship in cases of homicide. Moreover, the SAPS and the judiciary in SA do not recognise suspected sexual homicides as a separate category of sexual offences and thus they do not disaggregate their statistics as such.



2.3.2.2 Sexual homicides:

Martin's 1999 study was the first to record the magnitude of fatal sexual violence in Cape Town, SA, at an estimated rape homicide (RH) incidence of 1.23% (12.3/1000 female rapes reported to the police in Cape Town) corresponding to an incidence rate of 7.2/100,000 female population in the Western Metropole district in Cape Town¹⁴. Using a similar data tool developed by Martin the second study performed at a national level in SA in the same year found a RH incidence rate of 1.09% (10.9 per 1000 rapes reported to the police), corresponding to an incidence of 3.65/100,000 female population aged above 13 years in SA¹³. This same study found that sexual homicide was suspected in 16.3% of adult femicides aged above 13 years¹³. The subsequent decrease in the SA National RH incidence rate to 2.5/100,000 adult females reported in 2009²⁸ remains higher than the rate of 1.9/100,000 females reported in USA in 2008⁴². The national lifetime incidence rates of sexual violence are not available in SA as non-fatal sexual VAW is notoriously under-reported^{19, 59-62}. In 1997 the Statistics SA study found that only 51% of rape victims reported the crime to the police, with an estimated rape incidence rate of 134/100,000 women older than 16 years⁶². Another recent study found that 15% of men in Cape Town self-reported sexual violence against their intimate partners over a period of a decade⁶¹.

Although showing decreasing trends over the past 5 years, these recorded rates of reported sexual violence in SA are still higher than in most countries. The incidence rate of reported rapeⁱⁱ in SA in 2012/2013 was 94.5/100,000 population, having reduced by 3.3% since the 2009/10 financial year (100/100,000)^{19, 60}. The rate of sexual assault showed a much higher decrease by 6.2% over the same period to the lowest ever recorded rate of 13.7/100,000 in the 2012/2013 financial year¹⁹. These figures suggest that compared to other countries, SA women are disproportionately at higher risk of severe forms of VAW and being involved in an intimate relationship worsens that risk by unknown but possibly significant amount. Furthermore, it

ⁱⁱ Rape as defined in the SAPS crime reports published prior to 2009 was defined according to the Common Law, as 'unlawful intentional sexual intercourse with a woman without her consent' and thus excluded cases of anal or oral sexual penetration as defined in the Sexual Offences Act, 32, 2007.



appears that the geographic location in SA disproportionately affects the risk for severe VAW especially in provinces that have higher proportions of violent crime like the Western Cape (WC)⁵⁹.

2.3.3 Violence in context of the study location-Cape Town

Remarkably, the incidences of VAW in SA are proportionally higher in the WC province, the third largest province in SA, inhabited by approximately 11.3% (6.1 million) of the SA population⁶³. The City of Cape Town is the economic centre for the WC province, the second largest economic hub for SA, and the most favourite tourist destination in Africa.

On the other hand, the WC province has since 1999 been noted to have consistently higher numbers of serious crime compared to the rest of the country⁶⁴. The homicide incidence rate for this Province reported for the 2009/2010 and 2010/2011 financial years was 42.4/100,000 population compared to 34.1/100,000 population in SA, and showed a 2% decline compared to the national 16.6% decline since the 2008/2009 financial years⁶⁵. In the 2012/2013 financial year the WC province showed an increase in the four most serious contact crimes, including murder and assault^{65, 66}. The recent reported decrease in the incidence of reported sexual offences (69% of which comprises rape cases) is hardly commendable considering the sexual offence incidence rate of 166.7/100,000 population in the WC compared to the national rate of 144.8/100,000 in 2008/2009⁶⁰, the proportional increases before decreasing trends noted between 2006/2007 and 2011/2012⁶⁶ and the risk of underreporting of this crime.

The high crime rate is disproportionately distributed in the province; mostly affecting much poorer communities characterised by overcrowding, poverty, unemployment and substance abuse. Cape Town represents SA on the global ranking system for homicide ^{53, 67, 68} and has violent crime rates double the national rates for the eight of the ten years of this thesis study period (2001-2008)⁶⁰. Although the violent crime rates show declining trends in keeping with the national trends, it remains unclear if



femicide rates are also declining. It is hoped that this study will shed light in this regard.

2.3.4 Gaps and limitations of previous research

Considering the high global and local incidence rates of fatal VAW described above, it is not surprising to note the proliferation of literature in epidemiological studies on this subject in the past two decades. Crucial findings and recommendations were made in previously published studies particularly regarding IF. However, persistent challenges make comparison of femicide and sexual violence trends at a global scale impossible. The figures cited above should be interpreted with caution and in context of the limitations described below:

- Recent research is biased towards certain (high income) regions like the USA (North America) and Europe^{2-4, 11, 37}. Unlike SA, some low and middle-income countries like Zimbabwe are excluded from global incidence or prevalence rates of VAW because they record such data manually and lack the capacity to analyse and compare the data with other countries on an annual basis.
- Inter-country variations are due to factors like age of the sample studied, marital status (to current compared to former partner) and educational status of women. While some studies are based on entire female population^{44, 54} others include girls older than 13years²⁰ while others include girls 15 years of age or older^{39, 56, 57}.
- There are inconsistencies regarding what constitutes terms like 'rape homicide' and 'intimate partner'. Some authors use the term IF strictly for cases involving the women's intimate partner (current or former husband or boyfriend,^{5, 42, 69-71} others include homosexual partners^{11, 20} while some include family members. The couple's marital status is not specified in some studies.
- The methodological approaches used (for example population-based, cross-sectional or community-based surveys) are affected by different factors like interviewer levels of training and cultural bias to some forms of VAW, and thus the



willingness of participants to recall or disclose this sensitive information may limit household studies. Population-based surveys remain the most accurate methods to research VAW⁷. However, differences in definition of terms, populations sampled, often excluding sexual and psychological forms of violence with the majority focusing on physical violence by the intimate partner^{70, 72}, and different methodologies used in such research limit the ability to compare prevalence rates across local and global populations^{7, 73}. Additionally, differences in relative times of occurrence of such abuse; for example, some studies focus on current while others analyse abuse occurring within a year or lifetime experience⁴⁶, add to these limitations.

These research gaps, specifically those regarding the inconsistencies in defining fatal sexual violence motivated the author to undertake this study.

2.4. DEFINITIONAL CONSIDERATIONS:

2.4.1 Defining violence against women (VAW)

In 1993 the Declaration on the Elimination of Violence against women defined the spectrum and health consequences of VAW to include varying degrees of physical, sexual and psychological abuse, including deprivation and neglect^{9, 15}. VAW is the commonest form of gender-based violence (GBV) historically rooted in inequality between men and women⁹. In this context gender denotes a social element used to ascertain and measure the differences in the roles and restrictions to resources between men and women, and thus ultimately affects well-being⁷⁴. VAW is directed to women because of their gender^{2-5, 53} and does not discriminate against culture or socio-economic status³². As Krantz et al concurs, the definitions of GBV and VAW both point to violation of women as a consequence of socio-culturally ascribed discrimination in access and control of opportunities and responsibilities that see masculinity as superior to femininity. This discriminatory view perpetuates women's subordination^{8, 9}.



Unlike men who are killed mostly in the streets, VAW is more prevalent in the women's homes^{8-10, 42, 44, 56}. Therefore some authors use the terms VAW and domestic violence (DV) interchangeably^{5, 33, 36}. The description of DV as limited to physical violence by blunt force as used by some authors⁷⁵, while maybe rational, is unhelpful and should be discouraged. The WHO recommends the use of GBV as the much broader term (that is, as not only the masculine against feminine power plays) than VAW as the latter just denotes sex of the victim. Similarly, DV denotes the location of violence while IPV denotes the relationship of victim to perpetrator^{45, 76}. While this means VAW is mutually inclusive of DV, the latter term historically encompasses child and elder abuse^{77, 78}, and thus is often referred to as '*family violence*'^{42, 79}. In this report VAW is understood to be the most common form of GBV and encompasses DV and IPV. This is not to deny that men are not victims of GBV or DV, but there is undisputed body of literature showing that by far women form the majority of victims of intimate and family-related homicides, and when they do perpetrate violence it is usually in self-defence^{3, 4, 16, 37, 42, 79}.

The Domestic Violence Act (DVA)ⁱⁱⁱ in SA defines a domestic relationship to include co-habiting persons including current and former partners regardless of marital status or sexual orientation. Furthermore, the Act distinctly defines the different types of abuse ranging from physical to psychological, verbal and financial abuse, stalking, damage to property or any other controlling behaviour which poses a threat to the victim's safety and well-being regardless of their sexual orientation or age⁸⁰. This definition is in line with that proposed by the General Assembly⁹ and points to the wide scale of VAW which remains difficult to fully quantify. Nonetheless, the DVA is one of the most progressive pieces of domestic violence legislation in the world and a positive step towards addressing VAW in SA^{81, 82}.

ⁱⁱⁱ Domestic violence Act 116 of 1998 replaced the Prevention of Family Violence Act and was assented on 20 November 1998.



2.4.2 Defining interpersonal female homicide (IPH)

The fundamental element distinguishing interpersonal homicide (including IF) from other forms of homicide (for example, that related to war) is the complete liability placed on the perpetrator for the death of another person. This is determined by the rule of law in each country and varies between regions. Thus, while incidence rates of intentional femicide (equivalent to first degree murder in countries like the USA) may be differentiated from culpable homicides by law enforcement agencies, public health agencies (for example, the Global Burden of Disease) may not make this distinction^{35, 37, 83}. Therefore, it would be ideal for epidemiological research to use multiple data sources to compare incidence rates globally^{2, 35, 37, 53}.

Nonetheless, homicide and certainly IF, form the most measurable, comparable and robust indicator of violent crime which includes VAW. Moreover, in context of VAW, femicide is the most sensible predictor of security levels for women in different countries^{2, 23, 53, 60}. This is particularly important to consider in SA where crime statistics depend greatly on the community to report such crimes to the local police. Unlike other forms of crime, homicide remains the one crime trend which is less likely to be influenced by over- or under-reporting and/or the non-registration of cases that plagues crimes like rape^{11, 23, 37, 38, 60} in countries like SA.

The Inquests Act, 58 of 1959⁸⁴ in SA requires that all unnatural deaths including homicides be reported and investigated by the police. The Criminal Procedure Act (CPA), 51 of 1957 empowers the presiding officer to determine the degree of culpability and intention of the offender to kill⁸⁵. Furthermore, the CPA authorises the presiding officer to determine if anyone can be held accountable for the victim's death. This legal element is determined with consideration of medical and autopsy reports, police investigations and witness statements presented in court and can take several months to years to conclude; hence was not possible to determine in this dissertation.

Consequently, this report adopts work from Krug and the UNODC and inclusively defines the intentional femicide as *'unlawful purposeful lethal injury of a female*



person inflicted by another person using any mechanism or method^{2, 35}. The author makes no distinction between the underlying motives for this crime, for example; whether it was due to self-defence or agitation. While the term 'femicide' broadly disregards of the victim-perpetrator relationship⁸⁶, 'intimate femicide' (IF) as used in this report refers to *'homicide by a current or former partner regardless of marital status or sexual orientation and includes rejected would-be lover*^{20, 25, 87}.

2.4.3 Defining fatal sexual violence

Sexual violence is inflicted when sexual means are used to express violent behaviour⁸⁸. Along with the plethora of research on IF there is a slight increase in literature on fatal sexual violence noted in the past two decades. While the definition of 'homicide' is reasonably clear-cut in most countries^{2, 35} and some consensus exists about what constitutes 'intimate femicide', to date there is little agreement amongst researchers across the world on what constitutes 'rape homicide (RH)' or 'sexual homicide'. The latter two terms are not legally defined in most countries including the USA, Canada^{26, 42, 89, 90} and SA^{13, 14} but remain interesting subjects of social science research.

Difficulties in researching sexual homicides are further compounded by various and/or ambiguous definitions of the terms rape, sexual assault and sexual violence which differ between countries and amongst different researchers^{21, 91}. These acts represent criminal acts that vary within the legal frameworks in different countries. In SA the Sexual Offences Act (SOA), 2007¹⁷ broadly re-defined rape to encompass a range of objects that penetrate the mouth, anus and genitals of both male and female victims including a penis, any body part or object resembling genital organs, for example, a stick. The Act explicitly distinguishes the above acts from 'sexual assault' in which the offender inspires the belief or acts unlawfully and intentionally to sexually violate the victim without any sexual penetration as previously defined¹⁷. Acts of sexual violation include but are not limited to acts like kissing, fondling, masturbation and licking that is sexually stimulating. Following these definitions, the author believes it is futile, at least in the SA setting, to use the terms 'sexual assault' and 'rape' synonymously.



Prior to December 2007 rape was a Common Law crime defined as '*unlawful intentional sexual intercourse with a woman without her consent*'. Contrary to this definition, suspected RH as defined by Abrahams et al¹³ in the 1999 study included cases of female homicide with a sexual component, not limited to penetration of genitalia by the penis, and included those cases with genital injuries. However, cases of oral and anal rape as defined in the SOA, 2007 were not included. These deficiencies should nonetheless not detract from the value this definition had in our understanding of this heinous crime against women in SA.

The Sexual Offenses Act, 2007¹⁷ defines rape and sexual assault as two of the three categories of interest regarding sexual violence in this study. The third, termed 'lust murder' or 'erotophonophilia', is characterised by a sadistic sexual excitation achievable only through violence⁸⁸. This crime is not legally defined in SA and many other countries, thus posing problems with understanding, measuring and addressing the full spectrum of fatal sexual violence or sexual homicide.

Schlesinger elaborates on the challenges encountered in researching sexual homicide and points to the three distinct categories of this entity⁹⁰: i) sexual murder (referred to Sadoff as lust murder⁸⁸) in which the killing itself is sexually arousing, ii) homicide perpetrated to conceal a sexual crime and lastly, iii) homicide that has some sexual component but in which the exact motivational dynamics (whether primarily sexual, aggressive or a combination of the two⁸⁸) remain unclear.

Regardless of category, most sexual crimes are usually unwitnessed. In many of these crimes a blatant manifestation of 'genitality' such as ano-genital injuries, ejaculation, or genital mutilation indicates an obvious sexual killing^{21, 90}. However, in some sexually motivated homicide cases the aggression surpasses an overt sexual act leading to no explicit expression of genitality and thus sexuality is used as a vehicle to primarily and viciously harm or mutilate the victim⁹⁰. Additionally, Schlesinger cautions that acts such as genital mutilation result from a psychotic illness and thus it would be inappropriate to conclude that this type of homicide is sexually motivated⁹⁰.



Considering the discussion above the author recommends the use of the term suspected 'sexual homicide' as adapted from Meloy to mean '*femicide associated with evidence of sexual behaviour or activity by the perpetrator which may have occurred at any time (before, during or after) or throughout the murder, as observed at the crime scene or on the victim's body*^{21, 22}.

Evidence of sexual activity by the perpetrator shall be understood to mean '*any signs of sexual acts indicating the killing was sexually motivated*^{13, 26}, *whether or not there was physiological arousal of the perpetrator*²². Although it may be acceptable to use the terms 'rape homicide', 'sex-related homicide' or 'sexual homicide' interchangeably^{21, 92, 93}, the latter term is preferred and will be used henceforth in this report. The prefix '*suspected*' should be maintained to the proposed term until evidence in this regard is presented and proved in the court of law.

Interestingly, the Canadian Centre for Justice Statistics collects data on sexual murders based on predefined criteria that include sexual positioning of the body, lack or deranged clothing with exposure of genital parts, evidence of sexual intercourse or insertion of foreign objects into the victims' body cavities and evidence of substitute sexual activity²⁶. Although these inclusive criteria reduce the risk of missing such cases and are comparable with some suggested by Abrahams et al in the 1999 SA study¹³, they are not legally recognized by the Canadian judiciary. Furthermore, both the Canadian and SA criteria exclude cases of sexual homicide that may be clearly sexually motivated, but lack an overt expression of genitality.

In view of these definitional differences the incidences discussed in section 2.2 above should be interpreted with caution when comparing rates across countries.

2.5 RISK FACTORS FOR FEMICIDE AND SEXUAL HOMICIDE:

Researchers recognise that to improve measurements of the full spectrum of VAW it is crucial but equally difficult to understand the root causes of this problem. Unlike other diseases, VAW and rape particularly, are complex societal problems caused by



a multitude of different interacting individual and structural factors that cannot be simply explained by the biological differences between men and women^{11, 16, 32, 33, 38}. As cautioned by Jewkes, Stout and others, the discussion below does not relate to causes but rather factors associated with IF and fatal sexual violence^{11, 31, 33, 75}. These factors commonly emerge from the demographic profiles of the victims and are thus interpreted as representative of risk factors in this study.

Using the ecological model the risk factors for femicide and sexual homicide as proxy measures for VAW are best understood to originate from a complex web of personal, socio-cultural and situational factors¹⁶. These factors interact within an ecological conceptual framework comprising four levels: the individual, family, community and societal levels^{11, 16, 31, 32, 79}. While issues of masculinity may play a role at individual level, the second, third and fourth levels are dominated by disparity between masculinity and femininity^{11, 32} as described below.

2.5.1 Individual or micro-ecological level

This level examines how the victim's biological factors like age, race and personal history (pregnancy, socio-economic and marital status) interact with the perpetrator's behaviour and immediate environment to increase the risk of violence¹⁶. Studies have shown a link between IF, sexual violence and the risk profile common to both victims and offenders including age, education, socio-economic status, history of (experiencing or perpetrating) domestic violence and the offender's possession of a firearm^{11, 50}. Additionally substance abuse, particularly excessive alcohol consumption, has been consistently identified as the common denominator in both victims and offenders of violence including that directed against intimate partners^{2, 94, 95}. The effect of alcohol abuse on aggressive and violent behaviour also identifies it as a contributing factor to VAW operating at all levels of the conceptual framework.

2.5.2 Family or Meso-ecological level

This level explores factors that shape the victim's relationship and behaviour towards abusive intimate partner, other family members or relatives and peers. In the setting



of DV asserting masculinity as superior to femininity may cause power imbalances and poor communication leading to escalating conflict and agitation within the family with eventual killing of the woman and her children^{11, 31}. The victim's continuing relationship and interaction with the abuser in the household increases the risk of violent encounters. Thus, the lifetime risk for chronic abuse is affected and has been reported to be up to 71% in a multi-country study⁴ and 25% in SA^{11, 33}. The victim's reaction to abuse within the family may be perpetuated or alleviated by her use of substances like alcohol as previously mentioned, and her interaction with the immediate community.

2.5.3 Community or Exo-ecological level

At the community level the victim's risk and experiences of violence are influenced by her interaction within the social context of settings such as the schools, workplace and her neighbourhood. Immediate community issues like women's isolation, poverty and unemployment contribute to increased experiences of violence by the victim. Social isolation imposed by the man over the victim is often associated with heterogeneous societies, overcrowding, an unstable home or not being involved in community activities; all these situations have been proposed to increase the risk of VAW^{11, 33}. High risk societies are further characterised by high levels of unemployment, poverty, alcohol and drug abuse which collectively pose a threat to male masculinity^{11, 61, 73}. These conditions perpetuate inequalities between the two genders and hence increase the risk of VAW^{11, 39, 54, 96, 97}.

Stout hypothesises that the discrepancy between female employment and male unemployment leads to the inevitable consequence of economic-gender inequality and hence the lower the gender equality in a country, the higher the rates of IF³¹. Convincingly, Jewkes et al contend that extreme poverty lessens the scope for conflict over financial issues resulting in a protective effect against IPV³³. While this may be rational, Stout affirms that women's total income, the education status and community role may be used as a measure of empowerment levels which when high, may be protective against IPV³¹.



These interrelated social factors are particularly relevant in South Africa (SA), a country characterised by religious and cultural norms that assert male dominance and rigid gender roles that suppress women. The consequences include power imbalances within intimate relationships wherein male dominance interferes with women's economic and reproductive rights, placing them at risk of unwanted pregnancies, sexually transmitted diseases like HIV^{4, 11, 32, 38, 58}, and in some cases, sexual violence that may be fatal. Efforts to address such inequalities often require understanding the background socio-cultural norms and legal framework for gender equity at a higher level of the State's legal system.

2.5.4 Societal or Macro-ecological level

The societal or State level examines factors regarding engraved socio-cultural norms and attitudes influencing people in a country's major Institutions like the media, legal, economic, educational, political, formal and informal social networks. The Institutions' response towards issues regarding masculinity, femininity and inequality may contribute towards levels of VAW. This is based on the premise that the State is responsible for laws and policies that address unemployment, socio-economic and political reform through multi-sectorial collaborations with the aim of implementing strategies to address and prevent VAW. Governments that inadequately address gender inequality and promote rigid gender roles as measured by the number of female representatives at higher levels of governance (including political structures and policies makers) are associated with higher incidences of VAW^{31, 98}.

Femicide contravenes the women's constitutional right to life as enshrined in the international and supreme laws of most countries including SA^{99, 100}. In this regard the South African Constitution is commendable for denouncing discrimination on the basis of gender, race or religion and upholding the Bill of rights. Similarly, the recent enactment of the DVA in 1998, the SOA in 2007 and the Children's Act in 2005, as amended in 2007, and lastly the Employment Equity Act are noticeable symbols of SA's commitment to fighting GBV.



However, despite these liberal laws SA remains an extremely violent society with disturbing levels of femicide, child homicide and sexual violence. The situation has been blamed on the legacy of the former apartheid regime which has instituted the culture of violence in the homes, schools, government institutions and the streets alike^{51, 101, 102}. The aftermath of violent conflict has left prevailing high rates of interpersonal violence even after political conflict officially ended when SA saw the genesis of the democratic government in 1994. It can be argued that society has become accustomed to violence, and weapons previously used during political conflict are still available for use in violent crime^{16, 34, 103}. Furthermore, the gross socio-economic inequalities sustain tensions between different racial groups, religions, customs, cultures and communities within and between different sectors of SA society¹¹.

It has been argued that higher levels of 'gender equity' on issues like employment, labour practices, sexual, reproductive and housing rights are negatively correlated with IF rates in a country^{31, 32}. However, Stout found the positive correlation between the women's high status with higher rates of IF suggesting that as the women's statuses in society rise, rates of VAW in that society may simultaneously rise³¹. This view is supported by Jewkes who reported a U-shaped correlation of VAW with the woman's status; during these periods of transition male partners may feel threatened by rapid social change that breaks the culturally ascribed gender roles and thus inflict partner violence¹¹. Jewkes further cautions that while levels of VAW and specifically wife battering may be stable or decline at moderate statuses of women, attempts to improve women's statuses and thereby increase equality may induce conflict and violence within the relationship^{11, 33}. Additionally, Stout found that there was a positive correlation between IF and rape incidence rates in a country, thus representing a possible continuum of risks for VAW³¹.

Femicide threatens civilian security in all countries where it prevails in high numbers² and along with sexual violence, flourishes in countries where there is no rule of law or lack of respect thereof. Laws that deal with punishment of women and child abuse, pornography, sex-discrimination and control of access to guns all help mitigate against



women and child homicide trends³¹. The lack of government accountability and commitment to fund services that deal with VAW, poor policy implementation and inadequate service delivery have all been cited as contributing factors to the current trends of VAW, specifically DV, in SA^{27, 49, 59, 67, 82, 103-105}.

Furthermore, inadequate, inefficient and corrupt policing as indicated by high crime rates in general has been blamed for the lack of significant improvement in DV-related mortality trends in this country⁵⁹. It has also been argued that the high incidence rates of intentional homicide and sexual violence in SA are due to poor administration and lack of resources within the Criminal Justice System (CJS)^{59, 106}. While the Domestic Violence Act in SA offers as much protection for victims as legally possible, the lack of implementation thereof limits its ability to achieve this purpose effectively⁸¹. Stout warns that it is psychologically easier and less complicated for victims of VAW to access social services than to wait for the legal intervention³¹.

Recently, it has been acknowledged that services that address VAW should extend beyond women and include men as offenders and educate them about conflict resolution and communication skills^{11, 58, 107}. This suggests that the roles of social services and community intervention programmes are much greater than those of the criminal courts in assisting victims of VAW, and thus should be encouraged and supported by government structures. However, persistent challenges with the implementation of the regulations pertaining to laws against discrimination, sexual violence and DV pose a great threat to the fight against VAW^{81, 82, 108} at the individual and societal levels in SA. However, it remains unclear if mandatory reporting of DV will have any effect on the current incidence of IF in SA. It is, nonetheless accepted that the current lack of enforcement for mandatory reporting of child abuse and neglect contributes to the high incidence of child homicide in this country and across the world^{29, 109-111}.



2.5.5 The role of alcohol in femicides and sexual homicides

Alcohol consumption is one risk factor that both victims and offenders of violence have in common^{2, 94}. Alcohol abuse and excessive drinking is a global health problem that increases the risk of accidental injury and violent behaviour of offenders while reducing the ability of victims to defend themselves^{11, 98}. Survivors of such violence might be predisposed to alcohol abuse as a coping mechanism for the mental health outcomes of violent injury or ongoing physical or sexual abuse^{11, 15, 98}.

The degree of alcohol intoxication and its association with violent behaviour varies between men and women, amongst different age and racial groups, settings, typologies of homicide¹¹² and weapons used^{94, 102}. Despite the ongoing controversy on the causal role of excessive drinking with VAW, there is growing consensus in the literature showing a strong positive link between alcohol consumption and VAW independent of confounders like race, age, socio-economic or occupational status⁹⁵. Recent work in the field has shown that men who abuse alcohol are more likely to engage in violent conflict with their intimate partners and alcoholism worsens the severity of injury from such conflict^{95, 113}.

The exact mechanism through which alcohol causes men to kill their intimate partners is not known, but in the domestic setting, conflict over the partners drinking has been shown to particularly increase the risk of IPV^{11, 12}. It has also been suggested that primarily the depressive cognitive effects of alcohol cause disinhibition of antisocial behaviour, increases reaction aggression and impairs judgement¹¹⁴. However, since not all intoxicated or drunk people behave violently and antisocially, it is argued that the drinking habits along with the observed violent behaviour are socially learnt^{11, 95} and may be related to the 'night-time economies'¹¹² phenomenon. The night-time economies refer to the longer times available during the weekends and night-times conducive for drinking excessively and thus predisposed to routine criminal activities occurring during the night, including violent conflict and becoming an easy target for violent crime^{38, 112}.



In the context of VAW, women who are intoxicated have increased risk for physical and sexual violence due to disturbed decision-making and inability to accurately identify, process and interpret warning signs and thus have the propensity to take careless risks (like walking home alone late at night) ^{38, 112}. Moreover, these women are unable to effectively defend themselves against an attacker. If such attacks are survived, consequent emotional trauma may perpetuate a further cycle of chronic alcohol abuse as a coping mechanism⁴⁶ with potential detrimental effects on the woman's relationships with the partner, family and immediate community.

Access to services that assist in addressing alcohol abuse for both victims and offenders of VAW at a community level have been shown to reduce levels and severity of VAW and hence help reduce IF rates⁹⁵. However, despite recommendations by researchers in this field^{11, 114-116} little is known about the effects of the stricter legislation and policing against alcohol in SA and on the rates of femicide in this country. Currently, the two laws that provide for testing people suspected to be driving under the influence of alcohol in SA are the National Road Traffic Act^{iv} and Criminal Procedure Act^v. There is currently no legal framework in SA for alcohol testing in perpetrators of other crimes, including homicide.

While it has been hypothesised that the intoxication rates between victims and offenders are comparable and both important in the risk of severe VAW^{41, 112}, without routine testing of perpetrators of other serious crime including fatal violence this hypothesis cannot be better understood or proven. Due to varying individual reactions to different levels of alcohol, the legal limit for driving currently set at 0.05g% has been traditionally used in social and scientific research as the proxy measure for intoxication in SA¹¹⁷. Several studies in SA have shown that alcohol is central to the high numbers of violent deaths and female homicides^{13, 14, 112, 114}. A meta-analysis of over 28 000 homicide victims which included two SA studies showed that while the almost half

^{iv} Road Traffic Act of SA 93, of 1996 provides for sampling blood for alcohol from the person suspected to driving under the influence of alcohol or drugs.

^v Criminal Procedure Act 51 of 1957 provides for relevant specimens to be taken from the accused person in cases that may have later criminal proceeding, and for prosecution of such cases.



(mean= 48%) of the study sample tested positive for alcohol, SA ranked amongst the countries with the significantly higher levels of alcohol intoxication and older women had higher levels than men¹¹².

2.5.6 Child femicides

Child homicide as used in this dissertation refers to '*non-accidental killing of a child less than 18 years of age due to violent acts of another person, regardless of their relationship to the child and their intended outcome of the inflicted violence; that is, the perpetrator's legal status is irrelevant*'^{111, 118}. Unlike the definition used in the SA child homicide study²⁹, this dissertation makes no distinction between the suspicious and confirmed cases of child homicide as the police investigation and judicial inquiry methods are not used as data sources in this report. The 18-year age limit is in accordance with the definition of a 'child' in the UN Convention on the Rights of a Child²⁹ and the Children's Act^{vi} in SA¹¹⁹.

Child abuse is a global problem rooted in socio-cultural and economic practices that perpetuate abnormal parenting behaviours or lack thereof^{30, 120}. The endemic levels of child abuse and neglect in SA are a reflection of the violent nature of the SA society. The Children's Act in SA mandates the state to care for and protect the children in compliance with section 28 of the Constitution of SA. According to the Act child abuse is defined as any form of maltreatment deliberately inflicted on the child and includes acts or behaviour that allows physical, sexual, psychological or emotional harm of the child¹¹⁹.

There are differences in the socio-cultural and legal definitions of what constitutes child abuse in different societies, within and between countries. Consequently, data on the risk of fatal child abuse varies between regions, countries, settings, sex and race of the child, and further depends on the quality and sources of such data, for example; police records, child protection services, medical centres and child line

^{vi} Children's Act 38 of 2005, enacted on 19 June 2006.



agencies^{29, 103, 121}. Nonetheless, current research is comparable with regards to the definition of age ranges in the lifetime of the murdered child (for example neonaticide^{vii} and infanticide^{viii}), motive and nature of perpetrators, incidence and legal outcomes in cases of child homicide¹²². Comparing child homicide rates across countries is therefore affected to some extent by the same limitations as those affecting femicide as described in section 2.2 above.

Considering the ecological framework, some authors argue that children and their mothers are exposed to similar risk factors within the home, community and society¹¹⁸. It is therefore not surprising that while Stout found no statistical significance between child abuse and IF rates, there was a positive correlation between the incidence rates of IF and child homicide³¹. Cooper's study found that increasingly child deaths account for the second most frequent cause of fatal family violence in the USA; 25% of murdered children were killed by their parents in 2008 compared to 15% in 1980⁴² pointing to a possible link between child homicide and family violence. This correlation may be significant in several countries with high proportions of children being killed by their parents ranging from 50 to 93%^{42, 110, 122-124}. Almost half (46.6%) of all child homicides in SA were perpetrated by parents and other family members, with biological mothers accounting for the vast majority of child abuse-related homicides²⁹.

Child-abuse related homicides perpetrated by mothers include cases of abandonment, a finding supported by Yawoord in a 6-country survey¹²² and confirmed by Lawrence in a review of child homicides in Australia¹¹⁸. Cases of abandonment include concealed births as it is a criminal offence to conceal the birth of an infant born alive after 26 weeks of gestation in SA. With the exception of biological fathers as perpetrators, both the SA and USA national studies found similar proportions of mothers (30%), relatives (7%) and strangers (3%) as perpetrators of child homicide^{29, 42}. On the contrary, fathers were more likely to be perpetrators of

^{vii} The killing of a child aged between 0 to 28 days.

^{viii} The killing of a child age less than 1 year



child homicide in USA (33%), New Mexico (36%) and Australian studies (57%) than in SA (5.8%)^{29, 42, 111, 124}.

Considering that the home is the most common place where child homicides occur^{42, 110} and girls are almost twice more likely to be killed at home than boys, the findings noted above seem to support the association of family violence with child femicide. Despite boys being generally twice as likely to be victims of child homicide than girls, the risk of abuse-related homicide for girls in SA is much higher at 76% compared to 26.8% for boys, and affects mostly girls (80%) older than 5 years²⁹.

While there has been a decreasing trend for most typologies of homicide in general, there is growing concern that many abuse-related child homicide cases are not appropriately recognized, investigated and reported as such despite the statutory obligation to report such cases to law enforcement and child protection authorities^{109, 124, 125}. This leads to misclassification and under-recording of child homicides, a problem prevalent in many countries regardless of economic status^{29, 98, 118, 126}. Fatal child abuse is commonly misdiagnosed as sudden infant death syndrome (SIDS), accident or often notified as 'unspecified' or 'undetermined' cause of death^{29, 109, 111, 118}.

Globally, the highest incidence rates of child abuse are in Africa⁹⁸ but SA children remain among the most at risk for abuse-related homicide compared to other countries²⁹. The overall abuse-related child homicide of 44.5% of all murdered children in SA reported in 2009 is higher than the 36% reported for New South Wales in the same year¹¹¹. While the corresponding incidence rate of 5.0/100,000 for abuse-related child femicides in SA resembles the 5.1/100,000 reported globally for girls below the age of 15 years in low to middle-income countries, it is almost four-times the rate (1.8/100,000) for girls in high-income countries⁹⁸.



2.5.7 Elderly femicides

Similar concerns as those affecting children with regards to what constitutes 'old age' and 'elderly abuse' make comparison of elderly femicides amongst regions and countries challenging. For the purposes of this study 'elderly femicide' is defined as '*intentional killing of a female of aged 65 years and older by another person*'^{16,98}.

Physical frailty places the elderly at risk of abuse in their homes⁷. Population-based studies show that an average of 5% of the elderly are abused in their homes in some way¹⁶. Additionally, health care workers are often the first and only point of contact of the abused elderly but regrettably elder abuse has been documented in State Institutions that are meant to care and protect them from ongoing abuse or neglect⁷.

The current paucity of data on the incidence of fatal elderly abuse in SA and many other countries make it difficult to understand the full scope of the problem. Copper's study on homicides in the USA found an overall elderly homicide rate of 5% reported over 28 years⁴² is higher than the 2.6% reported in SA in 2007¹²⁷. Cooper reports that over a third of elderly deaths are due to blunt force injury¹²⁷ suggesting physical assault as a cause, this may indicate abuse as one of the many violent risk factors directed to the elderly. While elderly homicides have been showing a decreasing trend since 2001 in the USA, the SA national study showed a similar trend for elderly femicides aged above 60 years with a decline from 1.5/100,000 in 1999²⁰ to 0.7/100,000 in 2009²⁸.

Interestingly the majority of elderly homicides in the USA and Denmark are committed during another crime like robbery, rape, burglary and agitation^{42, 55, 102, 128}. This opportunistic killing highlights the vulnerability of the elderly who are mostly home and their frailty renders them less likely to defend themselves effectively¹²⁸. While the SA National study showed that another crime including theft was involved in the perpetration of the 76.2% and 23.8% of non-sexual homicides and sexual homicides respectively¹³, the proportion of elderly victims affected in these cases is unknown.



2.6 CONCLUSION:

Using the ecological framework, this review has highlighted risk factors at different levels contributing to the high magnitude of femicide and sexual homicide in SA, but this country is not unique. While it appears morally justified that VAW was declared a human rights and a crucial public health issue by the World Health Assembly in 1996⁶,⁷, the legal reform regarding DV and sexual offences in SA is perhaps a recognition of this declaration. Although this is commendable, persistent definitional and methodological differences impede comparison of data across countries. The paucity of data on the issue of sexual homicide means that while the previously reported incidents of femicide can be accepted as reasonable estimates, the same cannot be said about sexual homicide trends. This study hopes to address these research gaps by applying a systematic methodology in studying femicides in Cape Town and thus identifying possible risk factors for sexual homicide as presented in the succeeding chapters.



Chapter 3 : METHODOLOGY

INTRODUCTION:

Despite increasing research in the past two decades, collecting relevant and accurate data on Violence against women (VAW) remains challenging^{16, 73, 86}. Available data on VAW is plagued by fragmentation and incomplete information. Furthermore, due to the prevalent problem of underreporting the nature and extent of VAW research often is biased towards the most extreme forms VAW⁷³. Femicide and fatal sexual violence in particular are readily reported to authorities because they are easily recognized as serious criminal acts in various countries and are against most societal norms. Consequently, research data on femicide and sexual violence is traditionally obtained from police case files and other formal institutions like medico-legal centres, including mortuaries^{13, 16, 26, 73, 86}.

Although these sources were used in the 'parent' studies which this dissertation follows-up on, they do not routinely collect the all necessary information for research, such as the underlying motivations for femicide, whether such motivations are gender-related or the victim perpetrator-relationship^{13, 86}. As a follow-up study this dissertation adopts the methodology used in the 'parent' studies by using police and mortuary files as data sources. Similarly, this study inherits some limitations of incomplete information emanating from the use of such data sources. However, to improve validity and reliability of the findings the methodological design for this dissertation was modified. The changes were also made in consideration of the current medico-legal system governing death investigations in South Africa (SA) as briefly outlined below.

3.1 MEDICO-LEGAL INVESTIGATION OF HOMICIDAL DEATHS IN SOUTH AFRICA:

The Births and Deaths Registration Act 51 of 1992¹²⁹ prohibits medical practitioners in SA from issuing a death notification form if there is suspicion of unnatural death; instead the medical practitioner must notify the police in accordance with the Inquests Act 58 of 1959⁸⁴. The Inquests Act mandates the police official to further investigate



the circumstances of the death, and cause the body of the deceased to be examined by the designated medical practitioner to determine the cause of death. Furthermore, the Inquests Act and the Regulations for the rendering of the FPS¹³⁰ (here-after referred to as the 'Regulations') promulgated in the National Health Act (NHA) 61 of 2003, authorise the MP to perform the post-mortem examination and any necessary investigations to determine the primary medical cause of death with greater certainty. For the first time in SA the Regulations have since 2007 defined 'unnatural death' as death directly or indirectly due to: mechanical or chemical violence (this category includes violent deaths like homicides), acts of commission or omission, and death that is sudden, unexpected and/or unexplained¹³¹. Additionally, the Health Professions Amendment (HPA) Act, 29 of 2007¹³² defines another category of death of a person from the direct or indirect result of a procedure, whether that procedure was therapeutic, diagnostic or palliative in nature as unnatural.

All cases categorised as unnatural death are first registered with the South African Police Service (SAPS) who attend the crime or death scene and complete the SAPS180 form (see Appendix A). The SAPS180 is a form formulated by the SAPS and contains amongst others details of the police official on the crime scene, the deceased's name and age, the circumstances of death and probable weapon used. The copy of the completed SAPS180 form is handed to the Forensic Pathology Service Officers (FPOs) on the death scene prior to the body being removed and transported to the local Forensic Pathology Laboratory (FPL), hereafter referred to as the 'mortuary'. Information from this document is then transcribed into the FPS death scene scripts comprising the FPS002 (see Appendix B) used across the mortuaries in the Western Cape (WC) province, and the LAB27 (see Appendix C) is additionally used specifically at the Salt River FPL. The LAB27 and FPS002 forms are used to contemporaneously document information about the victim and the crime scene based on communication with witnesses, the police and their own observation of the death scene. Together these forms serve as the primary communication tools between the FPOs and the pathologist assigned to autopsy the body. These two documents are handed to the respective Forensic Pathologist or designated medical practitioner (hereafter both referred to as '*pathologists*') prior to performing the autopsy.



Upon completion of the autopsy, the pathologist notifies the cause of death as natural, unnatural or undetermined, and further reports on the primary (underlying) medical cause of death. Further classification of unnatural deaths into a specified manner like homicide, suicide or accident by the pathologist is only 'probable' and depends on the police investigation and information obtained about the death scene. The probable manner of death should be opined once the report detailing autopsy findings and if available, results of the investigations performed at autopsy are submitted to the inquest magistrate under whose jurisdiction the death has occurred. The Inquests Act authorises the magistrate to hold an inquest into the death and establish the identity of the deceased person, the date and cause of death and further determine if the death is a result of an act of commission or omission, and prima facie, if anyone is responsible for the death⁸⁴. This process may take anything between a few days to several years to complete.

In cases of homicide the statutory obligations to report unnatural deaths described above virtually preclude the risk of underreporting. Exceptions are deaths which are delayed, with failure of the pathologist issuing the death notification form to recognise the causal relationship between the violent episode and the terminal cause of death. This is particularly common in cases where death is delayed by several days to years and the history of violence is missed or obscure. In such cases the notification of the cause of death as 'undetermined' or 'under-investigation' initiates a process of appropriate police investigations to establish the sequence of events leading to the death. Upon completion of such investigations the magistrate furnishes the pathologist with the relevant investigative reports for their second opinion on the medical cause of death.

In Cape Town unnatural deaths occurring within the City of Cape Town (COCT) municipality are investigated at two Forensic Pathology Laboratories (FPLs); the Salt River Forensic Pathology Laboratory (SRFPL) services the population of the Western Metropole while the Tygerberg FPL services the Eastern Metropole district. These two



health districts service almost two thirds (64%) of the WC province population^{63, 133}. The Western Metropole health district comprises four sub- districts which include the Mitchells Plain, Klipfontein, Southern and Western health districts accounting for approximately 38% of the WC provincial population^{134, 135}, and populated by approximately five (5) million people during the study period. Approximately 3500 bodies of people dying from unnatural deaths in the Western Metropole health district are admitted to the SRFPL annually making this mortuary the busiest in the WC province. The SRFPL is the primary site for this dissertation study, located just 3.5km from the Cape Town city centre. Figure 3.1 below shows a geographic representation of the SRFPL drainage area as demarcated in blue, provided by K. Jones, Assistant Director of the WC province FPS on the Metropolitan regions¹³⁵.

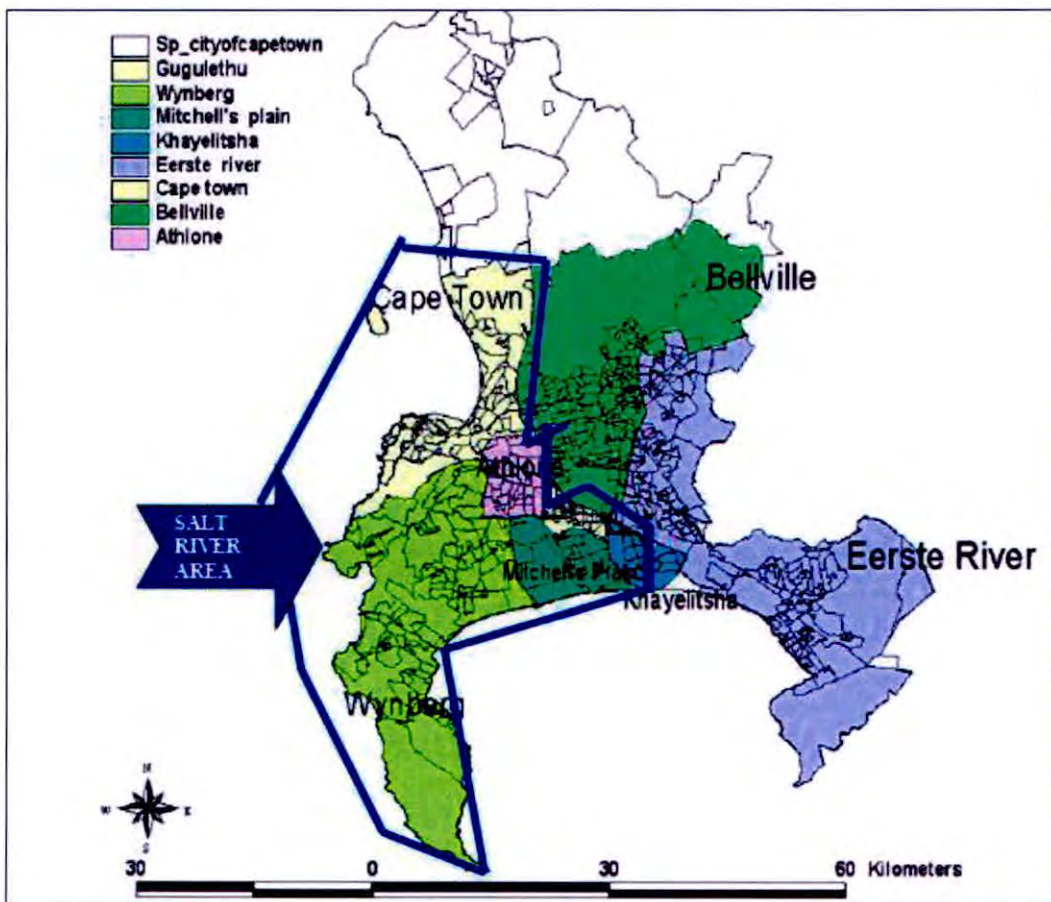


Figure 3.1: City of Cape Town map showing geographic area serviced by the Salt River mortuary (adapted from K. Jones, unpublished document, 2012)



3.2 STUDY AIMS:

This dissertation aims to document and analyse the epidemiology, pathology and risk factors for femicides and sexual homicides in Cape Town and to compare findings to previously published local and international research. In this regard the pathology includes injury patterns, a term understood in this report to be inclusive of the numbers, type and location of injury¹³⁶.

3.3 OBJECTIVES:

The objectives of the study were drawn with the central goal to describe the numbers, incidence and pathology of femicides and suspected sexual homicides admitted at the SRFPL between the period 2000 and 2009. In order to identify risk profile for femicides, the demographic variables of the victims including age, race, area, date and time of death are described. To understand the pathology of femicides the types and location of injuries sustained by the victims are described, and to assess severity of the fatal injuries, the frequencies of such injuries are also described.

The parameters of the crime scene and autopsy investigations are described to identify femicides with possible concomitant sexual violence, and hence assist in proposing a criteria for sexual homicides in this study. Furthermore, the autopsy reports are graded to identify current (for the study period) practice and areas of inconsistency in the forensic management of these cases, and thus assist in drawing the recommendations towards standardised management protocols.

3.4 GENERAL DESIGN:

This is a retrospective, descriptive study of all deceased females admitted at the SRFPL between 00h00 on the 1st January 2000 until 24h00 on the 31st December 2009. This dissertation follows up on the results of three 'parent' studies that used similar data collection tools developed by Martin (see Appendix D and E) and performed at local and national settings in SA as outlined below:



Primary study: Martin's study submitted for completion of an MMed degree in 1999¹⁴ comprised two series: the first series analysed the epidemiology and injury patterns of female rape homicides (RHs) in Cape Town between the period 1 July 1996 to 31 December 1998. The second series analysed similar variables in rape survivors in Johannesburg; only the first series is of relevance to this follow-up study. At the time of conducting the prospective study on RHs there were no clear criteria for identifying such victims. In accordance with the broader definition of RH referring to '*a homicide with evidence of 'sexual element/activity'*'^{22, 26}, subjects were included into Martin's study based on the following three criteria: information of suspicion of rape from the police officer and/or Forensic Pathology Officers (FPOs) on the death scene, information from autopsy report and a register of forensic specimens (genital samples) retained^{ix} at post-mortem.

Secondary studies: The first National femicide study in 1999^{13, 20} and the follow-up study in 2009²⁸ which included the child homicides²⁹ were co-authored by Martin. The intimate femicide (IF) study forms one of the five research papers published in Mathews' PhD thesis on '*Understanding Intimate Femicide*'¹³⁷. Unlike Martin's study which was prospective, the national studies were retrospective in design. In addition to the criteria used by Martin in the Cape Town study, additional explicit criteria for inclusion of subjects into the national RH study included the following: statement that underwear was removed from the body or dislodged, the vaginal swab or pubic hair samples were collected by pathologist, and whether genital injuries were noted on the body for which there was no other alternate explanation¹³.

3.4.1 Methodological limitations and benefits

Although the above three studies are instrumental to our current knowledge and understanding of the magnitude of fatal VAW in SA, some methodological challenges, like small sample sizes and differences in the definitions of sexual homicide limit the extent to which their findings can be applied and compared with other research. These

^{ix} In this study the terms 'retained' and 'retention' refer to the act or process of collecting forensic trace evidence or specimens from the body.



were considered during the initial stages of designing the methods for this dissertation.

3.4.2 Descriptive Design

The use of a descriptive study as adopted in the three 'parent' studies^{13, 14, 20} outlined above is a well-established, effective, most practical and accurate approach for studying characteristics associated with a poorly understood phenomenon like fatal VAW¹³⁸, and more specifically, femicide. Another attractive feature of the descriptive design is that it allows for analysis of frequencies and trends, and when combined with the *qualitative* approach, which was not performed in this study, helps to explain and interpret the positive and negative correlations that exist between risk factors associated with fatal VAW¹³⁸.

By carefully selecting the focus group of sexual homicides and femicides in the 'parent' studies, the descriptive design allowed for studying details and generation of hypotheses based on characteristics observed in the study populations. However, the limitations of a smaller sample size usually associated with a qualitative approach (as observed in Martin's study which had a total sample of 59 subjects) limits the generalizability of epidemiological data to the broader population. This limitation is avoided in this dissertation where the total sample of 1002 subjects is considered sufficient to draw valid conclusions for the population of Cape Town. The author anticipates that by calculating the odds ratios where possible, and analysing the negative and positive correlations between quantitative variables in this descriptive study¹³⁸ will help clarify the criteria and hence the definition of suspected sexual homicide. Although the descriptive design identifies possible risk factors, it does not allow for a full explanation of the underlying causes of femicide and sexual homicide. Nonetheless, a detailed discussion of causes of femicide is beyond the scope and objectives of this dissertation.



3.4.3 Bias

A major drawback of the descriptive design is the problem of selection and information biases that may interfere with interpretation of data from emerging variables. For example, at the time of Martin's study¹⁴ rape was legally defined in the Sexual Offences Act 23 of 1957¹³⁹ as 'penetration of the vagina by the penis'. Thus, the assumption is evidence of rape in the post-mortem period would include the presence of genital injuries, semen in the genitalia or other sexual paraphernalia that would legally amount to rape. It is however not always possible to ascertain if rape or sexual assault has occurred based on autopsy findings alone^{13, 91} and such evidence is usually apparent at the crime scene but can still be missed.

In recognition of this fact, Martin made herself available to attend crime scenes of identified cases of suspected sexual homicide during the study period but was called out in only 4 cases; a total of 5 crime scenes were attended in her series. As Martin and others concede^{13, 14, 89} the author strongly suspects that Martin's prospective study design had the relative risk of some cases being missed due to lack of recognition of 'evidence of rape' by police officials, the FPOs and pathologists alike. This would result in some cases not being included into the study and hence introducing sampling selection bias. However, Martin limited this bias by performing the majority (70%) of the autopsies of the study sample herself thus affording her the opportunity to identify cases that were otherwise possibly missed at the crime scene.

Although the risk of selection bias potentially persisted in the National study¹³, it was addressed by firstly attempting to define, for the very first time, the concept of '*suspected rape homicide*' and improving the selection criteria for fatal cases of sexual violence as described in section 3.4, paragraph 3 above.

Unlike the 'parent' sexual homicide studies^{13, 14} this dissertation uses much broader criteria for suspected sexual homicide which are expected to further minimise the threat of selection bias. However, given the descriptive nature of this research which sampled a non-randomized population of femicides the author acknowledges that inherent sample selection bias will persist and is somewhat unavoidable¹⁴⁰, as was the case in the 'parent' studies. Similarly, this dissertation inherits the benefit of improved



content and face validity and thus significantly minimised information bias by using a data collection tool that was pre-tested over a three-month period at two mortuaries and subsequently validated prior to utilising it in the national homicide studies¹⁴¹ Furthermore, consistency and therefore internal validity is maintained in this dissertation because data for all subjects in this study was personally collected by the author. Classification bias is minimised by using two database sources followed by manual searching of archived reports to identify femicide cases, an approach adopted in the national studies^{13, 20}.

3.4.4 The Retrospective approach:

The retrospective study approach, as used in the national studies^{13, 20} is naturally favourable in this dissertation for the following advantages:

Given the time constraints within which this dissertation has to be completed a record review of pre-existing autopsy reports and any other related reports/results attached thereto requires much less time than a prospective study. This availability and accessibility to records of femicides admitted at the SRFPL where the author is based, together with the current lack of uniform criteria for identifying sexual homicide cases within the FPS makes the retrospective approach the most appropriate and cost-effective research method for this dissertation.

The researcher used personal experience and a preliminary review of the admission register showing an average annual femicide admission of about 100 cases at SRFPL as a guide in choosing the study period. The retrospective review of records over the 10-year period starting from the year 2000 (considering the last study used data from 1999) was deemed appropriate for achieving an adequate sample size for this study. The projected sample of approximately 1000 subjects in the 10 year period is comparable with that of the national studies (1052 subjects)^{13, 20}. This allows for more feasible comparison of results and trends emanating from these studies. In this regard the retrospective approach allows for an almost predetermined sample size collected using pre-set exclusion criteria. This makes planning activities for the study more feasible and eliminates the time constraints usually associated with the prospective



design, as experienced by Martin¹⁴. Unlike the prospective study which requires a particularly large sample to allow for significant relative risk to be drawn for an uncommon (but not rare) outcome like sexual homicide¹⁴, the sample size projected for this dissertation is deemed adequate to draw such conclusions.

The retrospective design is often associated with potential bias caused by uncertainty of the effect of confounding factors in interpreting data on exposure (or risk factor) and a particular outcome. To overcome this, where possible, the Odds Ratio (OR) was calculated for some variables particularly relating to sexual homicide in this study, to determine the relative odds and significance of associations between these variables (or risk factors) and the suspected sexual homicide as the 'outcome'. The variables included for example, being of a White or non-White race, or dying from strangulation compared to any other none-asphyxial method of death. Therefore in this study the OR was specifically used to determine risk factors for sexual violence in femicide cases when certain risk factors are present.

To measure the precision of the OR, the 95% confidence interval, particularly when the value is small, was used to indicate a higher precision of the OR in was higher than 1. To determine the statistical significance of the calculated OR, the probability value (p-value) was calculated where $p < 0.1$ was deemed significant. OR measurements could not be performed in all desired variables as this service depended on the statistician who was employed to assist with advanced statistical analysis of this data. In these cases the author calculated the percentage proportions between the competing variables to make assumptions of significant correlations with the outcome in question. Nonetheless, measuring the OR remains the standard approach employed in investigating issues like sexual homicide and thus where the OR is available in research it allows for sound comparison of the results of this dissertation with other research^{20, 25, 114, 142, 143}.



3.5 RESEARCH PROCEDURES AND DATA COLLECTION METHODS:

3.5.1 Sampling process

Since the beginning of the year 2000 all dead bodies admitted at the SRFPL have been registered electronically into an Excel spreadsheet database named '*Salt/Index*'. Prior to this date the death register was recorded manually by police officers employed at the mortuary. Additionally, all autopsied cases are recorded daily into a similar Excel spreadsheet database, named *Office Autopsies (OA)*, completed by the respective pathologists upon the completion of the PM examination. This database contains information on the demographic details of all autopsied decedents, the date and place of death, the police (SAPS) station where the death is registered, cause, method and manner death and a record of the nature of investigations performed for each deceased. Because it is completed by pathologists the OA-database has superior content validity than *Salt/Index* and thus forms an excellent source of information for research. Both databases are available in the hard-drive of the Division of Forensic Medicine and Toxicology (DFMT) at the UCT.

The 'parent' studies used the death register at the mortuaries as the primary data source to obtain information on the police case, details around the death (to identify homicide cases), and victims demographic details^{25, 143}. In contrast, the primary data source for this dissertation is the OA-database as it records accurate information especially regarding the probable manner of death (homicide versus non-homicide). In the author's experience the probable manner of death can be misclassified by the police due to limited witness information and examination of the body at the crime scene. Forensic pathologists can reliably classify cases as homicide or non-homicide^{13, 14, 56, 57, 89} without necessarily relying on the police, and without risk of classification bias. Therefore the police docket review and interview used as the second data sources for identifying homicide cases in the 'parent' studies were deemed unnecessary for this dissertation. Instead, the second data source in this study included the attached death scene script reports (LAB27, Appendix C and the FPS002, Appendix B), the autopsy report, body diagrams, pathologists' crime scene reports where relevant and any appended reports of investigations performed at autopsy.



Autopsy investigations included amongst others results of the histology, brain examination, alcohol or toxicology analyses and dental record reports. Dental reports are particularly helpful for gender determination and age estimation of unidentified decomposed and skeletal remains. In 25 cases copies of the inquest docket reports were available and were particularly helpful in the final classification of the manner of death. The *Salt/Index* forms the third data source for this dissertation.

The OA-database for the years 2000 until 2009 was used as the primary data source to sample study subjects. The gender and manner of death columns were filtered by selecting the words **<female>**, **<murder>** **<unknown>** and **<blank>** to identify murdered female victims including victims whose gender was either unknown or unspecified after the autopsy. The resulting spreadsheet was used to retrieve archived autopsy reports and related records using corresponding mortuary reference (WC11)^x or death register (DR) numbers. The DR numbers were used as the death register numbers at the SRFPL until the end of 2006. Following the transfer of the FPLs (previously referred to as 'state' or 'police' mortuaries) from the management of the police to the Department of Health (DoH) in April 2006 the WC number referencing system as currently used was gradually introduced from 15 September 2006.

Reviewing the autopsy reports as the second data source revealed that while the filtered spreadsheet accurately identified homicide cases there were administrative errors in the database regarding classification of cases by gender. Some murder cases and those whose manner of death was either unknown or left blank but labelled '*female*' in the database were in fact '*male*' according to the autopsy reports. To avoid missing cases and to increase reliability the following five-step process was henceforth employed to sample the population of interest for this study:

The procedure of filtering **<female>**, **<murder>** and **<unknown>** and those that were left **<blank>** was repeated for the 'gender' and 'manner of death' columns in the

^x WC/11/ refers to mortuary no. 11 in the Western Cape (WC) province, that is, Salt River Forensic Pathology Laboratory (SRFPL).



Salt/Index-database as the third data source. Due to a few disparities between the filtered spreadsheets from the *Salt/Index* and OA-databases the author used a combined list from the two filtered lists to retrieve and peruse the corresponding autopsy reports archived in the Division of Forensic Medicine and Toxicology (DFMT) at UCT. Autopsy reports discovered to be of male victims were re-archived. Errors noted in the two databases were subsequently corrected.

The process of filtering for **<female>**, **<unknown>** and **<blank>** was then repeated in the corrected OA-database; a total of 6231 female cases and 766 cases with unspecified gender were identified from a total population of 29 555 admissions at SRFPL for the 10-year study period. This spreadsheet of 6997 subjects was further filtered for manner of death by selecting the words **<murder>**, **<unknown>**, **<undetermined>** and **<blank>**. This procedure yielded a sample of 1133 femicides.

For confirmatory purposes the author also manually perused all remaining archived autopsy reports between 2000 and 2009 specifically targeting those whose manner of death was recorded as 'murder' on the first page of the LAB27 document. This manual process, together with the database filtering yielded an additional 543 reports of victims of unspecified gender whose manner of death was registered in the database as 'murder' , 'unknown' or 'undetermined'. The gender was double-checked in the autopsy reports, targeting those who were female. After further review of the any attached ancillary reports including copies of the inquest docket, histology and/or brain-cut and dental reports where available for these 543 cases, an additional 11 cases (8 cases from 2003 and 3 from 2004) were identified as female victims with homicidal trauma as the most likely cause of death. Included in these 11 cases were those who had an affirmative history or suspicion of assault, but autopsy revealed no or minimal visible injuries likely to have caused death, and in some, there were no conclusive internal organ injuries despite the presence of external traumatic injuries, including those cases where the victims were either too decomposed and/or skeletonized.



Of the 543 cases whose manner of death was initially undetermined or unspecified in the autopsy, the remaining 495 could not be confirmed as female, and those who were female, review of ancillary reports revealed no clear history of homicidal trauma, or ancillary reports, where available, revealed a possible natural cause of death despite the initial suspicion of homicide. These 495 were excluded from the final study sample.

A spreadsheet of total of 1144 records comprising the 1133 and the additional 11 cases was created. The list of the 1133 femicide cases as originally identified from the databased was used to retrieve autopsy reports and any additional ancillary reports attached thereto from the archiving room in the DFMT at UCT. However, autopsy reports were missing and no documentation could be found in the archiving room for the 94 cases. These 94 cases were excluded from the study. Of the remaining 1039 reports, a further 48 were excluded leaving a total study sample of 1002 subjects.

The exclusion criteria for the 48 cases were:

- Cases found to be due to an accident or natural disease after review of further autopsy information, including in some cases toxicology and inquest docket reports.
- Cases awaiting toxicology results where the manner of death may be due to alcohol intoxication or self-administered overdose.
- Cases where the body was decomposed or skeletonized with no history or post-mortem findings to suggest or support possible homicide.
- Abandoned foetuses estimated to have had less than 26 weeks intrauterine life and were thus non-viable.

A total of 1582 records were retrieved from the archives and reviewed by the author. The sampling process is depicted in Figure 3.2 below.



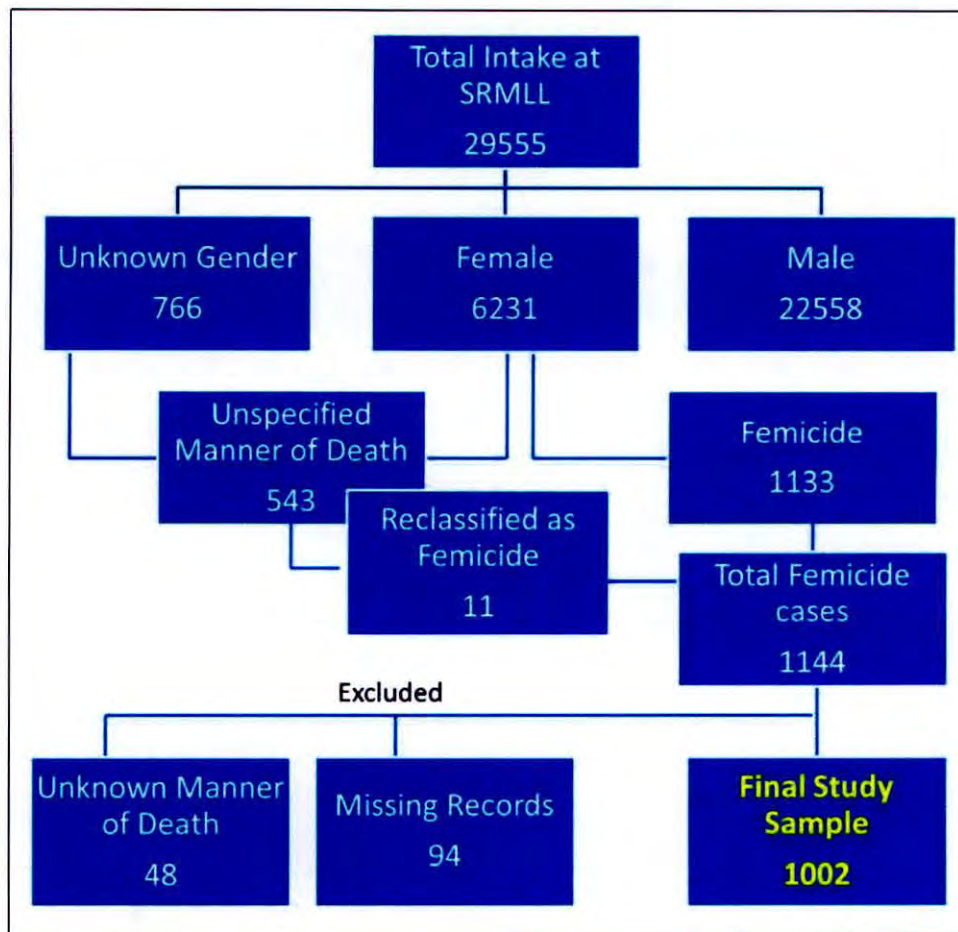


Figure 3.2: Schematic outline of the sampling process

The annual framework summarised in Table 3.1 below shows the annual numbers of female admissions at the SRFPL along with the corresponding numbers sampled and excluded.



Table 3.1: Framework of the sampling process for each year of study

TOTAL ADMISSIONS INTO SRFPL	DATABASE: TOTAL FEMALE POPULATION	DATABASE: TOTAL GENDER UNKNOWN	COMBINED SEARCH: TOTAL FEMALES WITH COD OF DEATH UNKNOWN	DATABASE: FILTERED FEMICIDES	MANUAL SEARCH: ADDITIONAL FEMICIDES	MISSING AUTOPSY REPORTS	TOTAL FEMALES WITH NON-HOMICIDAL COD	TOTAL FEMALES EXCLUDED	TOTAL STUDY SAMPLE: FEMICIDES
3102	678	17	7	146	0	1	6	7	139
3316	665	15	63	151	0	31	3	34	117
3256	661	7	87	129	0	56	7	63	66
2968	574	14	73	93	8	0	0	0	101
2607	538	11	81	104	3	0	0	0	107
2533	468	100	44	105	0	0	3	3	102
2720	525	2	40	101	0	2	7	9	94
3087	688	1	59	124	0	4	20	24	98
3037	681	267	45	88	0	0	1	1	87
2929	753	332	44	92	0	0	1	1	91
29555	6231	766	543	1133	11	94	48	142	1002
2955.5	623.1								100.2

3.5.2 Characteristics of the population

The criteria for inclusion into this study are:

- Cases confirmed to be female at autopsy or, in cases of severe decomposition and skeletal remains the female gender was confirmed on anthropological analyses.
- The probable manner of death was confirmed as homicide on review of the three data sources described above.

3.6 DATA COLLECTION:

The proposal for this thesis commenced towards the end of the year 2010 with the intention of commencing data collection activities by in 2011. This was to accommodate outstanding reports of ancillary investigations, including alcohol and toxicology from the Forensic Chemistry laboratory (FCL), brain, histology and inquest docket reports which generally take (although not exclusively) a few weeks to three years to complete. These supplementary reports are particularly important in cases where the cause of death is undetermined at autopsy alone, which generally account for approximately 10% of the autopsy population^{127, 144} depending on the complexity of the case and the level of expertise of the pathologist.



Although the risk is negligible in this study, the 3-year interval would avoid any potential compromise of the legal disposition and criminal investigative process which, excluding exceptional circumstances, is generally completed within three years in SA¹⁴³.

3.6.1 Changes to the data collection tool

The prime distinction between 'rape' and '*sexual assault*' as described in the Sexual Offences Act, 2007¹⁷ guides the approach to a case of suspected sexual homicide and may lead to improvements in evidence collection at the crime scene and on the deceased's body. Due to lack of clear screening tools detection of possible sexual assault or rape of femicide victims depends on the expertise of the police and FPOs on the death scene, the pathologist, if called out to the scene or detection at the time of autopsy examination. This process is regardless of the change in terminology of suspected RH to sexual homicide as adopted in this dissertation. Therefore, to maintain validity, the data collection tool used in this follow-up study is similar to the one used in the 'parent' studies^{13, 14}. A few administrative alterations were however made to the original data collection tools (Appendix D and E)^{14, 145} to accommodate the broader definition of sexual homicide, the scope and objectives of this dissertation and to make the data collection process easier. The re-definition of rape since Martin's study was published in 1999¹⁴ necessitated the review of the criteria for sexual violence-related femicides, hence all femicides had to be sampled as the population of interest for this dissertation study.

The SAECK is a tailor made, commercial kit used to collect trace evidence that may contain the perpetrator's DNA using swabs from the victim's body, and includes receptacles for body fluids like blood, saliva or semen, foreign hair or other material like clothing fibres. Receptacles for the victim's reference blood for DNA, pubic and head hair, underwear and sanitary pad/tampon may be retained if available. There are different versions of the SAECK kit but for the purposes of this report reference is made to the SAECK kits that contained the 12-steps (often called the D1kit) and not the newer version called the D7.



The four eligibility criteria for classifying subjects as possible sexual homicides in this study include: 1) statement (or history) of suspicion of rape or sexual assault by the FPO or police official on the crime scene¹³, sometimes triggered by finding the body in a sexually provocative position (for example, legs found spread wide apart^{21, 26}; 2) statement or evidence that clothing including underwear, was either completely or partially removed with no other alternative explanation or misplaced in a manner that exposes the breasts, genitalia or buttocks^{13, 21, 26, 89}; 3) evidence of oral, genital or anal penetration with or without injuries where such injuries have no other explanation¹³ and includes genital mutilation^{21, 26}; and 4) retaining swabs from the ano-genital area which included retaining the Sexual Assault Evidence Collection Kit (SAECK) or an equivalent thereof, from the deceased^{13, 14}. The evidence of substitute sexual activity or behaviour (for example, signs of masturbation, foreign objects inside the mouth, genitals or anus^{26, 89}, including evidence of semen or used condoms on, in or near the body^{21, 89} would contribute towards the high index of suspicion and history of sexual violence, and thus is not an isolated criterion.

To accommodate the scope of this dissertation, the following sections of the data-capture sheet 1, Appendix D were altered:

- Information relating to the Investigating officer (I/O) contact details, the legal outcome of the case, victim's name, estimation of distance from victim's home to the place where body was found, and victims 's last visit to the health care setting was deleted from the data sheet.
- Perpetrator data sheet was removed in its entirety.
- The question on toxicology in the pathology tool was retained to accommodate cases of burning where carboxyhemoglobin (CO) levels are pertinent in confirming the mechanism of death and in cases where alleged homicide was due to poisoning.

To make the data tool user-friendly, information in the data-capture sheets 1 and 2 were combined into one 19-page document, and some sections were re-arranged to match the format of the LAB27 and autopsy report templates.

- Race and age were added manually on the first page of the data sheet.
- The section on whether the specimens retained were received by the respective laboratories was not completed in the datasheet. Available blood results were



recorded but no further research into whether the specimens were ever received by the laboratory, denatured or inadequate.

- The item 'Brain' was added as the last variable to the section 'specify specimens retained'.
- The items 'Panty' and 'sanitary pad' were added as the first two variables of the SAECK item to the section on 'specify specimens retained'.
- The variable 'intracranial haemorrhage' was replaced by the variable 'intraventricular' haemorrhage.
- The items 'uterus' and 'cervix' were added as the last two variables of the genital injury section in recognition that these two organs may be injured in cases of penetrating sexual violence.
- The variable 'mechanism' of the death was amended to 'method' of death. The mechanism of death refers to the patho-physiological changes that occur in the body (for example, blood loss), initiated by the primary or underlying cause and leading to the moment of death¹⁴⁶. The underlying cause of death may be a blood vessel injury in a specific region of the body. In this case, the method of death or mechanism of injury⁹¹ may be, but not limited to a stab, gunshot, blunt force, strangulation or burning.

Notably, in an attempt to avoid too many changes that could jeopardise this study as a follow-up, the title of the data collection tool was maintained as 'Rape Homicide study data capture sheet 1', with only the years of reference changed to 2000-2009. In retrospect, it may have served the objectives of this study better if this title was amended to 'Female homicide and sexual homicide' data collection sheet'.

The adapted data collection tool for this dissertation is appended to this report as Appendix F.

3.6.2 Data collection process

Data was collected during 2011 until 2014. Information for each study subject was obtained from the autopsy reports, including any attached supplementary reports attached thereto, and comprised answers to the eighty-two (82) questions, as detailed



in Appendix F. Information required in this data-capture sheet included: information of victims' demographic details, police station name where the murder was registered, details of crime scene if attended, photography of crime scene and autopsy findings, pathological findings including nature and extent of injuries found at autopsy, method and cause of death, and a record of specimens collected at the crime scene and at autopsy.

The results of post-mortem alcohol testing, and in cases of burning, carboxyhemoglobin concentration results of the study subjects were obtained from the reports issued by the FCL, situated in Woodstock. In the majority of cases (80.9%) copies of these reports were attached to and archived with respective autopsy reports. In cases where these were not filed, the author made a written request to the managers of the SRFPL and the FCL to re-issue copies of the results. A list of outstanding results comprising an Excel spread-sheet with the relevant death register numbers, SAPS station names, the dates of death and autopsy and the pathologist names who performed the respective post-mortems was provided. Of the initial 303 cases with missing results, 111 result copies were found at the SRFPL archives but a further 191 (19%) cases were still missing at the time of completing this report. Any information on the perpetrator, although limited in most cases, was included in the comments section of the Appendix F.

3.7 DATA ANALYSIS:

Once all the data collection sheets were completed manually, a digital equivalent of this tool was created using the Epidata® software, version 3.1. This software is freely available online and is particularly recommended for tabulating and statistically analysing large datasets associated with descriptive and quantitative studies especially where there are branching data forms initially recorded on paper questionnaires¹⁴⁷. For the purposes of this dissertation restrictions and legal values corresponding with text labels were defined (for example; 1= No, 2 =yes)¹⁴⁷. The number 99 was allocated to the variable 'unknown' or 'missing'. Fortunately, there



were no variables whose number amounted to 99 (for example, 99 injuries) in this study.

An attractive feature of the Epidata[®] entry form is analysis; data can be easily exported into Microsoft Excel[®], SPSS[®], Stata[®] and various other statistical software for analysis. However, due to the multiplicity of variables in this dissertation about 20% of the data had be exported separately into the Excel software and later merged with the primary file. In her study, Martin exported data directly from the paper data tool into the Microsoft Excel software. This approach was avoided in this dissertation as it becomes challenging to follow a single row with numerous columns of variables that fall outside the view on the computer screen. Additionally, unless very strict limitations are created in the Excel workbook it is relatively easy to enter incorrect or invalid data, as experienced with the OA-database during the sampling process.

Nonetheless, the descriptive and quantitative nature of this study meant that setting and defining texts in the Epidata[®] software had to be practical and limited for some variables, thus leaving room for errors to occur. Although some errors were corrected at the end of data collection, the majority were only discovered during data analysis which could not be finalised until data-cleaning was completed, a process that required concentrated efforts and additional time to execute.

The author analysed all variables using Microsoft Excel[®] 2013. Preliminary analysis was performed with the assistance of the biostatistician and epidemiologist Dr. Henri Carrara of the Faculty of Health Sciences at UCT. Once data cleaning was complete further analysis and validation, was performed in consultation with Ms Katya Mauff of the Department of Statistics at UCT using Stata[®]/IC 12.0 for Windows, licensed 2 August 2011.

3.8 CONFIDENTIALITY AND ETHICAL CONSIDERATIONS:

This study was approved by the UCT Human Research Ethics Committee (HREC 132/2011, see appendix G).

The study subjects are identified by their unique mortuary reference number and demographic details including age, race and place of death. In addition each case was assigned a unique female homicide research (FHR) number commencing at FHR01 to



FHR1002. These details are used as references in analysing and discussing data in this report. The subjects' names, physical addresses and contact details of their next-of-kin were not captured. All the relevant documents (autopsy reports and any attached histology, brain or alcohol and toxicology reports, if available) were removed to the author's office for the purposes of completing the data collection tool (see Appendix F) for each subject. Once completed the documents were signed back for re-archiving.

3.8.1 Description of risks and benefits

It is anticipated that the results of this study will not affect the legal outcome of the victims and therefore this study poses no risk to the study subjects.

The benefits include updated knowledge on the epidemiology, pathology and risk factors for femicide and suspected sexual homicide cases. The author anticipates that this information can be used to plan prevention strategies that may help mitigate against future cases. Furthermore this updated information can be used to formulate guidelines and standardised protocols in the forensic management of these cases among medical practitioners performing autopsy examinations. In particular, information on the role of alcohol in victims of femicide can be used to formulate stricter guidelines on the availability and consumption of alcohol by the public. This may also have a bearing on the lack of policy guidelines and current practice of not testing for alcohol concentrations in victims and perpetrators of fatal violence.

3.9 FUNDING AND CONFLICT OF INTEREST:

No funding was necessary for this study; personal funds were used to cover administrative costs. There is no conflict of interest to declare.

3.10 CONCLUSION:

This chapter has described the methodological approach adopted in this research and highlighted the advantages of adopting the retrospective descriptive design. This approach is widely used in researching the subject of Violence Against Women (VAW) and thus provides for a reliable comparison of this study results with previous local and international research. The use of the pre-validated data collection tool is



anticipated to significantly improve the validity this study's results which are presented in the next chapter. Some methodological limitations inherent in the adoption of the descriptive, retrospective approach as used in this study have been briefly highlighted above; however, a more detailed discussion of the study limitations is presented in chapter 6 of this report.



Chapter 4 : RESULTS

INTRODUCTION:

This chapter presents the results of the data collected on the 1002 femicide victims. In line with the objectives of this study, the results are presented in eight major sections; the first four are dedicated to all femicides and the latter four to sexual homicides, crime scene and autopsy investigation, including data on alcohol results. Each section is divided into subsections to simplify data presentation.

The first section presents the numbers and incidence of femicides, followed by presentation of the timing of death, pathological findings in the third, and demographic data of all femicides is presented in the fourth section.

The data results on sexual violence as per criteria described in section 3.6.1, paragraph 2 above, are presented in the fifth section. Correlations in percentages, and where available Odds Ratios (OR), associated probability (p-) value and confidence intervals (CI) are calculated against the retention of the Sexual Assault Evidence Collection Kit (SAECK) to measure significance of association of the different variables with the SAECK retention, and as previously described in section 3.4.4. This section introduces the subject of sexual homicides with the epidemiology and pathology thereof presented in the sixth section. For simplicity, data on neck injuries is reported under sexual homicide because of significant correlations of neck injuries with sexual violence.

The last two sections of this chapter presents the crime scene investigation data results and thereafter, data on autopsy standards, which will assist in the recommendations proposed for standardised management of femicides and sexual homicides as one of the aims of this study.

A brief comment on the data presented in charts and tables will be provided but a full analysis thereof will be described in Chapter 5 of this report. This report does not provide the full description of basic anatomic and forensic terms, but where relevant,



clarity will be provided in cases where the use of some terms may be different from standard literature.

4.1 EPIDEMIOLOGY:

During the study period from 2000 until 2009 the Western Cape (WC) province had an estimated population of just over 5.2million people, this number is currently about 6.1million¹⁴⁸. Table 4.1 below shows that there was an annual average population of 813,483 females in the Western Metropolitan health district serviced by the SRFPL. This figure represents about 50% of the population of the entire City of Cape Town (COCT) municipality which had an annual average of just over 1.5million female persons during the study period.

During the ten-year period of study an annual average of 2955 bodies were admitted at the Salt River Forensic Pathology Laboratory (SRFPL) of which an average of 21% (623) were female. Of these a total of 1002 were femicide cases but nine (9) cases were referred from outside areas as depicted in Table 4.2 below; these were excluded in the final calculations of the incidence rates. The average incidence of femicides in the Western Metro region of Cape Town is 12.4/100,000 female population. The calculated average femicide rate of 6.0/100,000 female population in the COCT is expected as the West Metro district covered approximately half (48.5 to 49%) of the COCT district during the study period; the other half is largely serviced by the Tygerberg FPL located in the Eastern Metropolitan region.



Table 4.1: Number and Incidence rates of femicides per population of Cape Western Metropole of the City of Cape Town (COCT)

Year of study	Total no. of bodies admitted at SRMLL	Total female bodies admitted at SRMLL	Total population of City of Cape Town (COCT)	Total population of West Metropole	Total Female population of West Metropole	Total Femicides in West Metro	Femicide incidence per 100,000 population in West Metro
2000	3102	661	2,818,022#	1,378,013	716,567*	138	19.3
2001	3316	665	2,893,249#	1,414,798	735,695*	117	15.9
2002	3256	653	3,132,811	1,533,969	781,144	65	8.3
2003	2968	574	3,196,731	1,565,560	796,400	98	12.3
2004	2607	538	3,260,777	1,597,255	811,713	105	12.2
2005	2533	467	3,325,174	1,629,084	827,168	101	12.9
2006	2720	525	3,390,274	1,661,323	842,776	94	11.2
2007	3087	688	3,455,749	1,693,727	858,473	97	11.3
2008	3037	681	3,521,939	1,726,549	874,395	87	9.9
2009	2929	753	3,588,710	1,759,718	890,503	91	10.2
Average	2955	623	3,359,021	1,596,000	813,483	99.3	12.4

*Figures for 2000 and 2001 not available from the Department of Health Provincial estimates for the WC province and sub-districts. Totals for the WC province estimated by multiplying by average fraction of Western Metro to COCT population (0.498), and then by 0.52 to estimate female population¹⁴⁹.

#Population for 2001 estimated from Census 2001 and used to estimate 2000 population using annual growth rate= 2.6% for COCT^{149, 150}.

Figure 4.1 below shows the annual number of femicides on the top graph. The highest number occurred in the year 2000 (138 cases) followed by a sharp decline to 117 and 65 cases noted in 2001 and 2002, respectively. These numbers are erroneously low because of missing reports totalling 31 and 56 in 2001 and 2002, respectively; hence the calculated incidence rates for these two years are equally misleading.



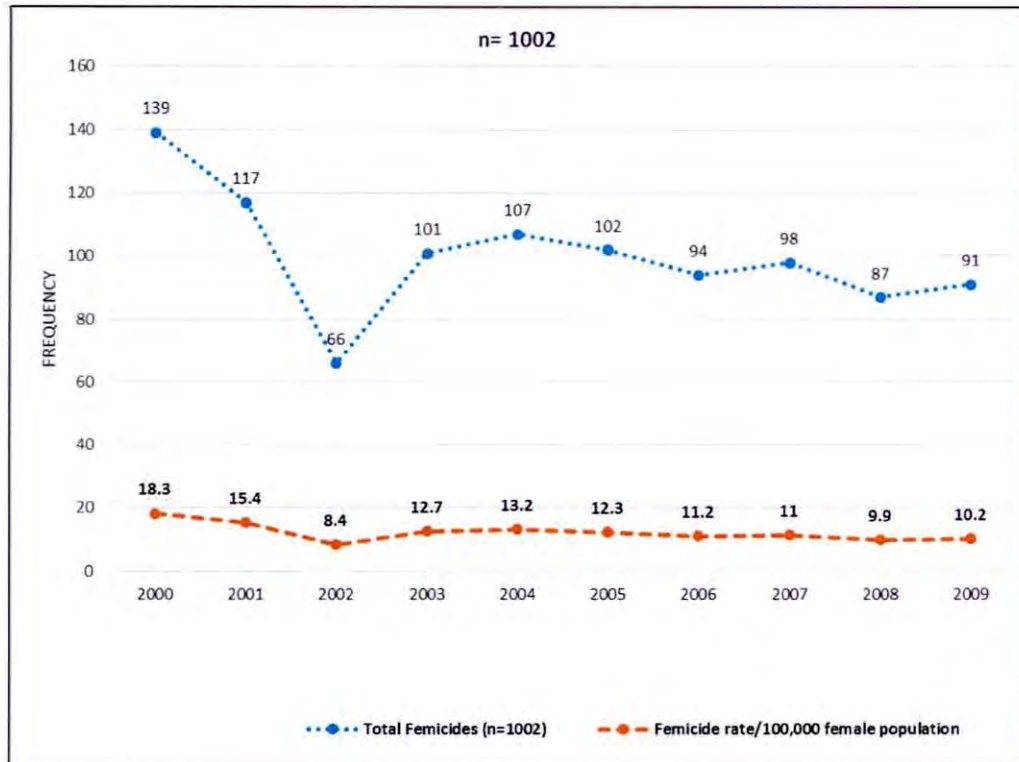


Figure 4.1: Total numbers and incidence rates of femicides

The bottom graph in Figure 4.1 shows the annual femicide incidence rates ranging from 18.3/100,000 in 2000 to 10.2/100,000 female population in the Western Metropole of Cape Town in 2009, and an average incidence rate of 12.3 femicides/100,000 female population in this area. This incidence graph shows an almost linear trend over the ten years of study indicating lack of annual difference in incidence. If the incidences for the years 2001 and 2002 are removed from the calculation as ‘outliers’ due the missing reports, the average incidence remains unchanged at 12.4 femicides/100,000 in the Western Metropole of Cape Town.

4.2 DISTRIBUTION OF FEMICIDES:

4.2.1 Month of death:

Figure 4.2 below shows that the highest **number of** femicides occurred in the month of July with 9.9% of total cases (n=99) followed by the last two months of the year



showing similar percentages of 9.5% (n=95) each). While the **numbers** of femicides were similar across the months February, April and June with percentages between 7.6% and 7.7% (n=76-77) in the ten year period, the lowest was in January at 5.6% (n=56).

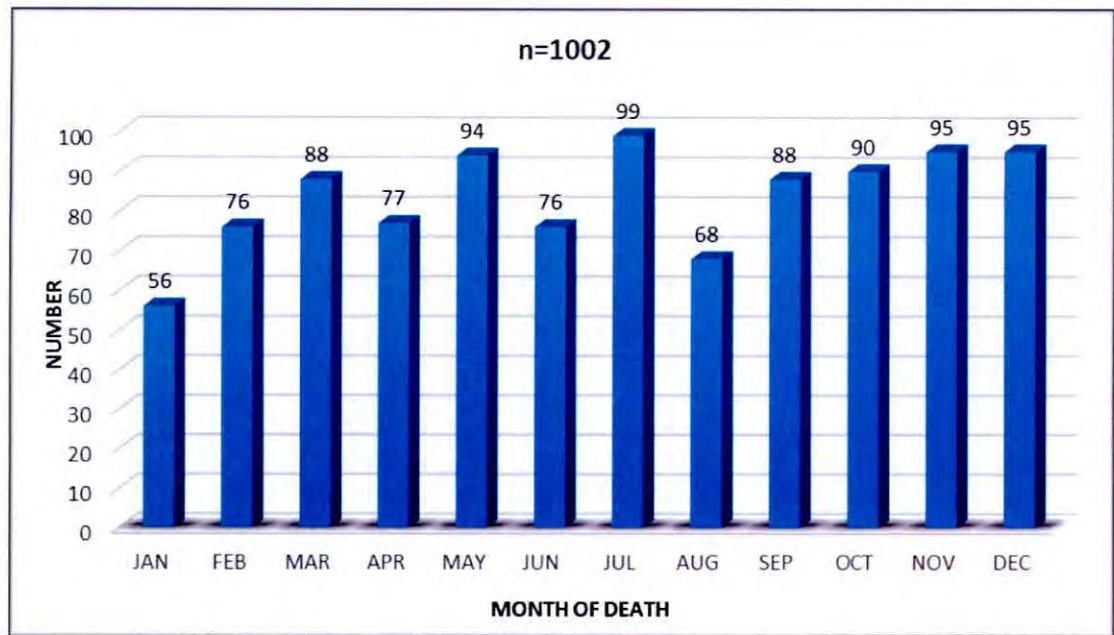


Figure 4.2: Distribution of femicides by month of the year

4.2.2 Day of death:

Figure 4.3 below shows the distribution of femicides across the different days of the week. As expected, the highest number of femicides occurred over the weekend with Saturday and Sunday contributing almost half (42.5%, n= 446) of the study sample, but Sunday contributed the highest number (22.6%) of cases. Surprisingly, more females were killed on Monday (14.6%, n=146) than other midweek days (from Tuesday to Friday) which showed an average of 10.7% (n=107) femicides.



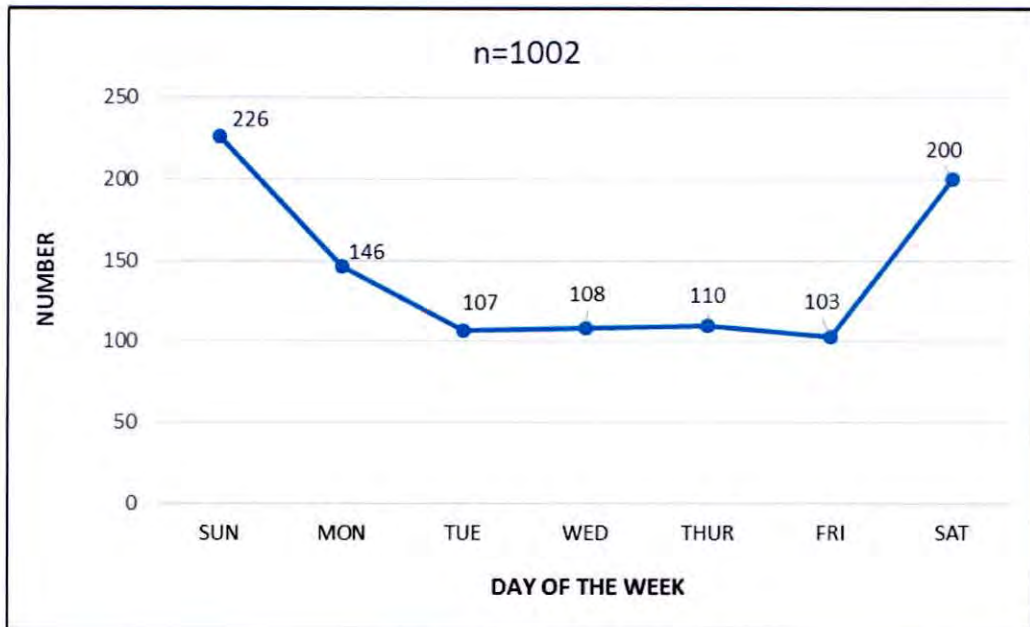


Figure 4.3: Distribution of femicides by day of the week

4.2.3 Time of death:

The time of death, as declared by paramedics at the death scene was recorded in 92.3% of cases. Figure 4.4 below shows that over a third of femicide cases (36%, n=361) occurred in the late evening to early morning hours (between 20h00- 03h59), with the time between 20h00 and midnight being the most prevalent period to be killed accounting for 21% of cases. In contrast, the early morning period between 04h00 and 07h59 is the least risky period for females to be killed. In 7.7% of cases the time of death was not recorded in any of the documents reviewed in this research, and if the crime scene was attended, only the date of death was available with no specific time estimated by the pathologist on the scene.



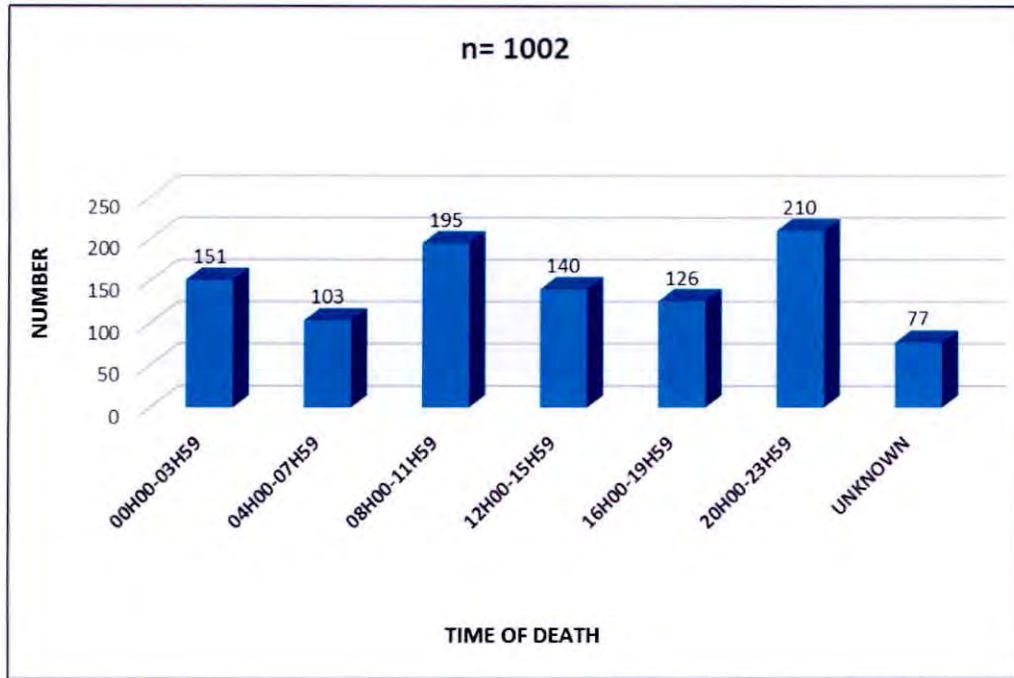


Figure 4.4 Distribution of femicides by time of the day

4.3 PATHOLOGY OF FEMICIDES:

4.3.1 Method of death

In this report the method of death refers to the mechanism of injury and more specifically, the weapon/s used to inflict the fatal injuries. Figure 4.4 below shows that the majority of victims died from gunshot or firearm^{xi} injuries, accounting for over a third (35%, n=351) of cases, followed by stab wounds (29.6%, n=n=297) and blunt force trauma (17.6%, n=176). Asphyxia-related deaths accounted for a total of 10.1% (n=101) of cases, comprising ligature or manual strangulation (throttling) (n=85), smothering and suffocation (n=10), or a combination of strangulation and smothering (n=6). Moreover, there were an additional 10 cases of strangulation inflicted in combination with blunt injuries, mostly to the head (n=8), while one of the three

^{xi} The term 'gunshot' is used synonymously with 'firearm' while 'wound' is synonymous with 'injury'. A differentiation of firearm caliber or type is not made in this report.



drowned cases was also strangled and one was strangled and stabbed. Thus strangled victims account for 11.1% of total cases in this study.

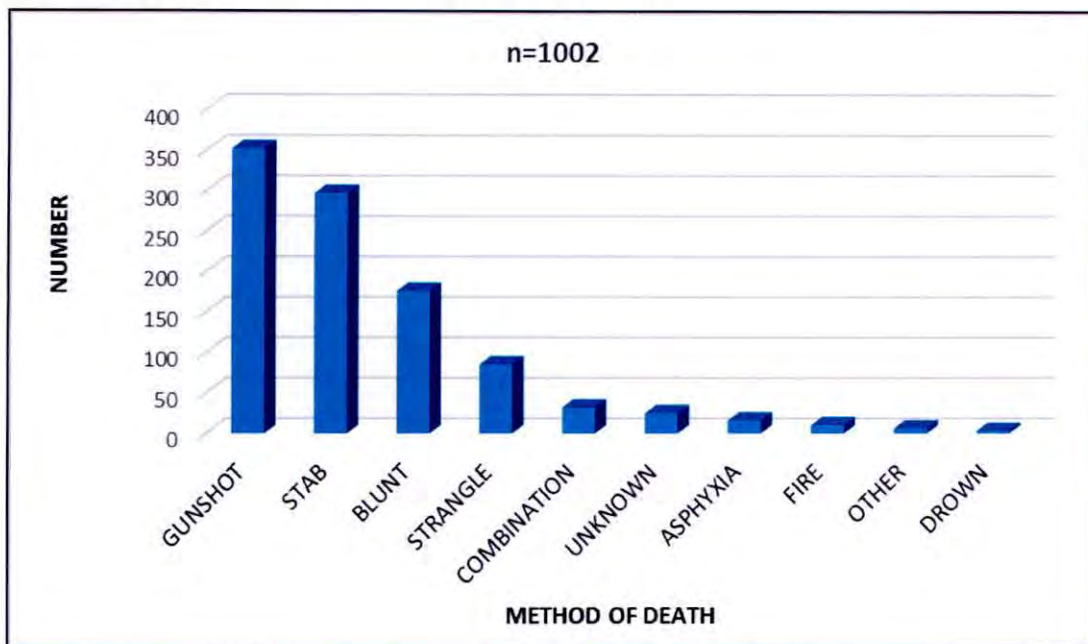


Figure 4.5: Distribution of femicides by method of death

The victims who died from a fire (0.1%, n=10) had carbon monoxide levels ranging from 8 to 23g%; no results were available for five of these cases while two of them died after surviving for days in hospital.

Drowning was the least common method used to kill victims (0.3%, n=3). The category “Other” (n=6) comprises adult victims who died after being burnt with hot water (n=3) followed by a survival of several days in hospital, one adult who had a brain tumour but suspected to be assaulted to the head), one newborn baby and a three-day old infant who died from hypoglycaemia due to neglect.

In 2.5% cases (n=25) the method of death was unknown, all of these were decomposed and showed no visible external injuries despite the history of alleged assault.

Figure 4.6 below shows that except for gunshot-related deaths which showed a linear trend over the ten years of the study there was no real trend for the other three most common methods of death.



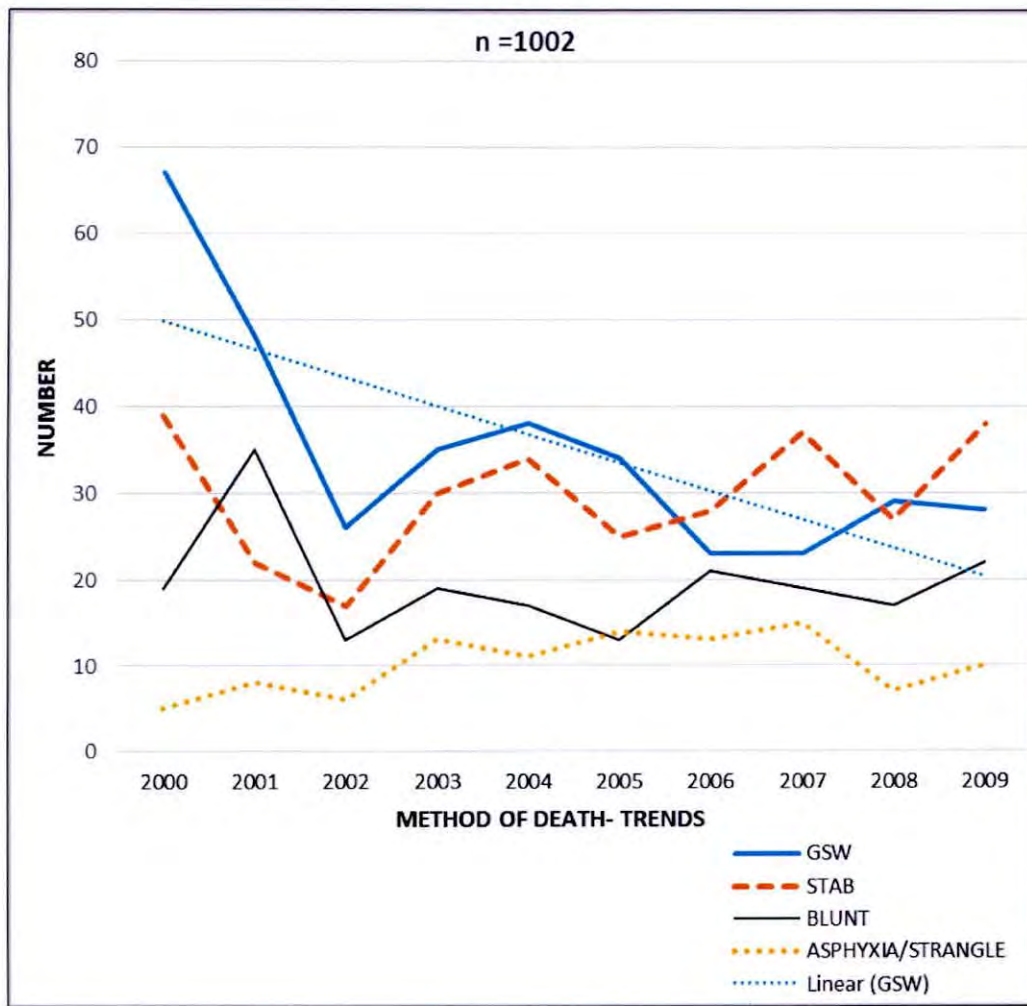


Figure 4.6: Trends of the four most common methods of death

4.3.2 Distribution of methods of death by age and race

To assess if the methods of death depended on the victims’ ages and racial groups further analysis of the methods of death was performed on these two demographic variables. To assess the effect of age on the method of death, the sample analysed comprised 961 cases which excluded 41 cases comprising victims whose method of death was unknown (n=25), or stated as ‘other’ (n=6) and cases where the age of the victims was unknown (n=10). The Kruskal-Wallis Chi-squared test and the probability (p)-value were calculated for this purpose.



Table 4.2: Methods of death by age of femicides

METHOD OF DEATH	FREQUENCY (n=961)	MINIMUM AGE	MAXIMUM AGE	MEAN AGE	STANDARD DEVIATION	MEDIAN AGE
Gunshot	350	1	72	30.34	12.48	29
Stab	294	0	85	34.06	12.72	33
Blunt Force	174	0	87	39.34	16.77	35
Strangled	85	0.25	92	38.07	19.63	35
Asphyxiated	15	0	92	32.93	27.83	27
Fire	9	3	77	31.33	23.91	29
Drowned	3	29	97	52	38.97	30
Combination	31	6	94	38.61	21.94	34

Table 4.2 above shows that there was significant difference in the distribution of the victims' ages depending on the method of death. The Kruskal-Wallis Chi-squared value=49.316, and the p-value<0.0001. The victims dying from gunshot and stab wounds were younger (means age 30.34 and 34.06 years old, respectively) compared to victims dying from blunt force injuries (mean age 39.34 years) and strangulation (mean age 38.07 years).

Similarly, when the method of death was tested against race as shown in Table 4.3 below the Chi-squared test of association was: (d.f.=4)=46.938, and the p-value<0.0001, thus indicating a significant difference of method of death amongst the different racial groups.



Table 4.3: Distribution of method of death by racial group

METHOD OF DEATH	NUMBER (n=961)	MINIMUM	MAXIMUM AGE (YEARS)	MEAN AGE (YEARS)	STANDARD DEVIATION	MEDIAN
		AGE (YEARS)				AGE (YEARS)
Gunshot	350	1	72	30.34	12.48	29
Stab	294	0	85	34.06	12.72	33
Blunt Force	174	0	87	39.34	16.77	35
Strangled	85	0.25	92	38.07	19.63	35
Asphyxiated	15	0	92	32.93	27.83	27
Fire	9	3	77	31.33	23.91	29
Drowned	3	29	97	52	38.97	30
Combination	31	6	94	38.61	21.94	34

Table 4.3 above shows that equal proportions of African and Coloured femicides died from stab wounds but African victims were significantly more likely to die from gunshot injuries than any other race, and Coloured victims were more likely to die from blunt, strangulation or asphyxial injuries.

4.3.3 Primary medical cause of death

The primary medical cause of death is used in this context to refer to the number of *internal* injuries causing death, and is categorised into single and multiple (internal organ) injuries causing death, regardless of the number of external skin injuries. For example, in a case where a single gunshot wound caused injuries to the multiple organs in the chest and extends to injure other vital organs or blood vessels in the neighbouring abdomen or neck, the primary cause of death would be considered to be multiple injuries.

Figure 4.7 below shows that of the 1002 victims, just over half (52.2%, n=523) victims died from single injuries while 44% (n=441) suffered multiple injuries. A total of 7.3% of victims dying from multiple injuries were assaulted with different weapons or methods. In 3.4% (n=34) the primary medical cause of death was unknown, largely due to decomposition, and 4 of these were significantly intoxicated at the time death (alcohol level > 0.15g %). Additionally, four victims (0.4%) died of causes unrelated to the alleged assault; two of these were significantly intoxicated (alcohol level >0.25g



) and one was allegedly suffocated and set alight; her carboxyhemoglobin level was 16g%.

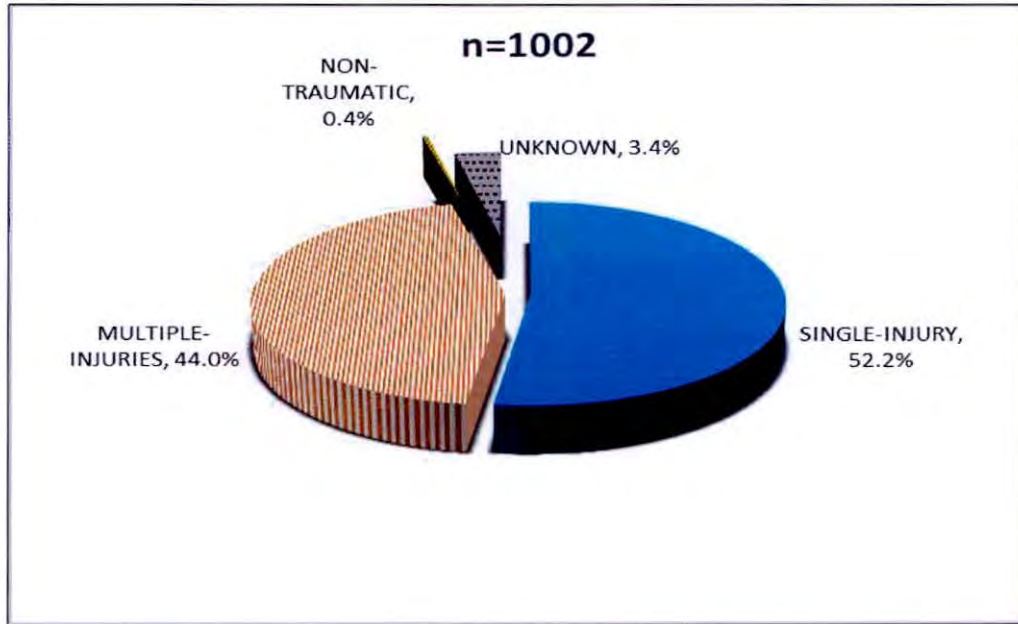


Figure 4.7: Distribution of femicides by primary cause of death

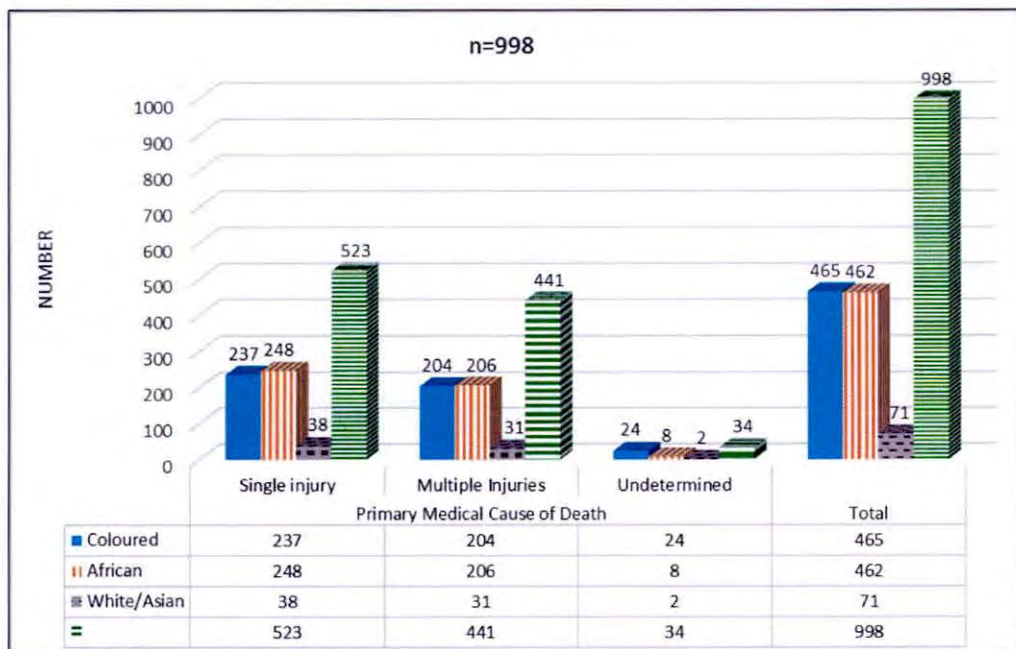


Figure 4.8: Primary cause of death by race

Similar to the method of death, the Chi-squared tests of association was calculated to assess if the primary cause of death depended on the victims' age or race. The results



showed p-values of 0.133 and 0.421 when the primary cause of death was tested against age(data not shown) and race (Figure 4.8 above) respectively; both these values were insignificant and thus the null hypothesis of no difference between these variables was not rejected.

4.3.4 Regional injuries (numbers and types)

Traumatic injuries are commonly classified into three main categories according to the type of weapon causing the injury. The three categories comprise blunt-force injuries, sharp-force and gunshot (or firearm) injuries. Blunt-force injuries include contusions (or bruises), abrasions and lacerations (or tears). Sharp-force injuries comprise incised wounds, which may be superficial, or deep. In this report the term 'stab wounds' refers to deep penetrating incised wounds.

The term gunshot wounds as used in this report refers to firearm injuries caused by different types of firearms regardless of the type of caliber or ammunition. Burn injuries are a separate category caused by a fire, hot materials or chemicals.

The data on injury patterns includes the three categories of wounds mentioned above, distributed in the ten regions in the body comprising the head, face, neck, chest (or thorax), abdomen and back as one region, pelvis and buttocks as one region, lower and upper limbs. Separation of wounds according to total numbers (single or multiple) inflicted assists in assessing severity of injury. In assessing the pathology, injury patterns are presented here starting from the head to the lower limbs, and covers external and internal regional injuries.

4.3.4.1 Numbers of external injuries:

Figure 4.9 below shows the total number of external injuries in the 99.7% (n=999) cases in this study, and excludes the 3 cases in which the number of injuries sustained by the victims was unknown due to the severity of decomposition. More than half (55.4%, n=553) of the victims in this study sustained single or less than 5 fatal injuries while 41.7% (n=417) sustained multiple injuries. Interestingly, 0.5% (n=5) of victims sustained more than 50 injuries. Despite the allegations of assault, 2.5% (n=25) victims showed no visible external injuries. In 4.8% (n=48) of cases the numbers of injuries



were innumerable because of injuries being confluent, examples in this category include burn injuries and soft tissue contusions which are impossible to count individually.

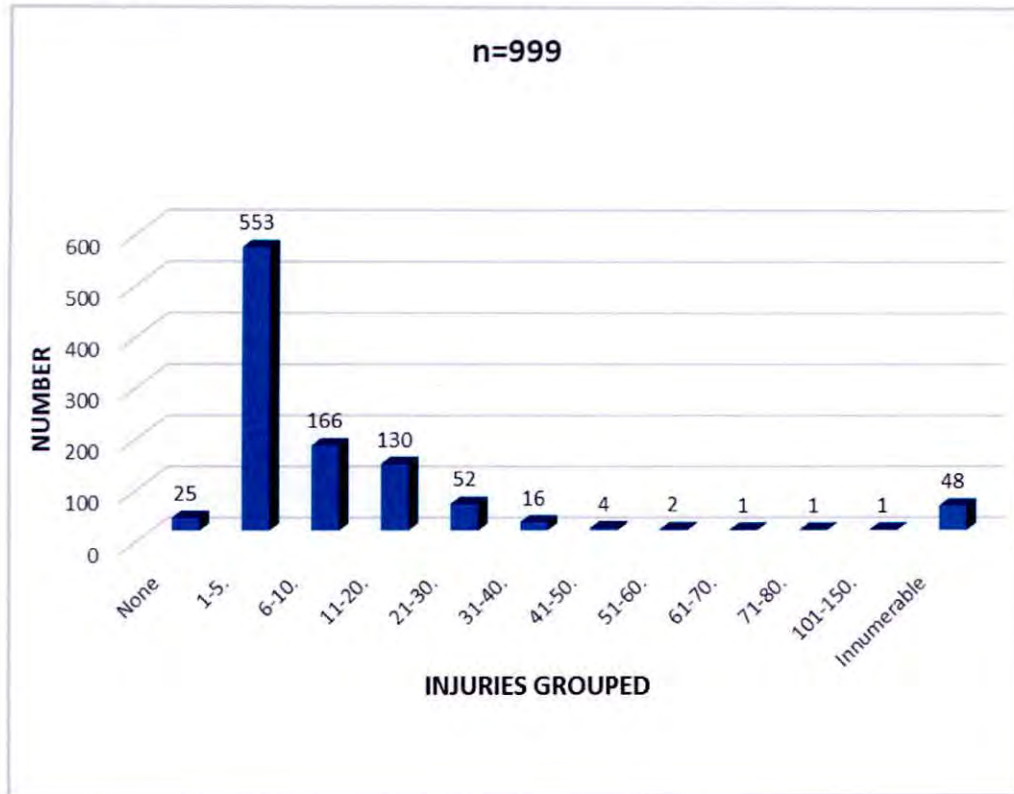


Figure 4.9 : Number of external injuries (grouped)

4.3.4.2 Distribution of external and internal injuries by region:

Figures 4.10 below shows the total number of external injuries in the ten body regions in 92.4% (n=926) of cases in this study. This number excludes the cases where external injuries were not specified because they were innumerable (n=48), absent (n=25) or unknown (n=3). The top five regions that showed external injuries were (in descending numerical order): the chest (58.4%, n=541), face (50%, n=463), head (47.7%, n=442), upper limbs (46.2, n=428%) and the neck in 38.32% (=355). The genitalia and anal regions were the least injured at percentages of 9.3% (n=86) and 3.3 % (n=31), respectively.



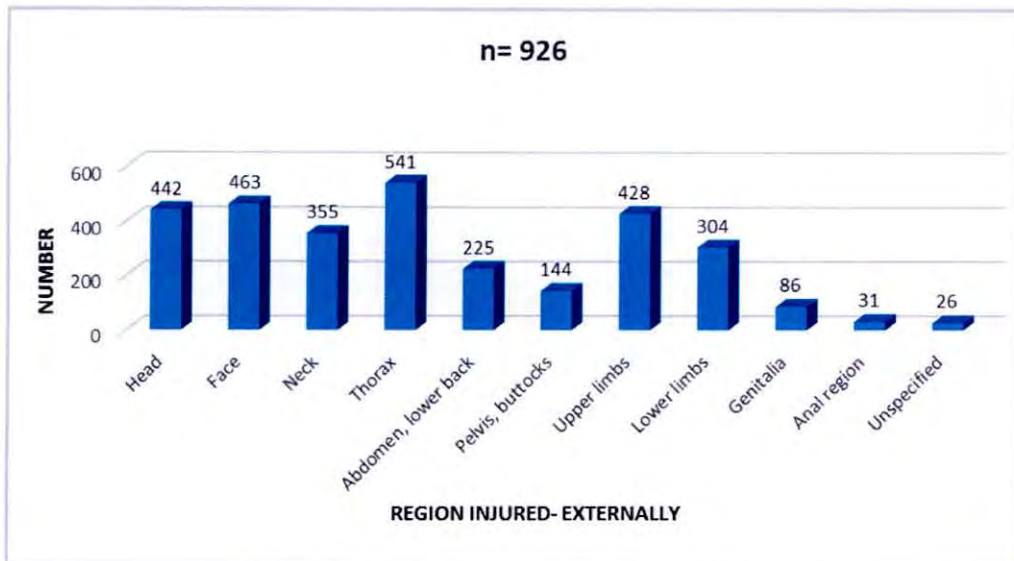


Figure 4.10: Distribution of femicides by external regional injuries

In this study 98.2% (n= 984) of victims showed internal bodily injuries. This number excludes the 1.8% (n=18) of cases in which no specific internal injuries were found at autopsy despite the history of assault, 1.4% (n=14) of which were severely decomposed.

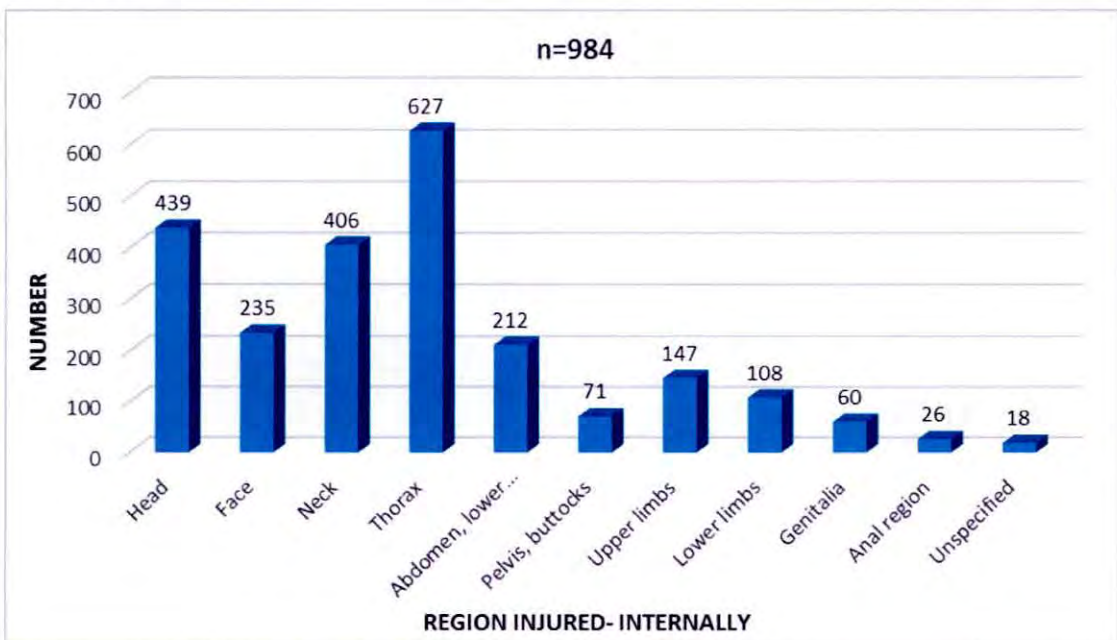


Figure 4.11: Distribution of femicides by internal regional injuries

Figure 4.11 above shows the distribution of internal injuries across the ten regions of the body and affirms that in those with visible injuries, the chest (63.7%, n=627) was



the most common region with internal injuries. This is followed in the top five positions by the following regions (in descending numerical order): the head (44.6%, n=439) and neck (41.3%, n=406), the face (23.9%, n=235) and abdomen (21.5%, n=212).

Similar to external injuries the genital and anal regions were the least injured internally, being present in 6.1% (n=60) and 2.6% (n=26) of victims, respectively.

4.3.4.3 Head injuries:

The head was the third most common region with external injuries in this study. Table 4.4 below shows the number of head injuries according to type. Gunshot wounds were the most common injuries with single (n=103) and multiple (n=80) gunshots together accounting for 41.4% (n= 183) of all head injuries. Contusions of the scalp are often associated with different injury types including gunshot, stab and other blunt injuries (lacerations and abrasions). Combined (single and multiple) contusions together accounted for 32.6% (n=144) of all head injuries, while combined lacerations and abrasions, which may also co-exist, accounted for slightly lower percentages of 23.8% and (15.8%), respectively. Only one victim had multiple bite wounds on the head.

Table 4.4: Distribution of external head injury types

HEAD INJURY TYPE: EXTERNAL(n=442)	NUMBER (n)	PERCENTAGE (%)	COMBINED (%)
Abrasion-Single	43	9.7%	
Abrasion-Multiple	27	6.1%	15.8%
Contusion-Single	66	13.8%	
Contusion-Multiple	78	17.6%	32.6%
Laceration-Single	54	12.2%	
Laceration-Multiple	51	11.5%	23.8%
Superficial incised-Single	21	4.8%	
Superficial incised-Multiple	8	1.8%	6.6%
Stab-Single	16	3.6%	
Stab-Multiple	9	2.0%	5.7%
Gunshot-Single	103	23.3%	
Gunshot-Multiple	80	18.0%	41.4%
Burns/charring	17	3.8%	3.8%
Bite-Multiple	1	0.2%	0.2%



Following the chest, the head was the second most common region with internal injuries affecting 43.8% of victims (n=439) as represented in Table 4.5 below. Any penetrating injury to the head, regardless of weapon used, will result in single or multiple skull fractures, and depending on severity (and depth of weapon penetration into the cranial cavity) may be further complicated by bleeding on the underlying meninges covering the brain^{xii}. Such meningeal bleeds (or haemorrhages) may be associated with underlying brain injuries. All these injuries may be complicated by brain swelling, herniation, infection (meningitis) or other systemic complications which may directly or indirectly cause death; all categorised as 'Other' (n=127) in Table 4.5 below.

Table 4.5: Distribution of internal head injury types

HEAD INJURY TYPE: INTERNAL(n=439)	NUMBER (n)	PERCENTAGE (%)
Fracture-Single	51	11.6%
Fracture-Multiple	238	54.2%
Extradural bleed	12	2.7%
Subdural bleed	173	39.4%
Subarachnoid bleed	219	49.9%
Intraventricular bleed	167	38.0%
Brain contusion	112	25.5%
Brain swelling	130	7.6%
Brain haematoma	28	6.4%
Brain laceration	44	10.0%
Brain gunshot	191	43.5%
Brain stab	10	2.3%
Other intracranial injuries	127	28.9%

Table 4.5 above shows that single and multiple fractures together formed the most common internal head injury type accounting for 65.8% (n=289) of all internal injuries. This category includes fractures of the mandible and maxilla (lower and upper jaws,

^{xii} The term '*cerebral*' as used in the data collection form (Appendix F) has been replaced in this report by the term '*brain*' as the latter comprises the cerebrum, cerebellum and brainstem, and thus is more pathologically correct in this context.



respectively) as part of the skull base. Fractures of the skull were complications of gunshot injuries in 43.5% (n=191), penetrating stab wounds (2.3%, n=10) and at least 10% of cases of blunt trauma if one accepts that cerebral contusions may be caused by any of the three methods or mechanisms of traumatic head injury. In almost half of the cases (n=219) the brain injuries were complicated by subarachnoid bleeding, while in 38% (n=167) the blood extended into the ventricles of the brain causing intraventricular haemorrhages. The higher number of traumatic subarachnoid bleeding is expected as this meningeal bleed can occur alone or in combination with other meningeal haemorrhages. Subdural and extradural bleeds were present in slightly lower percentages of victims (39.4% and 2.4%, respectively).

Despite a higher numbers of internal head injuries, brain swelling was reported in only 7.3% (n=130) of cases. The discrepancy between the number of scalp (n=183) and brain (n=191) gunshots can be explained by projectiles entering the brain from another region; for example, the face.

4.3.4.4 Facial injuries:

In victims with visible injuries, the face was the second most common region with external injuries present in 50% of the cases (n=463), and but internal facial injuries were reported in only 23.9 % (n=235).

Table 4.6 below shows that when single and multiple injuries are combined, abrasions and contusions (both forms of blunt force injury) occurred at similar percentages of 47.8% (n=221) and 45.6% (n=211), respectively. Abrasion and contusions reported as possibly caused by fingernails or finger-pads were recorded separately and were present in 2.2% of victims, most of whom died from strangulation. Combined lacerations which may be associated with abrasions and contusions as blunt injuries represent a greater severity of blunt trauma and affected 20.9% (n=197) of victims.

Subconjunctival or scleral haemorrhages which are often seen and used to support asphyxia as the method of death were noted in 23.5%(n=109) of cases.



Table 4.6: Distribution of facial injury types

FACIAL INJURY TYPE:EXTERNAL (n=463)	NUMBER (n)	PERCENTAGE (%)	COMBINED %
Abrasion-Single	61	13.2%	
Abrasion-Multiple	160	34.6%	47.8%
Contusion-Single	80	17.3%	
Contusion-Multiple	131	28.3%	45.6%
Laceration-Single	40	8.6%	
Laceration-Multiple	57	12.3%	20.9%
Superficial incised-Single	24	5.2%	
Superficial incised-Multiple	16	3.5%	8.7%
Stab-Single	15	3.5%	
Stab-Multiple	13	2.8%	6.3%
Gunshot-Single	83	17.9%	
Gunshot-Multiple	21	4.5%	22.4%
Burns/Charring	19	4.1%	
Bite-Single	2	0.4%	0.4%
Fingernail-contusions/abrasions	10	2.2%	
Mouth injury-external	88	19.0%	
Nasal injury-external	74	16.0%	
FACIAL INJURY TYPE:INTERNAL (n=235)	NUMBER(n)	PERCENTAGE (%)	COMBINED %
Subconjunctival/scleral haemorrhages	109	23.5%	
Nasal injury-internal	22	4.8%	
Mouth injury-internal	123	26.6%	

Gunshot wounds were the third most common injury types accounting for 22.4% (n=104) of all external facial injuries. The relatively lower numbers of external (n=88, 19.0%), and internal (n=123, 26.6%) oral injuries are surprising. Two (n=2) victims had bite injuries to the face.

4.3.4.5 Chest injuries:

The chest (or thorax) was the top most commonly injured region with external and internal injuries reported in 54.8% and 63.7% of victims with visible injuries, respectively. Table 4.7 below shows the distribution of external injury types in the chest region.

When combining single and multiple blunt force injuries, they altogether account for the vast majority of injury types (46.3%, n=251) compared to sharp (35.1%) and gunshot (20.5%) injuries. Multiple superficial incised wounds were the most common



(24.8%) of all sharp injury types on the chest (35.1%, (n=315), while lacerations were the least common (7.5%, n=41).

Table 4.7: Distribution of external chest injury types

CHEST INJURY TYPE:EXTERNAL (n=541)	NUMBER (n)	PERCENTAGE (%)	COMBINED %
Abrasion-Single	34	6.3%	
Abrasion-Multiple	66	12.2%	18.5%
Contusion-Single	38	7.0%	
Contusion-Multiple	72	13.3%	20.3%
Laceration-Single	3	0.5%	
Laceration-Multiple	38	7.0%	7.5%
Superficial incised-Single	41	7.6%	
Superficial incised-Multiple	134	24.8%	9.2%
Stab-Single	82	15.2%	
Stab-Multiple	58	10.7%	25.9%
Gunshot-Single	90	16.6%	
Gunshot-Multiple	21	3.9%	20.5%
Decomposition	42		

Severe blunt injuries, stab and gunshot wounds of the chest are often complicated by injuries to thoracic internal organs including the heart, the lungs, major vessels (arteries and veins), and in some cases rib, clavicle and sternal fractures. Thoracic organ injuries may also be the result of injuries directed or positioned in the other body regions like the neck and abdomen, for example.



Table 4.8: Distribution of internal chest injury types

CHEST INJURY TYPE:INTERNAL (n= 627)	NUMBER (n)	PERCENTAGE (%)
Fracture Single ribs/ sternum	112	17.9%
Fracture Multiple ribs	111	17.7%
Lung injury	320	51.0%
Heart injury	157	29.0%
Great vessel injury	117	18.7%
Oesophageal injury	17	2.7%
Tracheal injury	19	3.0%
Diaphragm injury	64	10.2%
Fluid(effusion/pus)	22	3.5%
Thoracic-spine injury	33	5.2%
Haemothorax	337	53.7%
Haemopericardium	144	23.0%
Haemoaspiration	128	20.4%
Foreign-body aspiration	15	2.4%
Subpleural petechiae	35	5.6%
Subepicardial petechiae	29	4.6%
Intercostal muscle injury	309	49.3%

Table 4.8 above shows that in this study the lung was the most affected organ in just over half (51.0%) of all cases, followed by the heart (29.0%) and great vessels (18.7%). The great vessels comprise the thoracic aorta, pulmonary trunk, pulmonary and subclavian vessels. The most common complications of these injuries included free haemorrhage into the chest cavities (haemothorax) in 53.7% and haemorrhage into the heart sac (haemopericardium) in 23.0%. In almost half of these cases (49.3%) there was injury to intercostal muscles, indicating the penetrating nature of inflicted wounds. Rib, clavicle and sternal fractures were however, present in just over a third of cases (35.6%). Diaphragm injury was less common (10.2%) and included cases with wound tracks extending from the chest to the abdominal region, or vice versa. Similar to subconjunctival haemorrhages, petechiae on the surface of the lungs (subpleural, 5.6%) and heart (4.6%) may be seen in cases of asphyxial mode of death like strangulation.

Aspiration of blood (haemoaspiration, 20.4%) may result from injuries to the lungs and airways (including trachea and bronchi), but is often also seen in cases of head injuries



complicated by fractures of the skull base. Injuries to the thoracic spinal column (5.2%, n=33) would have rendered victims paraplegic if they initially survived the attack with significant negative impact on health, quality of life and risk of delayed death.

4.3.4.6 Abdominal and back injuries:

The abdominal and back region ranked seventh and the fifth most commonly injured region with external and internal injuries present in 24.3% (n=225), and 21.5% (n=212) of victims, respectively.

Table 4.9 below shows that when single and multiple injuries are combined, the most common external abdominal injury types were blunt force injuries together accounting for 44.5% (n=101), the majority of which were multiple abrasions (16.4%) and contusions (13.3%) followed by gunshot wounds (33.3%, n=75).

Table 4.9: Distribution of abdomen and back injury types: external

ABDOMINAL INJURY TYPE:	NUMBER	PERCENTAGE	COMBINED
EXTERNAL(n =225)	(n)	(%)	%
Abrasion-Single	18	8.0%	
Abrasion-Multiple	37	16.4%	24.2%
Contusion-Single	12	5.3%	
Contusion-Multiple	30	13.3%	18.7%
Laceration-Single	2	0.8%	
Laceration-Multiple	2	0.8%	1.6%
Superficial incised-Single	15	6.6%	
Superficial incised-Multiple	11	4.8%	11.4%
Stab-Single	23	10.2%	
Stab-Multiple	11	4.8%	15.0%
Gunshot-Single	36	16.0%	
Gunshot-Multiple	39	17.3%	33.3%
Burns/charring	22	9.8%	

The penetrating stab, gunshot and severe blunt injuries lead to complications including internal organ damage and free haemorrhage (haemoperitoneum) into the abdominal cavity.

Table 4.10 below shows that liver injuries were reported in 55.7% of cases with internal abdominal injuries, injuries, followed by those with intestinal (37.3%, n=79) and kidney (27.8%, n=59) injuries. Internal organ and direct blood vessel (18.4%, n=39)



injuries were associated with haemoperitoneum in 48.6% (n=103) of cases. Similar to the thoracic spinal injury, the 5.7% (n=12) victims with lumbar spine fractures (single and multiple) would have had consequences of paraplegia and delayed death if they survived the initial acute trauma.

Table 4.10: Distribution of abdomen and back injury types: internal

ABDOMINAL INJURY TYPE:	NUMBER	PERCENTAGE
INTERNAL (n=212)	(n)	(%)
Spine Fracture-Single	7	3.3%
Spine fracture-Multiple	5	2.4%
Liver injury	118	55.7%
Spleen injury	33	15.6%
Pancreas injury	15	7.1%
Stomach injury	40	18.9%
Intestine/mesentery injury	79	37.3%
Adrenal injury	10	4.7%
Kidney injury	59	27.8%
Blood vessels	39	18.4%
Blood(hemoperitonium)	103	48.6%

4.3.4.7 Pelvis and buttocks injuries:

The external (15.5%, n=144) and internal (7.2%, n=71) injuries to the pelvis were the third least common of all regional injuries in this study, being more common than genital and anal injuries, respectively. As depicted in Table 4.11 below, decomposition of the pelvic and buttock region was present in a higher percentage of victims (30.6%) than other injury types assessed in this region. This may have affected the quality of assessment for injuries.

Nevertheless, Table 4.11 further shows that when single and multiple injuries are combined, the most common external pelvic and buttock injury types were blunt force injuries, collectively accounting for 71.5% (n=103) of injuries, with multiple abrasions and contusions occurring at equal numbers (22.2%, n=32). Collectively, gunshot wounds to the pelvic-buttock region were more common (20.9%, n=29) than sharp force injuries (16%, n=23).



Table 4.11: Distribution of pelvic and buttock injury types

PELVIC-BUTTOCK INJURY TYPE: EXTERNAL (n=144)	NUMBER (n)	PERCENTAGE (%)	COMBINED %
Abrasion-Single	19	13.2%	
Abrasion-Multiple	32	22.2%	35.40%
Contusion-Single	11	7.6%	
Contusion-Multiple	32	22.2%	29.80%
Laceration-Single	7	4.9%	
Laceration-Multiple	2	1.4%	6.30%
Superficial incised-Single	10	6.9%	
Superficial incised-Multiple	7	4.9%	11.80%
Stab-Multiple	6	4.2%	4.20%
Gunshot-Single	20	13.9%	
Gunshot-Multiple	9	6.3%	20.10%
Burns/charring	16	11.1%	
Decomposition	44	30.6%	
PELVIC-BUTTOCK INJURY TYPE: INTERNAL (n=71)	NUMBER (n)	PERCENTAGE (%)	
Fracture Single	14	19.7%	
Fracture Multiple	5	7.0%	
Bladder Injury	10	14.1%	
Blood vessel	8	11.3%	

Severe external injuries and most likely penetrating gunshot wounds of the pelvis, were complicated by single and multiple pelvic fractures in 19.7% (n=14) and 7% (n=4) of cases as depicted in Table 4.11 above. In 11.3% (n=8) of cases these injuries were associated with blood vessel injuries resulting in haemorrhage into the pelvic cavity. Usually such haemorrhage extends into the rest of the abdominal cavity and thus contributes to the higher numbers of 48.6% haemoperitoneum recorded in the abdominal region as described in Table 4.10 above.

4.3.4.8 Upper limbs injuries:

Table 4.12 below shows that when single and multiple injuries are combined, blunt force injuries were present in more than three quarters of victims (76.5%, n=329) of victims with upper limb injuries. Multiple contusions (37.1%) and abrasion (34.3%) were the most common blunt injury types. These were followed collectively by sharp-force injuries (30.8%, n= 132) the majority of which were superficial (19.6%, n= 84).



However, if one considers the wound types, gunshot wounds were more common (22.7%, n=76) than stab (11.2%) and lacerated (5.1%) wounds.

Table 4.12 : Distribution of upper limb injury types

UPPER LIMB INJURY TYPE:	NUMBER	PERCENTAGE	COMBINED
EXTERNAL (n=428)	(n)	(%)	%
Abrasion-Single	44	10.3%	
Abrasion-Multiple	103	24.1%	34.3%
Contusion-Single	37	8.4%	
Contusion-Multiple	123	28.7%	37.1%
Laceration-Single	13	3.0%	
Laceration-Multiple	9	2.1%	5.1%
Superficial incised-Single	40	9.3%	
Superficial incised-Multiple	44	10.3%	19.6%
Stab-Single	23	5.4%	
Stab-Multiple	25	5.8%	11.2%
Gunshot-Single	21	4.9%	
Gunshot-Multiple	76	17.8%	22.7%
Defence wounds	302	70.6%	
Burns/charring	24	5.6%	
Bite-Single	4	0.9%	
Bite-Multiple	2	0.5%	
UPPER LIMB INJURY TYPE:	NUMBER	PERCENTAGE	
INTERNAL (n=147)	(n)	(%)	
Fracture-Multiple	17	11.6%	
Vessel injury	9	6.1%	
Other injury	95	64.6%	

The upper limbs may be used defending against injury; thus the high incidence of defence injuries (70.6%, n=302) found in this study is remarkable but not unexpected. Notably, 1.4% of victims (n=6) had bite marks on the arms.

In 11.6% of cases the injuries were complicated by upper limb bone fractures, while blood vessels injuries were present in 6.1% of cases. The category “Other injury” (64.6%), also applicable for lower limbs, includes soft tissue or muscle injuries especially significant in cases of blunt force injury where massive haemorrhage into soft tissues may lead to hypovolemic shock, muscle breakdown with kidney failure and eventual death. Also included in this category are cases of secondary skin wound infection (cellulitis).



4.3.4.9 Lower limb injuries:

The external and internal lower limbs injuries were present in 32.8% (n=304) and 11.0% (n=108) of victims with visible injuries in this study, as shown in Table 4.13 below.

Table 4.13: Distribution of lower limb injury types

LOWER LIMB INJURY TYPE:	NUMBER	PERCENTAGE	COMBINED
EXTERNAL(n=304)	(n)	(%)	%
Abrasion- Multiple	93	30.6%	30.6%
Contusion-Single	46	15.1%	
Contusion-Multiple	95	31.3%	46.4%
Laceration-Single	12	3.9%	
Laceration-Multiple	13	4.3%	8.2%
Superficial incised-Single	9	3.0%	
Superficial incised-Multiple	10	3.3%	6.3%
Stab-Single	9	3.1%	
Stab-Multiple	8	2.6%	5.7%
Gunshot-Single	8	2.6%	
Gunshot-Multiple	29	9.5%	12.1%
Burns/charring	18	5.9%	5.9%
LOWER LIMB INJURY TYPE:	NUMBER	PERCENTAGE	
INTERNAL(n=108)	(n)	(%)	
Fracture Multiple	4	3.7%	
Vessel injury	16	14.8%	
Other injury	59	54.6%	

Table 4.13 shows that when single and multiple injuries are combined, blunt injuries accounted for the vast majority (85.2%, n= 259) of external injury types, with multiple contusions (46.4%) and abrasions (30.6%) being the most common blunt injury types, followed by gunshot wounds (12.1%). Surprisingly, burn injuries (5.9%) were more common than combined stab wounds (5.7%). Severe injuries were complicated by lower limbs fractures in 3.7% (n=4) cases compared to the upper limbs (11.6%, Table 4.12 above), but the percentage of vessel injuries was higher (14.8%, n=16) than that of the upper limbs (6.1%). More than half of cases (54.6%, n=59) with lower limb injuries had severe soft tissue injuries, including secondary infection and fatal deep vein thrombosis with subsequent embolism to the lungs.



4.4 VICTIMS' DEMOGRAPHIC DETAILS:

4.4.1 Distribution of femicides by age

Twelve (n=12) victims in this study had unknown age due to severe decomposition; and no corresponding dental records were available for age estimation. Figure 4.12 below shows that the youngest victims were newborn (2 cases) and the oldest was 97 years of age. Due to uneven age distribution of this study sample, the median (of 32years), and not the mean was calculated for the 98.9% of femicides with known age (n= 990). The highest number of females killed in this study was in the age group 26-30 years.

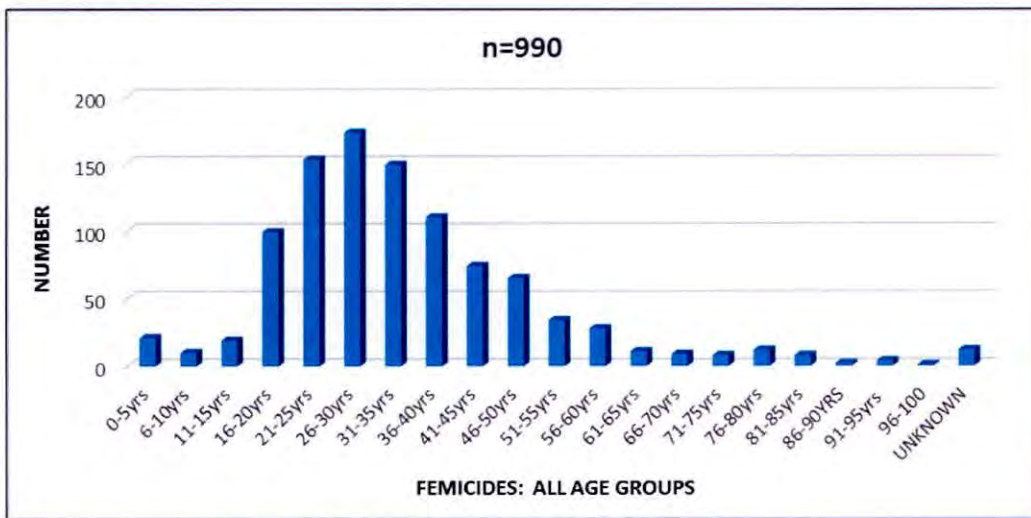


Figure 4.12: Distribution of femicides by age

The adult^{xiii} femicides aged 18- 64 years accounted for a total of 86.6% of femicides as depicted in Figure 4.13 below. The adult victims had a median age of 41 years, with those aged 18-39 years being most affected and accounting for 71.0% (n=616) of adult femicides.

^{xiii} Adult: refers to any victim between the ages of 18 to 64 years.



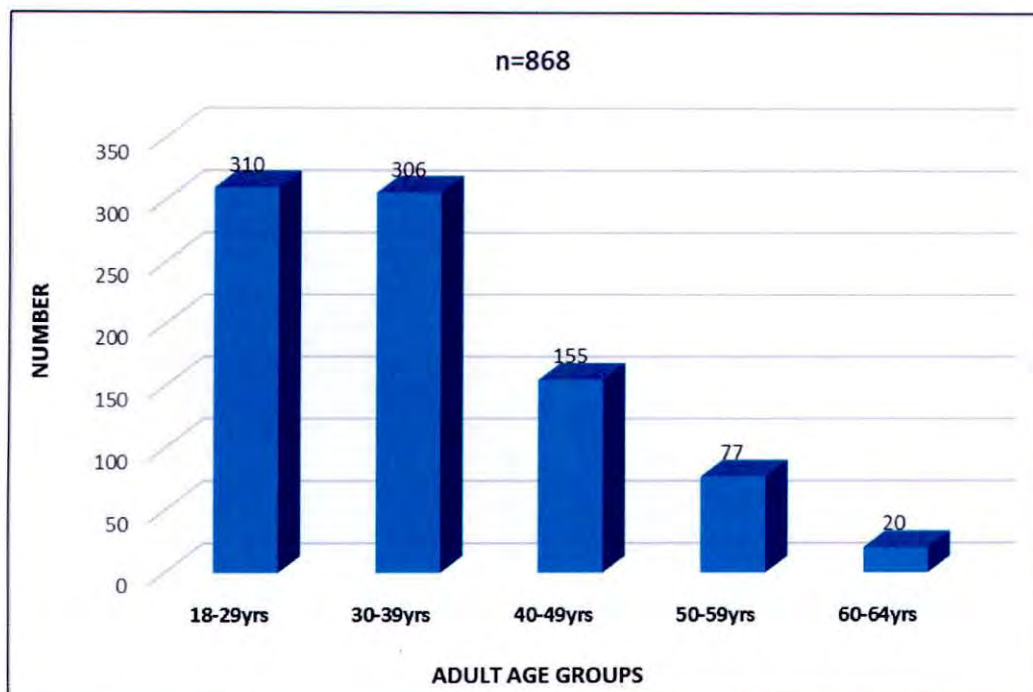


Figure 4.13: Distribution of adult femicides by age group

4.4.2 Child femicides

Figure 4.14 below shows that children aged less than 18 years (as per legal definition of a child in SA¹⁵¹) accounted for 7.7% (n=77) of the study population. Teenagers in the 15-17 year age group accounted for a significant majority (38.9%) of child femicide victims followed by children below the age of 5 years at 22.1% (n=17, this number is inclusive of infants (n=7)). Infants aged below 1 year comprised 2 new-borns, a 3-day, 2 months, 3 months, and 6 months old, respectively.



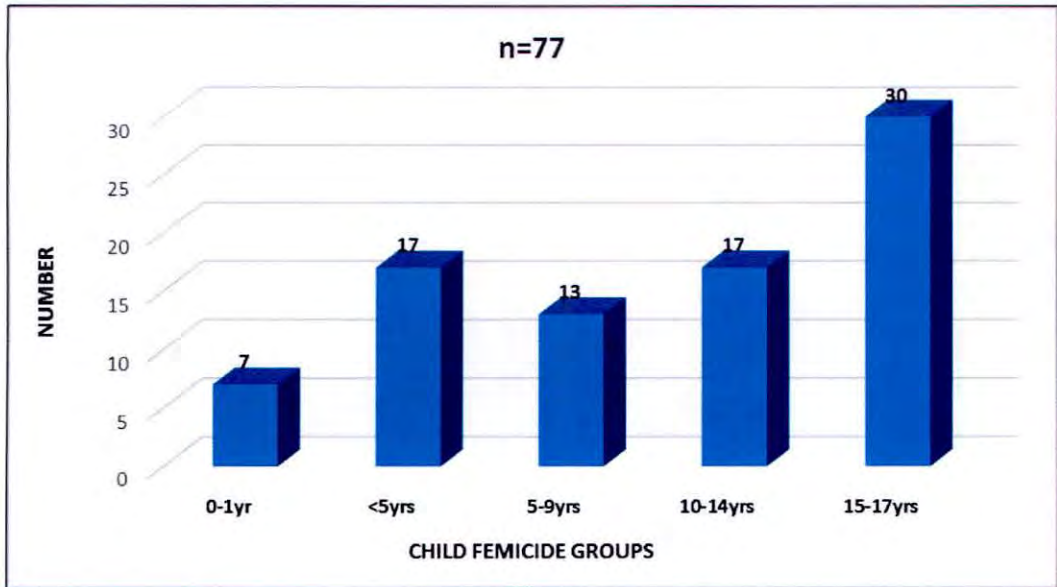


Figure 4.14: Distribution of child femicides by age group

4.4.3 Elderly femicides

Figure 4.15 below shows the age of distribution of pensionable femicide victims who accounted for 4.5% (n=45) of total femicides, and had the mean age of 77.9 years. Victims between the ages of 65 to 80 years accounted for two thirds (n=30) of the elderly femicide group. The oldest victim was 97 years old.

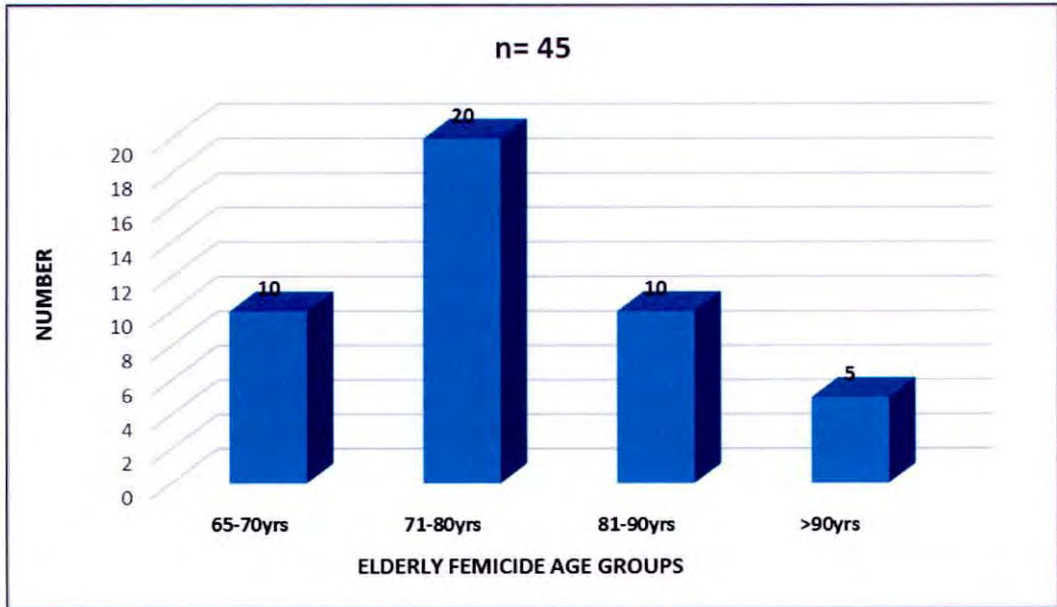


Figure 4.15 Distribution of elderly femicides by age group



4.4.4 Distribution of femicides by race

Information on race was missing in 3 cases, one of which was decomposed and no dental examination was performed. Although dental and anthropological examinations were performed on the other two victims, the reports were not available at the time of data collection.

Figure 4.16 below shows that African and Coloured victims accounted for almost equal proportions of 46.9% (n= 470) and 45.7% (n= 458) of the study sample, respectively. The White (n= 69) and Asian (n= 2) femicide victims together accounted for the 7.1% of the study population.

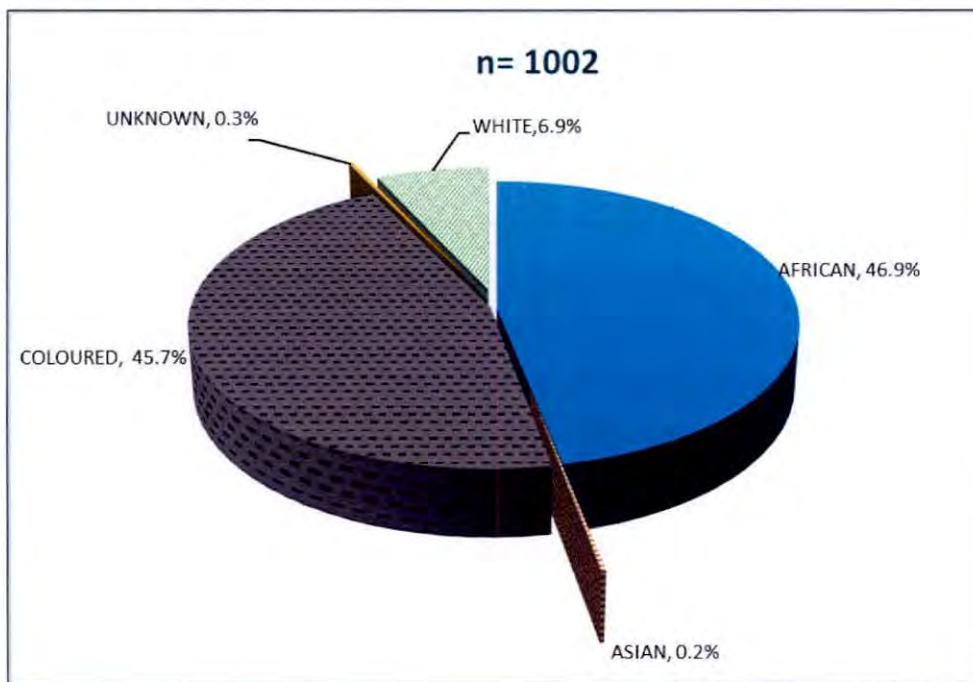


Figure 4.16: Distribution of femicides by racial group

4.4.5 Victims' marital status, parity and occupation

It is not possible to precisely comment on the victim's marital status and parity (number of children the victim had) as information is unknown in 90.8% and 95.7% of these cases, respectively. However, the author gave a negative response to these two variables for children in the age group less than 13 years comprising 37 child femicide victims. This is despite such information being unspecified in the autopsy report and



follows the logical understanding that it is physiologically unusual, although not impossible, for a girl child younger than 13 years to fall pregnant unless she suffered from precocious puberty. The author is also cognisant that although the legal age for marriage in SA is 18 years¹⁵¹ it is not unusual to encounter younger children engaged in customary marriages. Available information for the seven cases indicates that three adult victims had no children, one victim had four children and two victims were mothers but their parity is unspecified.

Information on the victims' occupation was unknown in 92.2% of cases; 5.1% (n=47) of these cases comprised economically inactive children below the age of 15 years.

Figure 4.17 below shows that at least 56 (5.6%) victims in this study were reported to have been married, while 2 were separated at the time of killing.

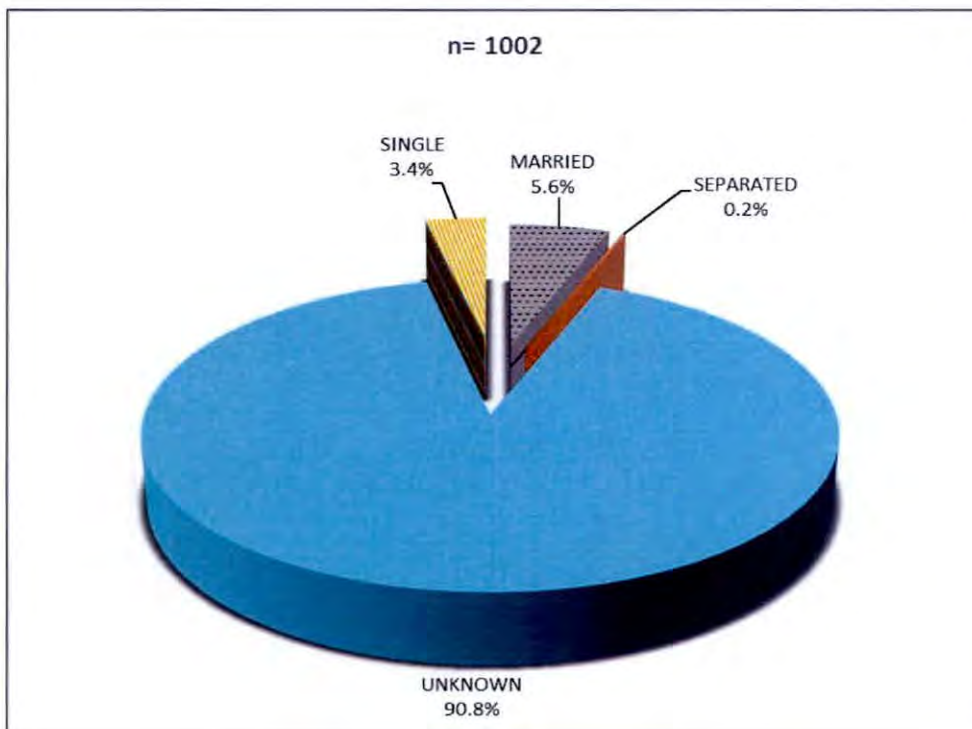


Figure 4.17 *Distribution of femicides by marital status*

4.4.6 Victim's pregnancy status

Some autopsy reports specified no signs of pregnancy in the section on 'Genitalia', but in some other reports, the internal genitalia were reported as normal or unremarkable. The latter cases were interpreted as being non-pregnant, thus giving a total of 952 (95%) femicide cases who were not pregnant at the time of the killing. In



1.3% of cases (n=13) information on the section 'Genitalia' was either missing in the autopsy report or there was simply no comment in that section, that is, the section was left blank. Figure 4.18 below shows that 3.7% of victims (n=37) were pregnant at the time of the murder.

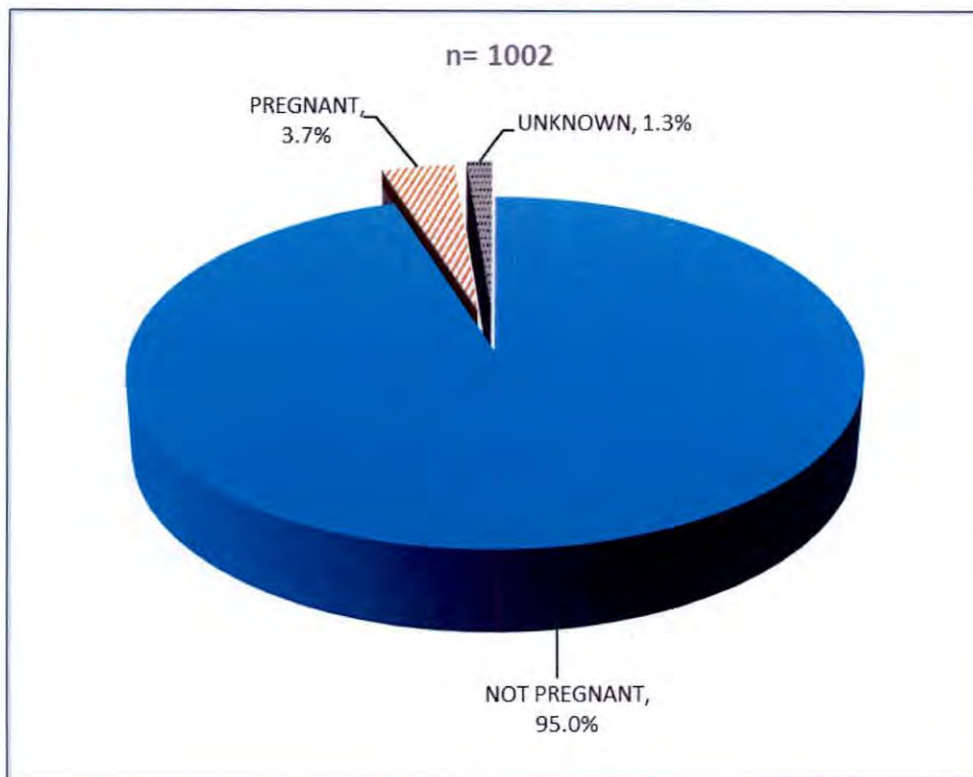


Figure 4.18: Distribution of femicides by pregnancy status

The mean age of the pregnant victims was 28.8 years with the youngest 15 years and the oldest 42 years of age. Over two thirds of pregnant victims (67.6%) were Coloured, with Africans and Whites contributing 29.7% and 2.7% respectively (data not shown). The victims were at variable stages of pregnancy. Available information showed that 21.6% (n=7) were killed by their intimate partners while one case involved familicide and one victim was killed by her brother.

Figure 4.19 below shows that over half (54.1%, n=20) of pregnant victims died from gunshot injuries, followed by those who were stabbed (19%, n=7) while there were equal numbers of those dying from blunt force and asphyxia-related methods (n=4, (11%) each). The cause of death was undetermined in 5.4% of these cases (n=2) due to the severity of decomposition.



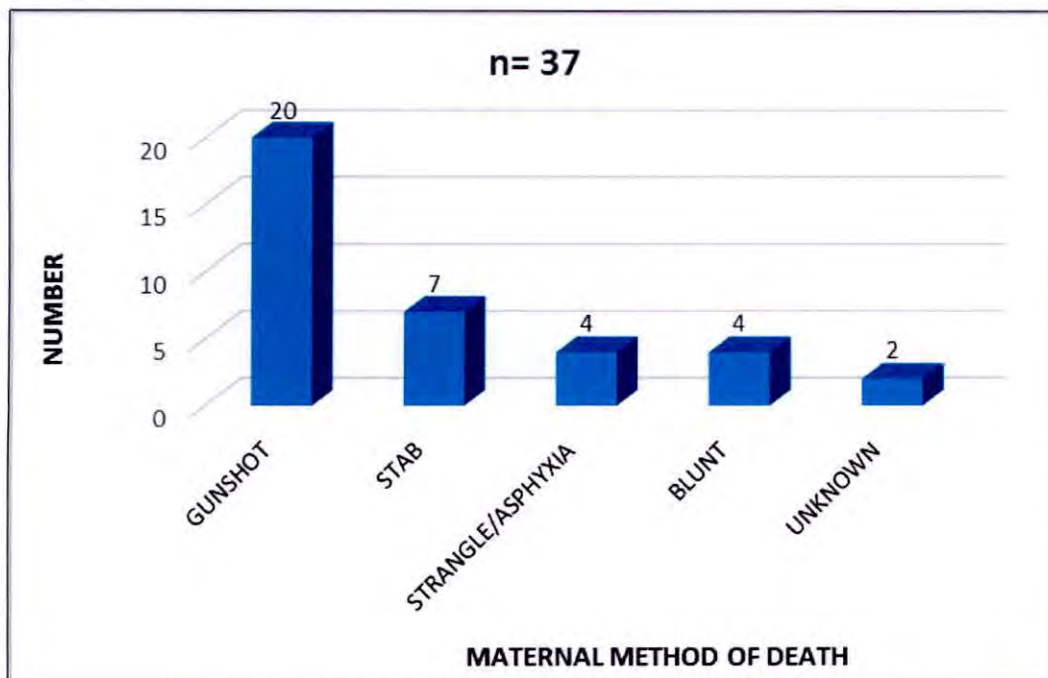


Figure 4.19: Distribution pregnant femicides by method of death

4.4.7 Area of death

Table 4.14: Distribution of femicides by towns where bodies found

TOWN FOUND	TOTAL
CAPE TOWN	993
EDEN DISTRICT	4
VREDENBURG	3
CALEDON	1
WORCESTER	1
TOTAL	1002

Table 4.14 above shows that 97.5 % of femicides occurred in the greater Cape Town West Metropole region. The Eden district (George and Knysna) referred a total of 4 cases to SRFPL during the time when the principal pathologist servicing that area was unavailable. This is in line with the provincial FPS guideline to treat cases suspected to be sexually violated as ‘high profile’¹⁵². This is possibly because these cases tend to attract media attention and because according to the national code for FPS, these cases must be autopsied in consultation with the most senior qualified regional or provincial Forensic Pathologist¹⁵³. Three (3) femicide cases were referred from Vredenburg situated at least 135km from the SRFPL. In all these cases the victims were



referred to the New Somerset and Groote Schuur (GSH) hospitals in Cape Town for further management of their injuries but died a few days later. An additional two cases from Worcester and Caledon were also referred into Cape Town for tertiary medical care. These nine cases were excluded in the calculation of the femicide incidence for Cape Town presented in Figure 4.1 above.

4.4.8 Distribution by Police (South African Police Service, SAPS) stations

Each municipal area in Cape Town, and everywhere else in SA is allocated the local SAPS station according to the Theoretical Human Resource Requirement (THRR)¹⁰⁶. The SAPS stations are therefore a predictor of the geographic locations, and for some areas can be an indirect predictor of the victims' racial profile and type of residential dwelling.

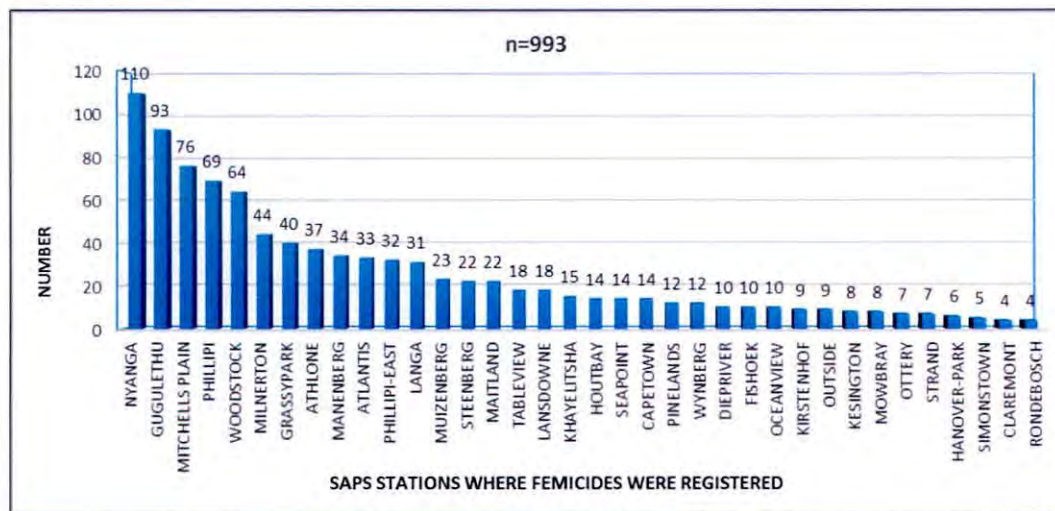


Figure 4.20: Distribution of femicides by SAPS station

Figure 4.20 above shows the distribution of femicides cases registered at 36 out of the 43 police stations (n=993) serviced by the SRFPL during the study period. The seven (7) SAPS stations not represented here comprise Bishop Lavis, Camps Bay (each had two femicides) while Table Bay Harbour, False Bay, Kirstenbosch, Lentegeur, and Goodwood SAPS stations contributed a single case each.

In 4.9% of femicide cases the area of death and the SAPS station at which the death was subsequently registered were not recorded in any of the records reviewed during data collection.



Figure 4.21 below shows the top ten SAPS stations accounting for nearly two thirds (59.9%) of total femicides.

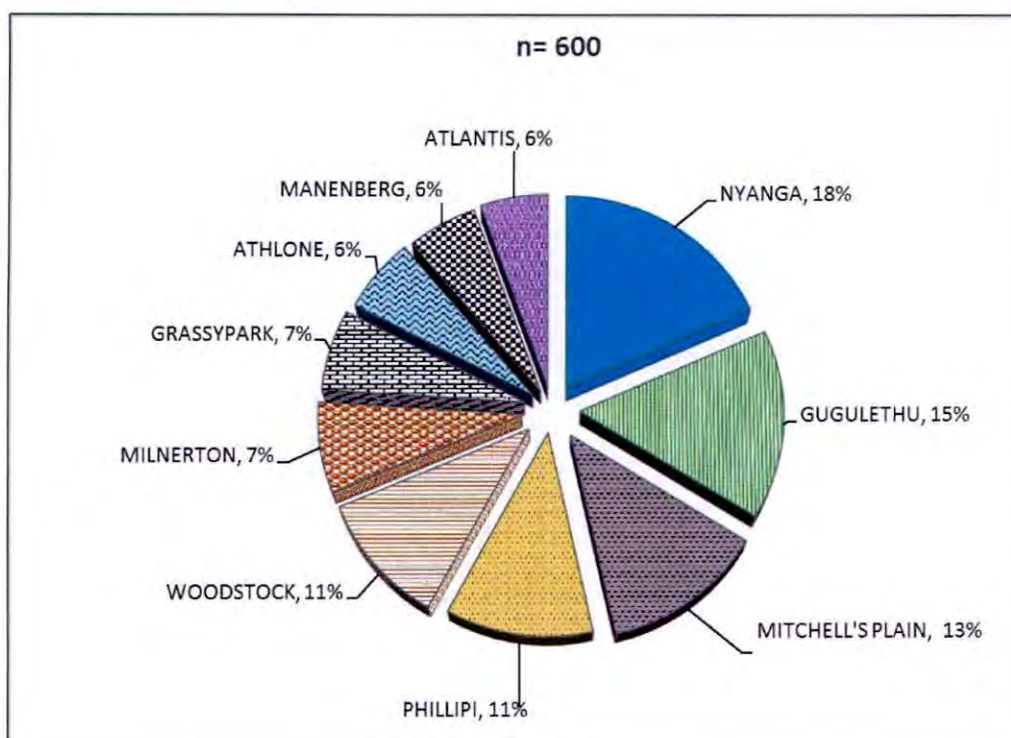


Figure 4.21: Top ten SAPS stations where femicides were registered

The cases registered at Nyanga and Gugulethu stations exceeded those at other SAPS stations accounting for 11% and 9.3% of total femicides, respectively. Thus, Nyanga and Gugulethu SAPS stations accounted for 18% and 15% of the cases registered at the top ten stations respectively. Atlantis, Athlone and Manenberg accounted for equal percentages of 3.3% of total femicides in this study.

Femicide victims dying in the tertiary medical centre Groote Schuur hospital (GSH) (n=148, 14.8%) were subsequently registered at the nearby Woodstock SAPS, and thus are not truly reflective of the femicide rate in Woodstock as a geographic area. The higher numbers of victims dying at medical centres in this study (see Table 4.15 below) explains the position of Woodstock station in the top ten stations in this study.

Femicide cases admitted from outside the City of Cape Town (COCT) but within the Western Metropole included 33 cases from Atlantis, these were included into the calculation of the incidence rate above as Atlantis is serviced by the Western health



sub-district. An additional 9 cases were outside the SRFPL drainage areas including George and Khayelitsha. Until the 10th August 1998, Khayelitsha was serviced by the SRFPL but all cases occurring from the 11th August of 1998 were referred to the Tygerberg FPL¹⁴, which lies in the Eastern Metropole of Cape Town. Fifteen (15) cases from Khayelitsha were included in this study all of which, except one referred from Samora Machel informal settlement, were admitted from the GF Jooste and GSH medical centres.

4.4.9 Location where body was found

Similar to SAPS stations the locations where the bodies of the victims were found may predict the victims' racial classification. Information for this variable was available in 92.7% of study population. Table 4.15 below shows that the vast majority of femicide victims (30.8%, n=309) died in medical centres, accounting for a third of cases where the location was known. Victims dying in GSH accounted for 47.9% (n=148) of all cases from medical centres. The other common locations were other formal housing unspecified if it was victim's home (10.6%), victim's formal housing (9.3%), an urban public road in 8.3% and 4.9% victims were found in an open land. It is worrying to note that 17 women were killed at their place of work.

Until October 2006 when the operational management of the former police mortuaries was transferred to the DOH, it was common practice for dead bodies to be brought (presumably by the community or undertakers) to the local police station prior to being transported to the local mortuary. In this study the majority of the femicide victims found in the custody of the local SAPS station were from the year 2000 (n=6) and 2001 (n=5), and the rest between 2002 and 2005. Only one case was a true death in custody^{xiv} whose body was found in Pollsmoor prison.

^{xiv} Death in custody refers to death occurring anytime from the moment of detention or arrest by law enforcement officers until the person is released or convicted and includes the period during transportation or awaiting trial.



Table 4.15 Distribution of femicides by location where bodies found:

LOCATION BODY FOUND (n=1002)	NUMBER (n)	PERCENT (%)
Medical Services area	309	30.8
Other location	147	14.7
Unspecified Private House/ Yard	106	10.6
Victim's Home Formal	93	9.3
Urban Public Road	83	8.3
Open land, urban	49	4.9
Victim's Home Informal	33	3.3
Farm/Primary Production area	20	2
Custody (state/private)	17	1.7
Victim's workplace	5	0.5
Shop/ Bank/ Retail area	13	1.3
Amusement /Park/Sports Area	11	1.1
Countryside	0	0
Sea/ lake/ dam/ beach	9	0.9
School/ Educational area	5	0.5
Empty Building	2	0.2
Residential institution	4	0.4
Industrial /Construction area	4	0.4
Bar/ Shebeen/ Night-club/ Disco	3	0.3
Perpetrator's home formal	2	0.2
Perpetrator's home informal	2	0.2
Country Public Road	2	0.2
Railway line/station	10	0.2
Total location known	929	92.7
Unknown	73	7.3
Total	1002	100

4.4.10 Surfaces where bodies found

The surface on which the bodies were found usually correlates and therefore predicts the type, pattern, and distribution of injuries found on the victim. However, this is only helpful if the body is found at the primary scene of death. Information on this variable was available in 27.3% (n=274) of cases. Figure 4.22 below shows that where information was known, the majority (21%, n=58) of femicide victims were found lying on concrete or tar surfaces which correlates with, but is less than the number of femicides found on the urban public roads (Table 4.15 above). Bodies of victims found



inside the home were either lying on the floor of a room (n=46, 16.8%) or on the bed (n=41, 15%).

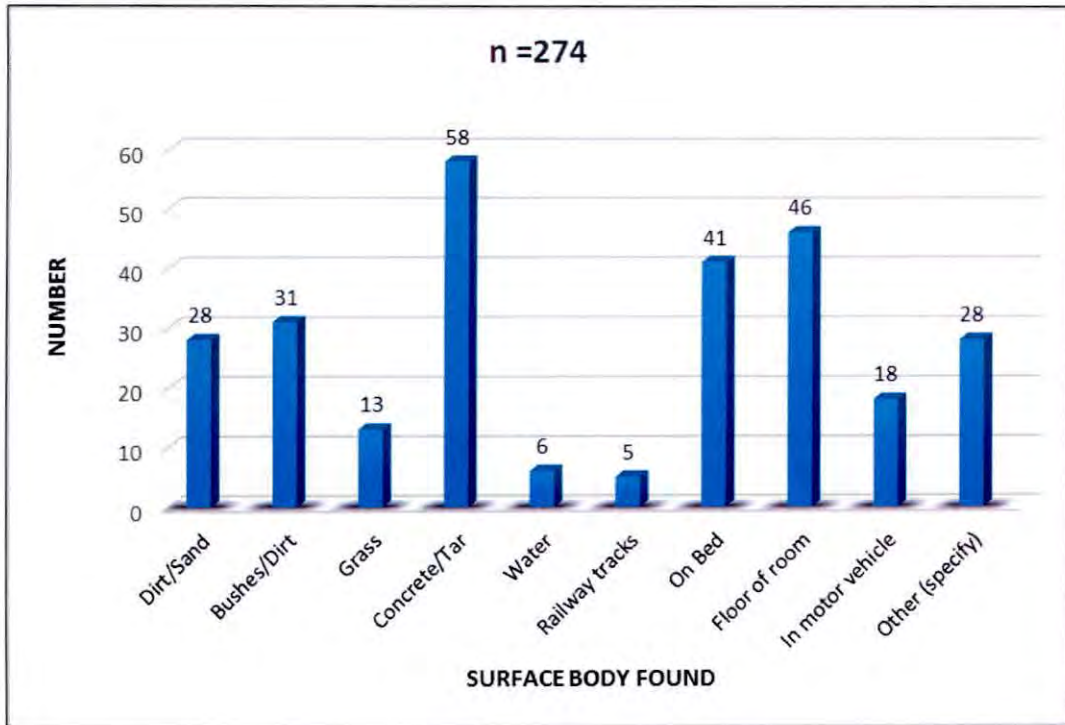


Figure 4.22: Distribution of femicides by surfaces where bodies found

The next most notable surfaces were, in decreasing numerical order: places filled with dirt described as bushes (n=31, 11.3%), sandy (n=28, 10.2%) and grass (n=13). Remarkably, 18 (6.6%) cases were found inside a motor vehicle. The category “other-specify” (n=28) included surfaces like the roof of a house, boat, ditch, tunnel, train floor and a shallow grave, amongst others.

4.4.11 Victim last seen alive

Information on the location where the victim was last seen alive was unknown in the majority of cases (87.7%), thus limiting accurate analysis. Of all cases where information was recorded in the autopsy report or crime scene documents (n=123), the victims’ homes remain the most prevalent location (n=68, 55.3%), followed by the victim’s workplace (8.1%, n=10) as depicted in Figure 4.23 below. Being in the company of the boyfriend accounted for a third (n=8) of the 24 femicide cases where ‘other’ location was specified.



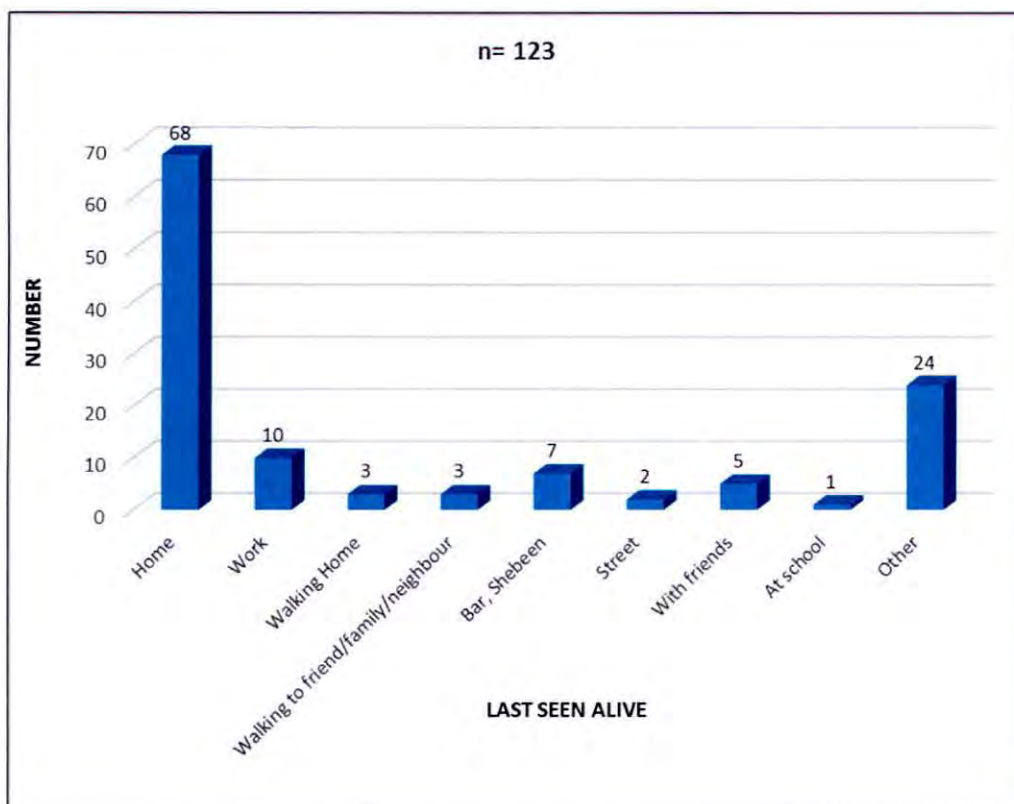


Figure 4.23: Distribution of femicides by place where last seen live

4.4.12 Victims’ relationship to the place bodies found

Information on the relationship of the victims to the location where their bodies were found was unavailable in 99.6% limiting any further comment on this variable.

4.4.13 Victims’ dwelling

Like race, the dwelling type can be a predictor of the victims’ socio-economic status. Information on this variable was unavailable in 89.2% of victims as it is not routinely recorded in the FPS crime scene documents unless the case involved sudden death of an infant. Figure 4.24 below shows that of the cases where information was known (n=108), almost three quarters (70.4%) of the victims lived in formal housing comprising houses in 55.7% of cases. Inadequate responses to this question limits any further interpretation of the results.



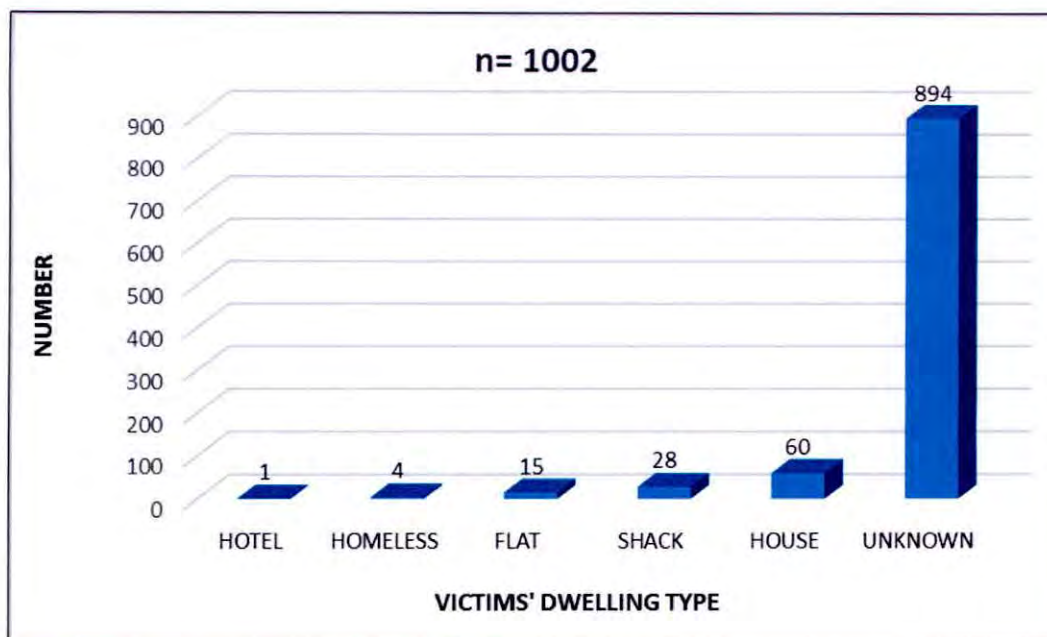


Figure 4.24 Distribution of femicides by dwelling type

4.5 SEXUAL VIOLENCE:

The four eligibility criteria for suspicion of sexual violence^{xv} were discussed in chapter 3, section 3.6.1. The following section presents the results of suspected sexual homicide based on the criteria mentioned above.

4.5.1 History of suspected sexual violence

Figure 4.25 below shows that there was history of suspected sexual violence in 21.3% of cases (n=213), as reported by the police and/or forensic pathology officers (FPO) on the death scene or the pathologist.

^{xv} Although the term 'sexual violence' is preferred and inclusive of rape and sexual assault as discussed in the literature review, the term 'sexual assault' is retained in the reporting of results as it was used in the original data capture tool (Appendix D).



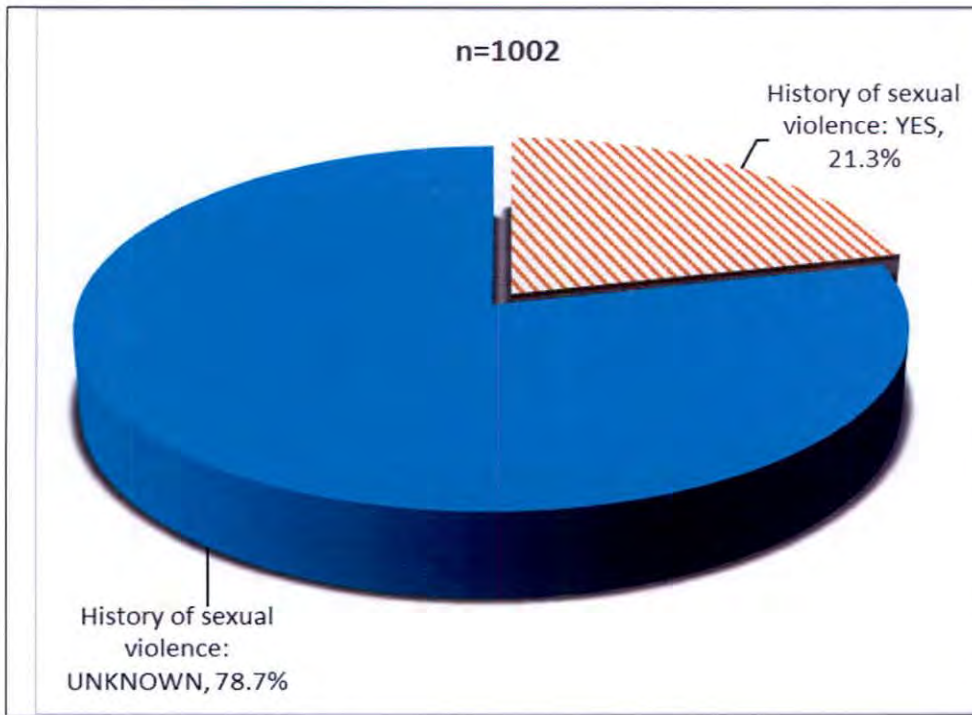


Figure 4.25: Number of victims with history of sexual violence

4.5.1.1 Correlating the history of sexual violence with SAECK retention:

In testing whether the presence of history of sexual violence prompted pathologists to retain the SAECK irrespective of the basis or source of that history, the two variables were correlated. Figure 4.26 below shows that of the total cases in which the SAECK was retained (n=199), 87.4% (n=174) had a history suggestive of sexual violence compared to 12.6% (n=25) of those in whom the presence of such a history was not specified in any of the reviewed documents (n=25) but in whom the SAECK was retained nonetheless. Furthermore, the Chi-squared test of association for these two variables was (d.f.=1)=488.16, with the p-value<0.0001 at 95% CI and OR = 121.87 (95% CI 66.5-227.2). Therefore, there was significant association between history of suspected sexual offence and the retaining of specimens for investigation of a sexual crime (SAECK).



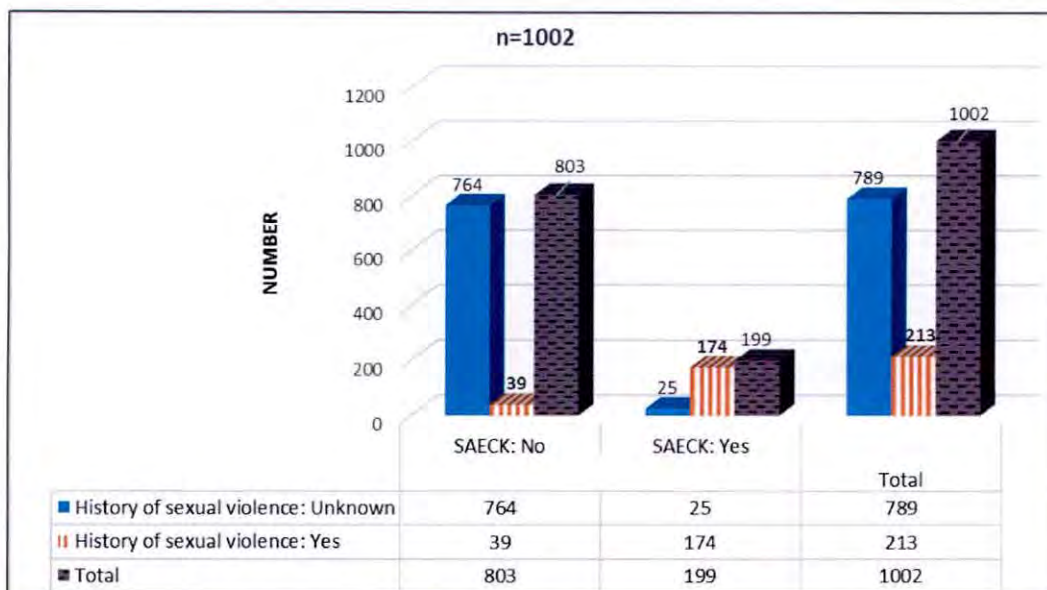


Figure 4.26: Correlating history of sexual violence with SAECK retention

4.5.2 Status of clothing in suspected sexual violence

Prior to, and most likely sometime after the transfer of the operational management of the police mortuaries to the DOH in October 2006, it was common practice for the FPO to unclothe the bodies before the pathologist examined them. Therefore, there is a degree of uncertainty by the author regarding the reliability of information on the position of clothing if the pathologist reported that the body was naked at the time of the autopsy.

Figure 4.27 below shows that of the 91.3% (n=915) of the cases in which information was available, 37.3% (n=374) had intact clothing and 36.7% (n=368) cases were naked at the time of autopsy. The latter number includes the clothing of the 28.1% victims (n=282) which was deranged in one way or the other, and of these, 11% (n=109) were interpreted as being found and received naked at the crime scene as these bodies were not found in medical centres. In 8.7% (n=87), there was no documentation of clothing in the autopsy report or death scene scripts, and there were no photograph copies to assist in making this assessment during data collection.



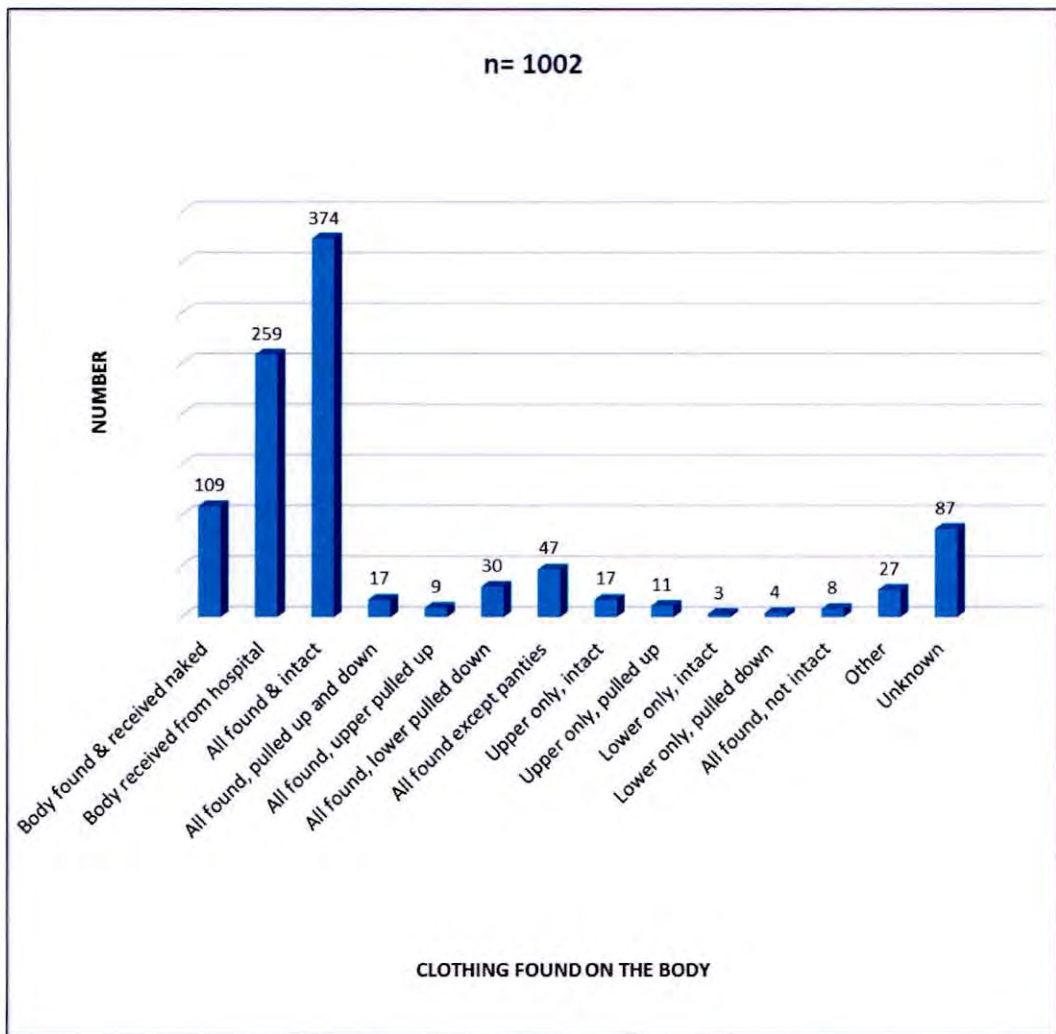


Figure 4.27: Distribution of femicides by status of clothing

4.5.2.1 Correlating clothing status with SAECK retention:

Table 4.16 below shows the proportions of retaining the SAECK depending on the clothing status of victims. Pathologists were prompted to retain the SAECK in half (50.4%, n=142) of the total of 28.1% of cases (n=282) in whom the clothing was deranged in one way or the other, including those found naked at the scene. However, the SAECK was retained in only 18.3% (n=20) of the 109 victims found naked at the crime scene. This finding is surprising considering the lack of clothing on the body is considered one of the most obvious prompts in suspecting possible sexual violence as practiced at the Salt River mortuary (SRFPL).



Table 4.16: Correlating the clothing status with SAECK retention

CLOTHING STATUS	SAECK: NO (n=803)	SAECK: YES (n=199)	TOTAL (n=1002)	PROPORTION SAECK RETAINED (%)
Body found & received naked	89	20	109	18.3%
Body received from hospital	254	5	259	1.9%
All clothing found & intact	329	44	374	11.8%
All clothing found, pulled up and down	1	16	17	94.1%
All clothing found, upper pulled up	3	6	9	66.7%
All clothing found, lower pulled down	3	27	30	90.0%
All clothing found except panties	18	29	47	78.4%
Upper clothing only, intact	1	16	17	94.1%
Upper clothing only, pulled up	1	10	11	90.9%
Lower clothing only, intact	2	1	3	33.3%
Lower clothing only, pulled down	1	3	4	75.0%
Some/brassier partially disrupted	4	4	8	50.0%
Other	17	10	27	37.0%
Unknown	79	8	87	9.2%
Total	803	199	1002	

On the other hand, the absence or displacement of lower clothing, including absent panties in 10.9% of cases was a significant predictor of further investigation with the SAECK retained in 78% (n=85) of these cases. This proportion increases significantly especially when the lower clothing is absent regardless of whether upper clothing is intact (94.1%) or pulled up (90.9%), or if the lower and upper clothing is found but pulled up and down (94.1%). Surprisingly the SAECK was retained in 1.9% (n= 5) of the 259 cases received from medical centres while the victims were still alive but their clothing status at the crime scene is unknown.

The category “other” includes cases where the lower clothing was a dress or skirt and thus was pulled up; the SAECK was retained in 37% (n=10) of these cases. The SAECK was retained in 9.2% (n=8) of cases with unknown clothing status (n=87).



4.5.3 Genital injuries in suspected sexual violence:

4.5.3.1 Genital examination:

Genital examination^{xvi}, specifically genito-anal examination after evisceration of the genito-anal region with the pelvic block is not a routine autopsy procedure. This examination is crucial in those cases where there is a history of sexual violence, the clothing is deranged in a suspicious manner or where genital injuries are apparent on external examination. The reviewed autopsy reports did not make a distinction between routine vaginal dissection and en-masse evisceration with the pelvic block. However, for the purposes of this report it is assumed that in cases of suspected rape the latter dissection was performed as a recommended standard procedure and as practised at the UCT Forensic Medicine Division and SRFPL.

Figure 4.28 below shows that in this study genital examination was performed in 730 (72.9%) of cases. This number includes 72.5% of cases (n= 726) in which there was a clear record that such an examination was performed in the autopsy report and an additional 4 cases in which such a record was not found but specimens or swabs were taken from the genital area. When genito-anal swabs are taken it is presumed that genital examination would have been performed simultaneously with specimen collection. In 8.2% (n=82) the genital examination section was reported as '*not done*'. In a further 19% (n= 190) of cases it was unknown whether genital examination was performed as the section of genital examination was either missing in the autopsy report or was left blank. Furthermore, in this 19% of cases no swabs were taken from the genital area to suggest that genital examination was performed simultaneously as specimen collection.

^{xvi} Contrary to the data collection tools, Appendix E and F, the term 'genital examination' is preferred in this report over 'vaginal examination' as former is inclusive of the vagina as one of the areas that are assessed during genital examination and/or dissection.



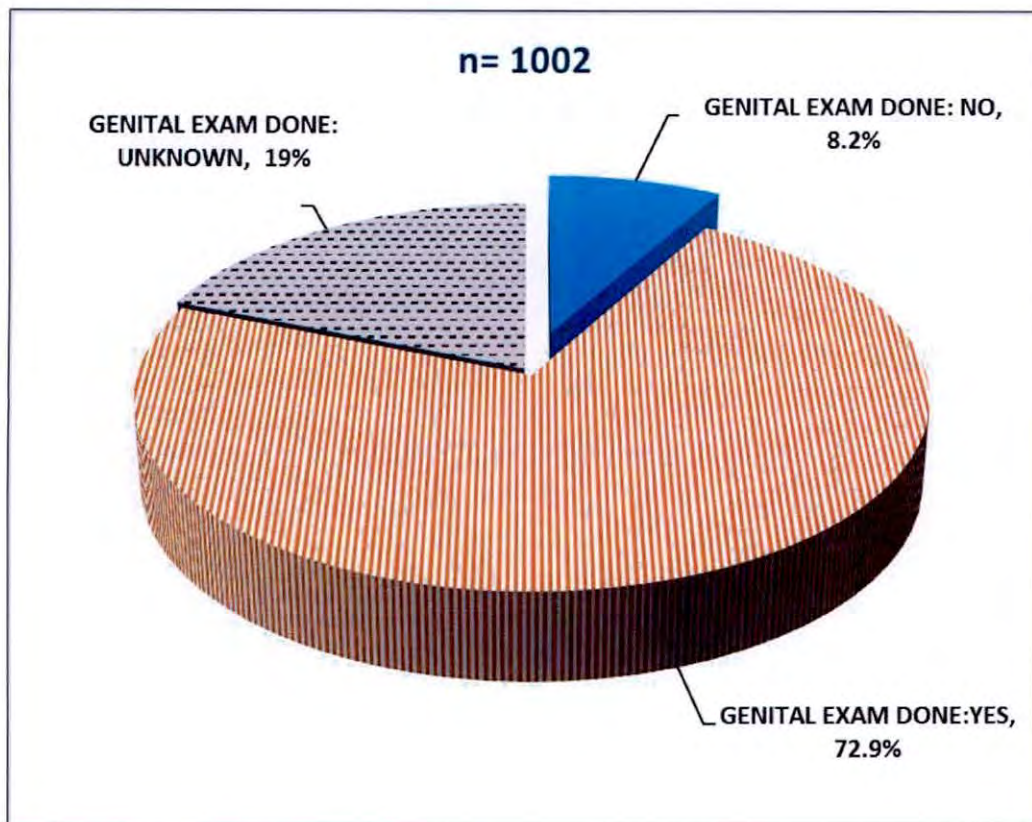


Figure 4.28: Distribution of femicides by genital examination/dissection performed

4.5.3.2 Correlating genital examination with SAECK retention:

Figure 4.29 below shows that the SAECK was retained in only 27.3% (n=199) of the victims in whom genital examination was performed (n=730). No SAECKs were retained in cases where it was unknown whether genital examination was performed (19%, n=190) or was recorded as 'not done' (8.2%, n=82).



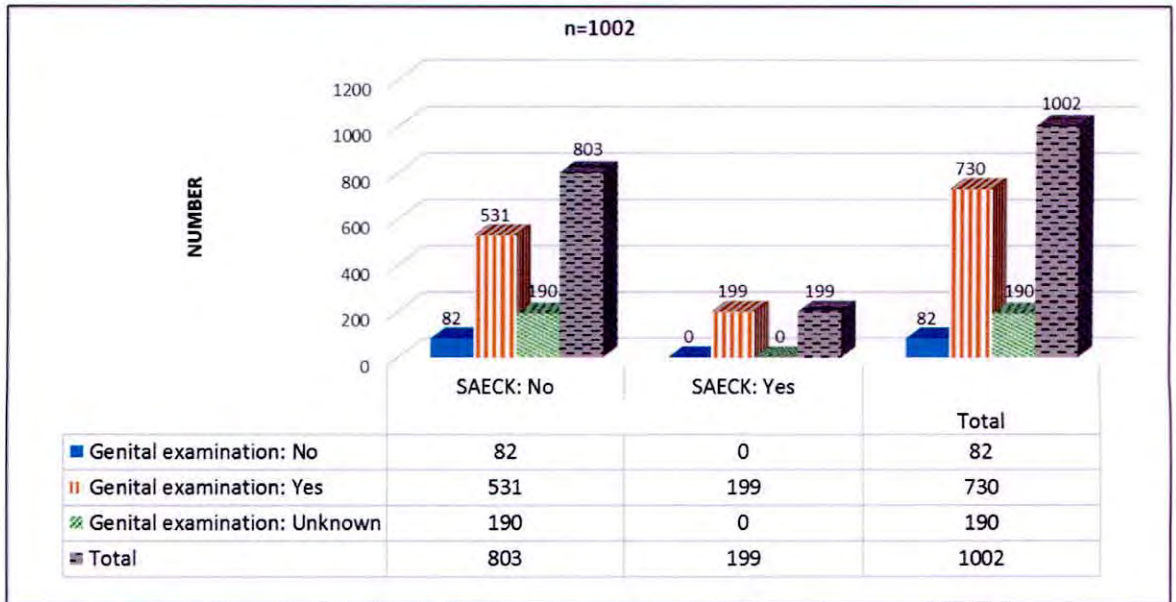


Figure 4.29: Correlating genital examination with SAECK retention

4.5.3.3 Correlating genital injuries with SAECK retention:

Of the 72.9% cases where genital examination was performed, genital injuries were noted in 12.9% (n=94). Figure 4.30 below shows that of the total cases in which genital injuries were found (n=94), the SAECK was retained in a remarkable 77.7% (n=73) compared to 22.3% (n=21) in which the SAECK was not performed despite the presence of genital injuries. Conversely, the percentage of genital injuries in those in whom the SAECK was performed (n=199) was 36.7% (n=73).

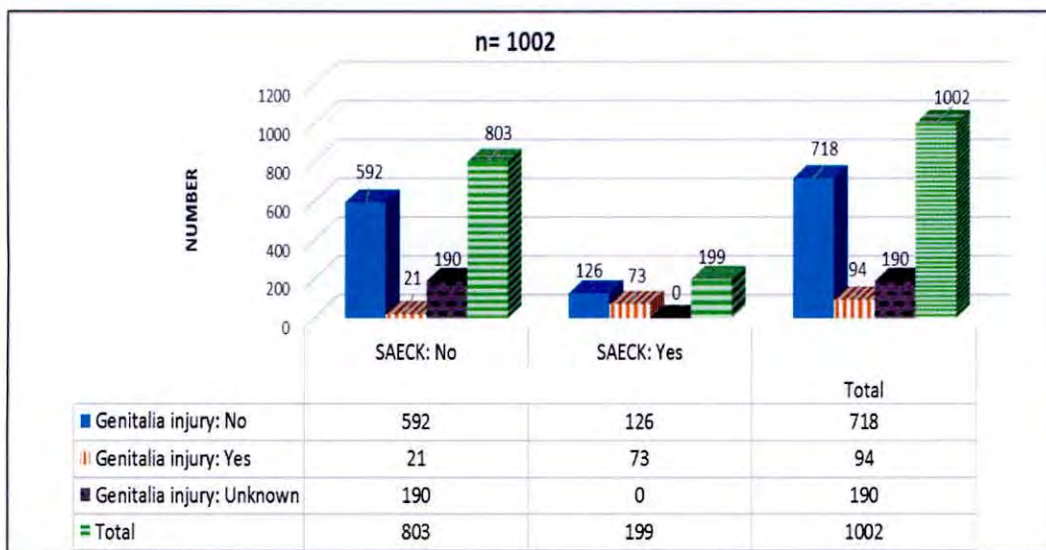


Figure 4.30: Correlating presence of genital injury with SAECK retention

The Chi-squared test of association was performed to assess the hypothesis that retaining the SAECK depended on the presence of genital injuries. The results of the test were: (d.f.=1)=148.538, OR = 15.56(95% CI= 8.97- 27.67), $p < 0.0001$, indicating that the odds of performing the SAECK when genital injuries are present were high and thus confirm significant correlation between the presence of genital injuries and retaining the SAECK to further investigate a sexual crime.

4.5.4. Non-genital injuries in suspected sexual violence

4.5.4.1 Correlating multiple injuries with SAECK retention:

At the beginning of the study the author hypothesized a positive association of sexual violence with multiple injuries. Figure 4.31 above shows that of the total cases in which the SAECK was retained (n=199), 91% (n=181) had multiple injuries compared to 6.5% (n=11) of victims without multiple injuries (n=169).



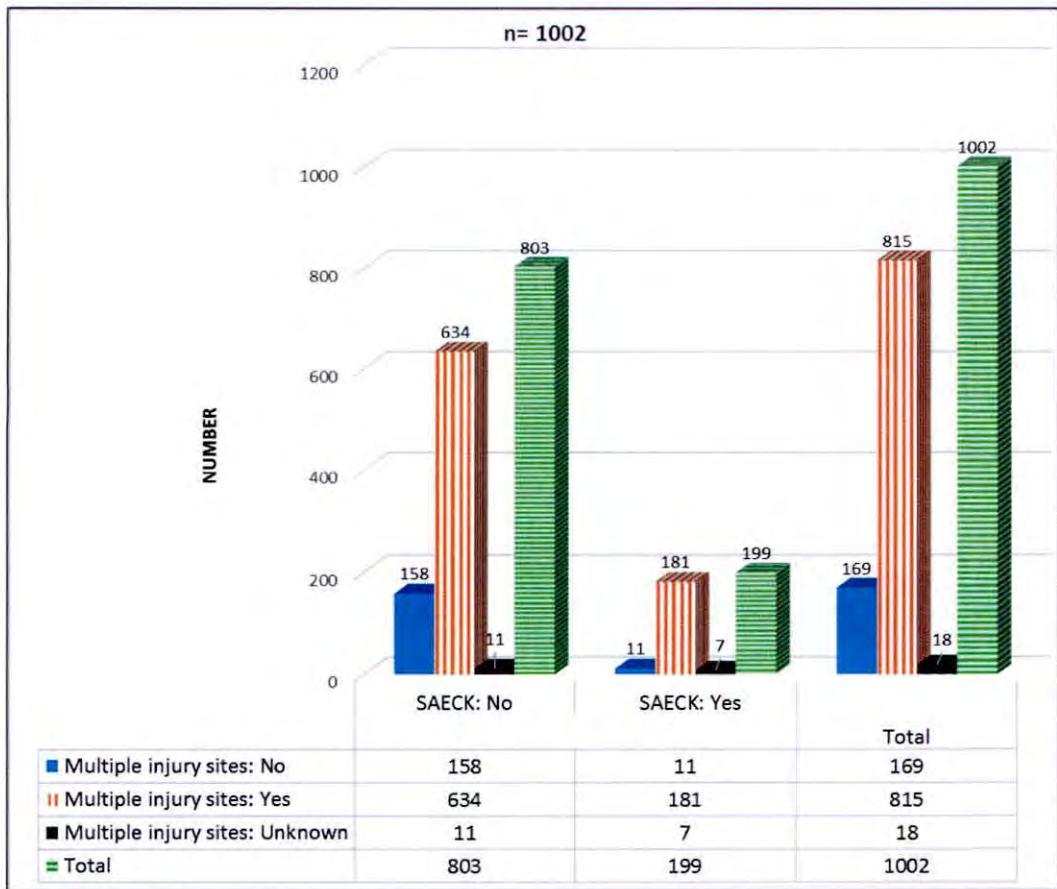


Figure 4.31: Correlating multiple injuries with SAECK retention

The calculated Chi-squared test of association for this finding was: (d.f.=1)=21.968, with the p-value <0.0001 (OR=4.1, 95% CI: 2.17-8.56) indicating significant association of multiple injuries with retaining the SAECK.

4.5.4.2 Correlating multiple injuries with history of sexual violence:

Likewise, Figure 4.32 below shows that of the total cases in which there was history suggestive of sexual violence (n=213), 87.8% (n=187) had multiple injuries compared to 6.7% (n=26) of those without multiple injuries (n=390). To test the hypothesis further the Chi-squared test of association was calculated in this regard and the results were: (d.f.=1)=17.963, OR=1.71, 95% CI: 1.2-2.47, and p-value<0.0001. This confirms significant association of the presence of multiple injuries with the positive history of sexual violence.



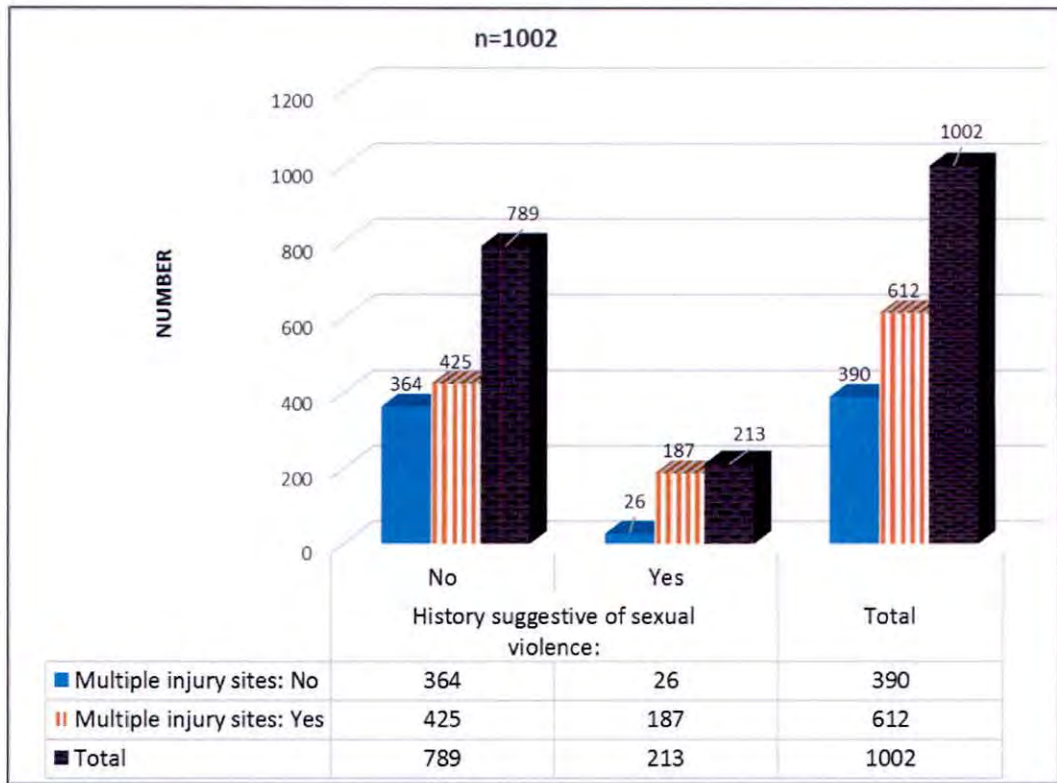


Figure 4.32: Correlating multiple injuries with history of sexual violence

4.5.4.3 Correlating external regional injuries with SAECK retention:

Given the findings of significant association of retaining the SAECK with multiple injuries, irrespective of whether the injuries were internal or external, the author wanted to test whether this association would differ depending of the body region injured. Table 4.17 below shows regional injuries (n=998) which excludes four (4) cases in which no visible regional injuries were recorded and their correlation with SAECK retention. External genital injuries showed the highest association of all regions at 77.7% (n=73) followed by anal injuries at 64.5% (n=20), by neck (44.2%) and pelvic and buttock injuries (41.71%). External abdominal and chest injuries were the least associated with retaining the SAECK at rates of 28.4% and 25.1%, respectively.



Table 4.17: Correlating external regional injuries with SAECK retention

Body Region (n=998)	SAECK:No	SAECK:Yes	Total Number (n)	Proportion correlation of injury with SAECK retained (%)
Head Injury	326	116	442	26.2%
Face Injury	305	158	463	34.1%
Neck Injury	122	157	355	44.2%
Thorax Injury	378	163	541	30.1%
Abdomen, Lower Back Injury	161	64	225	28.4%
Pelvis, Buttocks injury	84	60	144	41.7%
Upper limbs	294	134	428	31.3%
Lower limbs	196	108	304	35.5%
Genitalia injury	13	73	94	77.7%
Anal injury	11	20	31	64.5%
Total	799	199	998	19.9%

4.5.4.4 Correlating external regional injuries with history of sexual violence:

Furthermore, regional injuries were further tested against the history suggestive of sexual violence as depicted in Table 4.18 below.

Table 4.18 Correlating regional injuries with history of sexual violence

Body region (n=998)	History suggestive of sexual violence: No	History suggestive of sexual violence: Yes	Total Number (n= 998)	Proportion correlation of injury with history of sexual violence (%)
Head Injury	314	128	442	29.0%
Face Injury	301	162	463	36.0%
Neck Injury	200	155	355	42.3%
Thorax Injury	368	173	541	32.0%
Abdomen, Lower Back Injury	152	73	225	32.4%
Pelvis, Buttocks injury	81	63	144	43.8%
Upper limbs	287	141	428	32.9%
Lower limbs	192	112	304	36.8%
Genitalia injury	8	76	90	88.4%
Anal injury	13	18	31	58.1%
Total	785	213	998	21.3%

Similar to findings represented in Table 4.17 , Table 4.18 shows that genital injuries are strongly associated with the history of sexual violence in 88.4% of cases (n=76) compared to anal injuries at 58.1% (n=18). Similar to correlations with SAECK



retention, these were followed by the pelvic (43.8%) and neck (42.3%) injuries, while other regions generally maintained *similar* percentages of correlation as observed for the SAECK retention as depicted in Table 4.17 above.

4.5.4.5 Correlating neck injuries with sexual violence:

The bloodless neck dissection or technique is indicated in cases showing any injury to the neck, particularly those who were strangled. The skin of the neck is left intact while eviscerating the brain, chest and other organs which allows for free drainage of blood contained within the neck vessels. The neck strap muscles are then dissected layer by layer while inspecting for any injuries to the soft tissues, blood vessels and laryngeal structures. If such a procedure is performed it should be clearly recorded in the autopsy report.

Figure 4.33 below shows that this technique was performed in 30.1% of victims (n=302), revealing injuries in 96.7% (292) of these. Of all cases in which no special dissection was performed (n=700), 16.3% (n=114) of victims had injuries on routine examination of the neck. These cases comprise all those where such a record was not present in the post-mortem report, and the description of neck injuries was not detailed for the author to assume that such an examination may have been performed but not recorded.

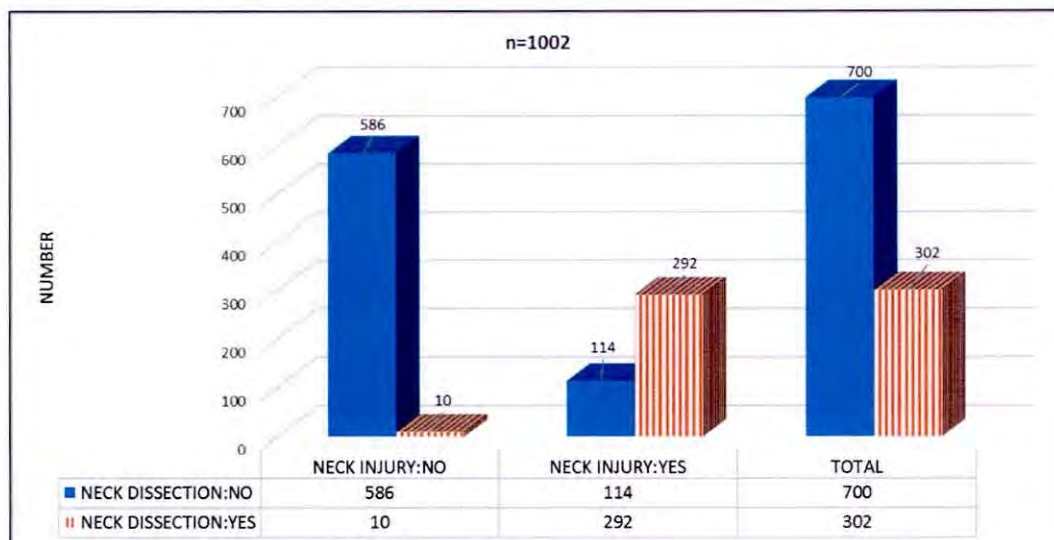


Figure 4.33: Correlating neck dissection with neck injuries



Table 4.19 below shows the correlation of bloodless neck dissection (n=302) by the victims' method of death.

Table 4.19: Correlating neck dissection with method of death

METHOD OF DEATH (n=1002)	NECK DISSECTION: YES (n=302)	NECK DISSECTION: NO (n=700)	NUMBER (n)	PROPORTION (%) NECK DISSECTION DONE
STRANGLE	77	8	85	90.6%
COMBINATION	19	13	32	59.4%
ASPHYXIA	9	7	16	56.3%
UNKNOWN	10	15	25	40.0%
STAB	99	198	297	33.3%
OTHER	2	4	6	33.3%
BLUNT	32	144	176	18.2%
GSW	54	298	352	15.3%
FIRE	0	10	10	0.0%
DROWN	0	3	3	0.0%
TOTAL	302	700	1002	

As expected, this technique was performed most commonly in those who were strangled (90.6%, n=77) as it is most indicated in these cases, followed by those who died from a combination of strangulation and other methods of death (59.4%), and those dying from other forms of asphyxial death (56.3%). The procedure was not performed in any of the victims of a fire or drowning in this study.

In an attempt to assess whether suspected sexual violence prompted the pathologists to suspect strangulation as a possible cause of death, the number of cases in which neck dissection performed was correlated with that of SAECK retention. Figure 4.34 below shows that of the total cases in which the SAECK was retained (n=199) the bloodless neck dissection was performed in 70.4% (n=140), pointing to the association of strangulation with sexual violence. However, the SAECK was retained at a lower percentage of 46.4% (n=140) of the total number of victims in whom the neck dissection was performed (n=302).



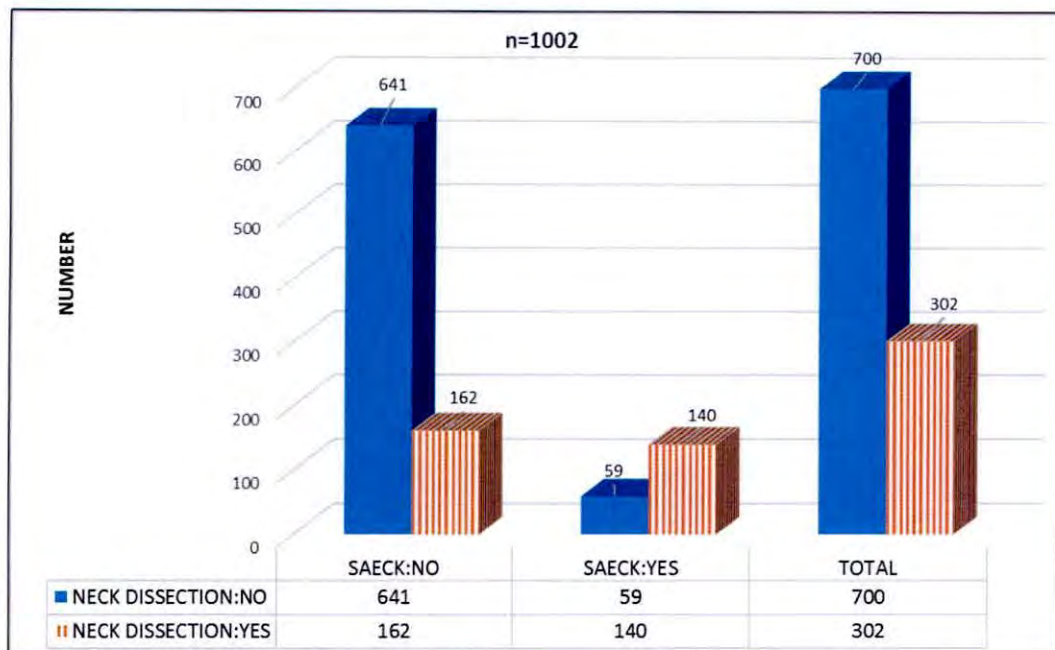


Figure 4.34: Correlating neck dissection with SAECK retention

The SAECK was performed in 19.9% (n= 199) of cases in this study despite the slightly higher percentage of 21.3% (n=213) of cases with a history suspicious of sexual violence. Similarly, neck injuries were found in a slightly higher proportion of victims (40.5%, n=406) than those in whom neck dissection was performed (30.1%, n=302). To further test if neck injuries were correlated with sexual violence, the number of victims with neck injuries was correlated with that of SAECK retention and the history suspicious of sexual violence as depicted in Figure 4.35 and Figure 4.36 below.



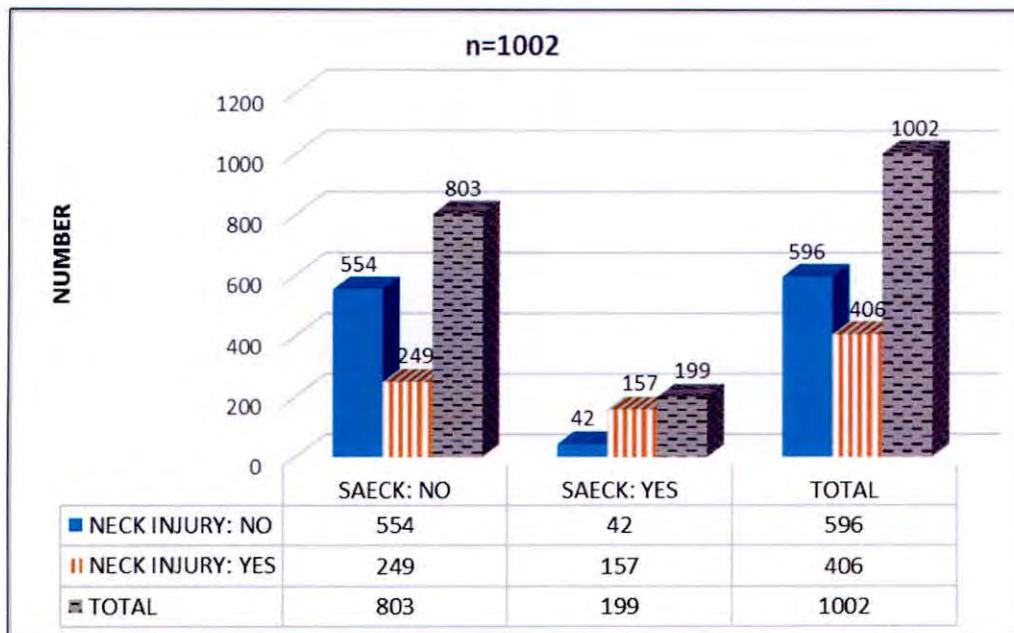


Figure 4.35: Correlating neck injuries with SAECK retention

Figure 4.35 above shows a 78.9% (n=157) association of neck injuries for victims in whom the SAECK was retained (n=199), the third highest after anal and genital injuries.

Figure 4.36 below shows that neck injuries were present in 72.8% (n=155) of all cases with the history of sexual violence and hence, the higher correlation of neck injuries with further investigation of this history by retaining the SAECK, as depicted in Figure 4.35 above.

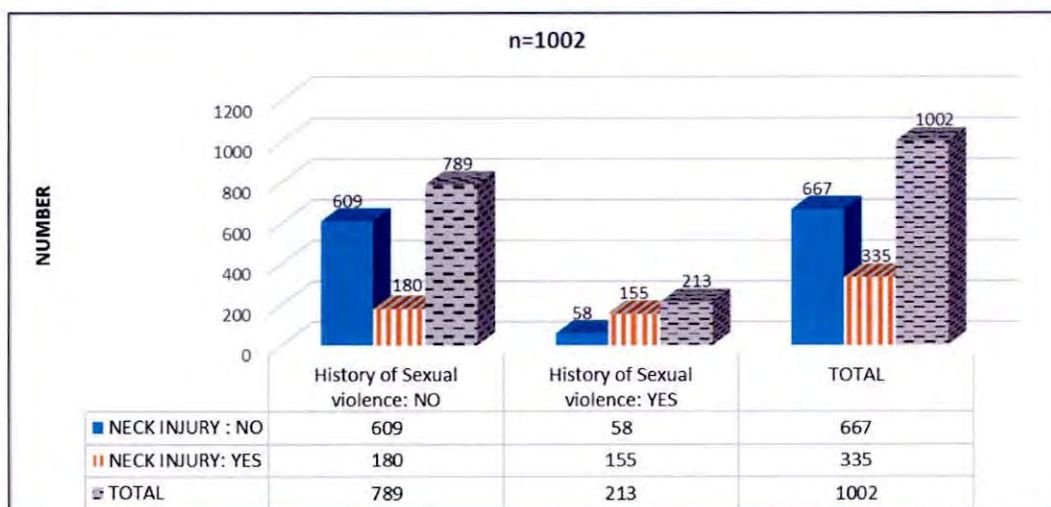


Figure 4.36: Correlating neck injuries with history of sexual violence



4.5.4.6 Neck injuries- pathology:

Table 4.20 below shows the numbers and proportions of the different types of external neck injuries in 35.6% (n=355) of cases in this study. When single and multiple injuries are combined, blunt force injuries (abrasions, contusions and lacerations) account for higher numbers of external neck wounds (60.2%) than sharp-force (47.5%) and gunshot wounds (16.3%). However, when the individual injury types are considered, combined stab wounds and abrasions occurred at similar proportions of 35.2% and 33.7% respectively.

Abrasions and contusions point towards strangulation as the method of death. In this study the category of abrasions is inclusive of those caused by ligature use to strangle the victims (12.3%, n= 50), and fingernail abrasions (9.4%, n= 38). Interestingly, bite injuries were more common (1.1%, n=4) than lacerations.

Table 4.20: Distribution of neck injury types- external

NECK INJURY TYPE:	NUMBER	PERCENTAGE	COMBINED
EXTERNAL(n=355)	(n)	(%)	%
Abrasion-Single	31	8.7%	
Abrasion-Multiple	84	25.0%	33.7%
Ligature abrasion	50	12.3%	
Fingernail contusions/abrasio	38	9.4%	
Contusion-Multiple	65	18.3%	25.9%
Laceration-Single	1	0.3%	
Laceration-Multiple	1	0.3%	0.6%
Superficial incised-Single	24	6.7%	
Superficial incised-Multiple	20	5.6%	12.3%
Stab-Single	61	17.2%	
Stab-Multiple	54	18.0%	35.2%
Gunshot-Single	41	11.5%	
Gunshot-Multiple	18	5.0%	16.5%
Burns, charring	20	5.6%	
Bite-Single	3	0.8%	
Bite-Multiple	1	0.3%	1.1%

Table 4.21 below shows that internal neck injuries were found in a slightly higher number of victims (n=406) than those with external injuries. A significant majority of victims sustained injuries to strap muscles (74.6%, n=303).



Table 4.21: Distribution of neck injury types- internal

NECK INJURY TYPE: INTERNAL(n=406)	NUMBER (n)	PERCENTAGE (%)
Fracture vertebra-single	46	11.3%
Fractured vertebra-multiple	8	2.0%
Fracture-hyoid	36	8.8%
Fracture-thyroid cartilage	35	8.6%
Jugular vein	85	20.9%
Carotid artery	84	20.7%
Thyroid gland	34	8.4%
Strap muscles/soft tissue	303	74.6%
Tracheal	37	9.1%

In this study, fractures to the hyoid bone and thyroid cartilage occurred at similar proportions of 8.6% and 8.4%, respectively. When present these fractures support strangulation as the underlying or contributing cause of death. Injury to the major neck vessels (carotid arteries and jugular veins and their branches) as found in 41.6% (n=169) of cases is more commonly associated with penetrating neck injuries than blunt force injuries. The combined percentage of 13.3% (n=54) cervical spine fractures is indicative of severe debilitating trauma that would render the victim paralysed. In this study, injuries to the subclavian vessels were recorded in the chest region even if the external wound was positioned in the neck region.

4.5.4.7 Correlating bite mark injuries with sexual violence:

Bite-marks were present in 1.2% of victims (n=12). One victim had multiple bites on the neck and arms. Figure 4.37 below shows the relative numbers (n=12) of bite injuries found on the head, face, neck and upper limbs. Furthermore, this figure shows the respective correlations of the number of these injuries with those of the history of sexual violence and SAECK retention being equal for the face at 50% (n=2) and 66.7% for the neck (n=4). For victims with bite marks on the arms, the percentage correlation with SAECK retention was 66.7% but was lower for those who had history suggestive of sexual violence (50%, n=3).



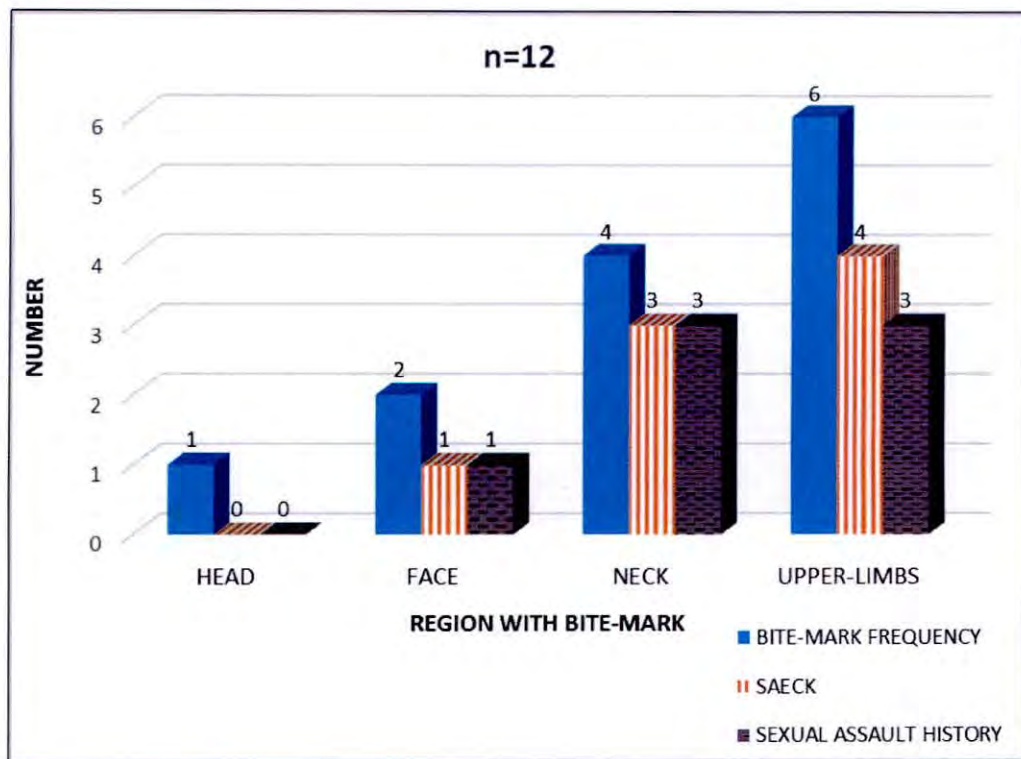


Figure 4.37: Correlating bite marks with history of sexual violence and SAECK

4.6 EPIDEMIOLOGY OF SUSPECTED SEXUAL HOMICIDES

4.6.1 Incidence of sexual homicides

Based on the criteria for sexual violence described in section 4.4 above, this study showed that sexual violence was suspected in a total 21.3% (n=213) subjects based on the history, 28.2% (n=282) based on deranged clothing and 9.4% (n=94) based on the presence of genito-anal injuries. The suspicion of sexual violence based on these criteria prompted further investigation for a sexual crime by retaining forensic evidence in the form of the SAECK in 199 of these cases.

Considering the above-mentioned significant associations of retaining the SAECK with the history of suspected sexual violence (87.4%), deranged clothing (up to 94.1% and genital injuries (77.7%), SAECK retention remains the common and most sensitive denominator of all three criteria in detecting a possible sexual homicide case. Therefore, using the total number of the SAECK retained (n=199), sexual homicide



was suspected in an average of 19.9% of all femicides over the ten years of study, as depicted in Figure 4.38 below.

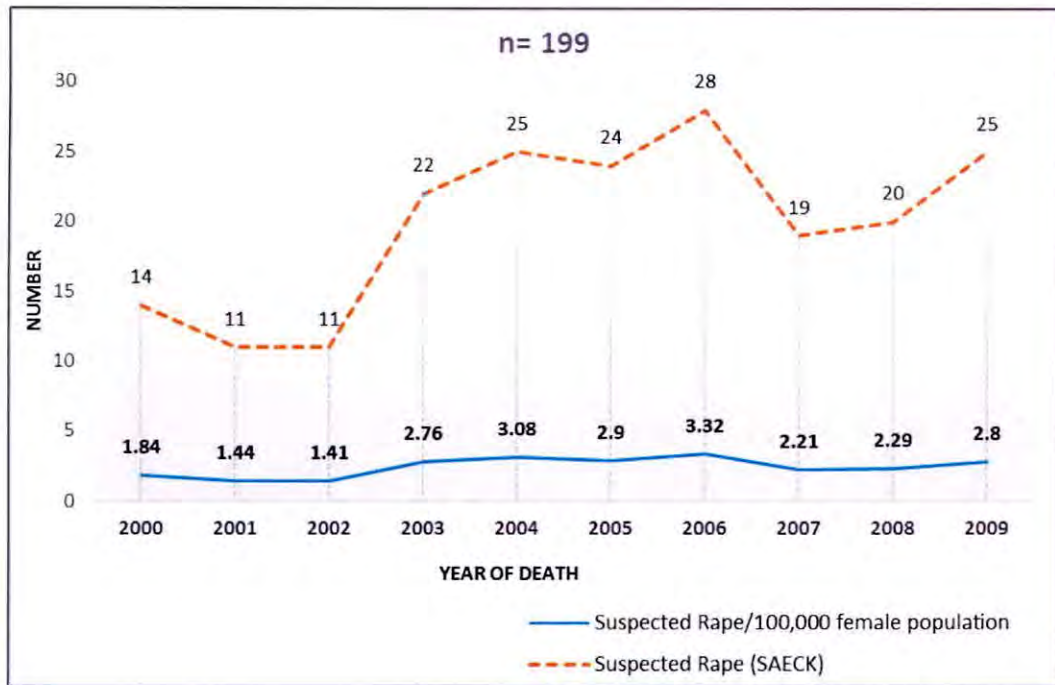


Figure 4.38 Numbers and incidence of suspected sexual homicides

This percentage of 19.9% translates to an estimated average incidence rate for suspected sexual homicide of 2.43/100,000 females in the West Metro region of Cape Town. The sharp decline in incidence from 2.26/100,000 to 1.52 and 1.41/100,000 in the succeeding two years is due to missing autopsy reports in those years as mentioned in section 4.1 above. If the incidences for the years 2001 and 2002 are removed from the calculation as 'outliers' due to the missing reports, the average incidence increases slightly to 2.70/100,000 females in the West Metro region of Cape Town. While the incidence trends as depicted in the lower graph show minimal change over the ten year period, the suspicion of sexual homicide based on the number of the SAECK retained (top graph) shows a dramatic increase by 78.6% over the ten years.



4.6.2 Types of SAECK specimens

Table 4.22: Types of specimens retained for the SAECK

TYPES OF SAECK SPECIMENS RETAINED	NUMBER (n)	PERCENTAGE OF ALL SPECIMENS (n=2213) %	PERCENTAGE OF ALL CASES (n=199)%
Panty	46	2.1%	23.2%
Sanitary pad	14	0.6%	7.0%
Blood DNA (Marshall cassette	173	7.8%	87.0%
Oral swab	129	5.8%	64.8%
Matted Head hair	20	0.9%	10.1%
Head hair combing	109	4.9%	54.8%
Reference head hair	143	6.5%	71.8%
Left hand fingernail swab	162	7.3%	81.4%
Right hand fingernail swab	159	7.2%	79.9%
Catch paper A	66	3.0%	33.2%
Catch paper B	36	1.6%	18.1%
Collection of body fluid deposits	43	1.9%	21.6%
Body fluid evidence collection kit	19	0.9%	9.5%
No pubic hair or very short pubic hair	19	0.9%	9.5%
Matted pubic hair	11	0.5%	5.5%
Pubic hair combing	122	5.5%	61.3%
Reference pubic hair	129	5.8%	64.8%
External/superficial anal swab	121	5.5%	60.8%
Rectal swab (deep swab)	112	5.1%	56.3%
Vulva (superficial/external swab)	140	6.3%	70.4%
Vestibule (labia minora internal, uret	102	4.6%	51.3%
Vaginal Vault (deep vaginal)	168	7.6%	84.4%
Cervical Os	97	4.4%	48.7%
Total	2213	100.0%	100.0%

As seen in Table 4.22 above a wide variety of specimens were retained for the SAECK or equivalent thereof (n=199) with all specimens all together amounting to 2213. These comprised different swabs taken from different areas of the body in the 19.9% of victims on this study. The most notable were (in decreasing order): reference blood for DNA (87.0%, n=173), vaginal vault swab where semen is likely to be found (84.4%, n=168), right and left finger nails swabs (81.4% and 79.9%, respectively) which are sometimes useful in obtaining the perpetrators' DNA if he/she was scratched by the victim. The catch papers A and B (33.2% and 18.1%, respectively) are used to collect



any foreign debris on the body that may contain the perpetrators DNA, or used to corroborate the primary crime scene.

4.6.3 Distribution of sexual homicides by age group

Figure 4.39 below shows the age distribution of the 199 suspected sexual homicides in this study. The youngest victim was 3 months old and the oldest 97 years old. The median age of the victims was 25.5 years. Young females between the ages of 18 to 39 years were the most affected accounting for 28.1% (n=56) of all suspected sexual homicide cases. Regrettably 12.7% of the victims (n=25) in this group children under the age of 18 years, 20% whom were below the age of 5 years (n=5). Suspected child sexual homicides accounted for 32.5% of all child femicides (n=77, see Figure 4.14), while the elderly accounted for 9% of all suspected sexual homicides.

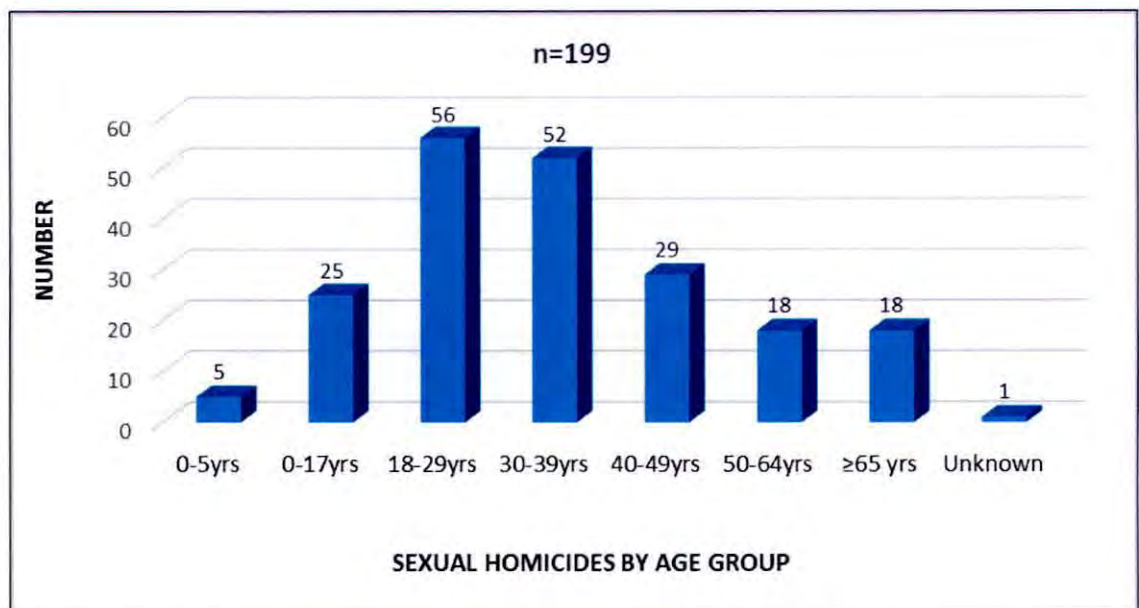


Figure 4.39: Distribution of suspected sexual homicides by age group

4.6.4 Distribution of sexual homicides by race

Figure 4.40 below shows that Coloured victims were the most at risk for sexual violence (51.3%, n=102) followed by Africans at 35.7% (n=71) and then Whites (n=24). One victim had unknown race due to the severity of decomposition.



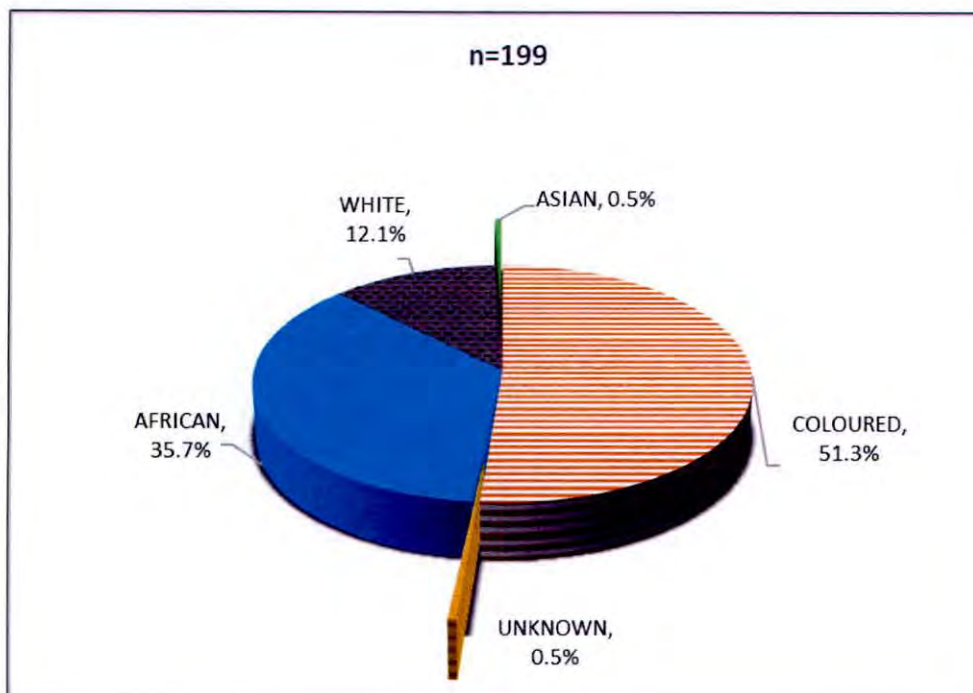


Figure 4.40: Distribution of suspected sexual homicides by race group

4.6.5 Distribution of sexual homicides by method of death

Figure 4.41 below shows the distribution of suspected sexual homicides by method of death which has an inverse pattern to that seen in femicides without the suspicion of sexual violence (see Figure 4.4). The majority (35.7%) of suspected sexual homicide victims died from asphyxial deaths ($n=71$), followed by those dying from stab wounds (25%) and blunt force injuries (19.1%). Those dying from gunshot wounds were less common (8%). There were similar proportions of victims dying from combined methods in this group (7%) compared to the rest of the femicide group (6%). However, the percentage of indeterminate cause of death (4.5%) for the suspected sexual homicide group is almost twice higher than that of the femicide group (2.5%).



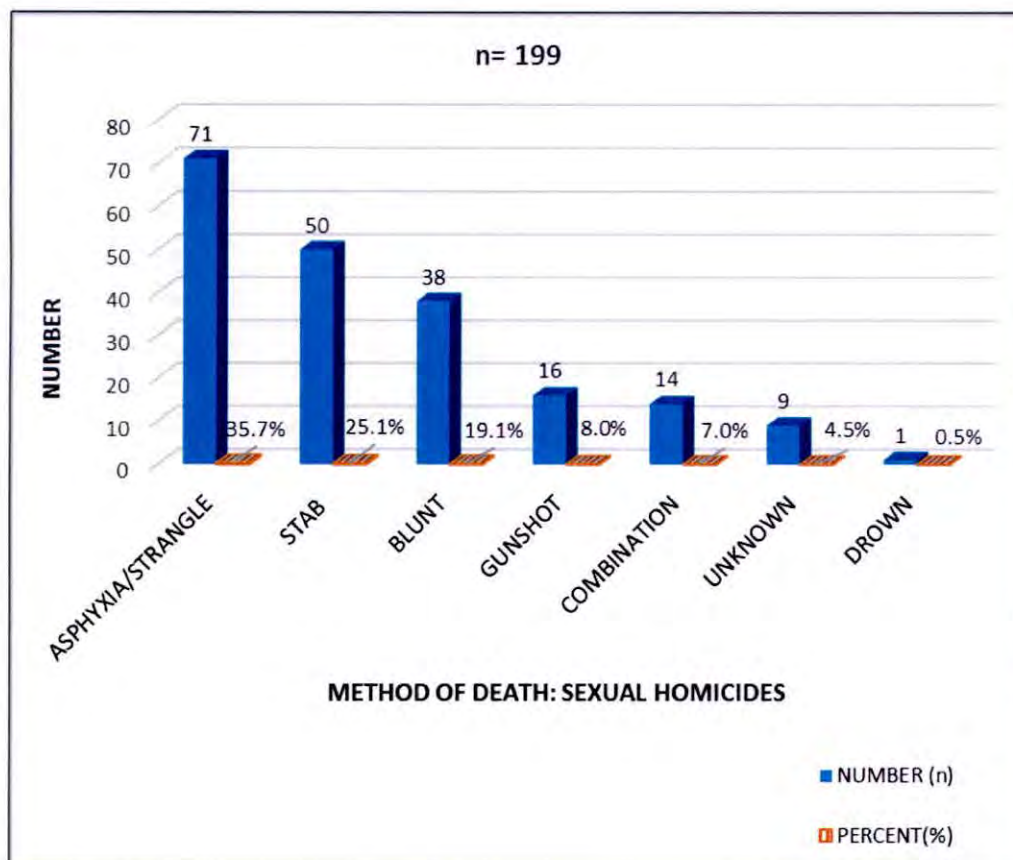


Figure 4.41: Distribution of suspected sexual homicides by method of death

4.6.6 Genital injuries: incidence, pattern and distribution

The presence of genital or anal injury is a predictor of sexual penetration and therefore highly suggestive of rape rather than sexual assault. Genital examination was performed in almost three quarters of the study sample (72.6%, Figure 4.29); however, injuries were found only in 94 victims comprising 86 victims with external and internal injuries, and an additional 8 victims with internal but without visible external genital injuries. For the purposes of this report the external genitalia are inclusive of the mons pubis with the pubic hair, labia majora and clitoris. Any genital area beyond the labia majora, and including the labia minora, vestibule, introitus, urethral opening, fourchette, hymen, vaginal canal, uterus, cervix and adnexal structures comprise the internal genitalia. The numbers, distribution and types of



genital injuries across the eleven areas of the genital region recorded in the 94 cases are presented in Table 4.23 below.

Table 4.23: Numbers, distribution and type of genital injuries

GENITAL INJURY TYPE(n=94)	MONSPUBIS / VULVA	LABIA- MAJORA	LABIA- MINORA	VESTIBULE	URETHRA	INTROITUS	FOUCHETTE	CLITORIS	HYMEN	VAGINA	CERVIX	TOTAL: INJURY-TYPE(n)*
ABRASION		3	3	4	2	3	9	6	3	0	0	33
CONTUSION		0	4	9	6	7	11	7	4	1	11	62
LACERATION		0	2	5	2	3	7	4	1	4	16	44
INCISED		1	1	1	1	0	0	0	0	0	0	4
GUNSHOT		1	1	1	1	0	0	0	0	0	0	4
BURN		10	8	9	8	6	8	7	7	2	5	70
TOTAL NUMBER (n)#		15	19	29	20	19	35	24	15	7	32	217*
BLOOD		0	2	3	0	0	4	1	0	0	12	0
FLUID/MUCUS		3	2	2	0	0	3	0	0	0	20	0
FOREIGN MATERIAL	SAND (2)		1	0	0	0	HAIR (1)	0	0	0	TREE-BRANCH, HAIR(3)	0
DECOMPOSED		11	10	12	13	11	14	14	12	9	13	8

This value denotes the total number of cases with various types of genital injuries, some of which have multiple or co-existing injuries
 * This value denotes the total number of individual injuries of different pathological types spread across the 11 different areas of the genitalia.

It must be noted that decomposition, fluid or mucus (n= 30), blood (n= 22), and foreign materials (7) do not represent injuries by themselves but may be associated with traumatic genital injuries. For ease of data collection in this study, these variables were recorded as injuries in the Epidata® software in response to the research datasheet (Appendix F). However, such data entries were recorded in cases where such fluids were associated with traumatic injuries, the fluid/mucus was suspected to be semen and the blood or mucus were unlikely to be physiological. For clarity however, these are not classified as injury-types. Thus, excluding these variables in these 94 victims a total number of 217 individual injuries of different pathological types were recorded in the eleven (11) different areas of the genitalia. In some cases, different injury types co-existed in the multiple areas of the genitalia (for example, lacerations associated with contusions in the vestibule, introitus and extending into the vagina in one victim); however, such data could not be extrapolated from Excel spreadsheet.

Table 4.23 above shows that decomposition of the genitalia was present in a relatively higher number victims than most individual injury types, and was recorded in at least 14.9% (n=14) of the 94 victims. At least 10.6% of the 94 victims (n=10) had burn



injuries which accounted for the most common injury type extending beyond the labia majora to include other genital areas. Genital contusions (n=11) and abrasions (n=9) were the most common injury types in the introitus. The most common vaginal injuries were lacerations (n=16, 17%), and contusions (n= 11) and in 12 cases these injuries these were complicated by vaginal bleeding. The cervix (n=2) was the least common genital area to be injured.

Interestingly, 2 victims showed stab and gunshot wounds to the four genital areas extending from the vulva to the vestibule. In 7 of the 94 cases (9.6%) the presence of various foreign materials including fluid suspected to be semen (n=2) and hair (n=4) were noted, and one case had a tree branch perforating the vagina and penetrating the rectum. The cervix (n=2) was the least common genital area to be injured.

4.6.7 Anal injuries: incidence, pattern and distribution

Considering the new definition of rape which includes anal penetration¹⁷ assessment for anal injuries is important in this study to exclude sexual violence. For the purposes of this report it was logical to assume that for those cases where an anal swab was retained an examination would have been performed, thus an affirmative answer was given contributing to the total of 126 cases in which anal examination was performed. A negative response was given to those reports where it was clear that genito-anal examination was indicated, but only details of the genital examination was reported (n=66) in the autopsy report, and the anal swab was not taken.

As observed in Figure 4.42 below, information was unknown for the vast majority of cases (80.6%, n=810). These 80.6% cases represent reports (using the GW007, the digital autopsy template adapted from the SAP359, Appendix I, and as per page 2 of LAB27, Appendix C) that has no section allocated for anal examination, and like the section on 'breast' has to be typed in by the pathologists if positive findings are found.



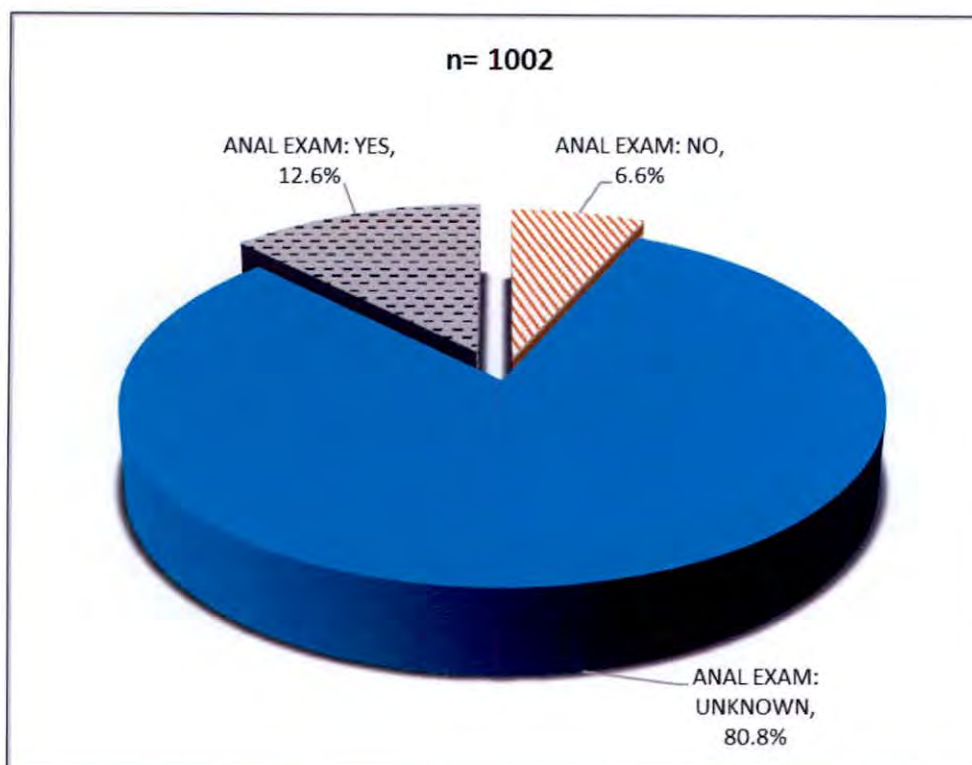


Figure 4.42: Distribution of femicides by anal examination performed

The overall number of victims with anal injuries was 31 (3.1%) and includes 24 cases in which external anal injuries were present and an additional 7 cases in which internal ano-rectal injuries were recorded without concomitant external injuries. This number (n=31) represents a quarter (24.6%) of the total number of victims in whom anal examination was performed (n=126), as depicted in Figure 4.43 below.

In this study, 35.7% (n=45) of the 126 examined cases had a clear record that no anal injuries were found while in 39.7% (n=50) this information was unavailable because the section on anal examination simply recorded no further comment on findings despite indications of examination being done, for example, when an anal swab was taken.



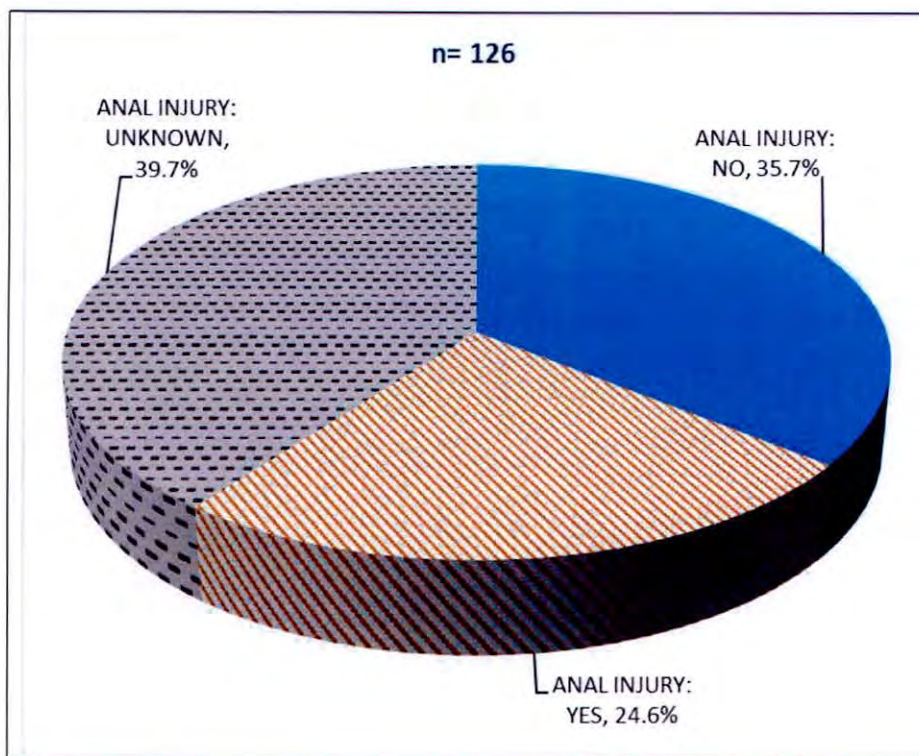


Figure 4.43: Number of anal injuries

Figure 4.44 below shows the various types of injury found in the 31 cases, with some victims suffering from more than one injury type thus accounting for a total of 41 anal injuries in this study population. Lacerations were the most common injury type and were present in 38.2% of cases (n=13; 5 victims had single and 8 multiple lacerations), followed by combined (single and multiple) abrasions and contusions which occurred at similar percentages of 20.6% (n=7) each, while 29.4% (n=10) victims sustained anal burns. The presence of decomposition in 32.4% of cases (n=11) may have affected the ability to assess for anal injuries and thus some injuries may have been missed in these cases.



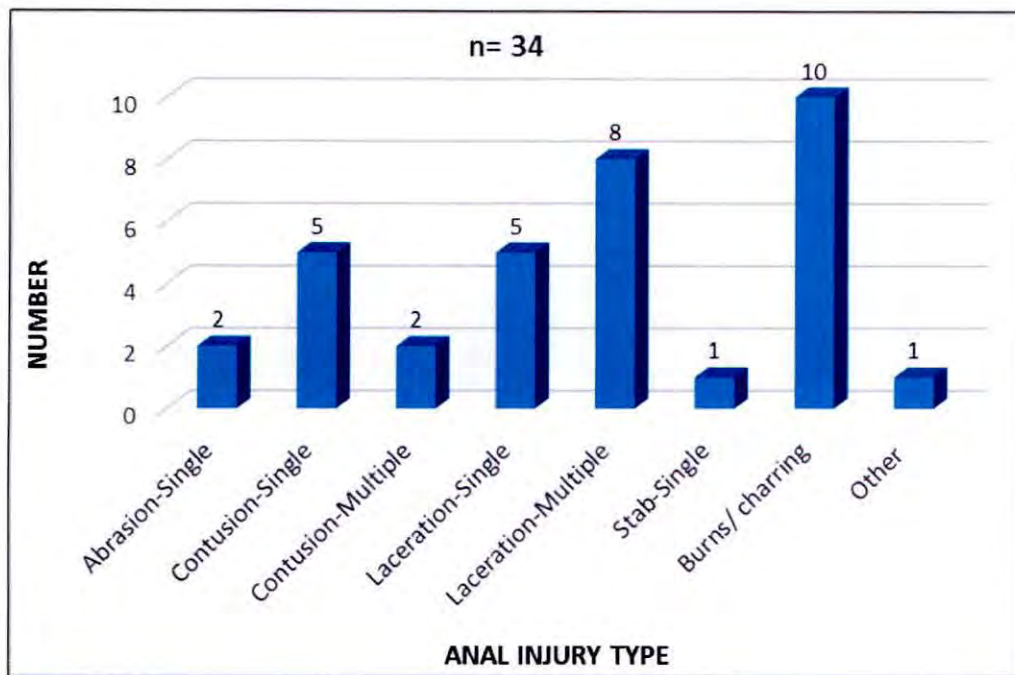


Figure 4.44: Number and distribution of anal injuries by type

4.7 CRIME SCENE INVESTIGATION

4.7.1 Presence of Investigating Officer and Pathologist at crime scene

In this dissertation the presence of the investigating officer and the pathologist at the crime scene is used as one of the proxy measures for the quality of investigation afforded to the femicide cases. However; the author acknowledges that the mere presence of these professionals at the scene does not translate into a good investigation. Similarly crime scene investigation may have been performed without evidence collection or photography. Information on whether the Investigating Officer (I/O) or pathologist attended the scene was not routinely recorded in the LAB27 or FPS002 scene scripts. The pathologists' attendance was judged using the available crime scene reports or a record of attendance in the autopsy report or scene scripts. In this study only 4% of the cases recorded the presence of the I/O and pathologist on the scene as shown in Figure 4.45 below. In 29% (n=291) of the cases it was clear that the pathologists were not at the crime scene as these victims died in medical centres (see Table 4.15 above).



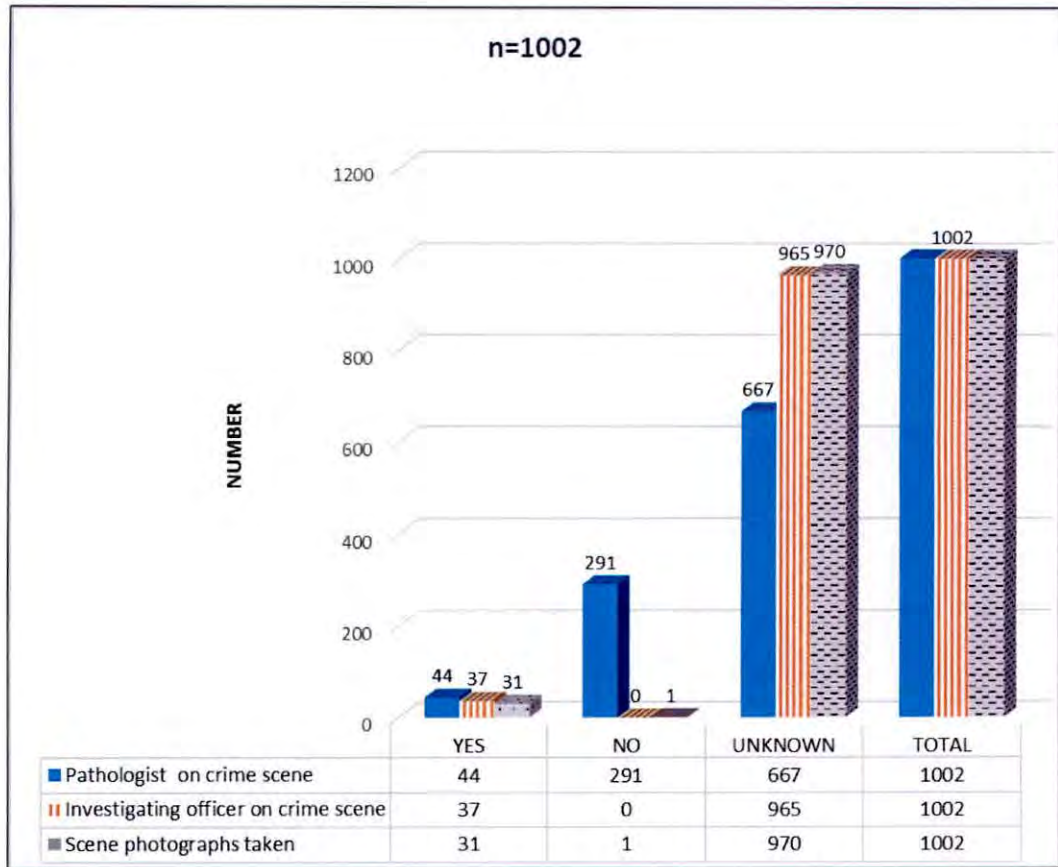


Figure 4.45 : Numbers of crime scene attendance and scene photographs

4.7.2 Crime scene investigations and photography

Whereas scene photographs were taken in a corresponding number of cases (3.1%) as those whose crime scene was attended by the I/O and pathologists (Figure 4.45 above), in the vast majority of cases (96.8%) this information was not clearly recorded. In one case involving a victim who was set alight with paraffin and died in hospital 2 days later the autopsy report recorded that no scene photographs taken.

4.7.3 Forensic evidence collected at the crime scene

The author acknowledges that crime scene investigations may be performed by other personnel including the first responders like members of the Local Records Criminal Centres (LCRC) or Forensic Pathology Officers (FPOs), as currently practiced. Thus, although scene investigations may occur in the absence of the investigating officer or pathologist, in this study, the specimens retained at the scene were interpreted as



those at which the pathologist and/or the I/O were present. With this in mind, it is evident from Figure 4.46 below that when crime scene investigations were performed a wide variety of evidence was collected.

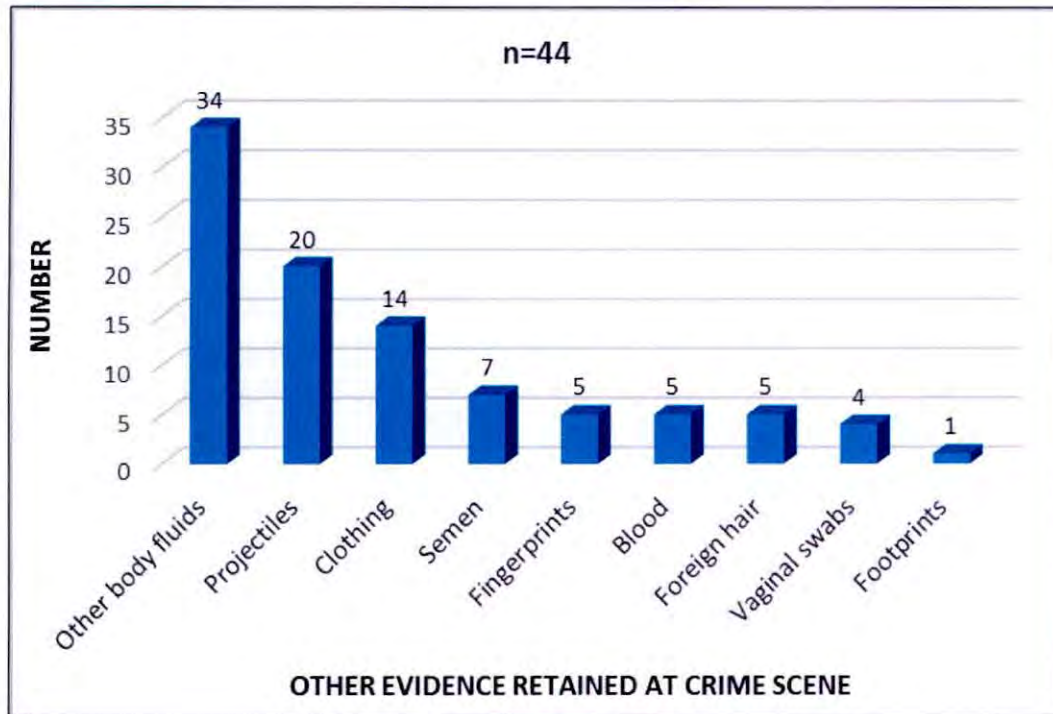


Figure 4.46: Distribution of retained scene specimens by type

Figure 4.46 shows that the most common trace evidence collected at crime scenes were body fluids (77.3%, n=34), and in some cases such fluids were suspicious of semen (15.9%, n=7) or bloodstains (11.4%, n=5). Clothing was collected in 31.8% (n=14) of cases; this number may include the victims' underwear which if found on the body, is usually retained into the SAECK kit instead, as would vaginal swabs taken at the scene (9.0%, n=4). If projectiles (45.5%, n=20) are collected by the FPOs instead of the police officials, they are handed to the pathologist performing the particular autopsy.

4.7.4 Weapon found at crime scene

Information on whether the weapon used to kill the victim was present at the crime scene was not routinely recorded in the scene script documents and thus a combination of the LAB27, SAPS180 and the available inquest docket records were



used to complete this question. Nonetheless information was missing in majority of victims (88.1%, n= 883).

The murder weapon was found in 10% (n=102) of the study population and recorded to be missing in 1.7% of cases (n=17). Of the total number of weapons (n=107) found at the scene, 71.0% (n=76) comprised single weapons (data not shown). The cases in which the number of weapons were not specified include amongst others fire-related deaths (n=10) and those where stones or rocks were used (n=3) and thus impossible to quantify.

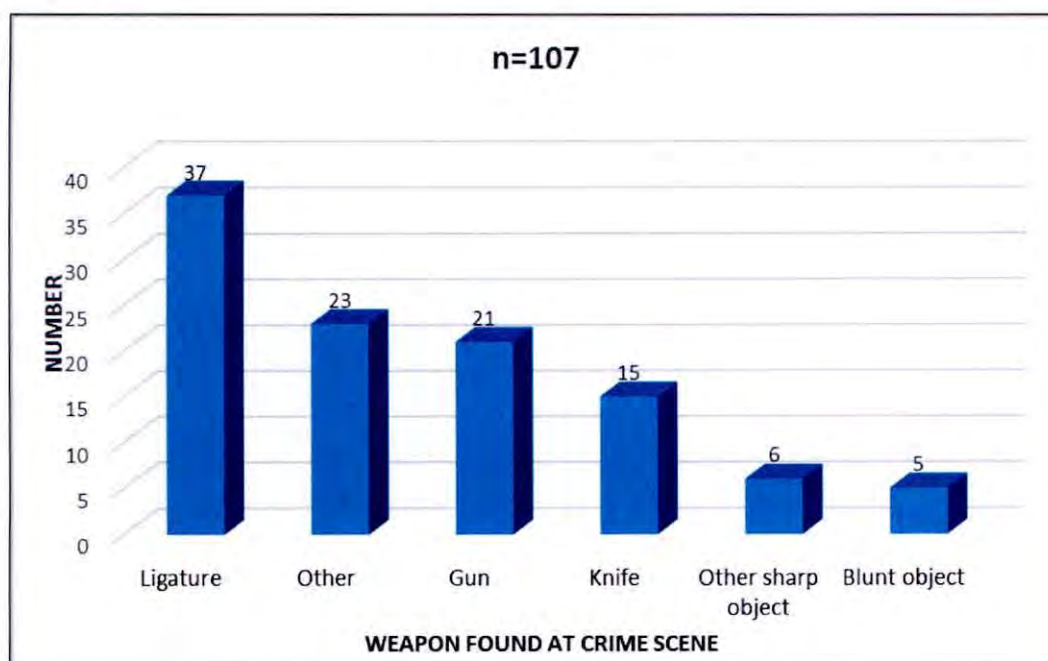


Figure 4.47: Distribution of weapons found at crime scene by type

Figure 4.47 above shows the relative numbers of the types of weapons found at the crime scene. The most common weapons were ligatures used to strangle victims (34.6% n=37). These included the victims' clothing (n=27) which comprised 73% of all ligatures, including amongst others: shoelaces (n=3), pants, belt, panties, scarf, and stockings to name a few. The next most common weapons found (in similar numbers) comprised guns (n=21) and sharp implements (n=21) with the latter inclusive of 15 knives, 4 broken glasses, 1 panga and 1 screwdriver. Blunt implements (4.5%, n=5) included rocks (n=3), an electric pole and a concrete slab (n=1).

The category 'other' (n=23) include various weapons used to smother victims, including gagging with paper, sand, pillow and plastic material. Also included in this



category are victims who were pushed to their death (n=2), while some victims were kicked or punched to death.

4.7.5 Suspected weapon of injury

In cases where murder weapons were not found at the crime scene the probable weapons use to kill the victims were predicted based on the wound descriptions or history provided in the death scene scripts. Figure 4.48 below shows the number of suspected weapons used to inflict injury totalling 1029 because in some cases, a combination of different weapons were used to inflict fatal injuries.

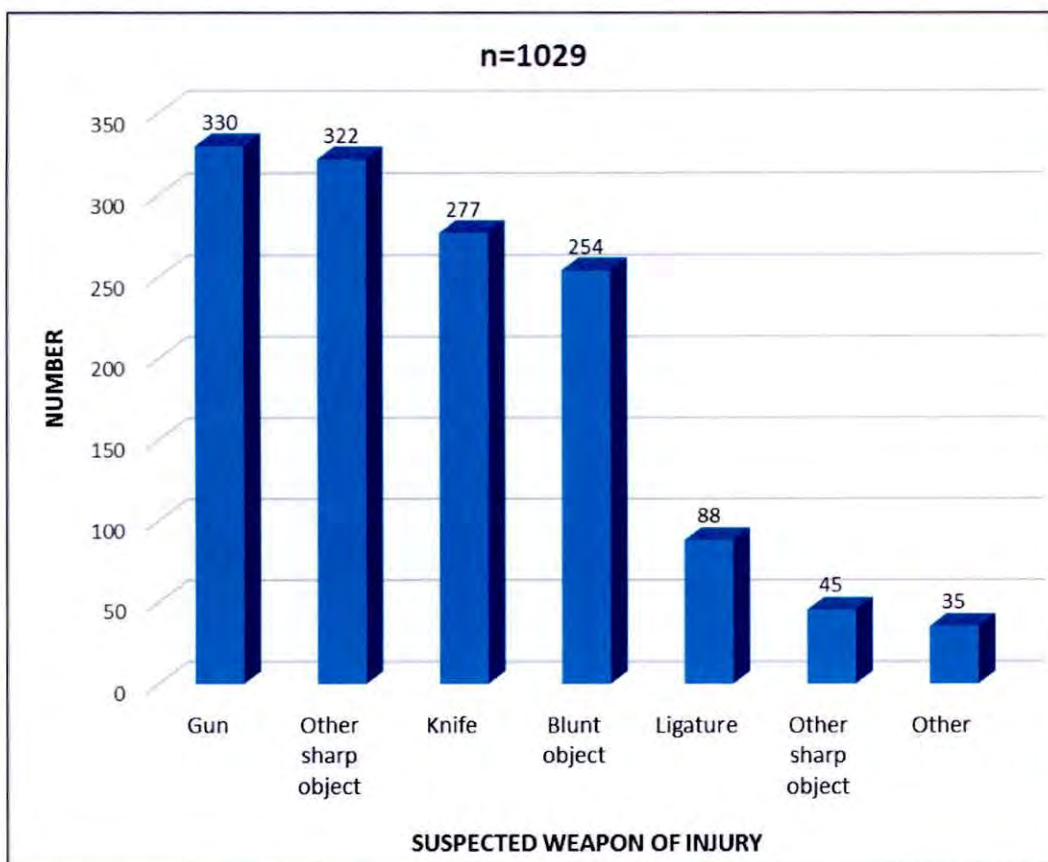


Figure 4.48: Distribution of suspected weapon of injury by type

Guns were used in the vast majority (32.1%) of cases (n=330) followed closely by sharp implements at 31.3% (n=322). In cases of incised wounds the description of the wound margins together with history provided in the death scene scripts were used as a guide to decide whether the probable sharp object was a knife (26.9%, n=277) or other



sharp objects like pangas (n=2) broken bottle (n=2), sword, et cetera. Other common implements were blunt objects at 24.7% (n=254) and unspecified ligatures (8.6%, n=88). The category "other" included amongst others spades (n=2) and a garden fork.

4.8 AUTOPSY

4.8.1 Autopsy incidence & standard of autopsy reports

The quality of crime scene and autopsy examination and investigation is assessed in this report as such information will contribute significantly towards the formulation of recommendations for management of femicide cases by the FPS. The standard of the autopsy reports was assessed based on four categories comprising:

- a) Whether or not a full or partial autopsy was performed.
- b) Crime scene attendance by pathologist, see Figure 4.45 above.
- c) Whether relevant specimens and photographs were retained at the scene and autopsy, see Figure 4.45 and 4.46 above.
- d) Quality of the autopsy report; further graded on a scale of 1-5 based on the proportion to which the anatomical location, dimensions and pathological description of wounds and their complications were accurately and fully described.

The autopsy examinations were performed in 100% of the study population. All were full post-mortem examinations performed by professionals at different levels of training, with the qualification level effective as at December 2009 for each professional used as a point of reference. It was not possible to use the level of qualification when post-mortems were performed as this changed over time during the 10 year period of study, and such data was not collected in this study. This may affect the assessment and grading of the post-mortem reports.

Figure 4.49 below shows that specialists performed just over two thirds (67.2%) of autopsies cases while registrars (that is, medical doctors training to specialise in Forensic Pathology) accounted for 24% and Medical Officers performed the least amount (8.9%) of autopsies.



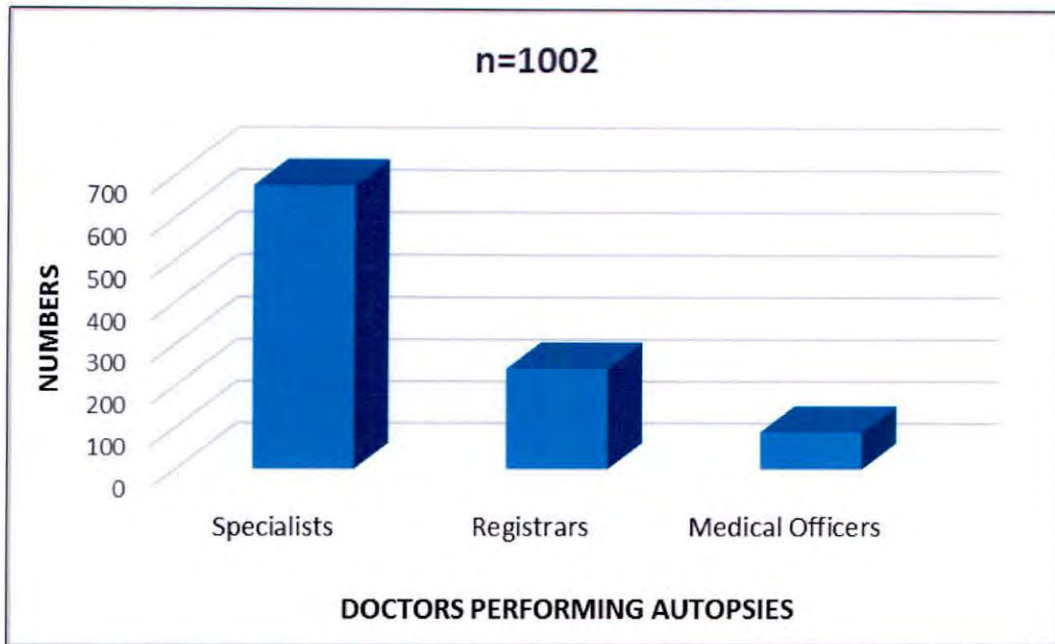


Figure 4.49: Distribution of Doctors performing the autopsies

Given the findings in Figure 4.49, it is therefore not surprising that the general standard of the autopsy reports was adequate in the vast majority (96.1%) with those marked as superior (n= 21) reported by specialists as depicted in Figure 4.50 below.

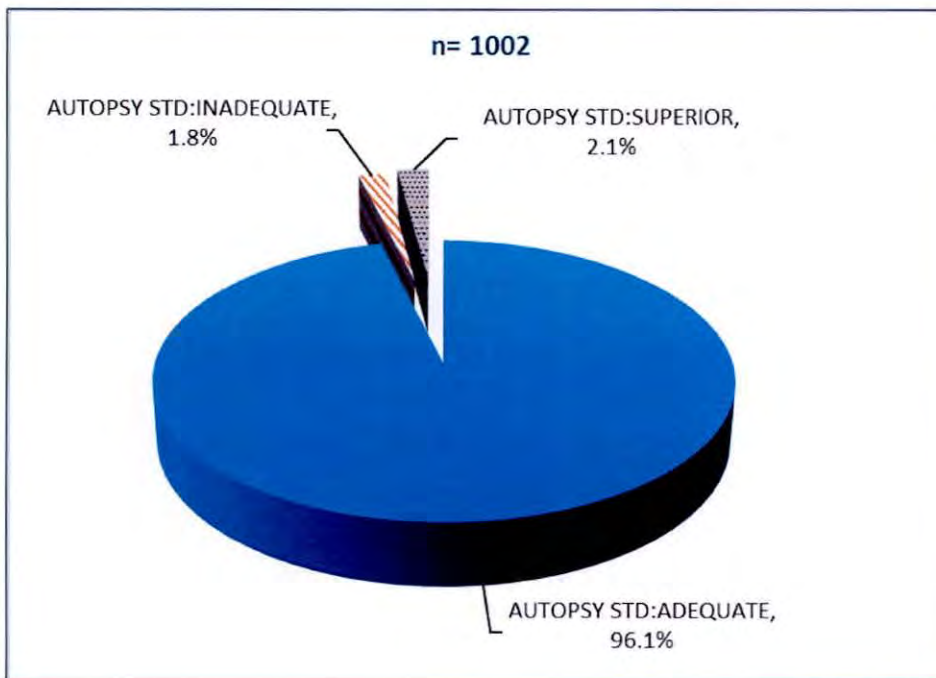


Figure 4.50: Distribution of autopsy reports by standard (STD)



The percentage of 2.1% (n= 21) of superior reports depicted in Figure 4.50 above reflects the strict criteria used in assessing the autopsy standard as described below. The standards of the autopsy reports were assessed as adopted from Mathews et al²⁵ by grading how well injuries were described in the autopsy reports with regards to three criteria, namely; anatomical location on the body, pathological description, and measurement of wound dimensions. Each of these three were scored on a scale ranging from 1 to 5, where 1= 0-25%, signified a dismal grade; 2=26-50% was poor grade; 3=51-75% was good grade; 4=76-99% was above average grade and 5=100% was superior grade. For example, in cases where only 0-25% of the wound dimensions were measured a score of 1 was allocated while cases where all the wounds dimensions were measured were allocated a score of 5.

The accuracy of the wound measurements as reported in the autopsy reports could not be confirmed, and thus was not scored in this study. To assess the accuracy of anatomical location the author used both the schematic diagrams and where available, the autopsy photographs to score this entity; a score of 1 was given to cases where anatomical location was either not given or very vague; for example, if the wound is stated to be positioned 'back', or arm, without further specification of the exact location with regards to the whether such a wound is on the proximal or distal part, anterior or posterior aspect and position relative to the midline of the body.

With regards to pathological description, the wound description according to category (for example incised/stab, blunt or gunshot) and correlation with the type weapon used based on the description of the wound margins, along with interpretation and complications thereof were considered, and where possible, these were correlated with autopsy photographs. Reports stating that there was a 'wound', with no further description of where it was lacerated, incised or entrance or entry gunshot wound were given a score of 1. In this regard, reports with accurate pathological description but lacking a section or comment on anal examination were given a score of 4 instead of 5.



It is the author's opinion that the section on anal examination is important to assess in this study, and its mere omission from the original autopsy template as appears in the SAP359 (Appendix I) does not justify the lack of comment thereon. The autopsy report was graded as superior if all three entities scored 5; that is, if all the wounds were measured, accurately stated as to their anatomic location and the wounds accurately and precisely described, interpreted and the complications thereof clarified, and genito-anal examination clearly reported to have been done. Furthermore, where relevant a superior grade was given if where indicated, appropriate investigations performed; for example the chain of custody of any retained projectiles is accurately described in cases of gunshot wounds.

Figure 4.51 below shows that 60.9% (n=610) of autopsy reports had superior descriptions (score of 5) of the anatomical location of wounds, while just over half 56.8%, (n=568) had full measurements of wound dimensions.

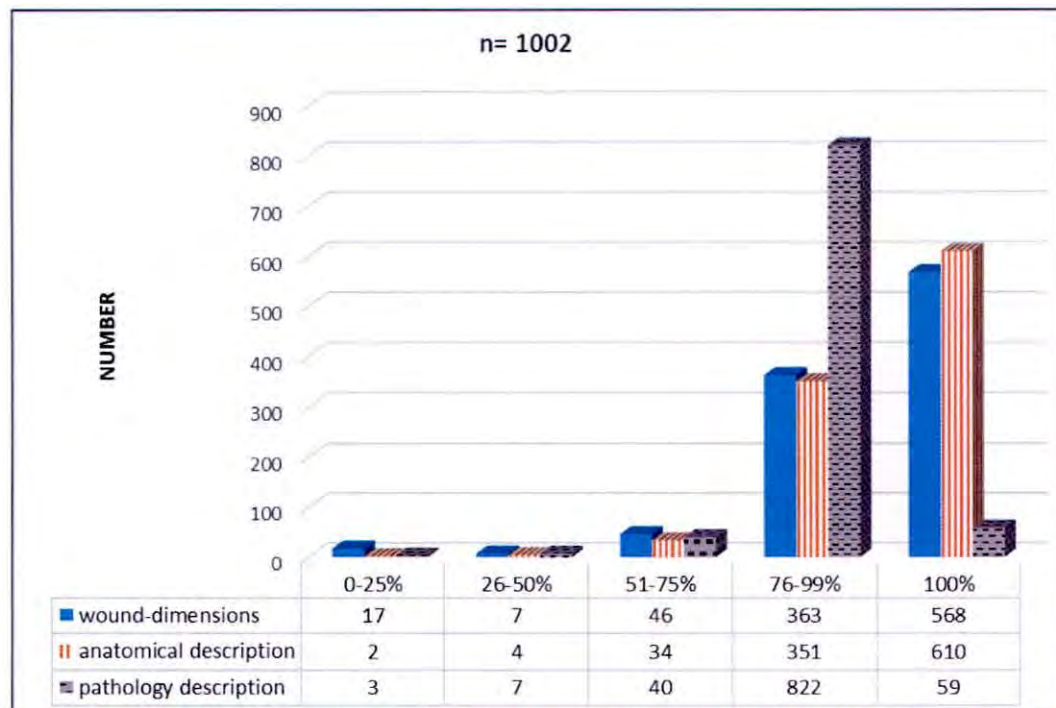


Figure 4.51: Distribution of parameters for assessing autopsy report quality

On the other hand, only 5.9% (n=59) of reports had full pathological descriptions and this criterion was largely responsible for the reports being graded dismal (1.7%, n=17).



However, for reports graded as showing adequate standard (score of 4) the pathological description of wounds was the best described criterion in 82% (n=822) while wound dimensions and anatomical descriptions show almost similar proportions (36.2% and 35% respectively).

4.8.2 Forensic evidence and photographs: Destination and Type

The type and relevance of specimens retained at autopsy play a central role in the investigation and subsequent prosecution of criminal cases. In this study, various specimens were retained as evidence in 86.6% (n=868) of cases at the time of autopsy while none were taken in the 13.3% of cases (n=133). The latter include cases that had prolonged survival in hospital prior to the autopsy. One case (n=1) was found at the street corner with a gunshot wound and had no documentation of whether any specimens were retained for ballistic examination as would be expected. Unless the chain of custody^{xvii} is maintained none of these specimens retained are admissible in court.

Figure 4.52 below shows that the Forensic Chemistry laboratory (FCL, 'Laboratory') was the most common destination (85.8%) for the 868 specimens retained which included post-mortem alcohol specimens (86.6%), with the rest being toxicology specimens (12.3%, n= 107), and in 25 cases (2.9%) only toxicology was performed without blood alcohol.

^{xvii} 'Chain of custody' is the pathway that forensic evidence follows from the time it is collected to the time that the relevant report is presented in court.



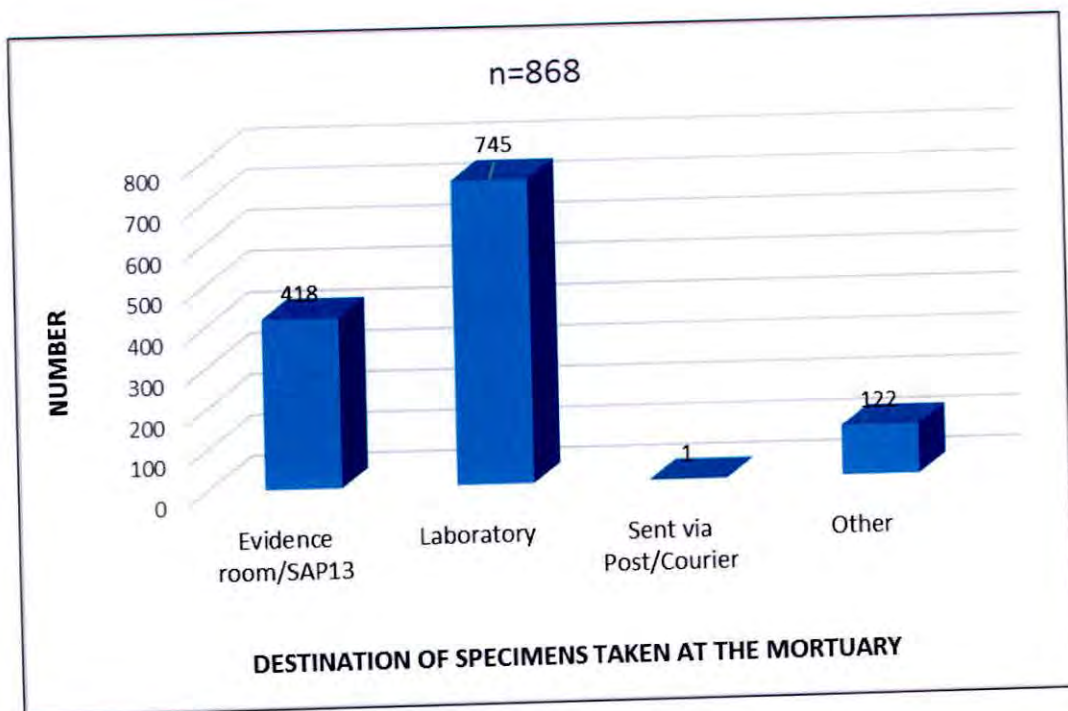


Figure 4.52: Number of retained autopsy specimens by destination

Following the FCL, the next most common destination for retained specimens was the access-controlled evidence room at the SRFPL (48.2%, n=418) where pathologists store specimens and record these in a register until they are collected by the Officer allocated to the case. The SAP13 register was specifically used prior to 2006 when the mortuary was managed by the police. The specimens being registered in this room included amongst others; projectiles found within the body, ligatures, DNA specimens, and et cetera. The category “Other” destination (14.1%, n=122) includes specimens handed directly to the investigating officer (n=29) at the time of post-mortem examination and the histology laboratory (n=73) amongst others. Only one case had maggot specimens sent by courier to Pretoria for analysis.

A total of 1573 specimens were retained from the 868 cases at the time of autopsy. The total number and types of specimens taken from each case depended on the nature of the case. Figure 4.53 below shows that of the 1573 specimens, blood alcohol was the most common investigation accounting for 46.7% of all specimens.



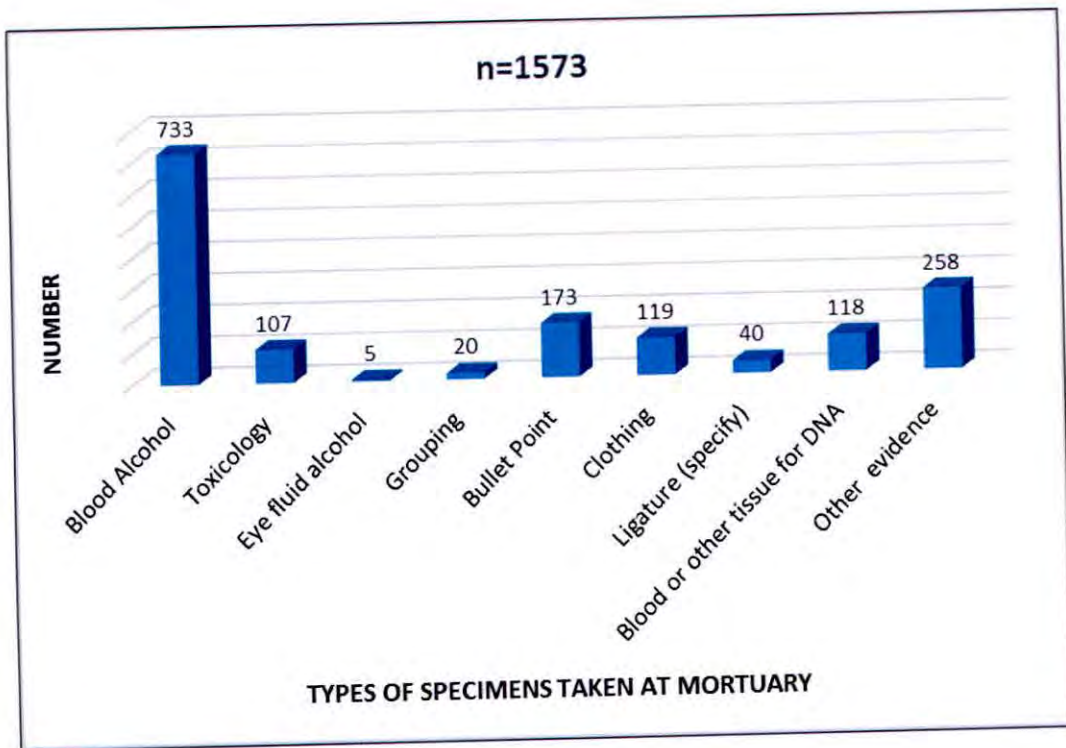


Figure 4.5348: Number of retained autopsy specimens by type

The next most common specimens comprised the category “other evidence” (16.4%, n=258) which includes histology specimens (4.6%, n=73), other material like retained weapons within the body (for example tree branch from the vagina, knife blade, et cetera) and SAECK equivalents (n=19), but excluded cases where specimens were taken solely for DNA analysis (7.5%, n=118).

The term ‘SAECK-equivalents’ refers to cases where fewer swabs than ordinarily taken in cases of sexual violence were taken due to unavailability of SAECK kits as known today (affects the years 2000 until 2003). Cases of strangulation where nail scrapings were taken using the SAECK kit were included in the category ‘blood or other tissue taken for DNA’, and not in the SAECK group.

In cases of gunshot injuries bullet points or projectiles were retained accounting for 11% (n=173) while clothing accounted for 7.6% (n=119) of specimens. The reasons for retaining the clothing included sending the clothes as exhibits in cases where it was used as ligature (n=27), for ballistic examination and for forensic science analysis to look for the perpetrator’s DNA.



Considering the weapons used to kill victims in this study which included poisoning as a method, (see Figures 4.47 and 4.48 above), the relatively higher number of toxicology specimens (6.8%, n=107) is rather unexpected. The author suspects that this number is attributed to toxicology project performed in 2005 which accounted for half (n=53) of the toxicology specimens, and includes some cases where a fire (n=10) was the method of death and thus carbon monoxide levels were crucial in determining the primary medical cause of death. A full analysis of toxicology results is beyond the scope of this report.

Photographs form part of important evidence for the judiciary as they represent a visual depiction of injuries observed and described in the autopsy report. Figure 4.54 below shows that post-mortem photographs were taken in 93.0% of cases (n=932) as recorded in the autopsy report, but in 5.8% of cases (n=58) there was clear documentation that photographs were not taken.

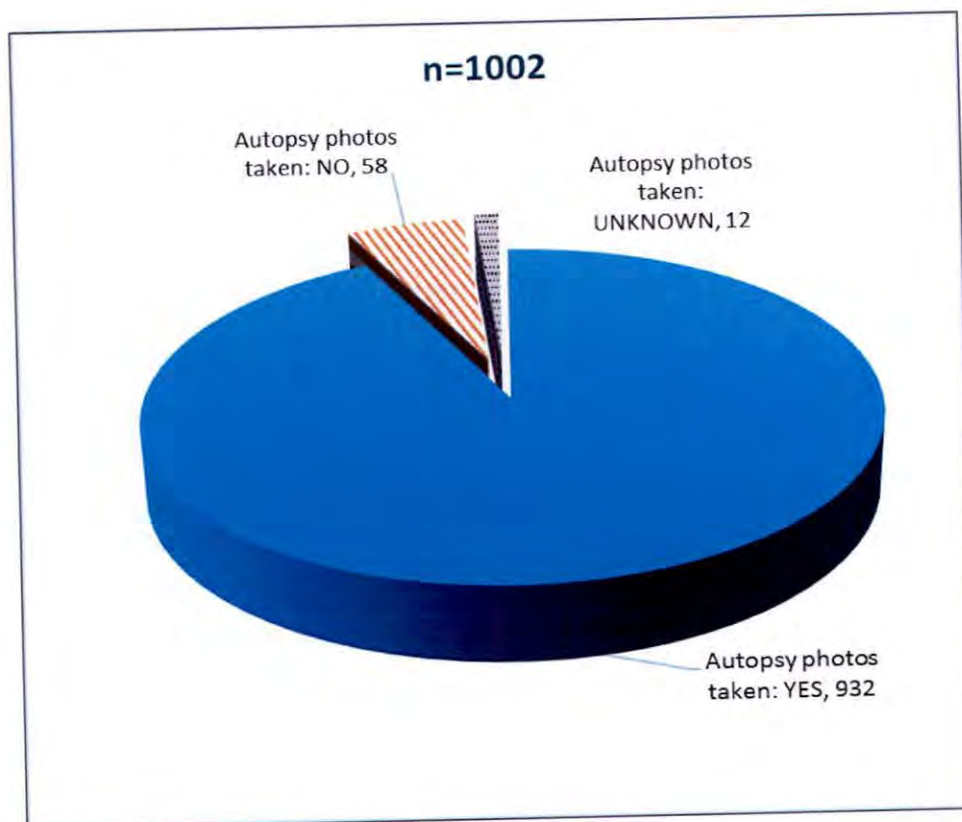


Figure 4.54: Numbers of autopsy photographs



The author suspects that some of these cases may have been autopsied after hours when personnel from the Local Records Criminal Centre (LCRC) is not always timeously available. In a minority of cases (1.2%, n=12) however, there was no record or comment on whether photographs were taken in the autopsy report or scene script documents, and no photograph copies were attached to the respective files.

4.8.3 Post-mortem blood alcohol

The high percentage of victims tested for post-mortem (PM) alcohol in this study (73.8%, n=734) is not surprising as the general rule in the FPS practise in South Africa (SA) is that alcohol sampling should be performed in all unnatural deaths. The specimens tested comprised 734 samples of blood and 4 eye fluid specimens as shown in Figure 4.55 below.

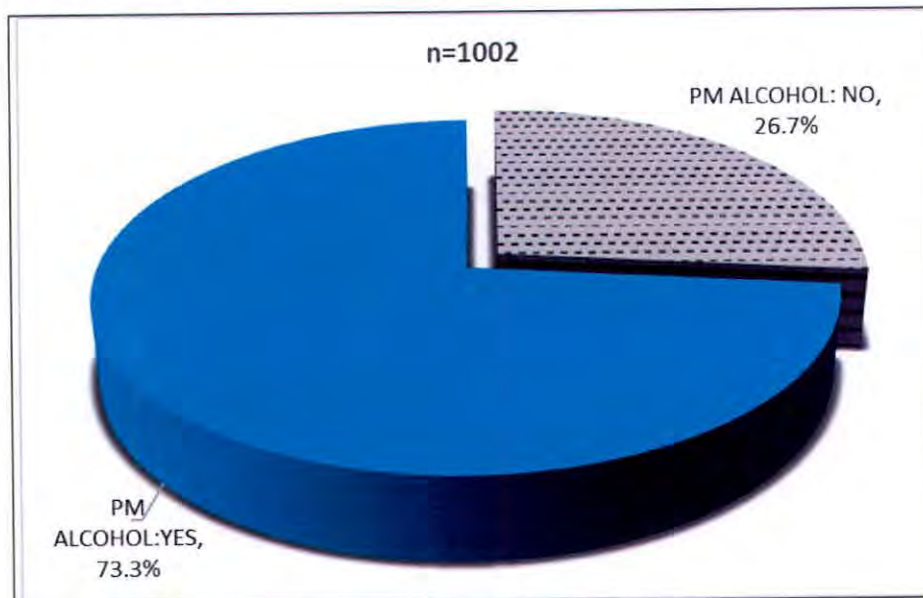


Figure 4.55: Distribution of post-mortem blood alcohol investigation

The eye fluid specimens were retained from decomposed bodies instead of blood as the latter may give spurious alcohol results. One of the 4 eye fluid specimens had the alcohol level of 0.08g%, one had missing results, and two tested negative for alcohol. For simplicity, analysis of the alcohol results as seen in Figure 4.56 below excludes the 4 eye fluid results and the 26.3% (n=193) cases that had missing blood alcohol results.



Figure 4.56 shows that more than half (54.7%, n=296) of the victims tested for alcohol had not consumed alcohol prior to being killed, while 41% (n=222) had alcohol concentration above the legal limit for driving in SA of 0.05g% and above¹⁵⁴. In this study this concentration level of 0.05g% and above is used as the proxy measure for significant intoxication. The calculated mean alcohol level of the sample was 0.09g% with the maximum level was 0.41g%, and 11% of victims (n=59) were five-times above the legal limit for driving.

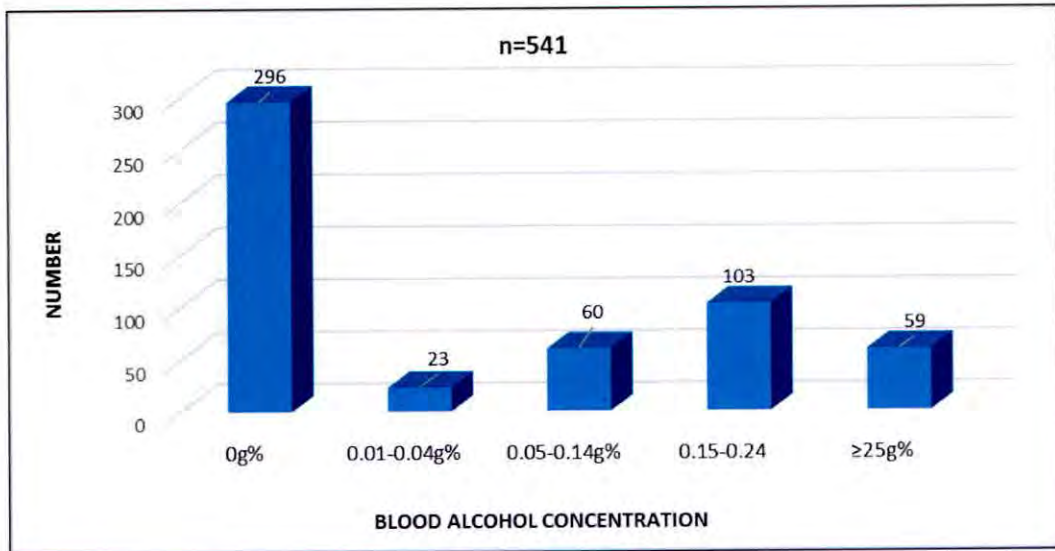


Figure 4.56: Distribution of post-mortem alcohol results

It is common knowledge that children below the age of 18 years consume alcohol despite legislation prohibiting this. Alcohol investigation was performed in 30 victims (4.1%) below the age of 18 years, the youngest was 3 years old and had a negative alcohol level. Post-mortem blood alcohol was positive in 23.3% of these children with the highest levels at 0,25g%.

Figure 4.57 below shows that African and Coloured victims were significantly more intoxicated than Whites and Asians combined. While this result could be an artefact of the proportion of each of these racial groups in this study, and the relative proportions of these groups tested for post-mortem blood alcohol, there were slightly higher numbers of intoxicated Coloured victims (22.6%, n=122) compared to African victims (n=98, 18.1%). This finding may be significant considering the similar total



numbers of these two racial groups included in this study (Africans, n= 470; Coloured victims, n= 458).

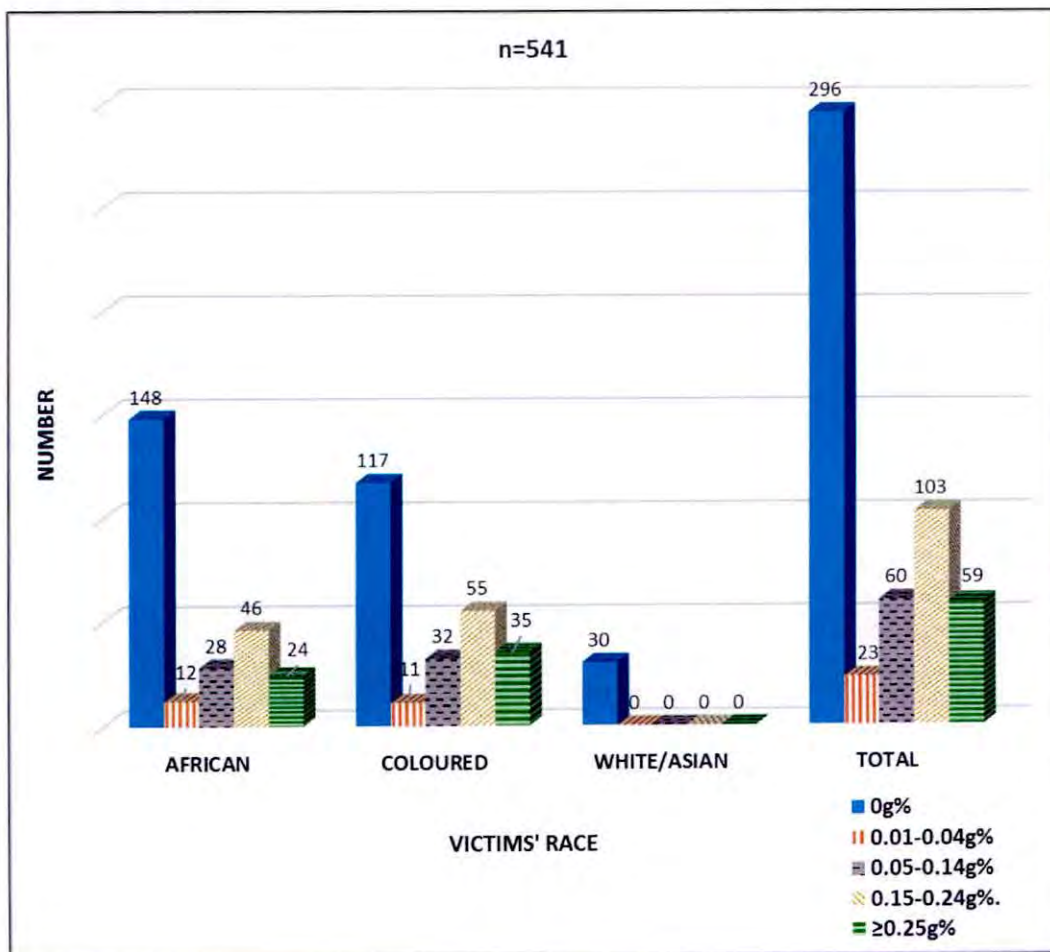


Figure 4.57: Distribution of blood alcohol level by race

Figure 4.58 below represents results of victims whose blood alcohol was positive, that is, blood alcohol results were 0.01g% and above, accounting for 45.3% of cases (n=245) in whom blood alcohol results were available.

As expected the majority (58%, n= 142) of those who were significantly intoxicated (three to five times above the legal limit for driving) were killed on the weekend as shown in Figure 4.58 below. It is clear that Saturday remains the one day when more victims drank (32.7%, n=80), and were more intoxicated compared to those dying on any other day of the week. It is however, surprising that there were more intoxicated victims on the Monday (6.9%, n=17) with alcohol concentrations more than twice the legal limit for driving (0.15-0.24g %), compared to other days in the middle of the week.



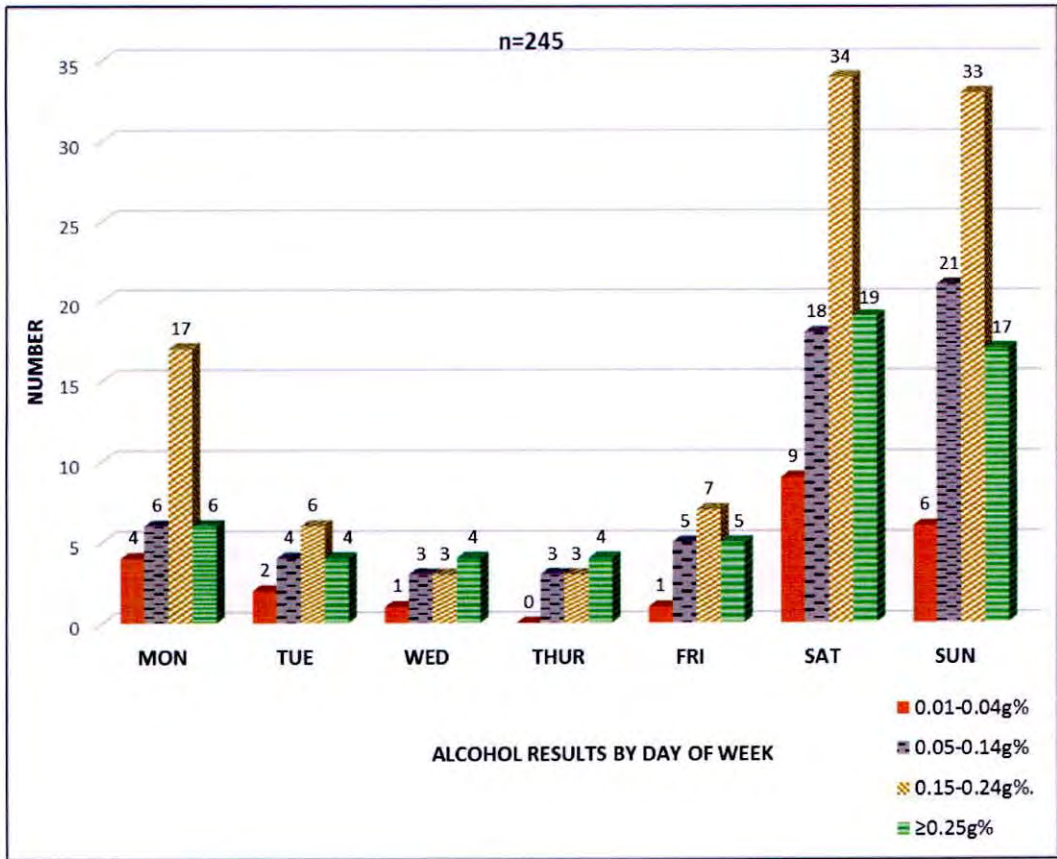


Figure 4.58: Distribution of alcohol level by day of death

Figure 4.59 below shows that of the victims who were sober at the time of death (n=296), slightly more died from multiple injuries (n=160, 54.1%) compared to those who died from single injuries (n=132, 44.6%). The levels of alcohol concentration in those who were intoxicated were almost similar across the different primary causes of death.



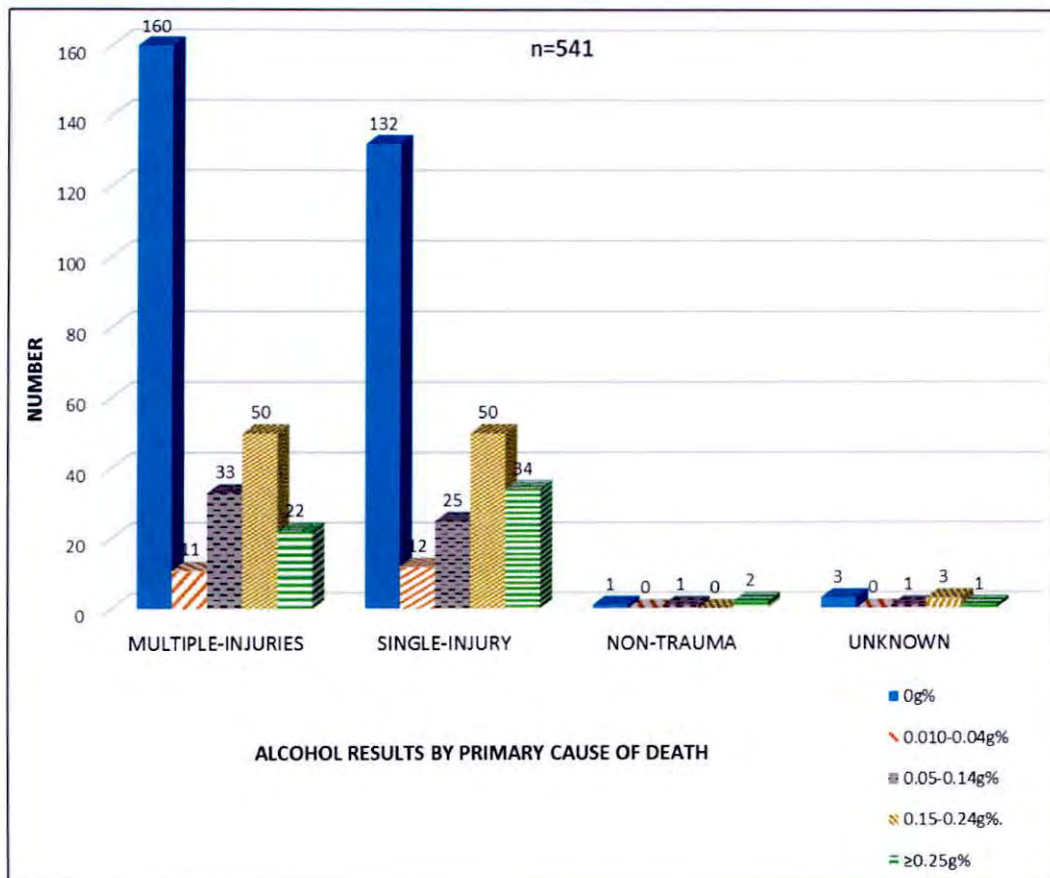


Figure 4.59: Distribution of alcohol level by primary cause of death

Figure 4.60 below shows the distribution of cases in which blood alcohol level was tested and dying from the top five methods of death (n=523).

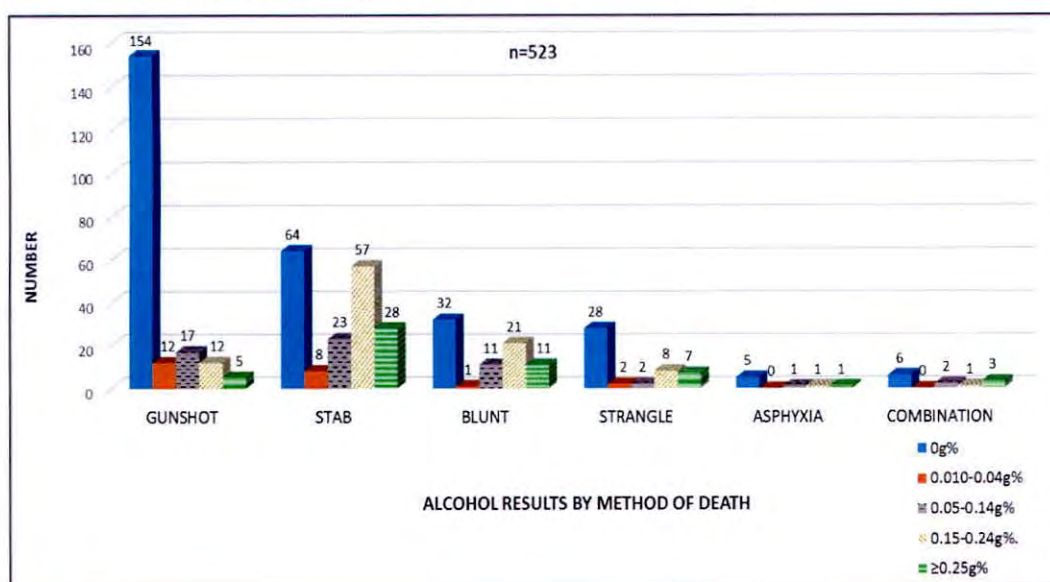


Figure 4.60: Distribution of alcohol level by method of death



Victims dying from gunshot injuries accounted for more than half (53.3%, n=154) of victims who were sober (n=289), while those who were stabbed accounted for almost a quarter (22.1%, n=64). Those who died from blunt injuries (n=32) and asphyxial modes of death (asphyxia and strangulation combined, showed similar numbers of sobriety (average n=33). Victims who were stabbed accounted for almost half (49.6%, n=116) of all intoxicated victims in this group (n=234). Although the numbers of intoxicated victims dying from gunshot and blunt force injuries were almost similar (n=46 and n=44, respectively), those dying from blunt injuries showed much higher concentrations of alcohol intoxication. While there was a slightly higher number of victims who were sober and dying from asphyxia-related deaths including strangulation (n=33) compared to those who were intoxicated (n=22), there was no significant correlation between alcohol level and dying from injuries caused by multiple or combinations of weapons.

Post-mortem blood alcohol was tested in 58.3% of the 199 cases of suspected sexual violence. To assess if alcohol intoxication was an additional risk factor for sexual homicides, analysis of alcohol results is presented in Figure 4.61 below.

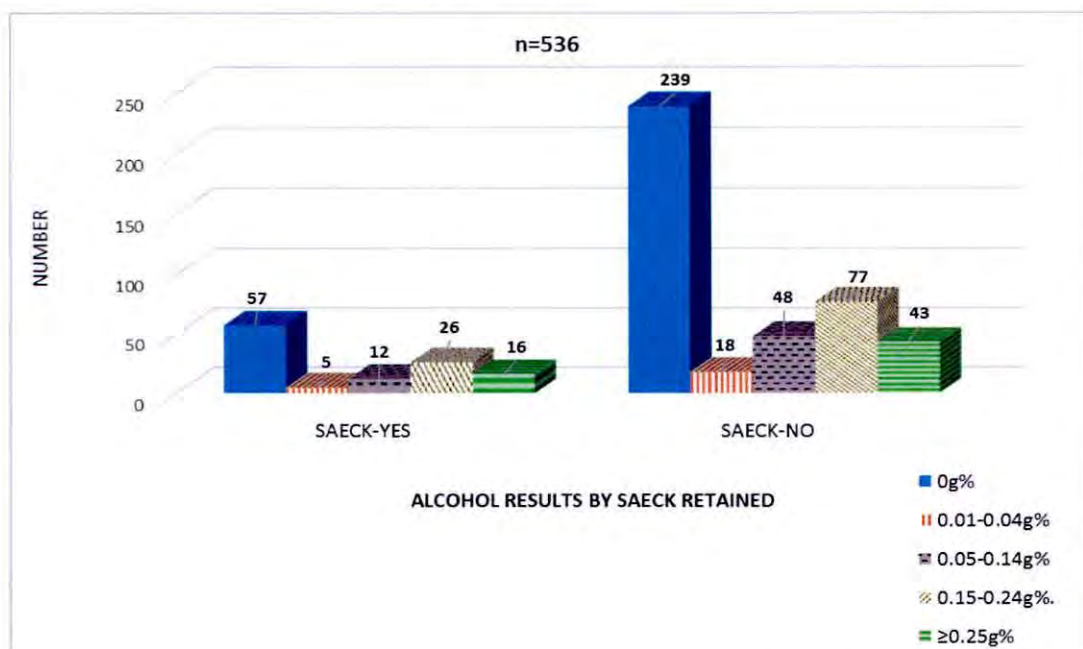


Figure 4.61: Distribution of alcohol level by SAECK retention



Figure 4.61 above demonstrates that almost half (49.1%) of these victims were sober, while 46.6% (n=54) were significantly intoxicated at the time of death.

To assess whether alcohol intoxication was an added risk factor for pregnant victims of femicides (n=19), alcohol results were analysed according to the victims' pregnancy status (n=536). As seen in Figure 4.62 below, pregnant victims were thirty times less likely to have a positive blood alcohol level and thirty-six times less likely to be significantly intoxicated than non-pregnant victims. Just over half (58%, n=11) of pregnant victims tested were sober at the time of death.

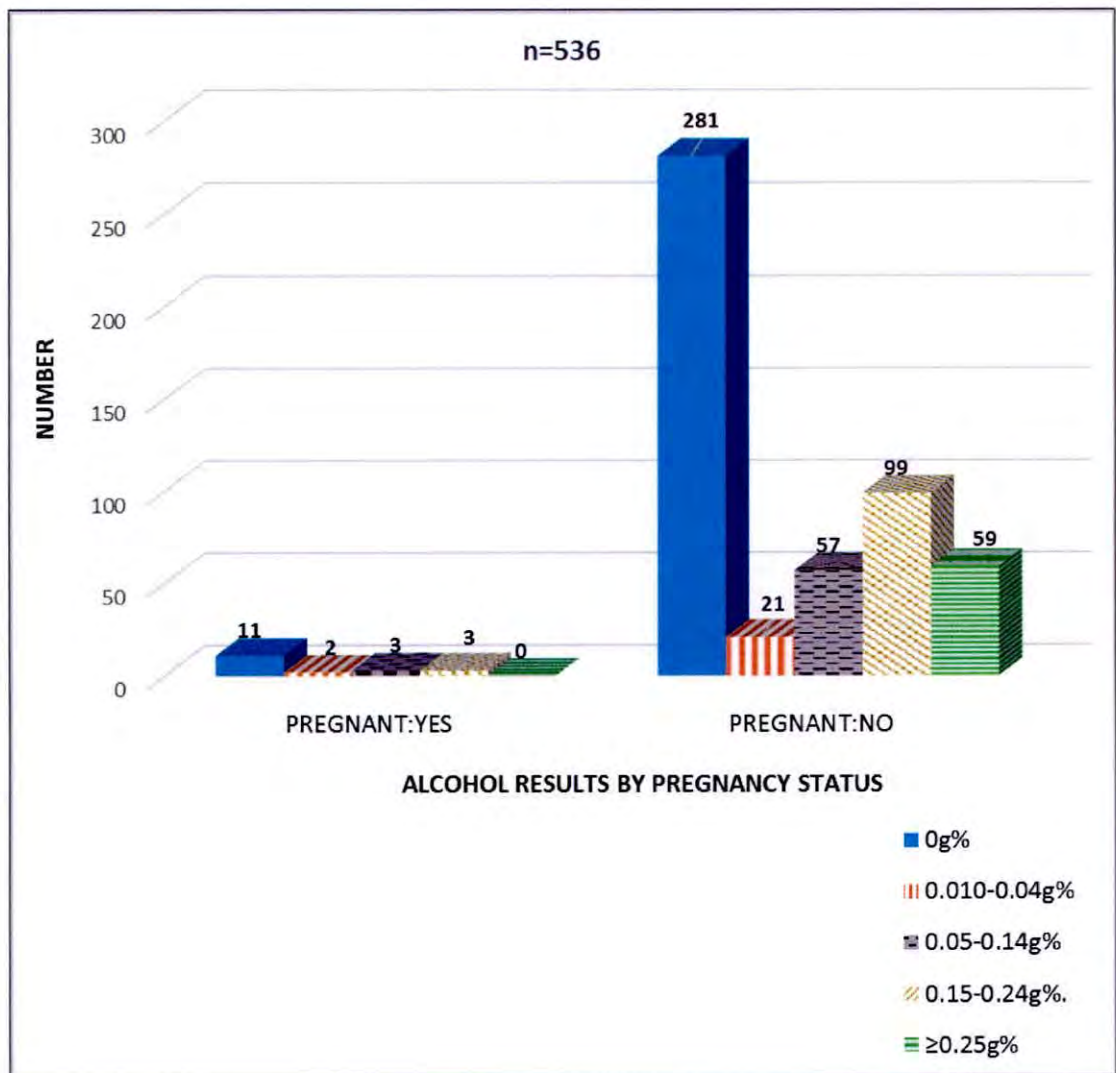


Figure 4.62: Distribution of alcohol level by pregnancy status



4.9 CONCLUSION:

The data presented in this chapter has shown an average of 100 femicides per year, corresponding to an average incidence rate of 12.4/100,000 females in the Western Metro of Cape Town between 2000 and 2009. Similar numbers of young adult African and Coloured females from poorer communities were the most affected, with Nyanga occupying the top position. The corresponding incidence rates of femicide in these areas could be different but data on the population groups per area was not available, as discussed in the limitations in the last chapter of this report. This data suggests that the risk for femicide is related to alcohol consumption in the late evening times, over the weekends.

There was a strong correlation of sexual violence being investigated further by retaining the SAECK if the femicide case had a history of suspicion of sexual violence, had deranged lower clothing, and multiple injuries in the genitalia, anus, neck, and pelvis and buttocks, in that order. These victims were identified as suspected sexual homicides, showing an annual average of 19.9% cases out of the total number of femicides in the ten years of study. This number corresponded with an average annual incidence rate of 2.43/100,000 females in the Western Metro of Cape Town during the ten years. Unlike the femicide victims who died most commonly from gunshot wounds, stabbing, blunt assault and asphyxial mechanisms in that order, most of which were single, the inverse was true for sexual homicides who died from multiple injuries, and predominantly from asphyxia, including strangulation. As expected, more than 90% of the femicide victims had external and internal regional injuries, mostly directed to the upper body, including the chest, head and face, neck and upper limbs where the majority were defence wounds. Bite injuries found in these areas, albeit at lower rates, were strongly associated with sexual violence.

Lastly, the data on crime scene and autopsy investigations was used to grade the standard of forensic examination and post-mortem reporting in all femicides, and found most autopsy reports to have adequate standards, despite poor crime scene attendance by the pathologists and investigating officers alike.



The next chapter (5) seeks to analyse and discuss the main findings of this study by comparing with the findings of the 'parent studies' and other international literature on femicides and sexual homicides. This will be executed with the aims and objectives of this study, as set out in section 3.3 above as a guide.



Chapter 5 : DISCUSSION

INTRODUCTION:

This study sought to describe the epidemiology and pathology of femicides and sexual homicides in Cape Town between 2000 and 2009. The author understands sexual homicide to be a subcategory of femicide, based on both the definition and autopsy investigation thereof, as described in preceding chapters. Thus, femicide and sexual homicide are discussed separately as the two typologies of fatal violence against women (VAW) in this study.

In order to identify possible risk factors for these two typologies, an ecological framework introduced in Section 2.5 of this report pointed to a range of interdependent factors centred at the level of the individual victim, perpetrator and environment^{16, 66}. Particular attention will be paid to potential risk factors emerging from the victims' demographic variables that may help explain the epidemiological trends observed in this study.

This chapter aims to analyse the main findings of this study as described in Chapter 4 above, and compare these with previous local and international research. The chapter is divided into two main sections, femicide and sexual homicide, each with sub-sections discussing the incidence, possible risk factors which will include race, age and the role of alcohol; and the description of the pathology with regards to weaponology and injuries types. For simplicity, the area of death as an added risk factor is discussed under the section on femicide.

5.1 EPIDEMIOLOGY AND PATHOLOGY OF FEMICIDES:

5.1.1 Femicide incidence

Updated statistics on the incidence of femicide in Cape Town are lacking, however, considering the declining global and national homicide trends^{2, 28, 65} the incidence rate



of femicide was expected to show a similar trends in the ten year period of study. This study found an average of 100 women were murdered annually during the ten years of study from 2000 until 2009, with the corresponding average femicide incidence rate of 12.4/100,000 female population in the Western Metropole of Cape Town. This incidence rate is comparable to the 2009 national femicide rate of 12.9/100,000²⁸ but is four times higher than the rate of 2.3/100,000 reported in the United States of America (USA)⁴². While this rate parallels the global male homicide rate it is almost five times the global femicide rate of 2.7/100,000 females reported for 2012². The femicide incidence rate for this study is seven times more than that found in Turkey for the years 2002 to 2011¹⁵⁵.

This study showed a gradual decline in femicides by 47.2% from the highest incidence of 19.3/100,000 in the year 2000 to 10.2./100,000 in 2009. The dramatic decline recorded in the first three years is erroneous due to missing reports for the years 2001 and 2002 as described in the limitations below. This decline equates to the reported 47.8% decline in total femicides between 1999 to 2009 in South Africa (SA)²⁸, and is five times higher than the 8.6% decline of national homicide rate reported for the period between 2003/04 to the 2009/10 financial years⁶⁰(incidence rates for the years 2000 to 2002 are not available from the South African Police Service (SAPS) crime reports to allow for a full ten year comparison).

Although this finding is encouraging as it supports previous reports that femicides are on the decrease in SA including Cape Town; a city notoriously known for its high homicide rates and ranking amongst the highest at a global scale^{2, 68}, there are two major concerns:

Firstly; there was no significant difference in the trend of femicide rates over the latter seven years of the study as represented by the straight lower graph in Figure 4.1. This finding is similar to that found in Turkey between the years 2002 to 2011¹⁵⁵ and suggests that the decrease in femicide rates as reported in the SA national study was a gradual rather than an exponential trend.



Secondly, while the overall decline in femicide incidence rates over the 10-year period is notable, the finding of a 3% annual increase noted between 2008 and 2009 is concerning as it may indicate a fluctuating or stable trend rather than an actual decline in femicides in Cape Town. This may be further supported by the unpublished studies supervised by the author which revealed 64 femicides admitted at Salt River mortuary (SRFPL) in 2010¹⁵⁶ and 83 femicides in 2011^{157, 158}. The estimated femicide incidences for these years were 7.1/100,000 and 8.9/100,000 female population in 2010 and 2011, respectively. Although these rates are lower than the 2009 rate of 10.2/100,000 reported in this study, the fluctuation of femicide rates between 2008 and 2011 is concerning as it supports the much lower 6.1% decline in national femicide incidences between the 2008/09 to the 2011/12 financial years¹⁵⁹. Therefore, the subsequent 12.2% increase of the Western Cape (WC) province homicide incidents from 2300 in 2011/1012 to 2580 in 2012/2013^{65, 66} may also reflect a concomitant increase in femicides subsequent to 2011.

5.1.2 Geographic location as a risk for femicide

It is worrying that the numbers of femicide victims remain persistently and disproportionately higher in certain poorer communities of Cape Town⁶⁷. This study showed that Nyanga, Gugulethu, Mitchell's Plain, Philippi and Woodstock together accounted for significantly higher femicide numbers, altogether accounting for more than one third, (35.0%) of overall police stations in this study (Figure 4.20), and more than half (58.0%) of the top ten police stations (Figure 4.21). The victims' dwelling type, which may be used as a proxy measure for socio-economic status could not be analysed in this study due to missing information in 89.2% of cases. However, to the author's knowledge, Mitchell's Plain and Philippi (typically referred to the "Cape flats") have a mixture of formal and semiformal housing whereas Nyanga and Gugulethu are largely characterised by informal housing structures or shacks, indicating high levels of unemployment in these areas.

Previous reports dubbing Nyanga the murder capital of the world^{68, 160} are supported by the highest contribution (11%) of femicides from Nyanga compared to other areas



in this study. This finding is further supported by the homicide study in 2001¹¹⁷, and the femicide studies performed in 2010¹⁵⁶ and 2011^{157, 158} in which the top ten SAPS stations mentioned above retained their positions and Nyanga remained at the top position. Similarly, Nyanga contributed the highest number (n=262) and percentage (10.2%) of homicides in the WC province at the rate of 13 homicides per capita in the 2012/2013 financial year⁶⁶.

Although not falling within the top ten stations in this dissertation, Philippi–East and Langa account for femicide numbers very close to Atlantis and Manenberg. The former two areas are important to note as they have the same demographic and socio-economic profile as the above-mentioned top ten stations, with the exception of Woodstock SAPS, and possibly the same pattern of other forms of violent crime. Martin’s study found that Mitchell’s Plain, Khayelitsha, Cape Town Central, Sea Point and Muizenberg accounted for the top five SAPS stations¹⁴, which except for the latter three show similar demographic profiles to the top ten stations in this study.

This geographic distribution of violence in Cape Town is expected as communities residing in these areas are persistently at risk for most preventable diseases, including violent deaths^{47, 101, 161}. Higher homicide rates in these communities have been blamed on prevailing levels of unemployment, poverty, overcrowding and substance and particularly alcohol abuse⁶⁶ among young adults which have all been linked to race^{xviii} as a common denominator.

^{xviii} Racial classification is based on the old Population Registration Act of the apartheid regime which categorised South Africans into Whites, Coloureds (meaning people of “mixed heritage”) Blacks, and Indians. Africans and Asians replace the latter two categories in this report. To date these artificial racial categories remain and still form part of official documents, policies, population statistics and in identity documents; their use in this report acknowledges the persisting devastating role they have on public health disparities in this country.



5.1.3 The role of race, age and alcohol as risk factors for femicide

Race:

With the exception of Woodstock SAPS, which largely represents victims dying in the nearby Groote Schuur hospital (GSH), the top five SAPS stations service areas almost exclusively populated by African and Coloured people. As expected, this study found that Coloured and African femicides together accounted for the vast majority (92.7%) of victims but surprisingly in almost equal proportions, while Whites and Asians accounted for the remaining minority (Figure 4.16). This finding contradicts results found in the succeeding two years where African femicide victims in Cape Town showed a higher numbers in 2010 and 2011¹⁵⁶⁻¹⁵⁸.

On the other hand, the National femicide study showed that the incidence of Coloured femicides was proportionally higher than other races in 1999 and 2009. It is however, unclear if this finding represents artefact as Africans predominate the population of SA as a whole, while Coloureds and Africans together form the vast majority of the population in the WC province in the last 15 years. The Coloured population predominated the WC province accounting for 48% of the population in 2001 with a gradual decrease to 44% and 42% in 2007 and 2011 respectively, while the African population increased proportionally from 32% in 2001 to 39% in 2011¹⁵⁰. Considering these proportions of Africans to Coloureds, the femicide numbers in this study suggest that African women may be disproportionately becoming at a higher risk of femicide than all other races in the Cape Town. This is especially because Martin's study previously showed that Coloured females were disproportionately at higher risk. However, without calculations of incidence rates per female population in each respective racial group this hypothesis cannot be confirmed in this study.

Nonetheless, the suggestion of the higher risk of African and Coloured women to violence compared to Whites is not unexpected as racial classification has been and continues to be affected by the former apartheid laws which may have contributed to White people being relatively 'protected' from violence compared to other races^{162, 163}. This situation is not unique to SA; two large multi-state American studies showed



similar high risk of VAW for African-American women who were twice more likely to die from homicide at a much younger age, and had attained a lower education level compared to their White and Latino counterparts^{40, 43}. However, caution should be exercised in interpreting these racial disparities as alternative explanations may have to be considered. For example; Dugan et al report a paradoxical result in gender parity whereby increasing the level of education for African-American women was associated with perceptions of threatened masculinity by their poorly educated African-American male partners resulting in economic disparities in the household and conflict, thus increasing the risk of intimate femicide (IF); while the opposite effect was noted in their White counterparts^{87, 164}.

In another 50-state study on domestic violence (DV), the findings of more fatal injuries in African-American femicides dying at home compared to their White-American counterparts who reached hospital raised concerns about the poor access to quality emergency medical care and adequate policing for African communities in USA⁴³.

Therefore, while there is general consensus that race has strong associations with cultural, socio-economic status and substance abuse which are all associated with high risk of VAW^{20, 33, 67, 165}, understanding the role of race in femicide incidence rates can only be achieved after controlling for confounders like poverty, educational level and marital status.

These confounding factors have been reported in SA^{103, 106, 163} and are thus important to confront and address at multiple levels of prevention of femicide, especially occurring in the setting of DV. In this study, information on the victim's marital status and socio-economic status as judged by their dwelling type and employment status is too limited to make any useful conclusions. Nevertheless, the finding that more than half of the victims in Martin's study (70% of whom were Coloured) were either unemployed or in non-professional occupations¹⁴, and as replicated nationally¹³, warrants careful consideration of socio-economic status as a confounding factor for femicides.



Thus, it is conceivable that these demographic and socio-economic variables, all of which have been blamed on the legacy of apartheid¹⁰¹, may have influenced the disparities of femicide trends between the racial groups in Cape Town. Alternatively, these racial disparities may be explained by the normalised view to use violence to resolve conflict in relationships, a phenomenon previously documented in African and Coloured communities in SA^{51, 66}.

Age:

Regardless of race, VAW affects women of all ages; from birth in the form of selective abortions or abandonment of female foetuses as documented in regions like Asia and Africa⁵, to the elderly^{3, 98}. It is for this reason that unlike previous research this study included femicide victims of all ages. Increasingly, the media reports missing children who, in the authors' experience in the WC province, almost exclusively end with reports of being found dead and possibly raped. Given the violent nature of SA society, it was hypothesised that this study will show higher numbers of femicides of a younger age, with proportionately higher numbers of child femicides than previously reported.

Remarkably, the youngest victims in this study were newborns and the oldest was 97 years of age. The finding of elderly femicide victims accounting for 4.5% of all femicides compares with the 5% of all homicides reported over 28 years in the US⁴², but is almost twice higher than the percentage reported in SA in 2007¹²⁷. The majority of elderly femicides in this study were White, a finding that cannot be explained by available limited data in this study.

On the other hand, children below the age of 18 years accounted for 7.7% of femicides, comparable to the global homicide percentage of 8.2% for children aged below 15 years². This study showed a bimodal (U-shaped) age pattern with the first peak involving children below 5 years of age (22%) while teenagers aged 15-17 years formed the second peak and accounted for the majority of child femicides (38.9%, Figure 4.14). This U-shaped pattern is similar to that observed in countries like the USA, Canada, Australia, England, Wales and New Mexico^{122, 124}. There have been previous reports of a more pronounced and unique gendered pattern of child



homicides similar to that seen in adult homicides¹⁶⁶ where girls accounted proportionately more for the under 5-year child homicides whereas boys accounted for the majority of the 15-17year age group²⁹. This finding may point to the disproportionate risk of SA women to fatal VAW from a very young age.

On the contrary however; this study found that infants accounted for only 9% of all child femicides (Figure 4.14), contradicting the hypothesis that the younger the child the greater the risk of homicide, with infants younger than 1 year of age said to be at the greatest risk^{42, 118, 122}. The lower number of infant femicides found in this study contradicts the 2009 reports of abandoned infant femicide rate of almost five times higher than the overall child femicide rate reported in SA²⁹. Similar patterns of higher abuse-related infant homicides were reported in New Mexico¹²⁴, Australia¹¹¹ and by Yawoord in a survey of six countries (USA, Canada, Australia, England, Wales and Scotland)¹²².

Another unexpected finding is the observation of children less than 18 years accounting for almost one third of sexual homicides in this study (Figure 4.39), raising the possibility of a sexually motivated killings. It has been shown that children acquainted to friends displaying violent behaviour have an increased risk of being either perpetrators or victims of physical and sexual violence¹⁶. The young age and female gender are primary risk factors in these victims where perpetrators are usually people known to the children^{29, 66}. Therefore, it is conceivable to suggest that the proportionally higher numbers of teenage femicides in this study may be related to risk-taking behaviour similar to that documented in young adult women. Thus, previous history of physical or sexual abuse, and in some cases, an association with alcohol consumption used as a coping mechanism^{114, 167} should be sought as possible predisposing factors.

Whereas the risk-taking behaviour and prior violent exposure may be applicable as factors in teenage femicides, younger children are usually killed as a culmination of child abuse^{122, 124, 168}. The reasons for the lower percentage of infant homicide in this study remain unclear as this study made no distinction between abuse and non-abuse



related femicides. Nevertheless, the author suspects this may be due to high rates of misclassification bias when infant deaths are registered as natural, accidental or labelled as 'sudden infant death syndrome' (SIDS) as previously documented in SA and globally, inclusive of countries like France, USA, New South Wales and New Mexico^{29, 110, 111, 124, 169}.

Additionally, SA has a very high infant mortality rate from natural diseases like pneumonia and diarrhoea which are not routinely autopsied. In these cases the lack of thorough investigation may conceal the true magnitude of infant homicide especially in cases where the otherwise ill-looking appearance of the child may detract the pathologist from searching for subtle or non-specific signs of abuse or asphyxia²⁹. Members of society and professionals (including forensic pathologists) have the statutory obligation to report identified cases of neglect or abuse-related child deaths to law enforcement and child protection authorities^{17, 151}. Yet, underreporting as previously reported in SA^{29, 109} and other countries^{110, 124, 169, 170} remains a stumbling block in the prosecution of perpetrators; thus, prevention of future events against surviving siblings is compromised. As cautioned by Jewkes and Vetten, survivors who themselves witnessed violent conflict and abuse in their home as children^{33, 171, 172} go on to be victims and perpetrators of VAW. This leads intergenerational cycling of violence^{11, 32, 173} and hence the risk for femicide persists beyond childhood and adolescence into adulthood.

In this study, adults aged 18-64 years accounted for 86.6% of all femicides, while almost three quarters (71%) of adult femicides were in the reproductive group aged 18-39 years (Figure 4.13). The median age of 32 years found for all femicides in this study is identical to that reported for IF in SA²⁸ and the USA⁴². Victims aged of 18-29 years were at the highest risk for femicide comparable to reports that more than half of the global femicide victims are under the age of 30 years^{2, 4, 37}. This finding supports that of the SA national femicide study²⁰, and further compares with the femicide peaks in the USA and Canadian at ages 15-24 years^{39, 42}, Turkey at 29.6 years¹⁵⁵ and Stout's finding at 25-29 years³¹. Contrary to North Carolina and Finnish studies which reported



higher mean ages of between 38-40years^{174, 175}, the current study supports the emerging hypothesis that VAW affects younger women rather than those of older age.

The reasons for susceptibility of younger women to femicide have not been fully studied in SA but in this study appear to be related to the same construct of risk-taking behaviour and intergenerational cycling of violence, often marked by high levels of substance and alcohol consumption used as a coping mechanism for poor socio-economic conditions and chronic abuse^{114, 167}. Additionally, the finding of the mean age of 28.83years for pregnant femicides in this study, as similarly found in another Cape Town study¹⁷⁶ raises the possibility of pregnancy as an additional risk factor. Available information showed that 21.6% of pregnant victims were killed by intimate partners, a number twice lower than that reported by Khan¹⁷⁶, and an additional two by family members. This result, together with the finding that two thirds (67.6%) of pregnant victims were Coloured, followed by Africans at 29.7%, raises the possibility of similar risk for violence as non-pregnant femicides, possibly related to prior childhood exposure to violence and pre-existing history of IPV¹⁷⁷.

Alcohol:

Given the current levels of alcohol abuse in SA society and its association with interpersonal violence, the author hypothesised that more femicide victims will show higher levels of alcohol intoxication than previously reported by Martin¹⁴ and Mathews et al¹¹⁴. On the contrary, this study found that of the 73.2% of victims tested for blood alcohol, more than half were sober or had levels lower than the legal limit for driving in SA¹⁵⁴ prior to being killed, while 41% were mildly to severely intoxicated (Figure 4.57). This percentage is lower than Lerer's finding of 56% intoxicated femicide victims in Cape Town¹⁰² while the WC provincial study¹¹⁴ (which included a sample from Cape Town, 1999) performed almost a decade later than Lerer's study found that 62% of victims were intoxicated. The latter percentage is comparable to Martin's finding of positive blood alcohol result in 68% of sexual homicides in 1999¹⁴. Recently, another Cape Town study involving 1099 subjects of which 64.3% were women, found that proportionally more young women (27.4%) abused alcohol in 2008/2009 compared to 15.1% in 1990¹⁷⁸.



The four studies mentioned above suggest a proportional increase of intoxicated victims of femicide in Cape Town over time. Observations made in this thesis do not support this; instead they support Kuhn et al's view that the trend of alcohol intoxication at death seems to be declining over the years¹¹². Although lower than expected, the percentage of intoxicated femicide victims in this study is far higher than the 3% and 16.7% reported for sexual homicides in Alaska and for IF in Portugal, respectively^{56, 89}.

As expected, those intoxicated at the time of the death were killed in the late evening to early morning hours (between 20h00- 03h59, Figure 4.4) of the weekend, followed by Monday which represents a carry-over from the weekend⁶⁶ (Figure 4.3). This is comparable to Martin's finding that most sexual homicides occurred between 18h00 and 06h00 on weekends¹⁴ while Mathews et al showed that almost two thirds (64.2%) of intoxicated femicide victims in the National study occurred on the weekend¹¹⁴. Similar findings were reported for femicides in Portugal⁵⁶. The lower percentage noted on Fridays in this study is however conflicting and inexplicable.

The times stated above are typically for sleeping but also times when other people commute to and from social or entertainment events where consuming alcohol is normative, followed by the related risk of violent conflict. The victims killed over the weekend showed much higher levels (three to five times the legal limit for driving) of intoxication. This pattern is similar to that found in other violent deaths in the WC province^{66, 114}.

Studies have shown the positive correlation of excessive alcohol consumption in public places especially on the weekends and psychosocial stressors like poverty, unemployment and exposure to violent experiences points to socially acceptable norms of excessive drinking amongst poorer communities^{66, 114, 178}. It has been argued that alcohol intoxication carries a risk of being killed by an unemployed intimate partner who has a drinking problem and an imprudent sense of power¹¹⁴. Therefore,



the risk experienced by these victims is compatible with the pattern of other violent crime occurring over weekends in poorer communities in SA.

Additionally, urbanisation of African and Coloured women with loss of socio-cultural barriers that formerly prohibited women from drinking has also been noted to contribute to the high incidence of alcohol consumption in women^{114, 178}. The suggestion that alcohol-related conflict is due to arguments as seen in poorer, uneducated communities is further supported by the finding of significant intoxication in Coloureds (55%) and Africans (44%) while none of the Whites and Asians in this study were intoxicated (Figure 4.58).

Despite legislation prohibiting the selling and consumption of alcohol to children below the age of 18 years, in reality the contrary occurs on a daily basis. This is supported by the finding of positive post-mortem blood alcohol in 23.3% of children in this study with the highest levels at 0,25g%. Due to lack of standardised protocols, there currently is variability on the appropriate age limit for testing for post-mortem alcohol and therefore, the results stated here may not reflect the true magnitude of alcohol intoxication in child homicide victims.

While the lower percentages of intoxicated victims seen in this dissertation study are noteworthy, missing results in 26.3% of cases in this study, and the difference in comparative legal alcohol levels¹⁰² (for example; 0.1g% as used by Lerer to indicate intoxication) may have biased the comparison of results observed. Nonetheless, these lower percentages may point towards the successful elimination of the 'dop-system' in which farm labourers in the WC province were rewarded with alcohol for work performed^{114, 179}. Additionally, legally regulating the manufacture, retail and sale of alcohol to children aged below 18 years with the goal of mitigating socio-economic and health costs of alcohol abuse may have played a role¹⁸⁰. Although this legislation was only implemented in the latter half of this study, it is perceived that together with other public health campaigns that promote responsible drinking it may have restricted the night-time economies associated with alcohol consumption, and thus contributed to the lower the numbers of intoxicated victims observed in this study.



While similar legislation in the WC province aimed at enforcing the regulations of alcohol trade has been previously criticised, such efforts by the authorities are creditable; their success, although questioned by some¹⁸¹, may have contributed to the results found in this study. The finding of pregnant victims thirty times less likely to be significantly intoxicated than non-pregnant victims in this study (Figure 4.64) may point towards successful public health campaigns against drinking during pregnancy.

5.1.4 Weapons & injury patterns (pathology) in femicides

Weapons:

Based on the author's experience at the SRFPL, and the high levels of interpersonal violence in society it was predicted that the majority of femicide victims would die from multiple blunt and sharp force injuries. However, given the recent increasing media reports of firearm (or gun) use in VAW, it was hypothesized that this study will also find a considerably high incidence of firearm-related femicide.

The current study showed that more than a third of femicide victims (35.1%) died from gunshot (or firearm) injuries followed by those dying from stab (29.6%) and blunt injuries (Figure 4.5). This result correlated with the proportions of suspected weapons of injury (Figure 4.48). A similar distribution was found for pregnant femicides but the proportion of gunshot-related deaths was much higher (54%) in the pregnant group (Figure 4.19). Unlike findings in the National femicide study which found no significant correlation of these three methods of death with age²⁵, those dying from gunshot and stab wounds were at least eight to nine years younger than victims of blunt force and strangulation injuries (Table 4.2). In this study, the percentage of young femicide victims dying from stab injuries was identical for Africans and Coloureds but remarkably, Africans were more likely to die from gunshot injuries than any other race (Table 4.3). These findings compare with those from the 1999 femicide study²⁵ except in the current study, Coloured victims were more likely to die from blunt or asphyxial injuries than Whites (Table 4.3).



Additionally, this study showed a gradual decline in gunshot -related femicides while non- gunshot-related femicide trends remained stable over the ten year period of study (Figure 4.6). This finding supports results of the 2009 femicide study which showed an overall reduction in gunshot-related femicide numbers by a total of 66.7% between 1999 and 2009²⁸. Data from this study shows that gunshot injuries were more common than stabbings in the first five years (21.4% versus 14.2% victims) but these proportions changed inversely to 15.5% stab-related femicides versus 13.7% gunshot -related femicides in the latter five years of the study period ending in 2009, and remained so in the succeeding two years ^{156, 157}.

In an attempt to curb gun-related crime and deaths the Firearms Control Act (FCA)^{xix} was enacted in 2000 and fully implemented four years later in response to a call by the National Crime Prevention Strategy and various non-governmental organisations¹⁶². Previous records of a 10% total increase in gunshot-related deaths between 1999 and 2001¹¹⁷, followed by annual decreases in gun-related homicide by 13.6% from 2001 to 2005 across five major cities in SA suggest the successful implementation of the FCA¹⁶². This is further supported by reduced incidence of gunshot-related IF in SA while sharp and blunt object-related IF showed minimal changes in incidence between 1999 and 2009²⁸. A similar incidence for gun-related homicides was recorded in SA in 2003^{162, 182}. Although the overall decreasing trend of gunshot-related femicide in this study (Figure 4.6) supports the view that the FCA is having a positive impact, the higher numbers of gunshot compared to non-gunshot femicides is concerning as it indicates that more efforts are needed to mitigate the scourge of gun-violence, especially in African communities of Cape Town.

Females killed by stabbing (48.6%) and blunt trauma (19.4%) were significantly more intoxicated compared to those dying from gunshot injuries (Figure 4.57). These results are comparable with those of Prinsloo et al which showed non-gun-related homicides had a mean alcohol concentration of 0.04g% higher than gun-related homicides¹¹⁷. Other local studies reported significant sobriety proportions in femicides dying from

^{xix} Firearms Control Act 60, 2000 regulates amongst others the manufacturing, trading, storage and licensing of firearms and ammunition for safety purposes.



gunshot injuries compared to non-firearm victims^{102, 114}, and were supported by findings in Portuguese femicide⁵⁶ and Finnish homicide¹⁸³ studies. Therefore, these findings support the view that significantly intoxicated victims with single, non-gunshot injuries rather than multiple gunshot injuries represent alcohol-induced violent conflict progressing to aggravated physical quarrels and death as noted above⁵¹.

While sharp objects are strongly associated with arguments and quarrels occurring between people who know each other, including intimate and family members, firearm use in SA has been found to be associated more with criminal activities and killing of strangers². Globally, firearms are the most commonly used weapons accounting for 4 of out every 10 homicides, while sharp weapons account for almost 25% and just over a third are due to physical force or blunt objects². In a study of 69 countries conducted in 1998 the United Nations (UN) found that SA had the second highest gun-related violence incidence rate of 26.3/100,000, second to Columbia (53/100,000) and four times higher than the USA rate of 6.24/100,000^{184, 185}.

The availability of illegal and legal firearms in SA continues to maintain and drive a vicious cycle of higher homicide rates, especially that related to organized and drug-related crime^{53, 117} as noted in the poorer communities of Cape Town. In addition, disrupted societal ties associated with high youth migration influxes into urban areas are the most prominent risks factors for the high rates of firearm-related violent crime^{2, 51, 184}. However, it has been argued that the continuing socioeconomic disparities between racial groups during the current period of transition into democracy⁵¹ make the distinction between crime-related and conflict-related violence in SA unclear^{2, 184}.

While acknowledging that the above discussion relates to the context within which women are killed, weapon availability determines the type of injuries the victim will sustain and the risk of fatality. Vetten has shown that in the setting of DV, the use of guns ranges from childhood exposure to subsequent acquisition of illegal guns by at least one third of men as adults, with a risk of them using these guns against intimate



intimate partners⁵⁰, and in some case to threaten rape victims¹⁷². Research has shown that in cases of gun-related IF, a gun was present in the home in up to two thirds of cases^{143, 172, 186} and puts children at risk of homicide¹⁸⁴.

Research has shown that the use of guns in VAW, specifically IF, is subject to several risk factors including amongst others: the perpetrator being of African or White race, younger (14-39 years), a professional working in the security sector (for example, law-enforcement officials), and being married to or cohabiting with the victim. However, ending the relationship also carries a significant risk of gun-related IF^{56, 143, 172, 186}. In the absence of sufficient data on victim-perpetrator relationship in this study, the finding of lower percentages of intoxication, associated with the higher numbers of gun use make it difficult to comment on the role of IPV in this study.

Injury patterns:

Given the author's experience with the violent deaths seen at the SRFPL on a daily basis, together with Martin's previous reports of an overkill method used in sexual homicides¹⁴, it was predicted that most victims would die from multiple injuries. On the contrary, this study found that the primary cause of death was single injuries in more than half of the victims (52.2%) compared to 44.1% from multiple injuries (Figure 4.7). This is in keeping with reports from previous local femicide research²⁵ but contrary to those from Portugal⁵⁶. The number of fatal injuries inflicted was not associated with age or race (Figure 4.8) of the victims in this study. The previous National femicide study reported a higher proportion of multiple injuries caused by blunt implements compared to firearms²⁵. On the contrary, this study found that fatal multiple injuries were mostly inflicted with guns (17.5%) and sharp weapons (14.6%) compared to blunt objects (10.4%).

The injuries sustained by femicide victims in this study were mostly directed to the chest, head and face, upper limbs and neck regions (Figure 4.10 and Figure 10. 11), similar to the pattern reported previously in local and international research^{14, 25, 91}. The exception is that in this study, chest injuries were more common than head injuries, affecting almost two thirds (62.6%) of victims; a pattern comparable to findings from Portugal, Turkey and Finland^{56, 155, 183}. As with Turkish femicide



victims¹⁵⁵, the most common internal chest injury types were stabbings followed by gunshot injuries causing lung and heart injuries; the consequent haemothorax was the most common mechanism of death.

The injuries sustained to the three most commonly injured regions comprising the chest, head and neck will, due to their vital nature, either cause immediate fatality or require emergency medical care. It is therefore not surprising to note that almost one in three of these victims (30.8%) died in medical centres (Table 4.15); of these, almost half (47.9%) died in Groote Schuur hospital (GSH), a tertiary care centre. The victims dying in GSH were subsequently registered at the nearby Woodstock SAPS. These hospital deaths explain the position of this station in the top five stations in this study (Figure 4.21), and does not accurately reflect the number of femicides primarily occurring in Woodstock as a geographic area.

The high number of victims dying in medical centres in this study contradicts findings from Martin's and the National femicide studies^{14, 25}, and those from Alaska⁸⁹, whereby the majority of victims were found at home or work and very few or none at the medical centres. Considering the majority of these victims died from fire-arm injuries (35.1%), this high number of deaths in medical centres may indicate the appropriate response of emergency personnel to the location of injury, coupled with the necessary referral of the critically injured patients from the primary scene or secondary level to tertiary level hospitals, where they still died.

On the other hand, the need for specialised medical care may be an indirect predictor of the severity of injury and hence may signify the level of violent aggression directed to these women. This is especially applicable when one considers that firstly; guns are lethal weapons and secondly; the multiplicity and variability of injuries inflicted to these vital regions (head, chest and neck) significantly reduce any chances for survival. In this study, gunshot injuries were mostly directed to the head, abdomen and chest, while stab and blunt force injuries were directed mostly to the chest, head and neck. These injury patterns carry a high mortality risk. The finding of injuries amounting to at least 150 in one case, with at least five victims sustaining more than 50 injuries,



together with at least 10% rate of combined methods employed to kill some victims all support Martin's view that femicide victims suffer a phenomenon of an 'overkill'¹⁴. Therefore, despite the majority of victims dying from single injuries, these findings support the perception of extreme aggression applied by some perpetrators during physical conflict with victims of femicide.

It has been argued that alcohol-induced violent conflict is precipitated by the availability of weapons like knives in places known to serve alcohol^{102, 114} and thus, the consequent fatal outcome may occur without premeditation and intention to kill^{66, 114, 183}. If this construct was to be applied to victims who were intoxicated at the time of the killing, it would be difficult to understand how such extreme violence can be inflicted on women who would otherwise be unable to defend themselves when drunk. For this reason, an assessment for possible defence wounds, considered to be those wounds distributed classically on the inner and outer aspects of the forearms was crucial in this study.

Defence wounds were found in almost one third of femicide victims in this study (Table 4.12), which given the lower rates of intoxication found is not surprising, and is comparable with the rate reported for IF in Portugal⁵⁶. The majority of defence injuries were contusions and abrasions; in 5% of cases these were associated with bone fractures which indicates the higher level force used during physical conflict. This supports the view of extreme aggression used against these femicide victims.

Both the upper and lower limbs may be used in both inflicting injury and defending oneself against injury, especially in cases of sexual violence where the victim may try to kick the perpetrator off her body. It is remarkable that this study found similar patterns of injuries to the upper and lower limbs (Tables 4.12 and 4.13), however, an assessment of whether lower limb injuries were possibly defensive was unfortunately not performed in this study. Lower limb injuries, together with pelvic and ano-genital injuries are particularly important in cases of sexual homicide⁹¹ as discussed in the next section.



5.2 THE EPIDIOMOLOGY AND PATHOLOGY OF SEXUAL HOMICIDES

5.2.1 The criteria for sexual homicide

As previously outlined the term '*sexual homicide*' is preferably used over '*rape homicide*' in this report. The reader is reminded of the implications such changed terminology has on the interpretation and comparison of data across studies.

Due to current lack of standardised criteria the investigation of a possible sexual crime at the time of autopsy depends largely on the pathologist's level of suspicion, expertise and interest in the case at hand. For this reason, several variables were tested for detecting suspected sexual homicides which, if present, were associated with the pathologist retaining trace evidence from the body in the form of the Sexual Assault Evidence Collection Kit (SAECK). The basic medical principle is that clinical history should guide further examination and investigation of the patient; in this case the body. However, challenges arise when one considers that firstly; most sexual crimes whatever their nature, are unwitnessed. Secondly; the opportunity to investigate is limited to the period before the autopsy process of eviscerating the body is performed as once the autopsy is complete and the body washed most evidence is contaminated or lost. A statement of suspicion of rape or sexual assault by the FPO or police official on the crime scene¹³ as stated in the LAB27 or FPS002 (Appendix B and C) is therefore crucial in identifying possible cases and to initiate appropriate investigations, including the SAECK at the scene and at the autopsy.

This study showed that the odds ratio for retaining the SAECK were much higher at 121.87 when there was a history of suspicion of sexual violence compared to, for instance, genital examination which had lower odds ratios of 15.56. This may be because detailed genital examination is not performed routinely but is guided by the history of suspicion of sexual violence. As experienced by Martin¹⁴, the relatively high percentage of victims with a history of suspected sexual violence (21.3%) in this study did not translate into improved crime scene attendance and investigation by the pathologist or investigating officer, which remained dismally low at 4% (Figure 4.45). This suspicion is often triggered by deranged clothing on the victim's body, as found



in half (50.4%) of cases in this study (Table 4.16), especially for cases where the breasts or the genitalia are exposed. Additional triggers include finding the body in a sexually provocative position, for example; legs spread wide apart^{21, 26} or other sexual paraphernalia like used condoms on or near the body.

The finding of partial or complete derangement of the clothing including underwear in a manner that exposes the breasts, genitalia or buttocks with no other alternative explanation^{13, 21, 26, 89} is highly suspicious of a sexual crime, as reported in more than a third of sexual homicides in Martin's series¹⁴ and 68% in the Alaska study⁸⁹. An alternative explanation for bodies being found fully or partially naked includes bodies received from medical centres or where it is clear that the deceased undressed herself, for instance, before taking a bath. In the author's experience, and as cautioned by Schlesinger, evidence of sexual activity or an expression of genitality is not always clear at the crime scene⁹⁰. Therefore, until proven otherwise, it is advisable that any suspected homicide involving a woman found dead and naked should be actively investigated as a possible sexual crime²¹ by taking samples for or equivalent to the SAECK.

The collection of trace evidence should assist in confirming suspected sexual penetration or assault, including cases of substitute sexual activity or behaviour. The latter may include, for example; foreign objects in the mouth, genitals or anus and semen or condoms on or near the body^{21, 89}. This process involves taking swabs and any trace evidence from the oral cavity, genitalia, ano-rectal or any other body region where body fluids containing the perpetrators' DNA (for example, semen) can be recovered. Depending on availability, retained swabs may be obtained and packaged into a commercial SAECK which comes in a variety of compositions and was used in 90.5% of victims in this study. In the rest of the 9.5% of victims in this study however, swabs were retained into an evidence bag used as equivalent to the SAECK and essentially should have the same evidentiary value if the chain of custody is thoroughly maintained. In the current study the SAECK equivalents comprised a combination of five vaginal swabs and various other body fluid swabs.



Although none of the 199 victims in this study had available results of the SAECK analysis, positive results are useful in confirming cases during court proceedings, but negative results do not exclude a sexual crime. This is especially true in cases showing genital or anal injuries where such injuries have no other explanation¹³, including genital mutilation^{21, 26}. Martin cautions that any signs of trauma to the genitalia, regardless of severity, should be appropriately documented¹⁴; however, this can only be achieved with meticulous ano-genital and oral examination.

It is well-known that the examiner's level of experience with ano-genital examinations and the use of special techniques like colposcopy and toluidine in cases of rape affects the incidence rates of injuries reported in these cases^{89, 187, 188}. Despite the new definition of rape including genital, anal and oral penetration, evidence of such penetration may be absent but remains at the heart of the investigation and confirmation of a suspected sexual homicide.

This study showed a higher percentage of detailed genital examination at 72.6% compared to detailed anal examination at 2.4%. These relatively low percentages of ano-genital examination may explain the lower proportions of genital injuries in 9.4% and anal injuries found in 3.1% of all victims in this study. These percentages correspond to 12.9% of genital injuries (Figure 4.30) and 24.6% of anal injuries (Figure 4.43) found in victims that were examined and thus, make these variables unsuitable for use as proxy measures for sexual violence in this study. The Alaskan sexual homicide series reported a higher percentage of 58.7% ano-genital injuries⁸⁹, comparable with the 56% found in Martin's series¹⁴, but these were as associated with ano-genital examination in 100% of the study subjects. The results of genital injuries in those examined in this study compare to the 19% of victims with genital injuries found in the National study where poor autopsy examination standards were recorded¹³. Nonetheless, the genital and anal injuries in this study were significantly associated with retaining the SAECK in 77.7% and 64.5% of victims, respectively. Despite the new definition of rape including the sexual penetration of the mouth, the comments about mouth injuries in this study made no specific reference to possible sexual penetration as a cause.



In this study, factors that emerged as having significant association (p -value >0.001) with retaining the SAECK include: the presence of the history of suspicion of sexual violence of the victim (81.3%, Figure 4.26), deranged clothing on the victim's body (50.4%, Table 4.16) and the presence of multiple injuries (91%, Figure 4.31), as well as neck (78.9%, Figure 4.35) and bite injuries (75%, Figure 4.37). Neck injuries are highly consistent with mechanical asphyxia or strangulation as the method of death and together with bite injuries were found to be significantly associated with suspected sexual homicide in local^{13, 14} and international research¹²⁸. These four factors confirm that retaining the SAECK is the most robust measure for determining that the pathologists suspected sexual homicide when reviewing the cases, and thus, in practice, should be used as a guide to retain the SAECK in cases meeting these criteria.

5.2.2 Incidence of sexual homicides

Using the number of SAECKs retained as the proxy measure of sexual homicide in this study, an average of 20 women were raped and murdered annually during the ten year period in the Western Metro region of Cape Town. This number corresponds to suspected sexual homicide in an average of 19.9% of all femicide cases in this study and parallels the national percentage for sexual homicides reported at 16.3% reported in 1999, and the 17% sexual homicides reported for Alaska between 1999 and 2007⁸⁹. Although this result is double the 8.4% sexual homicides reported for Atlanta⁹³, it is four times lower than the 81.7% reported in the USA⁴². As expected the number of suspected sexual homicides in this study showed a dramatic increase from 78.6% over the ten years.

It is not possible to estimate and compare the rape fatality incidence in this study with Martin's previous finding of 1.23% due to unavailability of reliable information on (survived) rape statistics in Cape Town for the current study. The statistics for rape as provided by the SAPS between the years 2000 and 2007 are incomplete, underreported and based on the common law definition whereas the ones from 2008 onwards are based on the Criminal Law definition of rape^{66, 68}. Moreover, age and



gender attributes of sexual offences and further division of these offences into subcategories were not completed in the Crime Administration System (CAS) of the SAPS until August 2009 when it was compulsory to do so¹⁸. Thus reliable rape statistics prior to 2009 are not available for the country and for Cape Town.

The calculated incidence corresponds to an average incidence rate for suspected sexual homicides of 2.4/100,000 female population in the Western Metro of Cape Town during the ten years of study. Although this incidence rate is three times lower than that found by Martin¹⁴, it parallels the national rate of 2.5/100,000 for adult sexual femicides reported in 2009²⁸ and increased by a total of 52% over the ten year period of the study. This finding supports the assertion of fluctuating trends in sexual offences that saw an increase of reported rapes by 12.7% between 2008/09 and 2012/13 in the WC province when the rape incidence was higher than the national rate^{19, 66}. Yet this result contradicts reports of 12.2% decrease reported in sexual offences between the 2002/03 and 2012/2013 financial years, two-thirds of which comprised rape cases⁶⁶.

The reason for the total increase in numbers of suspected sexual homicides over the ten years is unclear. However, as previously argued it is unlikely to be due to improved crime scene investigations as the scene was attended in only 4% of cases in this study compared to 2.5% in the national study²⁸ and 8.4% in Martin's study¹⁴. Improved detection of genital injuries may have been associated with the much higher percentage of detailed genital examination (72.6%) in this study, which was in turn associated with performing the SAECK in 74.1% of cases. Contrary to Abraham et al's opinion that this higher percentage cannot be artefact of improved examination²⁸ it appears that the improved autopsy examination and investigation are in fact responsible for the observed total increase of sexual homicides in Cape Town over the ten years.

Full autopsies were performed in 100% compared to 70% of cases in the national femicide study¹³, and two thirds of victims were autopsied by specialists leading to 96.1% of reports having adequate quality for documentation of pathological and



wound descriptions (Figure 4.50 and Figure 4.51). Improved autopsy investigations are also illustrated by the numerous and various investigations performed. A total of 1573 specimens were retained from 86.8% of victims corresponding to almost 2 specimens retained from each individual victim in this study (Figure 4.55). For cases of suspected sexual homicides the full SAECK was retained in 80.5% of cases, and of these, the majority of specimens were those mostly likely containing the perpetrators or victims' DNA (Table 4.22). DNA samples were retained in a further 7.5% of cases without suspicion of sexual violence. These findings indicate improved autopsy investigation and examination and may suggest that the quality of autopsy practice in Cape Town has improved. This is further supported by the taking of photographs in 96.4% of cases which allows for better visual documentation of injuries and autopsy findings

On the other hand, the author suspects that the lower incidence rate of sexual homicides in this study compared to Martin's could be due to under-detection of cases as ano-genital examination percentages were lower, and only 21.3% of cases had a history of sexual violence as a trigger for such examinations. This problem of under-detection has been previously reported in literature^{14, 28, 187, 188}, and was thought to be the reason for the negligible incidence rate of sexual femicides of 0.002/100,000 population in Alaska⁸⁹. Therefore the author believes that the rate of sexual homicide in this study represent the tip of the iceberg; more diligent anal, genital and oral examinations are likely to reveal the true incidence of this heinous crime.

5.2.3 The role of race, age and alcohol as risk factors for sexual homicides

Race:

The number of suspected sexual homicides in this study was much higher for Coloureds who accounted for just over half of the cases (51.3%) compared to Africans and Whites (Figure 4.40). Although expected, this racial distribution contradicts that of Martin who found that Coloured femicides were only marginally at higher risk for fatal sexual violence (6%) than Africans; however, a larger proportion of victims of unknown race (27%) may have significantly affected Martin's result¹⁴. Similarly, findings in this dissertation also contradict the findings from the SA National study¹³,



and those reported by Safarik and Henry et al^{89, 128}, who reported a disproportionately higher suspicion of sexual homicide in White females.

It is difficult to ascertain reasons for this racial disparity based on available data in this study, but the disparity is unlikely to be explained by population proportions alone. In the author's experience in Cape Town, cases involving White women as victims of sexual homicide tend to be of elderly age, killed in their own homes, with theft as a possible component in the crime. Cases of child sexual homicides tend to be of African or Coloured race, often abducted or lured away from home by the perpetrator known to the child. On the other hand, cases involving young adult women as victims of this crime seem to be variable; often found at home or in an open field and often have a history of alcohol consumption. Therefore, the author suspects that the racial disparity noted in sexual homicides this study is possibly confounded by socio-economic factors and the victims' age³³.

Age:

Most victims were in the reproductive age group of 18 to 39 years (Figure 4.39). The age distribution found here parallels with the 18-34 year peak found in the USA⁴² and supports the general suggestion that younger women are at higher risk for rape compared to older women^{73, 189}. However, this result contradicts findings of local research which reported an older peak at age above 40 years^{13, 14} and the mean of 77 years reported by Safarik et al in the USA¹²⁸. Research has shown a link between alcohol consumption and risk of sexual violence in young women^{38, 173} whereas some authors have put forth an evolutionary perspective that young women are at risk of rape and murder due to their reproductive or fertility value¹⁹⁰. In their absence however, younger children and the elderly become secondary, easy targets because of their inability to defend themselves^{128, 190}. It is worrying to note that sexually inactive children accounted for 12% while the elderly accounted for 9% of the victims in this study.



This disturbing pattern of sexual violence against children and the elderly has been previously reported in SA^{38, 60, 191}. As expected, the majority of children were African and Coloured, and almost a third were found in an open land with the rest found in various other locations. These findings support the hypothesis raised by the author above, and although unconfirmed, are presumed to be representative of homicides committed to conceal a sexual crime against children.

On the contrary, 84% of White victims were elderly, the oldest was 97 years of age. This finding is similarly unsurprising, and is comparable to findings in other literature¹²⁸, including that from local research¹³. As predicted, 83.3% of elderly sexual homicide victims were found in their own formal homes (data not shown), with the possibility of the rape and murder being opportunistic during the commission of another crime, as reported elsewhere^{42, 128}.

In both categories, the perpetrator often has criminal behaviour and suffers from poor self-esteem, and thus commits sexual homicidal crimes to reassure and reassert his masculinity⁹². Therefore, unlike young adults, child and elderly homicide victims are targeted because of their physical weakness; their risk is unrelated to alcohol consumption. This is supported by the findings that none of the elderly sexual homicide victims in this study had consumed alcohol while only 2 child victims were intoxicated.

Alcohol:

This study found that half of sexual homicide victims were sober at the time of death (Figure 4.63). This percentage is lower than that found previously in Cape Town¹⁴ and Alaska⁸⁹ but considering the blood alcohol was tested in only 58.3% of these victims this percentage may have been under-represented. Considering the relatively young peak age for sexual homicides in this study (18-39 years), and assuming the same construct for physical and sexual violence^{38, 50}, this finding suggests that young victims of sexual homicide may display risk-taking behaviour involving socializing and sharing drinks with men only to wake up in the process of or after being raped. This construct



is in keeping with the author's experience in clinical forensic work, and has been reported elsewhere⁶⁶.

However, Jewkes warns that unlike physical violence, sexual violence is motivated not by general conflict, but conflict associated with sexual rejection and unfaithfulness by an intimate partner⁶¹. This study found at least one case where the victim was killed because she refused to have sex with her partner, a motive well documented in cases of sexual homicides^{21, 22}. Perpetrators of sexual violence are reported in literature to be men who abuse alcohol to a level that increase the risk of sexual disinhibition and violent behaviour^{114, 167, 173} and possibly use violence to assert male dominance^{11, 33, 61}.

The above discussion points to the importance of testing alcohol in suspected perpetrators as soon as arrests are made, and may further help in distinguishing lust murders, from those perpetrated to conceal a sexual crime, as may apply in child victims. Establishing the motive may also assist in understanding the injury patterns sustained by these victims compared to those killed without an element of sexual violence.

5.2.4 Weapons and injury patterns (pathology) in sexual homicides

Based on the author's experience with examining femicides at the SRFPL, it was hypothesised that strangulation would be the predominant method of death in sexual homicides in this study. Similar to Martin's finding in 1999¹⁴, the results showed that the majority (35.7%) of sexual homicides died from asphyxial methods of death (inclusive of strangulation, suffocation and smothering, Figure 4.41). Although comparable to the 36.6% deaths from asphyxia and strangulation combined in the National sexual homicide study¹³, this percentage is lower than the 40.7% reported by Martin¹⁴ and the 63% reported by Safarik et al in the USA¹²⁸. Therefore, the lower proportion of strangulated victims in this study contradicts previous reports that the strangulation trend in females in Cape Town is increasing, compared to other major cities in SA as reported by Suffla in 2008¹⁹².



Martin¹³ and Abrahams et al¹⁴ have previously cautioned that that femicide victims with asphyxia or strangulation as a method of death should elicit a higher index of suspicion for sexual violence. The author believes the converse should also apply; that in cases of suspected sexual homicide, an asphyxial mechanism of death should be suspected and signs thereof be actively sought at post-mortem by performing a bloodless neck dissection technique.

This study found that 80% of suspected sexual homicide victims had neck injuries (Figure 4.35 and Figure 4.36). This result is slightly higher than the 69.5% found by Martin¹⁴ and the 52.8% found in the National study¹³. Neck injuries showed the third highest correlation with suspicion of sexual homicide compared to all other regional injuries sustained in these victims, after anal and genital injuries (Table 4.17). However, despite the correlation of asphyxia with sexual homicide, the bloodless neck dissection technique was performed in only 30.1% of victims, the vast majority (90.6%, Table 4.19) of whom were victims who had been strangled. The procedure yielded injuries in 96.7% of those examined, but was not performed in 16.3% of victims who had injuries on routine examination of the neck in this study (Figure 4.33). This low percentage of neck dissection may account for the low incidence of strangulation in this study. Nonetheless, the neck was the third most frequently injured region with neck injuries causing death in more than a third of femicide victims, after chest and head injuries (Figure 4.11, Table 4.17 & Table 4.18), comparable with findings in the National sexual homicide study¹³.

Unlike the weapon usage in the femicide group (Figure 4.5), sharp weapons were used in a quarter (25%), while guns were used in 8% of victims of suspected sexual homicide, and blunt objects in 19.1% of these cases (Figure 4.41). While the number of suspected sexual homicide victims dying from stab and gunshot injuries parallels that reported in the National study, blunt implements were used less commonly in this study compared to the National¹³ and Alaskan sexual homicide studies⁸⁹. Nonetheless, the National study found that an asphyxia death, when present, was strongly associated with sexual homicide¹³.



The commonest injury patterns on the neck comprised abrasions and stab wounds at similar numbers, followed by contusions and gunshot injuries. The presence of multiple and penetrating neck injuries may indicate a level of aggression by the assailant with an intention to kill rather than to merely incapacitate the victim. Aggression has been reported as one of the motives for rape and together with anger and the need to exert power^{38, 128}, may explain the widely accepted narrative that rape is primarily a crime of violence. This is further supported by the higher percentages of multiple injuries (94.2%) sustained by victims in the suspected sexual homicide group (Figure 4.31) compared to 44.1% in the femicide group in this study (Figure 4.7), comparable to findings by Martin¹⁴ and Abrahams et al¹³. Moreover, multiple methods were employed to kill at least 7% of these victims in this study, including combinations of strangulation with blunt injuries or stab injuries, or combined blunt and stab injuries. Inflicted multiple injuries may include those directed to the genitals, and in some cases this is done in a sadistic manner^{21, 92}.

5.2.5 Genital injuries

The presence of genital injuries in cases of sexual homicide depends on the objects used to touch or penetrate the genitalia⁹¹, the amount of force used, organ disparity between perpetrator and victim, methods used to examine such injuries⁸⁹ and expertise of the examiner^{13, 14, 193}. Genital injuries were present in 12.9% of the 726 of cases examined, representing 9.4% of the study population. The 12.9% is three-times lower than the percentage reported by Martin¹⁴ but almost approaches the 19% of genital examination performed in victims in the national study¹³. Furthermore, this proportion is almost five-times lower than that reported for Alaska⁸⁹ and the 50-90% reported in other studies on living survivors of rape^{136, 193}. The similarities in the definition of sexual homicide in this study and the National study and the comparable genital examination rates at 72.5% and 70% found in the current and national studies respectively²⁵ are noted with interest. Based on this, the author suspects that the lower genital examination rate and the lack of use of special techniques like colposcopy and toluidine blue dye in this study, are responsible for the differences in



genital injury rates when compared to other research where examination rates were at 100%^{14, 89}.

Burn injuries accounted the majority (one third) of all injuries extending beyond the labia majora as the most external part of the female genitalia (Table 4.23). This injury type was overrepresented due to the higher number of charred victims with genital injuries, and in whom the charring would have obscured other injury types. Excluding these, the pattern of injury types found in this study is similar to that reported by Martin¹⁴. Contusions were the most common injury type (28.6%) of all individual injuries present on the eleven different parts of the genital region (n=217, Table 4.23), followed by lacerations (20.3%), and abrasions (15.2%). On the contrary, Henry et al in the Alaskan series⁸⁹ and Slaughter et al¹⁹³ (who examined living subjects) reported an inverse pattern to this finding with more lacerations and abrasions than contusions.

Lacerations were most common in the vagina followed by the introitus and labia minora. This result contrasts Martin's finding of lacerations as the most common injury type to the introitus¹⁴. On the contrary, contusions occurred at similar numbers in these two genital areas, followed by the labia minora, posterior fourchette and urethra (Table 4.23). This result contradicts the finding of more lacerations than contusions in the posterior fourchette as reported by Martin and Henry et al^{14, 89}. Genital abrasions were most common in the introitus and posterior fourchette. These findings contradict that of Martin¹⁴ and other researchers^{89, 136, 193} who found that genital injuries were most common in the labia minora, posterior fourchette and hymen. In this study the hymen was the second least common genital area to be injured, after the cervix.

Although the above result may possibly represent artefact as children, who legally should be sexually inactive (and thus should have an intact hymen until the age of 16 years) accounted for a lower proportion (26.6%), n=53) of victims in this group of sexual homicides, it does not explain the difference with other research. Studies by Martin and Henry et al^{14, 89} had almost similar smaller proportions of younger children and older median ages for their study samples compared to this current study.



Additionally, it is expected that the higher numbers of genital injuries in 26.6% of these children should have been associated with a higher risk of hymenal injury detection in this study. The author is compelled to agree with Martin's view that the discrepancy noted in this study is most likely due to incorrect anatomic description of the location of injury in these victims¹⁴. Poor anatomic description of injuries when compared to other parameters assessed in grading the quality of autopsy reports has been reported previously²⁵, and although it was not a problem in this study (Figure 4.51), this assessment was not performed specifically for the genital area.

The labia minora was the third most commonly injured genital area showing various injury patterns, including one case with a penetrating incised wound which extended from the mons pubis, through the vestibule and into the vagina, as similarly found by Martin¹⁴. The finding of genital bleeding associated with traumatic genital injuries in 12.8% (n=12) of cases with genital injuries is higher to the 5% reported by Martin¹⁴. Similar to other research^{14, 89, 193}, this study found no injuries to the uterus, fallopian tubes or ovaries. Various foreign objects (Table 4.23) were found most commonly in the vaginal canal, with the wooden plank and tree branches found in this study; Martin¹⁴ and Henry et al⁸⁹ recorded similar instruments.

5.2.6 Anal injuries

Considering the new definition of rape which includes anal penetration¹⁷, assessment for anal injuries is important in this study to exclude possible sexual violence. Regrettably, detailed anal examination was performed in only 12.6% of victims (Figure 4.43), five-times less likely than genital examination (72.5%). It is thus not surprising that anal injuries were found in only 3.1% in this study population, corresponding to 24.6% in those examined. The proportion of anal injuries in those examined in this study compares with the 25.4% and 30.4% of victims anal injuries reported by Martin and Henry et al %, respectively^{14, 89}, but with anal examination performed in 100% of their study populations. On the other hand, Slaughter et al reported anal injuries in up to 56% in living subjects¹⁹³.



Despite the differences in numbers of examinations performed, the finding of anal lacerations as the most common injury type in this study compares with reports by Martin and Henry et al^{14, 89}. While anal injuries are commonly caused by insertion of foreign material into the anus and rectum, in this study it appears that this higher percentage is due to large organ disparities as the majority of lacerations involved children between the ages of 3 years and 15 years, with the youngest victims suffering multiple lacerations (two 5 year olds and one 3 year old). This may also explain the finding of multiple anal lacerations in almost two thirds of victims (61.2%).

The next common injury type was contusions accounting for 17.1% of injuries, a pattern similar to Martin's¹⁴ and Slaughter et al's reports¹⁹³ but contrary to Henry et al's finding of abrasions being more common than contusions in the Alaskan series⁸⁹. In this study burns, abrasions and the presence of blood and foreign material in the anus occurred at similar percentages of 4.9% (Figure 4.43).

The higher proportion of decomposition recorded in the anal region of victims who had anal examination in this study (45.8%) would have limited accurate assessment and detection of underlying traumatic injuries. Therefore, the comparisons offered above should be interpreted with caution as the true incidence of the injuries described above may be underreported. Decomposition is a particularly common problem in victims of sexual homicide as a significant number of victims are killed and subsequently hidden from discovery by the perpetrator who wants to avoid detention. Underreporting may have also been caused by unavailable information in 80.6% where the section on 'anus' is not routinely recorded in the autopsy report template (Appendix I, SAP359).

5.2.7 Bite injuries

Previous research by Abrahams et al has shown that although bite marks are rare, these injuries were fifteen times more likely in victims of sexual homicide than femicides in general¹³. Similarly, this study found a significant correlation of up to 75% association of bite marks with sexual homicide. The number of bite injuries in 12 (1.2%) of victims in this study compares with that found in the National sexual homicide study¹³ but is lower than the 5% and 6.5% reported by Martin and Henry et



al^{14, 89}. Unlike findings from Henry et al who found bite marks commonly on the victims' breasts and buttocks⁸⁹, in this study, bites were distributed on the head, face and neck but the majority were distributed on the on the arms (Figure 4.37), where they most likely represented defensive injuries.

The author suspects that the lower percentage of bite injuries in this study could be due to lack of detection as these injuries have variable patterns or appearances, ranging from transient teeth impressions, semi-curved or disrupted abrasions, bruises or lacerations⁹¹. The appearance of bite injuries is further determined by the anatomic site injured, mechanism of injury during the bite, for example, fixed bite versus an avulsion, the time-lapse between injury and examination, and whether the bite was inflicted through clothing. Although bite injuries are important for forensic trace evidence as they may contain the perpetrators' or the victims' DNA, their true incidence and significance in cases of sexual homicide remains a topic of further research.

5.3 CONCLUSION:

The above discussion has highlighted the distinct racial and age distribution on the epidemiology and pathology of femicides and sexual femicides in Cape Town with many similarities to previously published research. Sexual homicides are strongly correlated with history of suspicion of sexual violence, deranged or absent clothing, and the presence of ano-genital, neck and bite injuries which have shown significant associations with retaining the SAECK. These factors are considered as the definitional criteria as previously described by Martin and Abrahams et al^{13, 14}.



Chapter 6 : CONCLUSION AND RECOMMENDATIONS

INTRODUCTION:

The World Health organisation (WHO) has previously made a call for research aimed at improving our understanding of not only the magnitude, but also the underlying causes of and prevention strategies for intimate femicide (IF)^{1, 194} as one of the leading causes of female mortality globally and in SA^{28, 97}. Given the violent nature of SA society, the author believes that non-intimate femicide is an equally important public health issue that needs to be understood and prevented in this country. This project was undertaken as a response to this call.

This dissertation study sought to provide updated knowledge and address some research gaps identified in our understanding of the magnitude of fatal physical and sexual violence against women (VAW) in South Africa (SA), namely, femicide and sexual homicide.

Secondly, this study aimed to describe the risk factors for these cases in order to identify possible preventative strategies. Thirdly, this dissertation aims to propose the criteria for identification of sexual homicide cases and thereby suggest recommendations towards appropriate management protocols thereof.

The retrospective approach in this descriptive study was employed to firstly describe the epidemiology and pathology of femicides and sexual homicides in Cape Town between 2000 and 2009. By describing and correlating factors emerging from the victims' demographic variables, the autopsy and crime scene investigations, risk factors for suspected sexual homicide were identified and a definitional criteria was described. This was done with the aim of proposing recommendations towards appropriate management protocols of these cases and identification of possible



prevention and mitigation against future cases, as would be outline in the recommendations section of this chapter.

6.1 CONCLUSION:

This study showed that on average, a 100 women were killed annually between 2000 and 2009, corresponding to an average femicide incidence rate of 12.4/100,000 female population in the Western Metropolitan district of Cape Town during the ten years of study. This incidence rate is five times the global femicide rate² and four times the rate reported for the USA⁴². Although the gradual decline in femicide numbers by a total of 47.2% is commendable, there was no significant difference noted in the annual incidence rates during the ten years of study. The fluctuation in femicide numbers between 2008 and 2011^{156, 158} raised a concern for the possible increase in femicide incidence rates in the Western Cape (WC) province after the year 2011.

This study has undoubtedly shown that the risk for femicide in this province is disproportionately distributed with women from Nyanga being most commonly affected, but those from Gugulethu, Mitchell's Plain and Philippi also remain at high risk. Although this study has shown that VAW affects women of all ages starting from birth to the elderly, it also confirmed previous reports that African and Coloured women in the reproductive ages between 18 and 39 years, are at highest risk for femicide. While the roles of education and marital status remain unclear, poverty appears to be a significant confounding factor to race as it is women from poor areas of Cape Town that are most affected. The finding of much lower proportions of infant femicide victims below the age of one year confirm previous concerns of under-detection and underreporting of possible abuse-related child homicides¹⁰⁹.

Whilst this dissertation did not confirm alcohol consumption as the primary risk for femicide, it did partially substantiate concerns of alcohol-induced violent conflict as a



persistent problem in femicides and its relation to the night-time economies associated with drinking over the weekends, in the late evening to morning hours.

The vast majority of victims died from gunshot instead of stab injuries which are typically associated with alcohol induced interpersonal conflict. The finding of a declining gun-related femicide numbers by a total of 66.7% in the 10 year period supports published views that the Firearm Control Act (FCA) has successfully impacted the desired effect of reducing violent crime in this country¹⁶². However, these results seem to suggest that contrary to prevailing narrative of higher gang-related violence in the Coloured population of the WC province, perhaps efforts of firearm regulation and control should be aimed at Africans who use firearms more in interpersonal violence than they do knives.

Another major aim of this project was to offer definitional criteria for sexual homicide so as to advance knowledge of this poorly researched crime. Four major criteria previously described in local research^{13, 14} and international research¹²⁸ were highly predictive of sexual homicide including: the presence of history suggestive of sexual violence, deranged clothing on the victim's body, and the presence of neck and bite injuries. These criteria led to retention of the SAECK to further investigate a sexual crime. Using the SAECK as the most robust variable, this study found an average of number of 20 suspected sexual homicides of all femicides admitted annually between 2000 and 2009, corresponding to an average incidence rate of 2.4/100,000 female population in the Western Metropolitan district of Cape Town. The dramatic 78.6% increase in actual numbers of suspected sexual homicides despite the steady incidence trends over the ten years was expected, and is thought to be due to improved forensic autopsy investigations.

While that may be so, it is worrying that pathologists are not performing bloodless neck dissection in cases with a clear history of sexual homicide and cases that they themselves identify to be possible sexual homicides during autopsy. Thus, the risk of missing the primary cause of death in these cases is concerning. This is particularly concerning in view of the fact that this research has provided convincing evidence with



respect to the cause of death in sexual homicides being most commonly from asphyxia related deaths including strangulation, as previously reported in other literature^{13, 14, 192}. This study has shown a four-times increase in the likelihood of death from multiple injuries representing an overkill phenomenon in this group, irrespective of the victims' age or race.

Genital and anal injuries were present in 9.4 % and 3.1% of all femicide victims in this study. While these findings seem to support previous views that these injuries are uncommon¹⁴, in cases where genito-anal examination was performed, genital and anal injuries were present in 12.9% and 19% of victims, respectively, with the former increasing to 26.6% in child victims. Therefore, lower proportions of ano-genital examination found in this study, and missing information on the relevant sections in the autopsy reports highlight problems with the general lack of standardised approach to forensic management of femicide cases within the FPS. Although the effect of these inconsistencies on the administration of justice for these cases is unknown²⁷, the dismal numbers of crime scene attendance by the police and pathologist alike leaves room for concern as crucial evidence may be missed, and may undermine improved autopsy investigations and examinations shown in this study.

6.2 STUDY LIMITATIONS

Introduction

This study explored all female homicides admitted into the SRFPL from 00h00 on the 1st January 2000 to midnight (24h00) on the 31st December 2009. However, bodies of victims hidden from discovery by the perpetrator and thus not autopsied, or cases whose manner of death was incorrectly classified were missed. The project adopted a descriptive design as used in the 'parent' studies^{13, 14} which allowed for analysis of the incidence and trends of the epidemiology and pathology of femicides and sexual homicides in Cape Town. By correlating certain variables and in some cases, calculating the odds ratios an interpretation of positive and negative correlations that existed between possible risk factors for femicides could be offered and alternative



hypothesis generated. Unlike previous research, using an improved and previously validated questionnaire, increasing the sample size and adopting a broader inclusion criteria for the study sample allowed for improved validity and reliability of results and hence, reliable and better interpretation of findings when comparing with previous research results. This dissertation could however, not offer full explanations of the underlying causes of femicide and sexual homicide which are nonetheless beyond the scope and objectives of this report.

Likewise, by using a similar methodological approach as 'parent' studies this dissertation inherits some limitations which are outlined below:

The author has been in the employ of the DFMT at UCT since October 2006, and thus has autopsied some of the femicide victims in this study. For cases with missing information in the autopsy reports compiled by the author herself an unknown response was recorded in the data collection tool despite the author's memory of that specific case. A similar principle of consistency was applied when assessing the quality of the autopsy report. Therefore, although possible information bias is acknowledged, it is hoped that the consistent use of the standardised questionnaire would have eliminated such bias.

The sampling of femicides as the population of interest and the use of the much broader definition and selection criteria for suspected sexual homicide means that there is inherent selection bias. Consequently the numbers and incidence rates of sexual homicides calculated in this report may be higher than previous studies. Therefore, caution must be exercised when comparing results in this report with those of other studies using a stricter definition and criteria.

Due to time constraints this dissertation excludes the police interview and court docket review as additional data sources previously used in the 'parent' studies. This comes with the risk of unavailable and possibly inaccurate data on demographic information on the victims especially regarding their occupation, marital status, parity and their relationship to the perpetrator. This information could be obtained from inquest dockets but copies of these dockets were available in only 25 cases in this



study. Therefore, a report on intimate or domestic violence-related femicide is limited in this study.

Similarly, the classification of the probable manner of death as homicide in this study is based on the pathologists' opinion^{2, 89}, and does not represent the final court verdict as legally required in SA. Consequently, the motives of such killings, whether abuse or gender-related remain unknown in this dissertation. Furthermore, this study could not offer the distinction between the perpetrators' intent to rape with death as an outcome and intent to murder with rape as a component¹³ as these are strictly legal entities and beyond the scope of this report.

There are a total of 94 missing autopsy reports comprising almost 10% of the study sample. Of these, two thirds (56) were from 2002, 31 cases were from 2001, and the other 7 cases were from other years. This had significant bearing on the erroneously low numbers and incidence rates for the years 2001 and 2002 compared to the averages calculated for the study sample in the ten year period of study.

Similarly, the post-mortem blood alcohol results were missing in 26.3% of the study sample which may have underestimated the percentage of victims who were intoxicated with alcohol in this study. A considerable amount of time (at least 3 months) and efforts to have the results reprinted at the FCL were unsuccessful. Similar problems were experienced in the National femicide study¹¹⁴ which could only report alcohol results for the WC province and excluded the other eight of the nine provinces in SA.

Obtaining the female population estimates for the SRFPL service area (Western Metropole health district) in Cape Town, as well as the race and age distributions of this population was a great challenge as this information is not easily available and online population statistics are fragmented. Population estimates for the 2001 WC provincial province were obtained from Dorrington's estimates using the highest growth rate (2.2%) for City of Cape Town (COCT)¹⁵⁰. The female proportions for the two figures were calculated based on the ratio of Western Metro to COCT females



obtained from the average of the other 8 years (2002-2009). Although this is an acceptable method of estimation it may have affected the calculated incidences for the year 2000 which should be interpreted with caution.

Inconsistencies in the autopsy reports especially regarding injuries on the breasts or anus (largely due to the exclusion of these sections in the report template, as adapted from SAP359, Appendix I) and the lack of standardised protocols for investigating femicides contributed negatively to researching these variables in this study, as did the lack of comment of oral penetration as part of the new definition of rape.

Due to limited expertise in advanced statistical analysis, compounded by the significantly large amount of data in this study, statisticians at the UCT were consulted to assist with data analysis. Some challenges were experienced with regards to agreed deadlines for such analysis and contributed negatively to the completion of this report. Consequently, the odds ratios were not calculated for some variables identified by the author as needing such analysis.

A considerable amount of time was spent setting-up the data-entry form in the Epidata® software to accurately reflect the content and structure of the paper questionnaire (Appendix F) and to set-up legal definitions therein.

6.2.1 Conclusion:

Despite the methodological limitations described above, the adoption of the retrospective descriptive design allowed for sound comparison of this dissertation results with previous local and international studies (Alaska⁸⁹, US^{89, 195}, Canada²⁶, Portugal⁵⁶ and Finland^{57, 174}). The report on intimate femicide was not the primary aim of this study; non-intimate femicide is regarded as equally important to understand and prevent. Nonetheless, the author acknowledges the current call to determine the victim-perpetrator relationship when researching VAW^{11, 37, 69}; a recommendation particularly useful in understanding prevention strategies applicable to intimate femicides.



6.3 RECOMMENDATIONS:

Introduction

For clarity, this section is divided into two sections relating to recommendations applicable for clinical service. The author is of the strong opinion that these recommendations are necessary as they relate to current clinical practice the management of femicides within the Forensic Pathology service (FPS). Thus unlike those relating to research, these recommendations are proposed with the hope that they will be considered as a priority and guide the development of minimum standard required in managing cases of sexual homicide.

6.3.1 Recommendations for clinical service -Forensic Pathology Service

6.3.1.1 Proposed protocol for forensic management of femicides and sexual homicides

This study has highlighted the urgent need to standardise the forensic management of femicide and sexual homicide cases. It is for this reason that the Western Cape FPS started discussions about developing a standard operating procedure (SOP) for management of deaths where a sexual crime is suspected¹⁹⁶. The current SOP on death scene investigation makes provision for death scenes where there is any suspicion of sexual violence to be deemed 'high profile' as such cases tend to attend media attraction^{90, 152}. The Forensic Pathology Officer (FPO) attending the death scene is required to inform the pathologist on call before the body is removed from the scene to preserve any evidence in this regard¹⁵². Since investigation of the crime scene remains paramount to identifying forensic evidence that may suggest a sexual violence-related death^{13, 21, 26, 27}, efforts should be directed at the FPOs, pathologist and members of the SAPS about the criteria for suspected sexual homicide which has been defined in this study as:

- i) *Documented history of suspicion of sexual violence, which may be triggered by sexually explicit positioning of the body or signs of substitute sexual behaviour at the crime scene.*



- ii) *Deranged or absent clothing without an alternative explanation.*
- iii) *Objects penetrating the genitalia, anal or oral cavities with or without associated injuries, and without an alternative explanation.*
- iv) *Specimens taken for the SAECK or an equivalent thereof at the crime scene or at autopsy.*

Ideally autopsy examinations in cases of suspected sexual homicide should be performed without delay. Due to personal interest in the matter the author compiled a draft SOP in March 2012, which was submitted to the SOP committee in the WC FPS in March 2012. This SOP has since been reviewed by the author and is appended to this thesis as a recommended step towards the standardisation of protocols in the forensic management of a suspected sexual homicide within the FPS, (see Appendix J).

There needs to be efforts to develop minimum standards for examining and reporting of autopsy findings in cases of femicides. The current LAB27 form does not allow for full reports on sections like the breasts, anus and different anatomic areas of the genitalia which may be injured. Similarly, the template does not prompt examination for signs of possible chronic abuse which has been shown to be a risk factor for IF^{20, 87, 197, 198}. A recent study in SA has suggested a link between conviction and the history of IPV, crime scene investigation by the investigating officer and weapon recovery from the scene²⁷. These findings motivated the author to modify LAB27 named to the 'Female Death Scene Script, also known as the 'Pink LAB27' at the Salt River mortuary (SRFPL), because it is printed on pink instead of white paper to serve as a trigger that the particular death scene may very well involve a sexual crime and thus should be treated with scrutiny. This form is completed by the FPOs in any crime scene involving the death of any female persons of any age. The 'Pink Lab' was implemented at the SRFPL in 2013 and has received positive feedback from both FPOs and pathologists in the division. It is believed to have contributed positively towards increased detection of suspected sexual homicides, see Appendix H.



Additionally, practices like fuming the body for fingerprints at the crime scene or on arrival to the FPL should be further researched and appropriate protocols provided to guide clinical practice. This is important as in such cases, the body cannot be refrigerated until the fumigation process is complete. The value of this procedure has to be weighed against the risk of delayed specimen collection for the SAECK and the risk of decomposition, and hence the possibility of misinterpreting altered pathological findings.

It is equally important that there is sufficient support for personnel who investigate these cases. The recent shortage of SAECKs in the province and as currently experienced in some parts of the country should be prevented in future as it may lead not only to loss of evidence, but also frustration and poor morale amongst pathologists, police officers and prosecutors alike.

6.3.2 Recommendations for research and policy

The author acknowledges that there should be continued collection of accurate data on the incidence, nature, risk factors and outcome of femicide and sexual homicide as the extreme forms of VAW^{7, 16}. This is important if any meaningful contribution towards public policy, specifically for the purposes of resource allocation, implementation of interventions (including in the Criminal Justice System (CJS)) and prevention programmes is desired. Inconsistencies between policy and practice, lack of commitment by the government and poor, ineffective policing have been cited as the some of the major reasons for the lack of significant declines in crimes like IF in SA^{82, 105, 106}. Morei argues that while DV is unlawful, certain acts like financial and emotional abuse are not criminalised and not recorded by the SAPS as crimes⁸²; thus, the actual magnitude of the problem, its effects on victims and our appropriate response thereto remains unknown in practice. Additionally the impunity shown to offenders by the CJS remains a cause for concern^{2, 28} and to some extent has been blamed for the problem of underreporting of sexual offences in this country⁹⁸. With this in mind the following are proposed:



Several risk factors have been previously identified for femicide and sexual homicide in this country, including amongst others, victim-related factors like race, age, poor-socio-economic status, and poverty and alcohol consumption. However, there are unknown confounding factors which may significantly increase the risk of femicide. Research on children and the elderly femicides is limited as the focus has been on adult women in intimate relationships^{20, 50, 61, 199}.

In recognition of the need to better understand the risk profile of child homicides in Cape Town, the Child Death Review (CDR) team comprising various professionals including the forensic pathologist, prosecutor, researcher, police officer, social worker, epidemiologist and paediatrician was established in 2014 at UCT in collaboration with the UCT Division of Forensic Medicine and Toxicology (DFMT) and the Children's Institute. The team investigates all child deaths admitted at the SRFPL with the hope that such data will contribute towards better surveillance of child homicide cases, enforce the statutory obligation to report such abuse-related child deaths and especially help mitigate against ongoing abuse of surviving siblings. Furthermore, this data may help explain the link between child homicide and femicide and whether these deaths are sexually motivated.

The author believes that a model similar to the CDR can be adopted in the form of Female Death Review Teams to address similar issues encountered in femicides, especially in cases involving domestic violence. There should be efforts to develop an intersectoral collaboration with representatives from all major stakeholders involved in the processes of investigating and administering justice for femicide victims. Such representatives should be from organizations inclusive of the SAPS, FPS, Department of Social Services and CJS. It is perceived that if such a collaboration is comprised of interested professionals who want to see change in the current incidence of VAW in this country, investigation, prosecution and prevention strategies for femicides and sexual homicides can be developed and successfully implemented not only in Cape Town, but the rest of the country. Similar teams, commonly known as the Domestic Violence Review Teams have been established and are successful in many countries including the USA, Australia, and Canada^{200, 201}; to name a few.



Research on femicide and sexual violence should be performed on a continuous basis. Data collected during projects like the proposed FDR and register-based data as currently practiced on a daily basis in the DFMT, and in many other FPL's across the WC province is invaluable in research. Future research should use similar methodological designs and definition of terms coupled with collecting data on the motive for femicide cases. Therefore, information on the victim-perpetrator relationship is necessary if we are to understand the underlying causes and implement successful and appropriate prevention strategies. Similarly, information on the population census should be freely available for researchers and preferably organized according to common epidemiologic variables including age, gender and race. This will improve validity of results and allow for sound comparisons with previous research both locally and internationally.

Additionally, there should be greater efforts to record accurate statistics of the crimes related to sexual violence in SA, especially with regard to the crime of rape. Register-based data, if completed meticulously in a systemic manner in institutions like the Thuthuzela centres^{xx} may provide useful resource for retrospective research on many aspects of sexual violence, and such efforts should be encouraged. Improvements of sexual violence crime recording by the SAPS as the primary source of crime statistics in SA is similarly required. This may assist National Department of Health and the Justice System in planning and implementing prevention strategies.

Alcohol:

While it is accepted that there is a link between alcohol and violence, the causality has not been proven in research²⁰². We need studies that can further explore the circumstances under which alcohol consumption induces violence so that interventions can be developed to mitigate such conditions. This cannot be possible unless we test alcohol in both victims and perpetrators of violence. Thus, we need

^{xx} Thuthuzela Care Centers are 24-hour, one-stop clinical forensic crises centers dedicated to the emergency and follow-up care of survivors of domestic and sexual violence, including child abuse cases, staffed with a Forensic Nurse, Forensic Medical Practitioner, Rape Crisis counselor and representative from the National Prosecuting Authority.



legislation that can allow for alcohol to be tested not only in cases of suspected drunken driving, but also in cases of arrests related to any violent crime. However, two challenges will limit extent to which this can be implemented and researched: firstly; rapid apprehension of perpetrators of violent crime is rare in this country, as have been shown in cases of femicide^{28, 143} and rape survivors. Secondly; the persistent backlog problems at the FCL should be addressed to allow for research on alcohol and drug related crimes against women and children, and drug-related sexual violence.

We need a renewed commitment from academic institutions and government departments to support professionals engaged in such research activities, particularly with regards to time and financial resources. Similarly, government departments, especially the CJS, social services, and Department of Health should work together with any other department to fight VAW, and to commit to seeking justice for the women who are killed simply because of their gender. The FPS in the WC province has to date implemented changes and improvements as indicated in this study to assist the CJS in administering justice by competently investigating and accurately reporting on the causes of death in these victims.

6.4 Conclusion to the study:

The key strength of this dissertation report is the inclusion, for the very first time in this country, of all female homicidal deaths reviewed in a 10 year period and thus, provides for better generalisability of the findings. Despite its descriptive nature this research study offers some insight into the risk factors for femicide and sexual homicides in Cape Town. However, without robust qualitative research the association between the risk factors identified in this study, comprising age, race and alcohol consumption by these victims, although conforming to the well described ecological conceptual framework, cannot equate causation.

The author continues to be actively engaged in any issues regarding the management and research issues of femicides in the Province, including making contributions to the current practice challenges. The goal is to adopt evidence-based practice in managing



these cases and to lobby for the adoption of any successful practices to the rest of the country.



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