UNNATURAL CAUSES OF DEATH IN SOUTH AFRICAN CHILDREN UNDER 14 YEARS IN 2001- AN INTERCITY COMPARISON

by

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ABSTRACT

A retrospective study on mortuary data obtained from NIMSS in 2001 from 6 major cities in the Republic of South Africa was undertaken, to elucidate the manner and causes of unnatural death in children under 14 years of age. The cities included Cape Town, Durban, East London, Johannesburg, Port Elizabeth and Pretoria.

A total of 2312 fatalities were analysed. Of this, 853 were natural death cases and 1459 were unnatural death cases. Pedestrian motor vehicle accidents, burns and drowning, were the leading causes of unnatural death in the study sample. Pedestrian motor vehicle accidents was confirmed to be the leading cause of unnatural death amongst children in the Black population. The causes and manner of unnatural death in each of the 6 cities were determined, and the gender, racial, seasonal and age variation evaluated. Besides the aforementioned three causes and deaths due to firearm injuries, causes of unnatural death peculiar to individual cities were elucidated. A high number of fatalities due to train accidents in Cape Town, poisoning in Johannesburg, sharp force trauma in East London, abandonment in Port Elizabeth, blunt force trauma in Durban and medical procedures in Pretoria, were found.

An intercity comparison of pedestrian, drowning, burn and firearm fatalities revealed gender, seasonal, racial, age differences.

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GLOSSARY OF TERMS AND ABBREVIATIONS

CT Cape Town
DBN Durban
EL East London
JHB Johannesburg
PE Port Elizabeth
PTA Pretoria
Ped Pedestrian
Pass Passenger
Unspec Unspecified

UID's Unintentional Injury Deaths
MVA Motor vehicle accident
Pois.Ing Poisoning by ingestion
Pois.Gas Poisoning by gassing
SIDS Sudden Infant Death Syndrome
Med. Proc Medical Procedure
Res. institute Residential institute
Med. Service Medical service area

The terminology used in this manuscript is based on that used by the National Injury Mortality Surveillance System (NIMSS).

Unnatural deaths. This includes all deaths which warrant medico-legal autopsies in terms of the Inquest Act (No.59) of 1959. These deaths are not natural. These deaths have been categorised according to the external cause and the manner of death.

External cause of death. This refers to the circumstance or event that preceded death, e.g. poisoning, burning, drowning, stabbing, firearm, hanging.

Apparent manner. This refers to the intention associated with the death. The apparent manner of death is categorised into:

> ***Homicide*** - intentional death caused by another person or assailant
> ***Suicide*** - self-inflicted death
> ***Undetermined*** - deaths whereby the manner could not be ascertained by medical personnel
> ***Transport-related*** - involves unintentional deaths specifically associated with vehicular accidents, railway accidents or cycling accidents
> ***Other UID's (unintentional injury deaths)*** - these include non transport-related deaths which occurred unintentionally, accidentally, i.e. burns, drowning, falls, lightning deaths.

The word **"sex"** is used to denote male and female.

The term **"population group"** is used to denote ethnicity. According the 3rd Annual Report of the National Injury Mortality Surveillance System entitled "A Profile of Fatal Injuries in South Africa", the term population group "is a gross proxy measure of social grouping in South Africa. The use of 'Asian', 'African', 'Coloured' and 'White' labels, still serve as the primary research and scientific indicators of social grouping.

For identification purposes, the ethnic group is recorded by all mortuaries in South Africa. In this study, the term "population" refers to the population group in the mortuary data and not in the entire city.

AIM AND METHODOLOGY

AIM

I. To determine the manner and causes of unnatural death in children under the age of 14 years

II. To determine the most common causes of unnatural death in each city.

III. To evaluate the gender, seasonal, ethnic and age variation in the most common causes of unnatural death in each city.

IV. To make intercity comparisons of the most common causes of unnatural death.

V. To determine the location of deaths due to burns and drowning specifically, and make an intercity comparison.

VI. To make an intercity comparison of calculated mortality rates.

METHODOLOGY

Study design

All data obtained from the medico-legal laboratories in the six cities which have contributed to the NMSS (National Mortality Surveillance System) database in 2001, is reviewed.

Study population

The study population consists of all deaths in children below the age of 14 years. This amounted to 2 312 cases in 2001.

Logistics

Before the study was undertaken, letters were sent to all Heads of Medico-legal Laboratories in the six cities informing them about the study, and inquiries were also made as to whether or not there were any objections to the usage of the data from their laboratories. In some cases, telephone calls were made to Heads. Inquiry as to how they wished to be acknowledged in the study was also made. Medico-legal Laboratory heads were reassured that confidentiality, not only of individual cases but also of the mortuary which had contributed to the NMSS, would be maintained. They were also informed that the data would be evaluated per city. The proposal of the dissertation was submitted for review by the UCT Ethics Committee and was approved in June 2003. Confidentiality regarding the identity of the deceased was maintained. Individual cases were marked numerically (1 to 2 312), and not by the name of the deceased or by the death register number. Bloemfontein and Kimberley were not included in this study due to time constraints.

Data Management and Analysis

Data regarding deaths in children under 14 years from the city mortuaries, was captured for the Medical Research Council in 2001, by staff working in the mortuaries or in Forensic departments using a data collection form, supplied to them by the Medical Research Council. This data was

the fed into a computer database using Microsoft Excel. A copy of the data collection form is found in Annexure 10. For this dissertation, the Crime, Violence, and Injury Lead Programme, Medical Research Council, Cape Town, was asked to supply the data gathered from mortuaries in the 6 cities in South Africa in 2001.

Unnatural deaths are deaths due to any external physical, or chemical agent associated with an act of omission or commission the part of any person, or deaths which had occurred under a local or general anaesthetic. These deaths warrant a medico-legal autopsy. Natural deaths however, are those which resulted from a solely natural disease process. Natural death cases do not warrant a medico-legal autopsy. In some instances no death certificate for these cases can be obtained, especially when the deceased had never consulted a medical practitioner. The body would then have to be brought to the state mortuary where after review of the circumstances of the death and body is done, a natural death certificate would be issued. If the circumstances of death suggest foul play, a medico-legal post-mortem would be performed. In this study, the causes of natural deaths was not evaluated.

In order to make intercity comparisons, the mortuary data was processed using Microsoft Excel to determine the following from each city:

- The total number of deaths.
- The total number of natural and unnatural deaths.
- The manner of unnatural death.
- The gender, seasonal, ethnic and age distribution of the most common unnatural deaths.
- Total mortality rates.

In order to determine the mortality rates in each city, figures for the estimated population size in each city were obtained from census data compiled by Statistics South Africa. Cases referred to the major centres from outlying towns were eliminated from the data set. The statistical analysis was done using Stata Statistical package. The confidence intervals were computed using Poisson.

The ages of the study population were grouped as follows:

i. 0 to 1 year
ii. 1 to 4 years
iii. 5 to 9 years
iv. 10 to 13 years

Monthly fatalities were tabulated into seasons, as follows:

Summer constituted December, January and February; Autumn constituted March, April and May; Winter constituted June, July and August; Spring constituted September, October and November.

Chapter 1

INTRODUCTION

Injury is the major cause of death in children aged 5-14 years in the Republic of South Africa. The mortality rate in this age group was found to be 1.5 to 3.5 times that of the United States of America [13]. According to Bass, injury is not a random event, but results from environment and innate factors which are imposed on the child. In his opinion, the most effective means of decreasing injury-related death and disability amongst children, is prevention [85]. In South Africa, because all unnatural deaths warrant a medico-legal autopsy so as to determine the cause of death, this creates opportunities for data capture and research. Only information pertaining to homicide is recorded by police, and only certain transport-related deaths are recorded by the National Transport Information System [102]. The NIMSS was thus established so as to gather detailed information about injury and death throughout South Africa, and is thus a "watchdog" for injury and death.. It is thus imperative that this data be accurate. It should be noted that child mortality statistics underestimate the extent of childhood injury, as there are injuries of high incidence and low mortality, which are not taken into account [15].

Chapter 2

LITERATURE REVIEW ON CHILDHOOD INJURIES AND DEATH

According Kibel, in a study done on injury related mortality in South Africa, between 1981-1985, 90% of childhood deaths occur in children under 5 years of age and were due to malnutrition and gastroenteritis[15] . Since infectious diseases has been controlled successfully, injury has become the major cause of death between the ages 1-15 years in all industrialised and developing countries[13,15]. In most developed countries, drowning and poisoning, and injuries sustained in motor vehicle accidents (MVA's), kill over 20 000 children yearly [38]. According to the annual United Nations Children's Fund (UNICEF) report [39], 40% of fatalities in children between 1-14 years are due to trauma. Within the Organisation of Economic Cooperation & Development (OECD) countries, consisting of a league of 26 nations, Sweden and the United Kingdom appear to be the two safest countries for children. In this league of nations, Mexico and South Korea, have the highest child mortality rates, three to four times higher than the United Kingdom and Sweden. The United States of America and Portugal have a child mortality rate, double that of Sweden and the United Kingdom. The mortality rate in all the OECD nations has decreased between 1970-1995. In fact, sixteen countries had halved their child mortality rate in this period. Australia and New Zealand had decreased their child mortality rate more rapidly in this time period, than other countries.

Fires, drowning and pedestrian MVA's accounted for the majority of deaths in children aged 1–4 years, in England and Wales. In these countries, pedestrian road traffic accidents accounted for most deaths in children 5-14 years, i.e. 34% in the 5-9 year age group and 37% in the 10-14 year age group. Suffocation was found to be the leading cause of death in infants, accounting for 42% of the death total. The highest homicide incidence and deaths of unknown intent was found in the less than 1 year age group. Mortality figures for England and Wales in children and youth (0-19 years) were found to be less than 50% compared to the United States of America figures. The United States of America was found to have a higher mortality due to homicide in this age group, i.e. eighteen times higher than that of England and Wales. This was attributed to the high incidence of firearm related mortality in the United States of America [40].

Because the United States of America, England, Wales and Australia, have a standardized system for the collection of mortality data, valid comparisons can be made between these countries. The differences in firearm mortality in these countries are notable, in that they account for 1% of deaths in England and Wales, less than 6% in Australia and 27% in the United States of America [42]. In the 1-4 year age group, in 1994, England and Wales had very low motor vehicle occupant, and drowning, death rates. Australia had the second lowest motor vehicle occupant and drowning death rate. It did however have the lowest fire death rate for that year. The United

States of America had the highest motor vehicle occupant , drowning and firearm death rate. The low motor vehicle occupant death rate in England and Wales was thought to be due to the common practice there of placing children in the vehicle backseat [42].

Child mortality rates in the United States of America have declined dramatically, however preventable deaths appear now to be emerging [43]. In the 1-19 year age group, the three important modes of death were -

(a) accidents (MVA's, drowning, accidents) - 41%

(b) homicides - 14%

(c) suicide - 7%

Other causes of death included congenital causes (5%), tumors (7%), and other causes (25%). A large proportion of the latter were found to consist of preventable deaths. Factors thought to contribute to this emerging trend include escalating child poverty and a high divorce rate resulting in family instability.

Injury is the major cause of death in children between the ages of 5 and 14 years, in the Republic of South Africa. According to a study done by Cywes et al, in 1990, the mortality rate in this age group was estimated to be 1.5 to 3.8 times that of the United States of America [13]. It should be noted though that mortality statistics underestimate the extent of childhood injury. This is because injuries of high incidence and low mortality, e.g. falls, are not taken into consideration in these statistics [15].

South Africa is said to have characteristics of both a developed and a developing country and numerous factors, e.g. environmental and social factors, influence the range of injuries seen in childhood[13]. The different patterns of childhood injury are related to social disadvantage rather than to ethnicity [14] . Studies have shown that disadvantaged communities and individuals have higher mortality rates. Disadvantaged individuals, wherever they live, have a higher death risk. However, the death risk for non-disadvantaged people living in a deprived community, is not increased [41]. According to the Helsinki Accord [99], which involves human rights, it is stated that "it is a human right to have freedom of thought, conscience and religion". This Accord also promotes political, social and economic rights which are essential for human development and well-being.

In Kibel's study [15], done between 1981-1985, MVA's (31%) followed by drowning (19%) and burns (11%) were found to be the leading causes of death in the 5-14 year age group. Furthermore, White boys (1-4 years), were more at risk for drowning, whereas Coloured, Asian and Black children (1-4 years), were more at risk for burns. Coloured boys were also found to be at greater risk of dying of injury, i.e. assault in children less than 1 year and burns in children less than 5 years.

The incidence of fire burns was associated with social deprivation, i.e. type of housing, the availability of electricity and fire services. The age distribution in which drowning occurred, was

notably different for the population groups. The pattern for drowning in White children. i.e. the 1-4 year age group, correlates with the pattern of drowning seen in Australia. The drowning pattern in the Coloured and Black children, i.e. 5-14 year age group correlated with the Black American pattern. The Coloured boys were found to be 3.6 times at higher risk for drowning compared to White boys. In the White population, 62% of deaths due to drowning occurred in swimming pools, while 67% of deaths due to drowning in the Black and Coloured population occurred in dams and rivers. In children less than 5 years of age, death due to drowning occurred in or near their home, whereas in the case of the older child, drowning fatalities were in dams and rivers.

A study done in Cape Town over a 15 year period, i.e. 1966-1981, by Knobel [16], demonstrated that the distribution of non-natural deaths in childhood, birth to 15 years, was that of MVA's (54%), burns (12%), drowning (11%), assault/abuse (5.4%), poisoning (3.3%). In this study, the Black population had the highest incidence of burn fatalities, followed by the Coloured population and then the White population. The highest percentage of burn fatalities occurred in the 1-5 year age group and second to this, in children less than a year. The highest incidence of drowning fatalities occurred in the White population and second to this, in the Coloured population. This is in contrast to that found in the Kibel study where the lowest incidence was found in the Black population. Children between 6-14 years were most at risk. There was no significant gender variation for drowning fatalities. There was also no significant ethnic and gender variation found in cases of assault/abuse.

It is important to distinguish between children and adolescents, as their trauma profiles are different [81]. The adolescent trauma profile is very similar to the adult trauma profile as they adopt adult behaviour patterns. Childhood usually refers to children less than 15 years of age, but is used interchangeably also, i.e. to describe those under 19 years [16, 82]. The World Health Organisation considers 10-14 year olds as young adolescents, and 15-19 year olds as late adolescents [83].

In the study conducted by M Steenkamp in 1990 on child and adolescent trauma in Metropolitan Cape Town, it was demonstrated that differences exist in trauma rates for various age groups. The 1-4 year age group was found to have the highest trauma rate. The 10-14 year old was found to have the second highest trauma rate, followed by the 5-9 year age group. The reason for the high trauma rate in the 10-14 year old age group was attributed to their adopting adult behaviour patterns. In the study, the male to female ratio in the 0-14 year age group was 2 to1, in contrast to the adolescent age group 15-19 years (where the male to female ratio was 3 to1). The study demonstrated that transport-related injuries accounted for 11% of injury cases in both the 0-14 year age group and the 15-19 year age group. However, in the 0-14 year age group, the majority of children were injured as pedestrians (46.7%), while 32.8% were injured as passengers. In contrast however it was found that in the 15-19 year age group, only 24.6% were injured as

pedestrians whereas 39% were injured as passengers. With regard to non transport-related injuries, children 0-14 years sustained injury predominantly by falls and secondly by sharp instruments, whereas for those aged 15-19 years, injury was sustained by sharp instruments, followed by falls.

Because natural deaths obscure trauma incidence in children less than 5 years of age, the impact of trauma in this age category is underestimated [84].

According to Dr J van der Spuy in a study conducted between 1981 and 1985, trauma was found to account for 54.3% of deaths in the 5-19 year old age group, and in the 0-4 year age group it accounted for 45.7% of deaths.

Bass states that "injury is not a random event; it results from factors (environmental and innate) imposed upon the child. It is thus preventable" [85]. He states further that the management of paediatric trauma cannot be left to those working in specialist fields, but that simple injuries can also adequately be treated by general practitioners. He also states that primary prevention is the most effective means of decreasing injury-related death and disability amongst children. It has been demonstrated that an intervention aimed at reducing a single injury type is more effective than that aimed at reducing a range of injuries [87].

MOTOR VEHICLE ACCIDENTS

Motor vehicle accidents are a major cause of morbidity and mortality in childhood. Pedestrian fatalities account for most of the deaths in children under the age of 10 years. In the United Kingdom, New Zealand and Australia, the pedestrian mortality rate for children under the age of 14 years is, 2.4, 3.0, and 3.1 per 100 000 respectively [27]. Investigation into the causes of death in children in Germany demonstrated that MVA's accounted for the majority of deaths in children 1-15 years (50%) in their series [29].

In Britain, despite there being an increase in the volume of traffic, the child pedestrian mortality rate was noted to have decreased [24]. The reason for the reduction was thought to be due to children being less likely to be found in the roads. They are therefore less exposed to traffic as the increased traffic volume had made roads more hazardous. A decrease in the child pedestrian mortality rate in Britain between 1985 and 1992 was confirmed in another study [37]. The reason for this was associated with an increase in car travel, suggesting that travelling by car was safer for children.

A study done in the Perth Metropolitan area on childhood pedestrian injuries demonstrated that children aged 5-9 years and 10-14 years were most at risk. The pedestrian injuries occurred mainly between the hours of 15:00 and 19:00 [25].

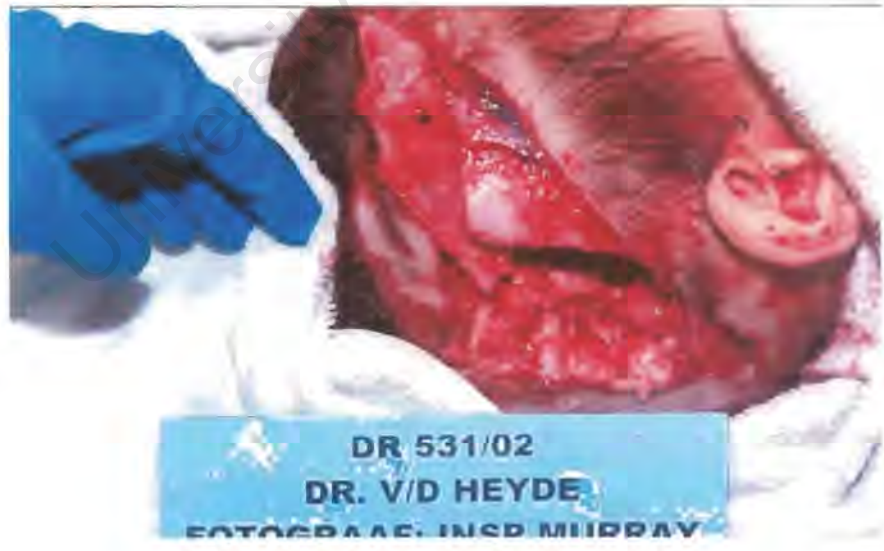
Studies have demonstrated that road traffic pedestrian accidents account for a large proportion of head injury in children [16, 27, 28, 29]. A high incidence of chest and abdominal trauma is also associated with child pedestrian accidents, so reflecting the child's vulnerability to trauma at

different sites. The thorax of a child is compliant and its mediastinum is mobile. This means that after trauma is sustained, there may be significant damage to organ parenchyma. Lower limb injuries are also commonly associated with child pedestrian accidents.

Byard et al, in their study on pathological features of child pedestrian fatalities, found no age-related differences in injury pattern, so reflecting massive trauma sustained in these cases. The proportion of children injured by a moving vehicle in a home driveway in the study was found to be 6%. In some studies it was found to be 10%. A crushed head was the dominant feature seen in these cases - "slow speed injury" [27]. Also seen in their study, was that the injuries children sustained as pedestrians tended to be massive, such that death occurred soon after the event. In some cases, the injuries were deemed so severe - in fact comparable to those seen in industrial accidents. Injuries sustained in industrial accidents are characterized by evisceration, crush injury and limb amputation [30].

A positive correlation was found to be between injury severity, impact speed, and the distances the child was thrown from the vehicle or carried by the vehicle [31].

A study undertaken to determine factors affecting prognosis in seriously head injured children, in Cape Town, demonstrated that in 83% of cases, it was due to pedestrian road traffic accidents. 11% were due to falls, and in 6% it was due to passenger motor vehicle accidents, bicycle accidents, and assaults [23]. The image below depicts severe head injury caused by MVA's.



The aetiology of the head injury was found to be the most important prognostic factor, i.e. acceleration/deceleration/rotational injury resulting in diffuse brain injury had a poorer prognosis than low linear acceleration, resulting in localized brain injury. In developed

The high proportion of Black and Coloured child pedestrian fatalities in the Republic of South Africa, demonstrated in Kibel's study during 1981 to 1985 [15], was deemed to have been due to there being low car ownership in these population groups. A deficiency in safe play areas for children, and the high incidence of drunken driving in the Republic of South Africa were also deemed to have contributed to this. Poor visibility of the approaching vehicle and pedestrian, the absence of a pavement, few traffic pedestrian control devices and a lack of road safety education [26], are other factors which contribute to childhood pedestrian injury. Furthermore, the behaviour of children in traffic is believed by some research workers to be unsafe [28]. A study demonstrated that apart from the above-mentioned, large families, single parents, overcrowding, a mentally or physically disabled mother, and poor supervision, are all risk factors associated with child pedestrian accidents [28].

The retrospective study done by Knobel [16] demonstrated that there was no significant ethnic nor racial variation in deaths due to motor vehicle accidents in Cape Town. This is in contrast to that demonstrated in Kibel's study. MVA's caused 10.2% fatalities in children less than a year old, 48,9% fatalities in the 1-5 year age group and 67% in the 6-14 year age group. There was a lower incidence of fatalities due to MVA's in winter (April to August), however, there was no significant monthly variation. Furthermore, in Cape Town, the study demonstrated most MVA's occurred over weekends, between the hours of 16:00 and 20:00. The fact that most MVA's occurred over the weekend was an expected finding, as more children were thought to be on the road. Drunken driving was also thought to contribute to the fatalities over weekends. The incidence of pedestrian motor vehicle accidents were not tabulated in this study.

The studies have demonstrated that implementing legislation requiring restraint of children in cars has had a positive effect in reducing child passenger mortality. Furthermore, promoting education on safe bus boarding and roadside safety were also found to have positive effects in reducing child pedestrian mortality [86].

DROWNING

Drowning is defined as "death due to submersion, or partial submersion, in a fluid medium"[8]. The precise mechanism of death is complex and is dependent on numerous factors including the medium type in which submersion occurred. Respiratory tract obstruction during inhalation of the fluid ultimately results in death. Drowning may occur in numerous circumstances, i.e. accidental, suicidal, or homicidal circumstances, and it is for that reason that it should be considered as an unnatural death. It may occur in as little as 5 or 6cm of water, as well as in deep water.

Cases of drowning may be problematic to a Forensic Pathologist, as there are no set findings to make a firm diagnosis. In cases of drowning, the circumstances in which it occurred should first be considered and then it should be established whether or not the autopsy findings are in

keeping with it. When a body has been recovered from the water in an early state of decomposition, it will rapidly deteriorate as bacteria associated with putrefaction multiply every 20 minutes. The autopsy thus needs to be expedited so as to avoid gross putrefaction which would obscure findings [9]. The presence of diatoms in a decomposed body remains the only means of diagnosing drowning. Its reliability in indicating drowning is controversial, as it is possible to find diatoms in people who have not drowned [10]. According to Copeland, in 80%-90% of cases of fresh and salt water drowning, the lungs are "wet" and there is no difference in the lung weights in these two cases. Furthermore, statistically, there is a difference in lung weights in cases of drowning compared to the normal population [11].

The most common cause of accidental death in Australia in childhood was demonstrated to be drowning. In the 1-3 year age group it accounted for 70% of deaths [17]. A study done in South Australia, on drowning in children under 2 years of age, demonstrated that it occurred predominantly in home swimming pools, baths, rivers, ditches, seas, buckets, bins, and sinks [12]. This study showed that -

(a) infants who were left in bath tubs were at risk for drowning

(b) drowning occurred in toddlers who fell into buckets

(c) drowning occurred in children of all ages who fell into a body of water, e.g. dams

Infants are vulnerable to accidental drowning as their movements are not coordinated and they have weak musculature. They generally cannot swim, and struggle minimally. They are also vulnerable to non-accidental drowning. In such cases, the autopsy is rather problematic, as there are often no injuries present. There are often no independent witnesses to the event.

A high index of suspicion must at all times be maintained in cases of paediatric drowning for any natural disease which could have contributed to it. This could include epilepsy. The diagnosis of epilepsy is one of exclusion. It causes cardiac arrhythmia due to autonomic discharge. The presence of sclerosis of Ammon's horn, is however confirmatory, as it suggests prior episodes of epilepsy. Other natural diseases demonstrated in cases of paediatric drowning include ruptured arteriovenous malformation or Berry aneurysm, coronary artery hypoplasia, and aberrant origins of the coronary arteries [18].

Another study conducted in Australia by C Blum and J Field on drowning fatalities in children aged 1-4 years revealed that deaths mostly occurred in the child's home swimming pool. In the majority of cases, the fatalities had occurred in swimming pools which were unfenced. In cases where fatalities had occurred in fenced swimming pools, children had gained access to the swimming pool through a faulty gate or through a gate which was open. The study highlighted the importance of fencing around home swimming pools and the installation and maintenance of a secure gate [97].

A study done in Cape Town between 1980 to 1983, demonstrated that the highest incidence of drowning occurred amongst the 0-5 year age group, and amongst the Black population in the 31-40 year age group, and Blacks greater than forty years of age. Drowning occurred mostly during the summer holidays (January/December). The incidence of drowning during November and February was equivalent to that of the winter months. Most incidents of drowning occurred along the peninsula coastline - the Atlantic coastline greater than the Indian coastline [19].

A study done on childhood near-drowning in Cape Town revealed that despite the city being a coastal one, drowning in the sea was rare. Children less than 5 years old were most at risk for near-drowning. This was in keeping with other studies done on near-drowning. Accidental drowning in swimming pools accounted for 46% of near-drowning cases; near-drowning in buckets for 18% of cases; and near-drowning in the sea for 9% of cases. The younger child was found to be more at risk from bucket drowning. The study also mentions that the high proportion of bucket near-drowning is unique to South Africa, and that there is a high incidence of it in poor, deprived communities [20].

Factors associated with poor outcome in near-drowning include fixed dilated pupils, flaccidity, decerebrate posturing, clinical symptoms of cerebral oedema, and metabolic acidosis. Children requiring ongoing ventilation are also known to have a poor prognosis [21].

Secondary drowning is a phenomenon which occurs after a time period following successful resuscitation from near-drowning. This time period can be anything between 15 minutes and 96 hours. People in secondary drowning experience respiratory insufficiency due to diminished gaseous exchange which occurs as a result of deactivation of surfactant. Studies have shown that of those who had experienced near-drowning, 5% develop secondary drowning and of those who did, 25% died [21,22].

It is known that those submerged in very cold water for a prolonged period may recover completely. Resuscitation should therefore be attempted in a hypothermic person. The water temperature in such cases is usually less than 10°C. These temperatures are not usually found in the waters in and around the Republic of South Africa. The temperature of the Atlantic and Indian oceans around South Africa is usually 12.5-14.5°C, and 13-19°C respectively. Swimming pool temperatures in Cape Town are, on average, 24°C, and sometimes 10-20°C. The study done by Nagel [21], on childhood near-drowning, found that children who were hypothermic had a poor outcome. The hypothermia was attributed to shock.

BURNS

Tissue may be damaged at temperatures above 50°C. As tissue damage is not only dependent on the temperature but also on the duration of application of heat, it is known that the tissue damage can also occur at 44°C over several hours. The injury resulting from dry heat is called a burn whilst that arising due to moist heat, i.e. from hot water, steam and other hot liquids, is

known as scalding. There are short-comings in the classification of burns [44]. Burns are often described in terms of the agents that have caused it, i.e. thermal, electrical or chemical, rather than the pathology associated with the burns. According to lecture notes on Forensic Medicine [45], burns are classified as that caused by chemicals, electrically charged conductive, electromagnetic or particular rays, hot substances, dry or wet, solid, liquid or gas.

Scalding commonly occurs in the domestic environment. Children and the elderly are especially at risk. Scalding does not produce charring of the skin nor singeing of the hair, as does the application of dry heat to the skin. Charring may occur if the scald resulted from very hot oil. The scald resembles a 1st degree dry burn [46]. Reddening, blistering and sloughing of the skin is present. However, compared to a dry burn, the shape of the scald wound is different. The scald has a sharply demarcated edge, corresponding to the range of contact of the liquid. The edge of the scald may be irregular, if splashing did occur. Another distinguishing feature of a scald is the trickle pattern which may be seen when a hot liquid moves over the body under gravity. Death from scalding, when it is extensive, is due to shock and electrolyte disturbances. Septicaemia may also often occur in this setting. The picture below depicts a scald.

Dry burns may be caused by high temperature applied to the body by conduction or radiation[46]. The appearances of dry burns are variable and are dependent on the severity of the burn. When the burn is less severe, there may be erythema, redness, swelling and blister formation.

With increased severity, there may be destruction of thickness of the skin, giving rise to a yellow/brown, leathery appearance. In the very severe setting, hair may be singed and charring (as seen in image below) may be present.

In developing countries, fire burns are the most common cause of burn injury, as opposed to the developed countries, where scalds and contact burns are the two most common burn injury types. Coffee and tea are said to be the most frequent causative agents involved [47]. A study conducted in Denmark demonstrated that two-thirds of children who sustained scalds were under 2 years of age. Most of these injuries occurred in the dining, or living room (66%), whereas only 28% occurred in the kitchen. In this study, coffee was demonstrated to be the causative agent involved in 85% of the cases. Hot water burns amounted only to 11% [48]. Another study done in Denmark showed that most incidents of burn injuries occurred in children under 2 years of age. However, in contrast to the aforementioned study, contact burns were found to be the most common burn type. Scalds were found to be second to contact burns. In this study, burns were found to occur most often in the kitchen while cooking was taking place. Two cases of electrical burns were recorded. However, there was no record of fire burns in these children. They also found that the number of burn cases was highest in the winter, compared to the summer months. This was thought to be due to there being less indoor activity in summer, as opposed to winter. The incidence of burns in the 0 to 2 year age group was double that in the 3-6 year age group, and four times that in the 7-15 year age group. The study demonstrated that in 37% of the cases, kitchen appliances and utensils were the causative agents involved. In this study, the girl to boy ratio was found to be 1 to 1.6 [49].

this study scalds accounted for 7-17% of burns in childhood, that required hospitalisation. These scalds were severe. Toddlers and pre-school children were found to be most at risk for this type of injury. 80% of homes were found to have unsafe tap water temperatures, i.e. 54°C or greater. At this temperature victims are known to sustain full-thickness scalds within 30 seconds. This study high-lighted the fact that by decreasing the temperature of the tap water to less than 52° C, scalding of children could be prevented [50]. In 1983, Washington State passed a law enforcing tap water temperatures to be set at 49°C. At that time, 77% of homes had water temperatures of less than 54°C (mean 50°C). A study done to determine the effect of the legislation on the prevention of tap water burn injuries [52] found -

(a) fewer people increased the pre-set water temperature.

(b) the admission rate for burns injury had decreased from a rate 5.5 per year in 1970 to 2.4 per year in 1998.

(c) morbidity and mortality from burns were decreased in 1998 compared with 1970.

According to an article by Katcher , scalds are a significant problem throughout the European community, as well as in other continents. Katcher states that prevention methods for tap water scald burns will need to be varied from country to country. He states further that injuries, like diseases, are dependent on host, agent and environmental factors. In the case of tap water scalding, host risk factors include physical and mental disability, as well as age, i.e. less than 5 years or greater than 65 years. The agent involved in the injury is the hot tap water, and the environmental factors involved in scalding include a lack of supervision. He also mentions that brief exposure to temperatures of 60 to 65.6°C will result in full-thickness burn wounds in adults within 2 seconds, and it will occur even faster in children [51].

In New Zealand, a study done over a 10 year period, between 1978 and 1987 on burns in children aged 0-14 years, demonstrated that two-thirds of childhood burn injuries were due to hot water, the common agent being a hot beverage. Of the study population, 54% of children who sustained burns were less than 2 years old. The study also showed that of all burn injury admissions, children under 15 years of age accounted for 50% of the cases. The majority of children burnt were male. This is in keeping with other study results. Fire burns which resulted in deaths of children occurred at home due to house fires which were started either by cigarettes or lighters, or electrical appliances. The study highlights the fact that burn deaths are preventable. It is suggested that house fires could be prevented by installing central heating systems and smoke detectors in homes, and introducing fire-safe cigarettes to the public, i.e. those which do not generate sufficient energy to ignite surrounding furniture. With regards to the prevention of scalds, it is suggested that care-givers be educated about the dangers of hot beverages and advice about safety when these beverages are consumed, should be given [53].

In South Africa, burns have been demonstrated to be one of the four most prevalent causes of death in children under 14 years of age. The majority of burn injuries in this country are due to scalds, resulting from exposure to hot fluids in a bath, kettle, or pot. Flame burns also contribute significantly to the burn injury spectrum, resulting in severe injury and also mortality. Male children are most at risk. Burn injuries predominantly involve the head, neck and upper torso.[98,107,108] A study done at the Salt River Medico-legal Laboratory, Cape Town between 1990 and 1991 showed that 19% of burn fatalities occurred between birth and 12 years of age. Of this, 53% occurred between 1-6 years of age. Residential fires accounted for 75% of causes of burn deaths in children. The study also demonstrated the prevalence of fire burns in winter months and over weekends in informal settlements. It was also found that in 21% of these fire burn fatalities, paraffin and wood were used to fuel the fire. Smoking was also demonstrated to result in residential fires. This study highlighted the need for electrification of houses in informal settlements, the installation of fire guards and safe cooking devices and fuel sources. It is also suggested that regulatory strategies in the consumption of alcohol and cigarettes be implemented, so as to reduce child burn fatalities [54].

A study done by M Peden on burns to demonstrate differences between the Cape Metropole and rural areas, reveals the percentage of burns in children was only marginally higher in the rural areas compared to the Metropole, i.e. 7.4% and 6.6%. In both the rural and Metropole, the majority of children who sustained burns were less than 4 years old, the mean age being 2.95 years for the Metropole children, and 3.84 years for rural children. This difference was not deemed to have been statistically significant. The gender profile was similar for children in the rural and Metropole, in that boys sustained the most burn injuries (55%). The racial profile was found to be different in that the Coloured population were predominantly injured in the Metropole compared to the Black population in the rural area. This was due to the overall population profile, however being dissimilar. In rural areas, burns occurred predominantly around meal times, whereas in the Metropole, peaks in burn injuries were found to be between 17:00 and 21:00, and 14:00 and 15:00 (when children left school). A large percentage of children sustained hot water burns predominantly around meal times in the rural areas. In the Metropole however, fire and chemical burns were the predominant agents involved. The injuries were sustained after dark in the Metropole [55].

Differences in the acquisition and type of burns between older and younger children has been demonstrated. Children 10-16 years old demonstrated adult type of burn injury, e.g. flame burns, chemical burns, and burns due to hot fat were sustained. The mode of acquisition in this age group however, was found to be child-like, i.e. the burns occurred during experimentation. Lack of awareness as to the dangers involved was also found to be associated with burn injuries in this age group. This was in contrast to that found in the younger child, where scalds were found to be the predominant burn injury sustained [56].

The approach to the prevention of burns must be based on -

(a) knowledge of the burn aetiology.

(b) knowledge about the risk factors involved, and whether or not they are amenable to change and legislation.

(c) knowledge about the socio-economic and geographic variables in a country

(d) product modification and environmental control.

For example, in the United States of America the installation of smoke detectors in low-cost houses reduced house fire related deaths; the reduction of the tap water temperature from 61° to 54.4°C decreased the risk of scald injuries in children; flame resistant children's sleepwear also reduced clothing related deaths. Since flame resistant clothing was introduced, the percentage of children aged 0-14years who had died of clothing related burns decreased from 7.9% of the total number of clothing related burns in 1970 to 0.8% in 1982. In Denmark, redesigning washing machine doors prevented them from being opened, and so decreased the risk of scalding in children. In the Netherlands, electric coffee makers have replaced electric kettles, so decreasing the risk of scalding [57].

Apart from modifying products so as to prevent burn injuries, some authors believe education on behavioural change should also be included in burn strategy prevention. They believe that burn injuries are related to specific behaviour patterns which may be changed. It is suggested that epidemiological studies on the aetiology of burns, as well as research on the behaviour causing burns, be conducted [58].

Herd et al identified three main causes for scalds, one of which included overturned kettles, teapots and saucepans. He suggests that they be redesigned so as not to rapidly discharge their contents. He suggests that this would have a profound effect on child scald injury [59].

Fallat and Rengers, in their study, again draw attention to the main methods for burn prevention. This includes "information and education" or "product design and environmental control". Mention was made of the school and media burn prevention education programme implemented in 1975 which failed to significantly decrease burn injury. Attention was drawn to the fact that studies have demonstrated that education alone was unable to reduce the injury or death rates from burns. Legislation, did play a role in decreasing the morbidity from flame burns (the enforcement of fire-resistant sleepwear for toddlers). The most effective strategy, in their view, was to introduce cost-effective/user-friendly burn preventative products, i.e. burn detectors and non-inflammable child sleepwear. The use of fear in education about burn preventions was found to be an effective teaching method [60].

Children who have burnt are at risk for emotional problems during adolescence. The children most at risk were found to be those who sustained burns of the hands and face, who had emotionally unstable mothers and who moved homes frequently. The reason for this is thought to be related to body image. During adolescence body image is very important, and injury to the

body at an early age damages body image. It is this that results in emotional disturbance during adolescence [61].

FIREARM INJURIES AND FATALITIES

Firearm injuries are known to cause major morbidity and mortality in the paediatric population. Children have a smaller respiratory capacity and blood volume than adults. Their organs are relatively unprotected and their heads are proportionately larger than adults. The treatment of children with a firearm injury is thus taxing and complex and poses numerous problems to attending physicians and surgeons.

In a study conducted to determine the epidemiology of severe firearm related mortality and injury in a state wide population in the United States of America in teenagers and children aged 0-19 years, it was found that it was exceeded only by MVA's in causing severe morbidity and mortality. The Centres for disease Control in the United States of America had then estimated that in 2003, firearm injury would replace MVA's as the leading cause of death in some of its States. The majority (80%), of the firearm deaths in this study were found to occur in the 15-19 year age group. Homicidal firearm injury was the most common mode of death. Second to this, was suicidal firearm injury. Firearm homicide was found to be most prevalent in urban areas, whereas the firearm suicides were found to be most prevalent in the rural areas [2]. Another study conducted in a defined urban population, demonstrated that the American Black male adolescent who lived in a poor area, was at greatest risk for firearm injury, the mean age being14.9 to 15.9 years. Their risk for firearm injury was found to be 13 times higher compared to the white adolescents. In contrast, there was no racial difference in firearm deaths in children under the age of 12 years [3].

A prospective and retrospective study done during 1987 to 1991 in Los Angeles, of children between 6 months and 17 years who had sustained a firearm injury to the head, showed that in a large percentage of cases (72%) , the injury was sustained in gang-related violence. Mention was made of the fact that unlike the rest of the United States of America, more children and adolescents in that city died from firearm homicide than road traffic accidents. A large number of the cases in this study came from the urbanized, inner city in which gang related violence was rife [4]. In another study done in Los Angeles, children older than 10 years sustained gang related firearm injury, whereas in children under the age of 10 years the firearm injury sustained, was associated with child neglect and domestic conflict [5].

In another study series done on children under 16 years who had sustained a firearm injury to the head, 46% were homicidal, 25% were accidental, and 22% were suicide related. In 70% of the cases the injury occurred in the home and it was concluded that the victim was likely to know the assailant and be killed in the home by a firearm that was at hand [6].

At present, Cape Town is in the midst of an epidemic of firearm-related injury and death among children and adolescents. The incidence of firearm injuries among children under the age of 19 years has tripled from 1992 to 1996. Coloured males between 13 and 18 years of age were demonstrated to be at greatest risk for sustaining firearm injury. The racial group next at risk was Black males. There were no accurate figures available as to the proportion of firearm injuries sustained by accidental means or suicide. This is due to poor record keeping by police and health care workers in Cape Town [1].

According to available data, children seen at hospitals in Cape Town, most frequently sustained firearm injury to the limbs (61%), and the head and neck (20%). At the Medico-legal Laboratory however, the most common sites of firearm injury were the head and neck (38%) and the chest (28%) [1].

A study undertaken in Kwazulu Natal between 1983 and 1995 to determine the firearm injury pattern in children under 13 years also demonstrated an increasing incidence. There was a 10% mortality rate, with 11% of the study population sustaining life-long disability i.e. paraplegia, hemiplegia and amputation [7]. In this study, 96 cases of children who sustained firearm injury were reviewed. In only 38 cases could the circumstances of the injury be established. One child played with a gun. Two children were shot by the police and the remainder, i.e. 35 children, were injured as innocent bystanders, to violence amongst adults. In this study, in contrast to the Cape Town study, abdominal firearm injury was the most common, warranting admission to hospital. The second and third most common site injured included the lower limbs (27%) and head (17%) respectively. An almost equal gender incidence was found, the mean age of injury being 6.4 years.

Firearm injury to the neck, in an infant, was shown to have a higher mortality rate than in an adult, possibly as the tissue concentration in the neck of an infant is greater per unit of cross-sectional area [5].

Mortality due to firearm injury has, in the United States of America, declined since 1993. However the firearm mortality rate is still high compared to other developing countries. The majority of the firearm fatalities in the United States of America, are homicidal related. Furthermore, firearm injury was demonstrated to be lethal compared to other injuries sustained by children and adolescents [32]. Non-fatal firearm related injuries, generally, were found to outnumber fatalities by 2.6 to 1 [35]. Studies have shown that many unintentional firearm injuries can be prevented by ensuring that -

(a) handguns have safety mechanisms

(b) guns are safely stored in homes

(c) guns are handled appropriately and safely [33].

In the United States of America, however, it was noted that the incidence of unintentional firearm injury was in fact underestimated [34].

According to a study conducted by Barlow et al [100], firearm fatalities in children under 16 years in fact increased overall, despite handgun legislation being implemented, i.e. limiting the sales of handguns. A decrease in the incidence of unintentional fatalities in the home, however, was found in this study. The latter was attributed to increased public awareness as to firearm danger. This suggests that the problem of firearm control and fatality may be causally related [36].

POISONING

Statistics from the Red Cross Children's Hospital's Poisons Information Centre from 1992-2002 indicate that paraffin and medicines are the two leading causes of childhood poisoning. These account for greater than 50% of out-patient admissions, and 70% of in-patient admissions. The proportion of admissions for these poisons was found to remain constant in the study period even though a decrease in the number of out and inpatient admissions was recorded [88].

The ingestion of paraffin (kerosene) is the most common form of acute poisoning in childhood in most developing countries [89]. It is most common cause of accidental poisoning in the Black South African paediatric population. A study conducted in the Transvaal and Bophutatswana, showed that toddlers aged 12-23 months are most at risk of paraffin poisoning. Children commonly drank paraffin during summer when thirsty, as it is often mistaken for water. The incidence of paraffin poisoning was found to decrease after distribution of child-resistant containers for paraffin within the community [90]. This intervention strategy was motivated by the finding in 1976 that child-resistant containers for aspirin and paraffin in the United Kingdom had reduced accidental poisoning by 60% [91].

Death due to poisoning in the United States of America has also declined. This decline has been attributed to the distribution of child-resistant packaging, development of Poison Control Centres, and improved emergency care. An 84% decline was found in deaths due to household chemical poisoning. A 98% decline was found in deaths due to aspirin poisoning. In 1995, 53% of poisoning cases were demonstrated to occur in children less than 6 years of age, the most common substances ingested being cosmetics and cleaning agents. A study which evaluated the efficacy of poison prevention lessons given to kindergarten and third grade students showed that their increased knowledge did contribute to poison prevention behaviour. All kindergarten children showed knowledge about not taking medicine without adult supervision [92].

SHIELD INJURIES

A study conducted at the Red Cross Children's Hospital in Cape Town between 1998-2001 on children who had sustained non-accidental head injury, revealed that in 53% of cases, the child was deliberately assaulted. In 47% of cases however, the child was not intentionally assaulted. The child had been used as a shield when violence between adults occurred. The intended target of assault was the female, whereas the assailant was the male. The mean age of children who were used as shields was found to be 9 months. The majority of shield injuries had occurred in the child's home. In this study, skull vault fractures was commonly seen in children who had been used as shields. In this study, it is also mentioned that certain injuries are highly suggested of shielding. It is the young child that is most at risk, as it is often carried and is easily picked up. The high rate of inter-personal violence in South Africa is reflected by this phenomenon. In 4 cases, the child had been stabbed[106].

SUICIDE

Suicide can be classified as being either an attempted suicide or a completed suicide. An attempted suicide is an act of suicide that is not fatal, probably as the intention was vague or slight. Most people who attempt suicide are not intent upon death and the attempt may be a cry for help. The completed suicide however differs from the attempted suicide in that there is determination to die. The distinction between attempted and completed suicide is however not absolute [62].

Suicide among children under 15 years of age is very rare. A 10 year retrospective study conducted in New Zealand from 1989 to 1998 on suicide in children under 15 years of age demonstrated that the risk of suicide increased with age. The majority of deaths due to suicide were in the 14 year age group (57.4%), and in the 13 year age group (26.2%). Boys (72.1%) outnumbered girls. In this study, hanging was the predominant means of suicide (78.7%). Only one in three children left suicide notes. In 10% of cases there was a family history of suicide. A minority only had a history of prior suicide attempt (13.1%) or mental disease (23%). Maori children appeared to be most at risk (57.4%) [63].

The suicide rate in children and adolescents was found to be highest in Hungary compared to the rest of Europe. No decrease in the suicide mortality rate in the 10-14 and 15-19 year age groups could be demonstrated. In a study conducted in Budapest by Töero K & Nagy A et al, it was found that hanging and jumping from high buildings were the most common mode of suicide [64]. In England and Wales, a substantial increase was found in the suicide rate for males aged 15 to 19 years between 1970 and 1998. The mode of suicide included poisoning and gassing, as well as hanging. The incidence of the former two modes had increased in the 1980's. However, subsequently the incidence of hanging increased, and continued to do so into the 1990's. An increase in the suicide rate for males between the ages of 15 and 19 years was found in the study

period. This was deemed to be due to increased psychosocial stresses in this age group. No significant change in the suicide rate in the 10-14 year age group was however found [65].

In Turkey, the majority of suicidal deaths occurred between the ages of 15 and 19 years (87%). Females outnumbered the males, amounting to 71% of cases. This is in contrast to the studies conducted in England and Wales, and New Zealand. The most frequent modes of suicide were firearms (43%), hanging (28%) and jumping (16%). The majority of the suicides were found to occur at home (88% of cases). The reasons for the suicides were identified as being due to domestic and psychiatric disorders [66].

In a study conducted in Norway which compared the characteristics of suicide in early adolescence, i.e. children younger than 15 years of age, and late adolescents (15-19 years of age), it was found that psychiatric disorders were more prevalent in the older age group (77%) than in the younger one (43%). Hanging occurred more often in the younger age group (93%) than in the older one (35%). Thoughts regarding suicide and precipitating events were also less frequently prevalent in the younger age group compared to the older one [67].

SUDDEN INFANT DEATH SYNDROME

SIDS (Sudden Infant Death Syndrome) was defined by Beckwith after an International Conference on the condition in Seattle in 1969, as the sudden unexpected death of an infant or young child, the cause of which remains unascertained despite a thorough post-mortem examination [68].

According to Klonoff- Cohen et al, SIDS accounts for 50% of deaths in infants between 2 months and 4 months of age. In the Western world, it was found to be the most common cause of death in infants aged 1 month to 1 year [69]. After personal communication with Professor Knobel, Department of Forensic Medicine UCT, it was concluded that no statistics regarding SIDS is available in South Africa as it is not notifiable in terms of South African law.

At autopsy typical presentation of babies who have died of Sudden Infant Death Syndrome is that of a well-nourished child without any evidence of injury to the body. There is no evidence of illness also. Sometimes blood-stained froth may be present in the mouth and nose. Blood may be present in large quantities in this froth, so as to mimic haemorrhage. Depending on the post-mortem period, lividity may be present in the position adopted by the body after death [70].

It is important that a death scene examination be performed in cases of a sudden infant death, as it may be helpful in determining the cause of death [71].

A study conducted to determined the incidence of various causes of sudden unexpected death in infants within an entire population revealed that in 80% of cases, the sudden unexpected death was due to Sudden Infant Death Syndrome. In 7.1% of all sudden unexpected deaths in infants, infection was found to be second to SIDS. This was followed by cardiovascular anomalies (2.7%). Child abuse and negligence accounted for 2.6% of causes of sudden unexpected deaths.

Other causes included metabolic and genetic disorders. This study highlighted the need for a thorough autopsy to be done by the pathologist with paediatric expertise, so as to diagnose metabolic and neurologic syndromes which could have caused sudden unexpected deaths in infants. They found that 7-15% of sudden unexpected deaths were not SIDS. The exclusion of SIDS from sudden unexpected infant deaths was found to be proportionally higher when a pathologist with paediatric expertise performed the histology. It was also suggested that studies on entire populations provide more reliable data on sudden unexpected deaths in infants than small group studies [72].

In Washington, the incidence of SIDS was found to decrease from 2.6 in 1985 to 1 in 1998 per 1000 births. The decline in the incidence was attributed to there being increased awareness as to the dangers of infants sleeping in prone position, i.e. on their stomach. The risk for SIDS was demonstrated to be 3-9 times greater in infants who slept in prone position than for those who slept in non-prone position. Five risk factors were identified which accounted for an increased risk of SIDS. These included low birth weight infants, infants born to mothers who smoked, who were unmarried, who were Black and who received limited prenatal care. It was suggested that these risk factors need not necessarily be associated with a prone sleep position, and that their causative effects might be distinct [73].

Smoking during pregnancy has been shown to increase the risk of SIDS [69,74]. It is suggested that more than 60% of sudden infant death syndrome may be attributed to infants being exposed to tobacco smoke [74]. Tobacco smoke is thought to affect neuro-regulation of breathing in infants which could result in apnoea in sudden infant death [69]. There appears to be an increase in the number of SIDS cases, associated with bed-sharing. This was found to be regardless of the position in which the infant was placed during sleep [75]. An allergic reaction involving increased degranulation of mast cells has also been suggested as a possible mechanism in SIDS [76].

Nelson et al suggested that infants who slept prone were at risk of sudden unexpected death when excess bedding was applied [77].

The study conducted by Fleming et al confirmed the association between prone position and the Sudden Infant Death Syndrome. This finding was also demonstrated in other studies. Fleming et al demonstrated an increased metabolic rate in infants between birth and 1 month of age. This increased rate is maintained until 3 months of age [78]. They also demonstrated that a rise in environmental temperature around infants aged 3 months or less, affects the respiratory system [79]. They postulate that over-wrapping these infants, i.e. the infants in this age range, would increase their risk of SIDS. A recent study conducted by Fleming et al demonstrated that over-heating and prone positioning of infants are independent risk factors for Sudden Infant Death Syndrome, especially in infants aged greater than 70 days [80].

From a study done by Gilbert-Barness et al, it appears that the mattress on which an infant sleeps could be a risk factor for SIDS. In this study waterbeds, sheepskin rugs and soft bedding were

found to be associated with SIDS. They suggest that overlying can more likely occur on a water mattress, especially if the care-giver is obese or intoxicated [93].

From a recent study done on the arcuate nucleus of the medulla oblongata, it is hypothesized that deficits in the medullary serotoninergic network exists in children who die of SIDS [94]. It is also then suggested that prolongation of the QT interval in neonates is strongly associated with SIDS [94].

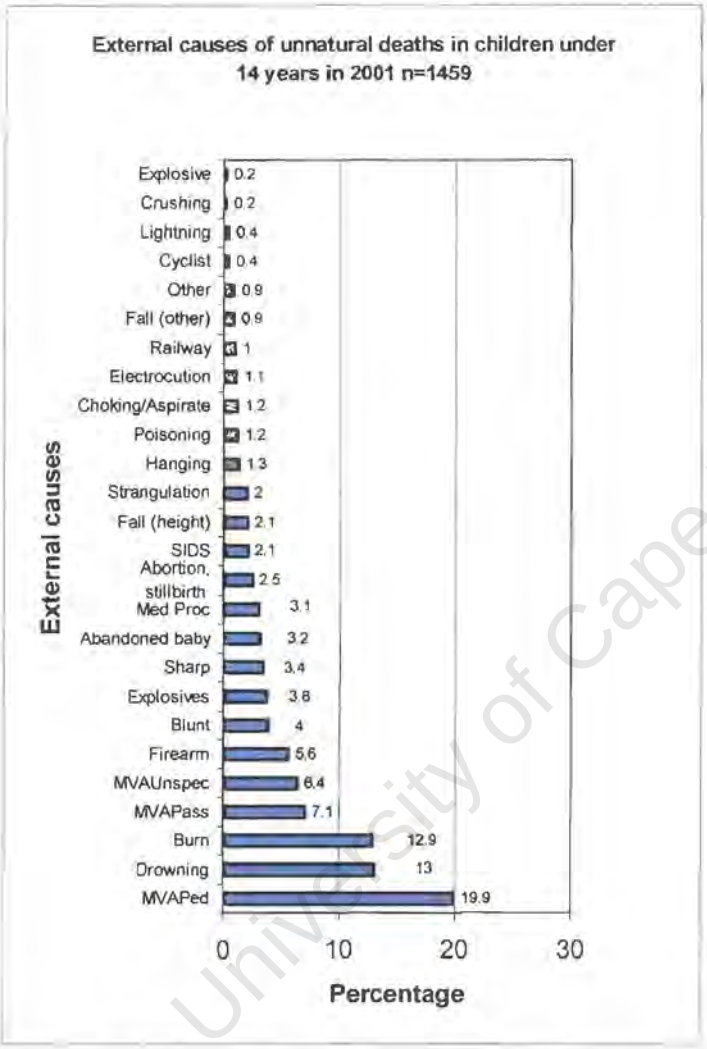
The causes of the Sudden Infant Death Syndrome remain unknown. Its risk factors are numerous. Perrot LJ and Nawojczyk S found, amongst children who had allegedly died of SIDS, some who had in fact died of unnatural means. They highlighted the fact that it should not be assumed that all children who die suddenly, die of SIDS. They also suggest that, in addition to its definition, the sudden unexpected death of a healthy infant in whom "a thorough post-mortem examination fails to demonstrate an adequate cause of death", another phrase "and a thorough investigation of the circumstances fails to demonstrate suspicion of a non-natural manner of death", be added [95].

Chapter 3

OVERVIEW OF UNNATURAL DEATHS

The study population consisted of 2312 fatalities. Of these, there were 853 natural deaths and 1459 unnatural deaths (63.1%).

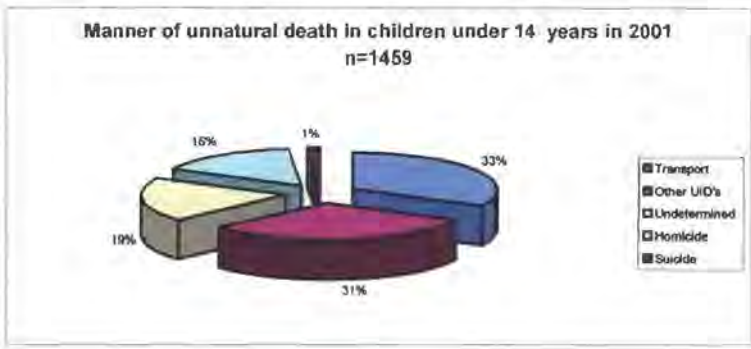
Figure 1.A depicts the most common causes of all unnatural deaths.



MVA pedestrian fatalities accounted for the majority of all external causes of death, representing 19.9%. This was followed by drowning (13%) and burns (12.9%), other transport-related deaths (MVA passenger and MVA unspecified) and firearm deaths.

Figure 1.B depicts the manner of unnatural death.

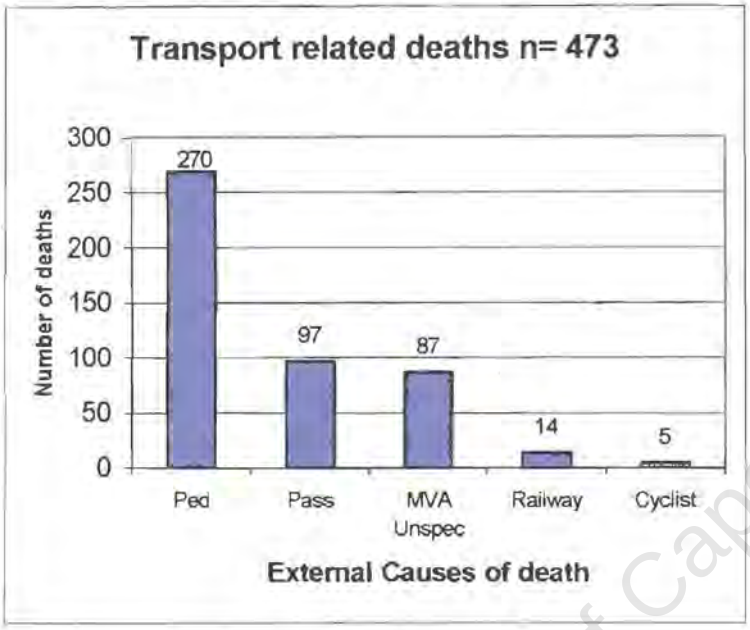
The leading manner of unnatural death was transport-related death, which accounted for 33% of unnatural deaths. Other UID's was the second leading manner of death, which was followed by undetermined deaths and homicide. The proportion of transport-



exceeded the other UID's proportion. Likewise, the undetermined deaths proportion did not significantly exceed that of homicide. Suicide represented only a small proportion of all unnatural deaths.

1. External causes of death by manner:

1.1. Transport-related deaths **[Figure 1.C]**
The external cause of death was recorded in all cases of death by this manner.

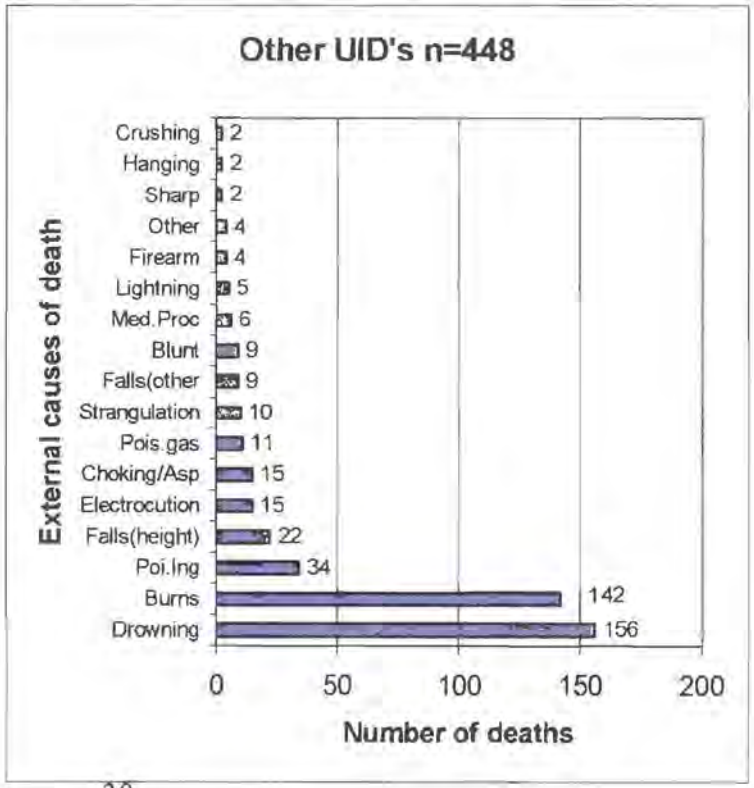


MVA pedestrian fatalities accounted for the majority of the total number of deaths in this category (57.1%). This was followed by MVA passenger deaths which represented, 20.5%, MVA unspecified deaths (18.4%), railway deaths (3%) and cyclist deaths (1.1%) - *see Annexure 1, Table 1.*

1.2.Other UID's **[Figure 1.D]**

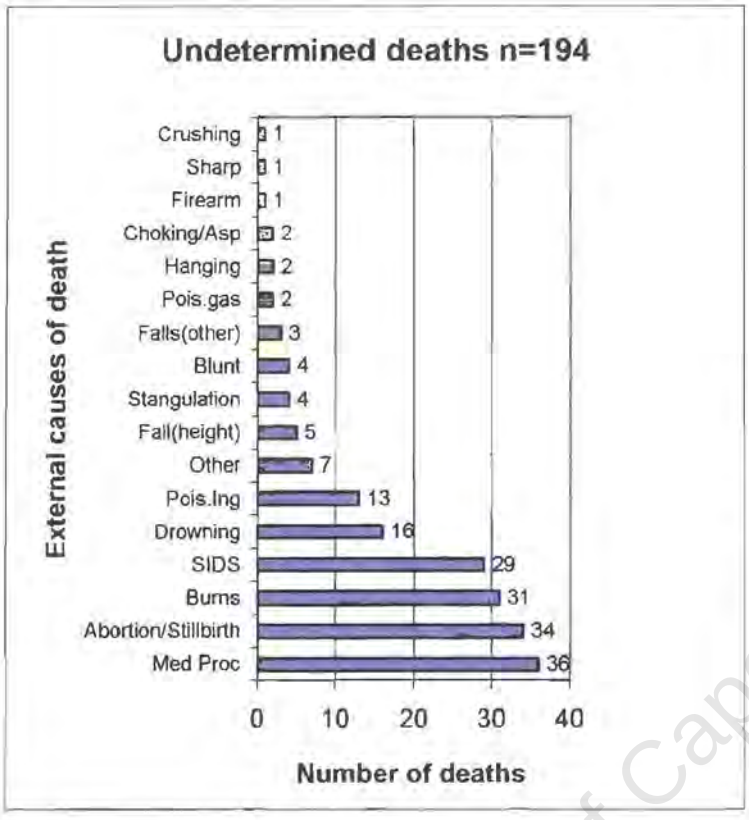
Of the total number of 452 deaths by this manner, in only 448 cases (99.1%), was the external cause of death recorded.

Drowning accounted for the majority of deaths by this manner, followed by burns and poisoning (ingestion). Together these represented nearly three-quarters (74.1%) of all deaths in this category. Other external causes of death for which high numbers were recorded included falls from a height, electrocution and choking - *see Annexure 1, Table 2.*



1.3. Undetermined deaths **[Figure 1.E]**

Of the total number of 279 undetermined deaths, in only 194 cases was the external cause of death recorded (69.5%).

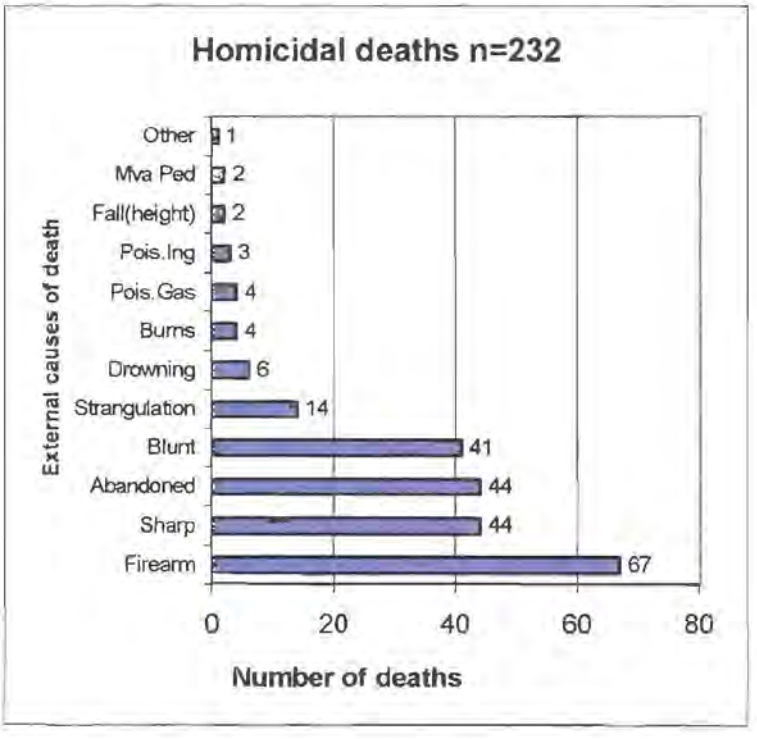


Medical procedures, abortion/stillbirth, burns and SIDS, together represented 67% of all deaths in this category - *see Annexure 1, Table 3.*

1.4. Homicide **[Figure 1.F]**

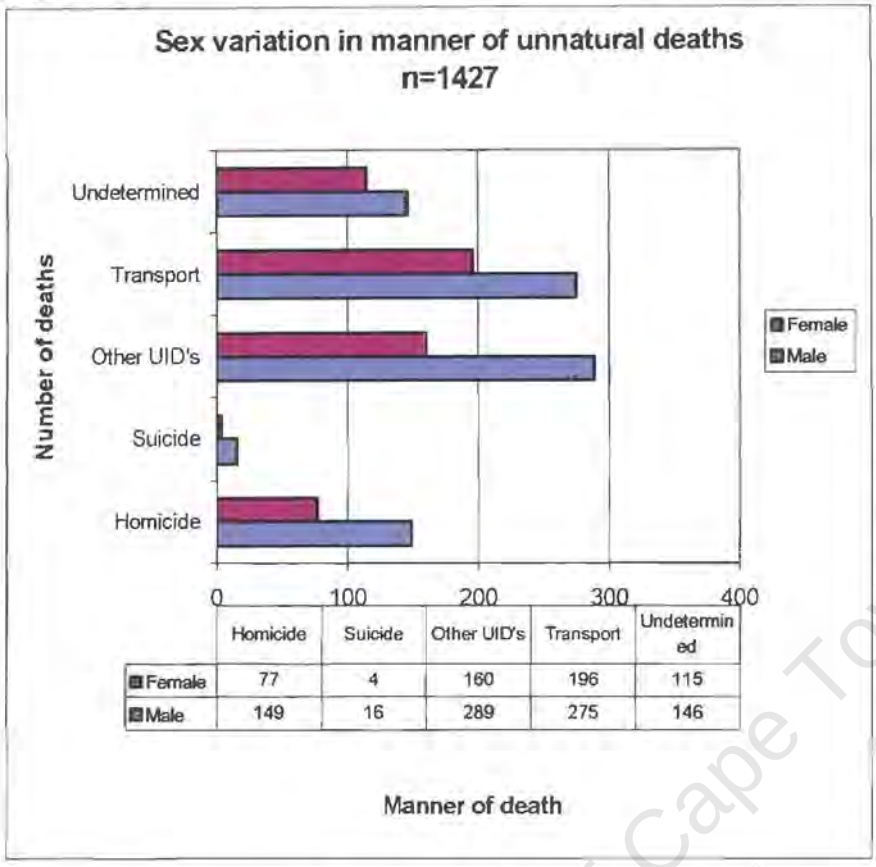
Of the total number of 235 homicidal deaths, in only 232 cases was the external cause of death recorded (98.75).

With reference to Annexure 1, Table 5(a), firearm homicides accounted for nearly one-third (29%) of all causes of homicidal deaths. Sharp object homicide and homicidal abandonment of babies each represented 19%, whilst blunt object homicide represented 17% - *see Annexure 1, Table 4*



4. Sex variation in manner of unnatural deaths

[Figure 1.I]



	Homicide	Suicide	Other UID's	Transport	Undetermined
Female	77	4	160	196	115
Male	149	16	289	275	146

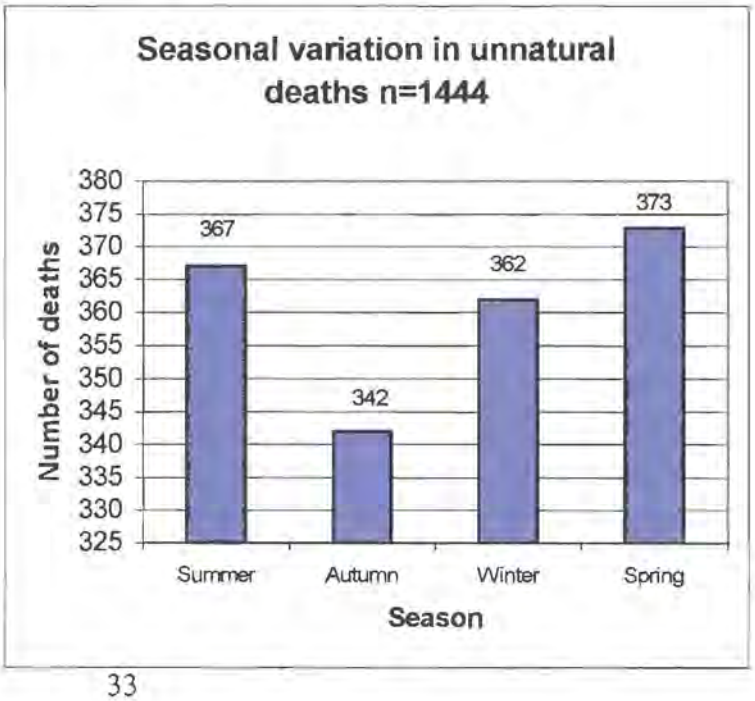
In all manners of death, male deaths outnumbered female deaths. Transport-related deaths accounted for the highest proportion of female deaths (35.5%), whereas amongst the males, other UID's accounted for the highest proportion (33%). Among males, transport related and other UID's combined accounted for nearly two thirds of their deaths. These manners of death represented 31.4% and 33% respectively. Homicide represented 17%, undetermined deaths 16.7% and suicide 1.8%. Among females, transport and other UID's represented 35.5% and 29%, whilst undetermined deaths represented 20.8% and homicide, 13.9%. Suicide among females represented only 0.7% of deaths.

5. Seasonal variation in unnatural deaths

[Figure 1.J]

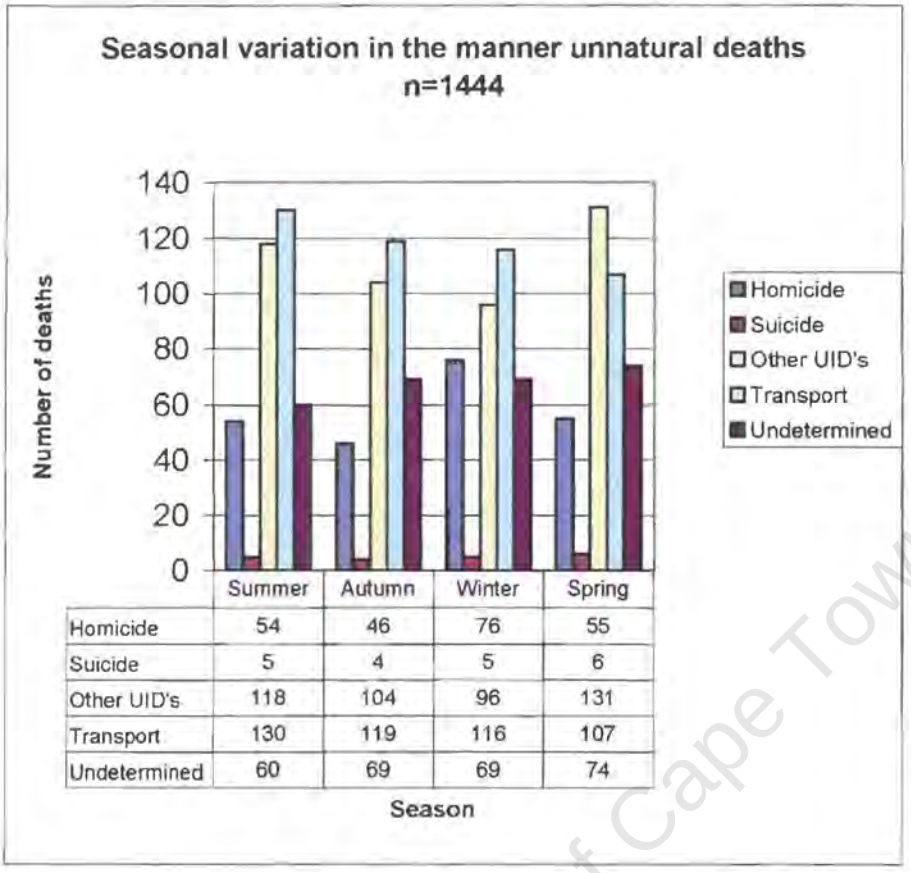
Of the 1459 fatalities, in only 1444 cases was the month of death recorded (99%).

Most unnatural deaths occurred in the Spring, Summer and Winter. The number of deaths recorded in these seasons did not differ significantly. The least occurred in the Autumn - *see Annexure 1, Table 7.*



6. Seasonal variation in manner of unnatural deaths

[Figure 1.K]



	Summer	Autumn	Winter	Spring
Homicide	54	46	76	55
Suicide	5	4	5	6
Other UID's	118	104	96	131
Transport	130	119	116	107
Undetermined	60	69	69	74

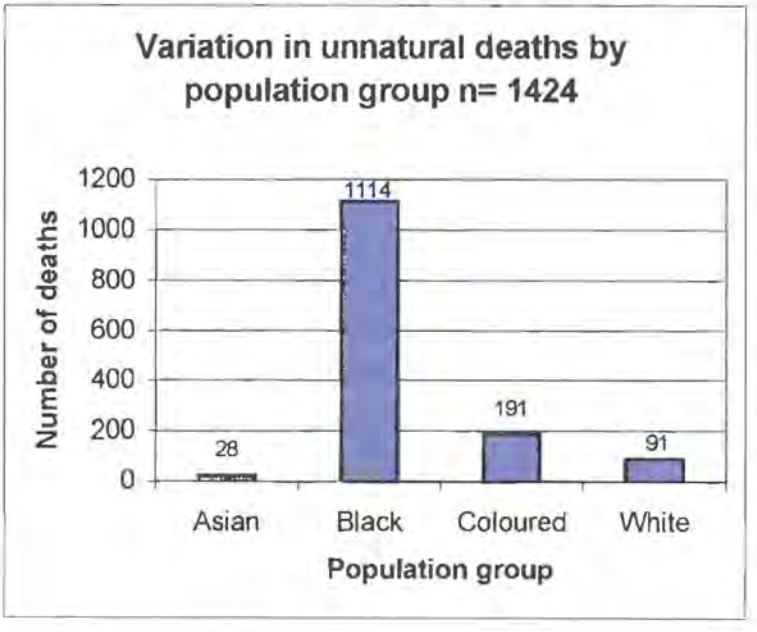
Transport-related deaths accounted for the majority of deaths in all seasons, except for Spring where it was exceeded marginally by other UID's. There was no significant seasonal variation noted in deaths by these manners. Homicidal deaths peaked in Winter, whereas deaths due to suicide and undetermined deaths showed no significant seasonal variation.

7. Variation in unnatural deaths by population group

[Figure 1.L]

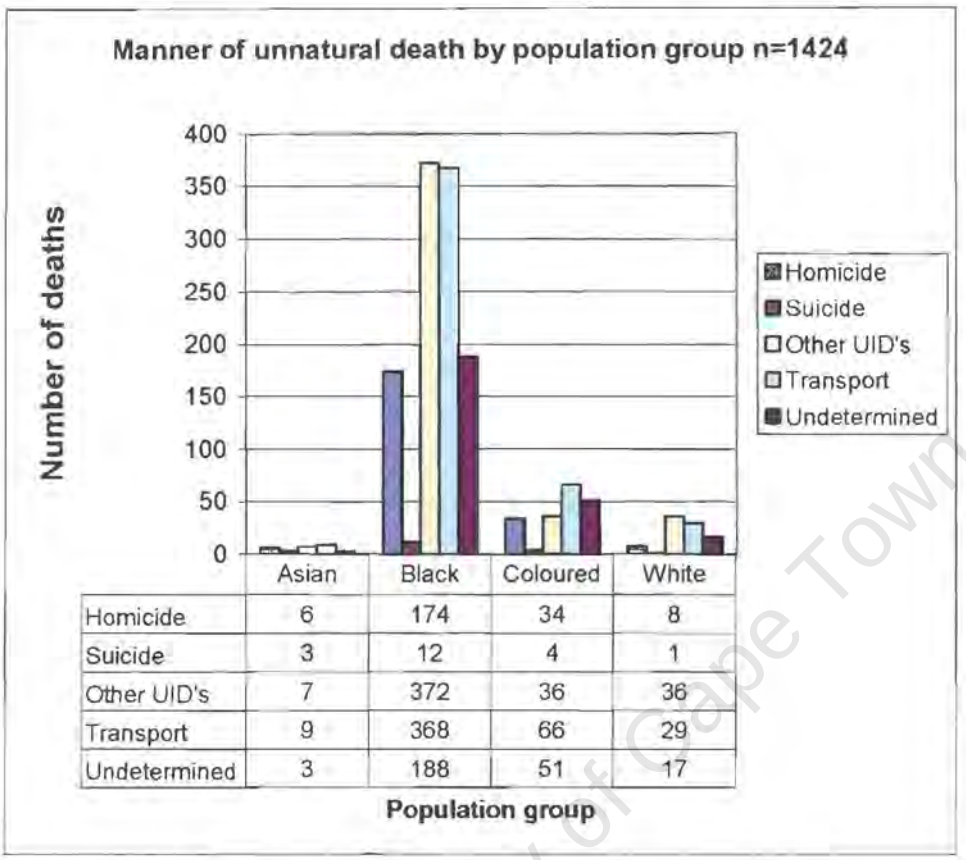
Of the 1459 fatalities, in only 1424 cases was the population group recorded (97.6%).

The highest number of unnatural deaths occurred in the Black population group (78.2%) and the next highest in the Coloured population group (13.4%), the White population group (6.4%), and Asian population group (2%) - *see Annexure 1, Table 8.*



8. Variation in manner of unnatural death by population group

[Figure 1.M]



	Asian	Black	Coloured	White
Homicide	6	174	34	8
Suicide	3	12	4	1
Other UID's	7	372	36	36
Transport	9	368	66	29
Undetermined	3	188	51	17

The highest number of deaths by all manner, occurred in the Black population. The Coloured population had the second highest number of deaths by all manner, followed by the White and Asian population groups. Among the Asian population, transport-related deaths accounted for 32.1% of the total number of their deaths. A quarter, 25%, was due to other UID's. Homicide represented 21.4%, whilst suicide and undetermined deaths each represented 10.7%.

Amongst the Black population, other UID's and transport related deaths represented the highest proportion of their deaths i.e.33.4% and 33.0% respectively. This was followed by undetermined deaths (16.9%), and homicide (15.6%). A small proportion was due to suicide (1.1%).

In the Coloured population, 34.6% of their deaths were transport-related, and 26.7% were undetermined deaths. This is in contrast to that seen in the Black population, where only 16.9% of their deaths were undetermined. Deaths due to other UID's and homicide represented 18.8% and 17.8% respectively. This is again in contrast to the proportions in the Black population.

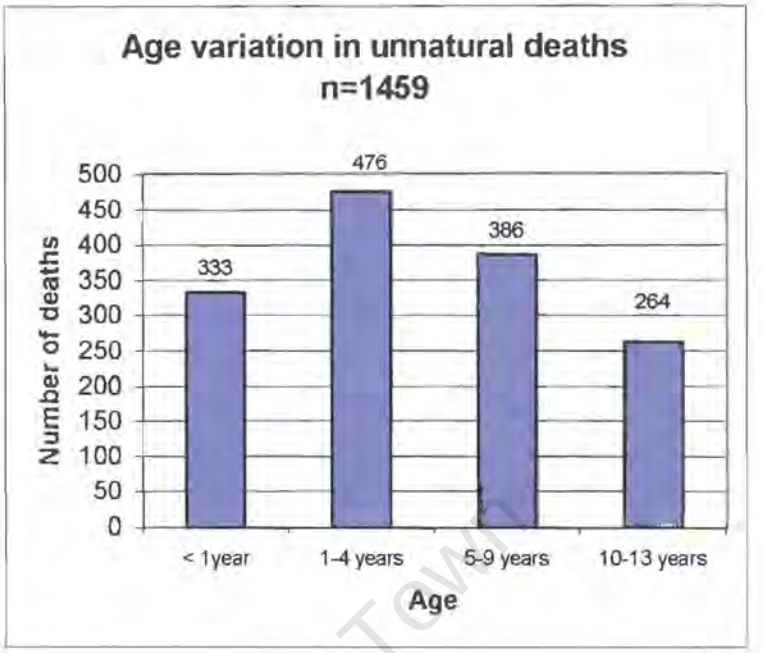
In the White population, deaths due to other UID's represented 39.6% and transport related deaths, 31.9%, Homicide represented 8.8% and suicide, 1.1%.

9. Age variation in unnatural deaths

[Figure 1.N]

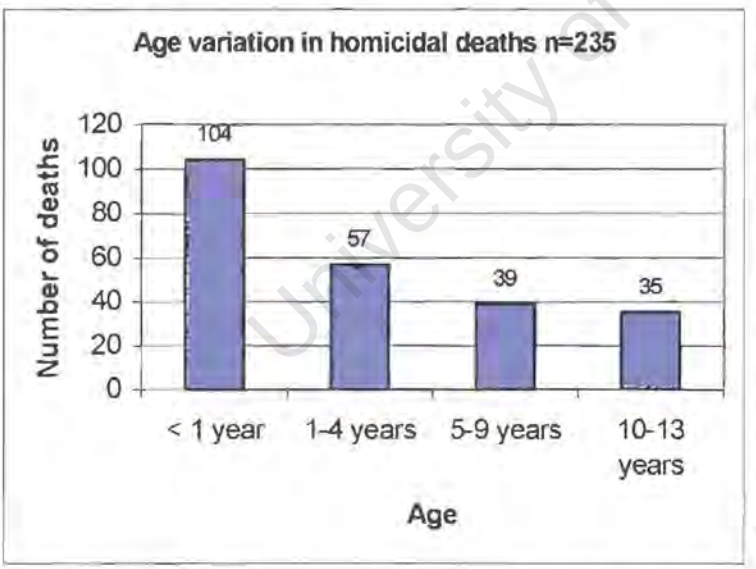
In all 1459 cases, the age and the manner of death were recorded.

The highest number of unnatural deaths occurred in the 1-4 year age group and the next highest in the 5-9 year age group and the less than 1 year age group. The least occurred in children 10-13 years of age - *see Annexure 1, Table 9.*



10. Age variation in manner of unnatural deaths

10.1. Homicide **[Figure 1.0]**



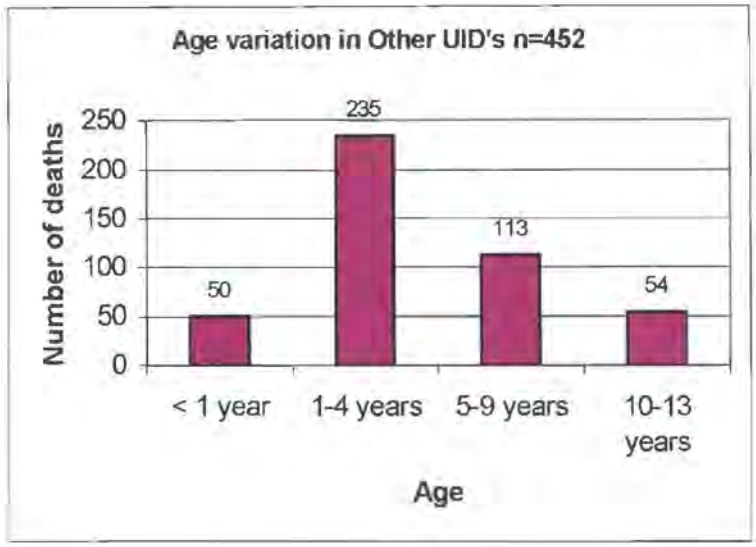
Most homicidal deaths occurred in the less than one year of age; its number decreased in the consecutive older age groups. There was nearly a 50% reduction in the number of homicidal deaths in the 1-4 year age group compared to the former. Within homicide, deaths in the less than one year age group represented 44.3%, whilst that in the 1-4 year age group represented 24.2%. There was no significant difference in the number of homicidal deaths recorded in the 5-9 and 10-13 year age groups. These represented 16.6% and 15% of homicidal deaths.

10.2. Suicide (n=20)

All suicides occurred in the 10-13 year age group.

10.3. Other UID's [**Figure 1.P**]

The highest number of other UID's occurred in the 1-4 year age group (52%), and the next highest in the 5-9 and 10-13 year age group (25% and 12% respectively). The least number occurred in the less than 1 year age group (11.1%), however, the number of deaths in this group did not differ significantly from that in the 10-13 year age group.



10.4. Transport-related deaths [**Figure 1.Q**]
In all deaths by this manner the age was recorded.

Most transport-related deaths occurred in the 5-9 year age group (41.4%). The next highest occurred in the 10-13 year age group (26.6%), and the 1-4 year age group (24.3%). The proportions represented by these groups did not differ significantly. The less than one year age group represented 11.1% of transport-related deaths.

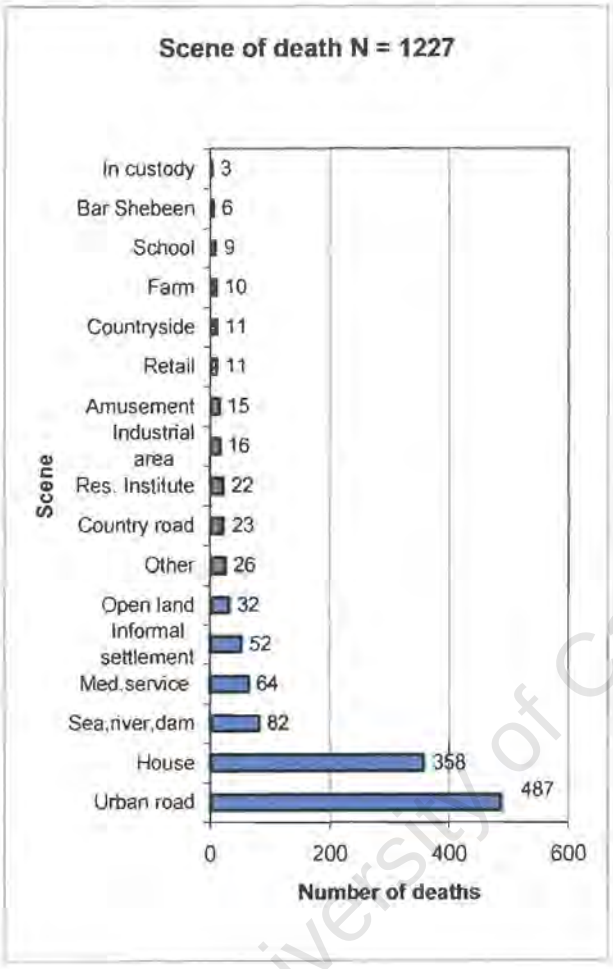
10.5.Undetermined deaths [**Figure 1.R**]

The highest number of these deaths undetermined occurred in the less than 1 year age group (51.3%), whilst the next highest occurred in the 1-4 years (13.6%), and the 5-9 year age group (13.6%). The least occurred in the 10-13 year age group (10.4%).

11. Scene variation in unnatural deaths

[Figure 1.S]

Of the 1459 fatalities, in only 1227 cases was the scene of death recorded.



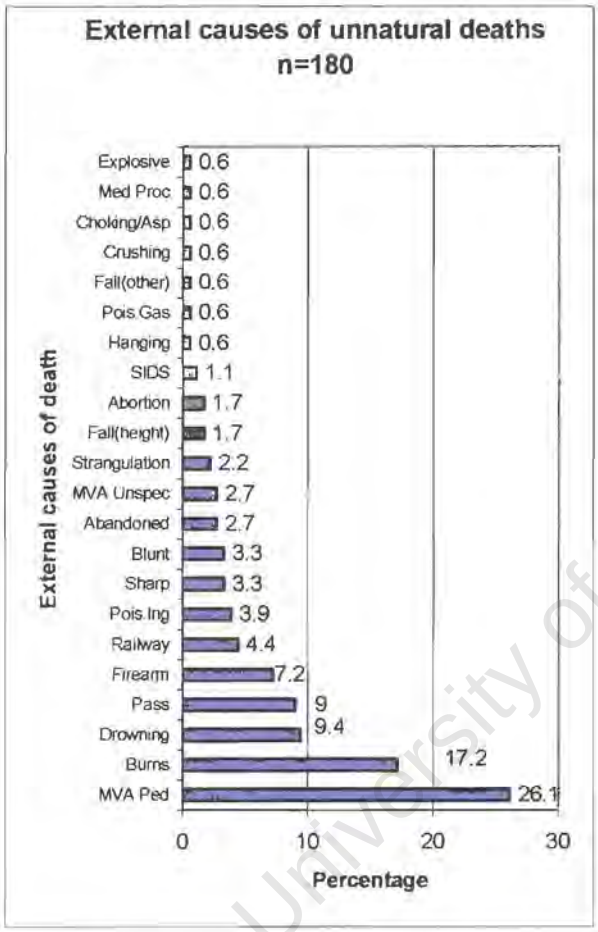
The majority of unnatural deaths occurred on urban roads (39.7%), country roads representing only 1.9%. This is in keeping with MVA pedestrian fatalities which outnumbered all external causes of death. The next highest number of unnatural deaths occurred in a house (29.2%), a body of water, i.e. sea, rivers, dams (6.7%) and medical service areas (5.2%) - *see Annexure 1, Table 10.*

Chapter 4

UNNATURAL DEATH PROFILES

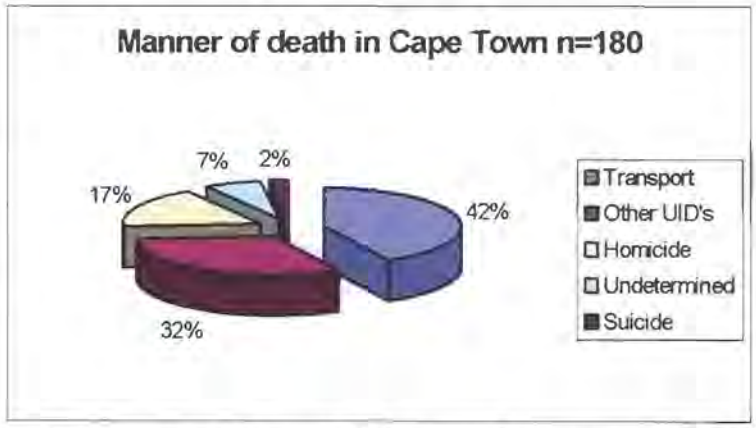
CAPE TOWN

There were 318 natural deaths and 219 unnatural deaths recorded in Cape Town. Of the 219 unnatural deaths, in only 180 of these cases was the manner of death recorded (82.2%). **Figure 2.A** depicts the external causes of unnatural deaths in Cape Town.



From the graph it can be observed that the 6 most common causes of unnatural death are MVA pedestrian fatalities, burns, drowning, MVA passenger deaths, death by firearm and railway deaths.

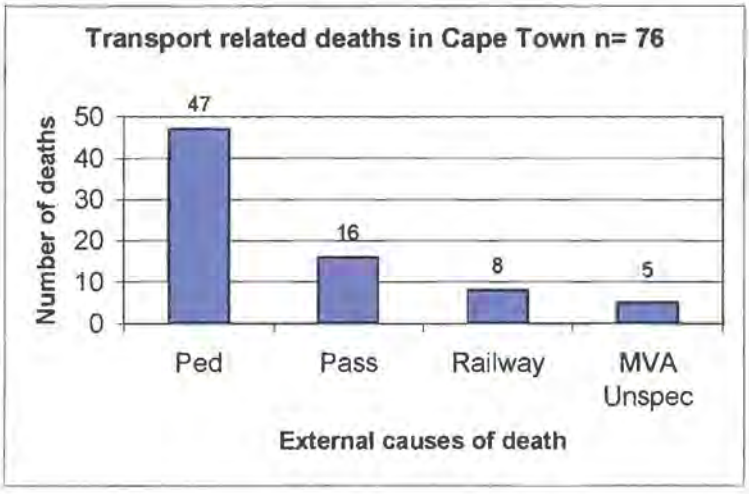
Figure 2.B depicts the manner of causation of unnatural death:



Transport-related deaths accounted for the majority of deaths in Cape Town (42%). The cause of death which, by manner, was classified as other UID's accounted for 32% of all unnatural deaths. Homicide was found to be the 3rd leading manner of death, accounting for 17%, whilst undetermined deaths accounted for 7% of all manners of unnatural death. Suicide accounted for only 2% - *see Annexure 2, Table 1.*

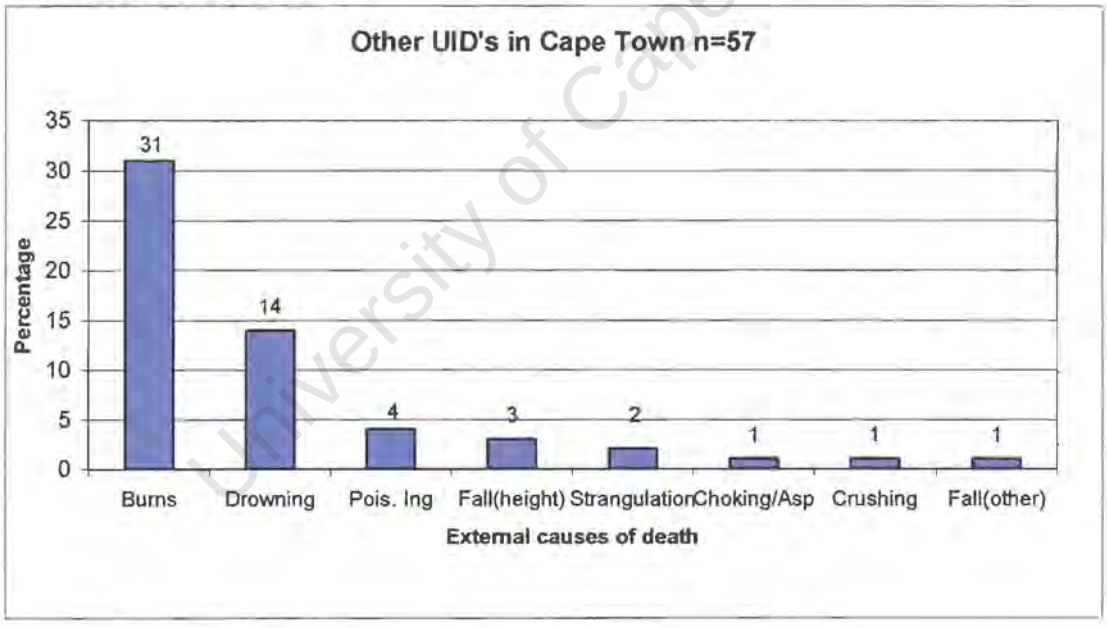
1. External causes of death by manner

1.1. Transport-related deaths [Figure 2.C]



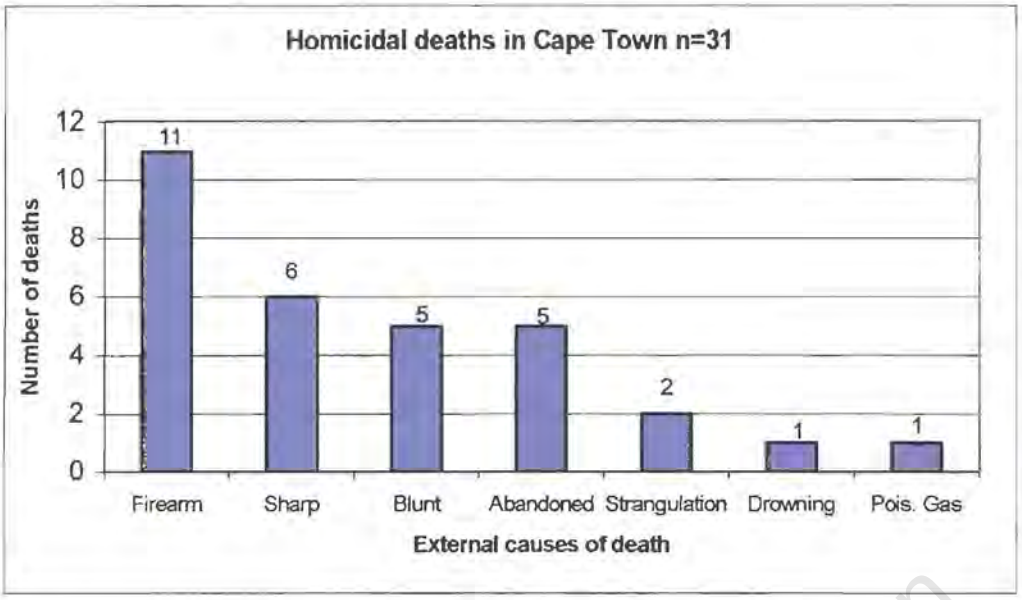
In the transport-related death category, pedestrian fatalities constituted 61.8%, followed by passenger deaths (21.1%), and railway deaths (10.5%).

1.2. Other UID's [Figure 2.D]



In the other UID's category, burns outnumbered all other deaths, accounting for 54.4% of deaths. This was followed by drowning (24.6%).

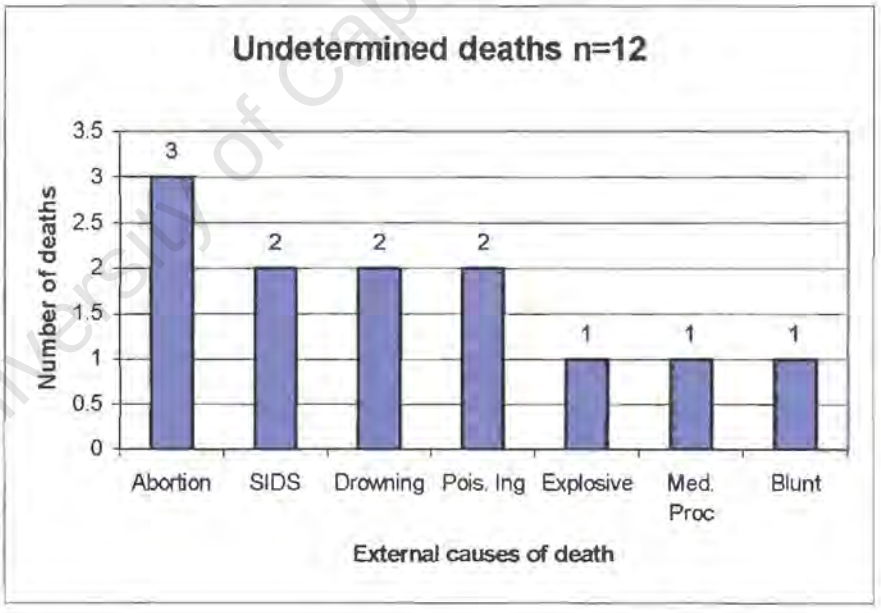
1.3.Homicide **[Figure 2.E]**



Of all homicidal deaths in Cape Town, firearm homicides accounted for the majority (35.9%). This was followed by sharp object homicides (19.4%). Blunt object homicide and abandonment of babies each accounted for 16.1%, while poisoning (gassing), and drowning each accounted for 3.2%.

1.4.Undetermined deaths **[Figure 2.F]**

In this category abortions accounted for the majority of deaths, followed by SIDS, drowning, and poisoning by ingestion.

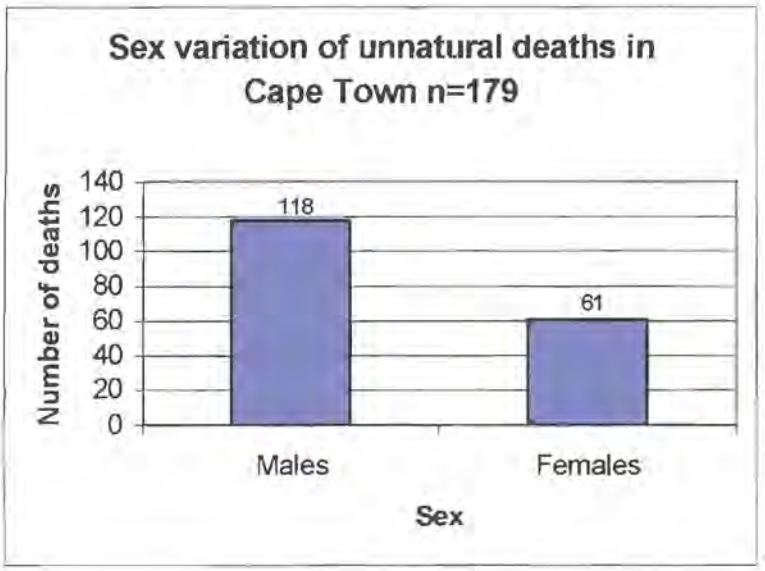


1.5.Suicide

There were 4 suicidal deaths recorded in Cape Town. Two involved suicide by firearm, one by hanging and the other poisoning (ingestion).

2. Sex variation in all unnatural deaths

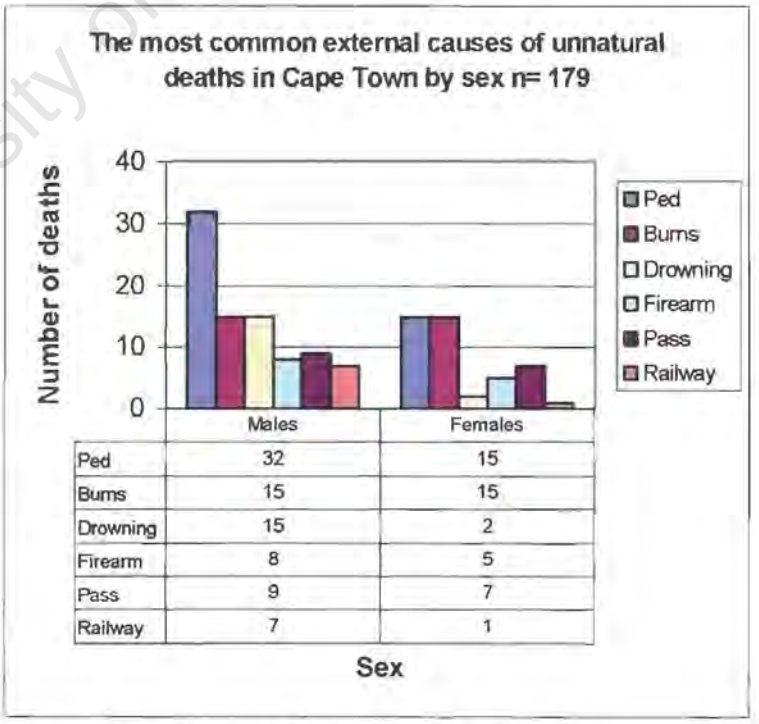
Of the total number of unnatural deaths in Cape Town (219), in only 179 of these cases was the sex recorded (81.7%) **[Figure 2.G]**



Males accounted for the majority of unnatural deaths (65.9%).

3. Sex variation in the most common external causes of unnatural death

[Figure 2.H]



	Males	Females
Ped	32	15
Burns	15	15
Drowning	15	2
Firearm	8	5
Pass	9	7
Railway	7	1

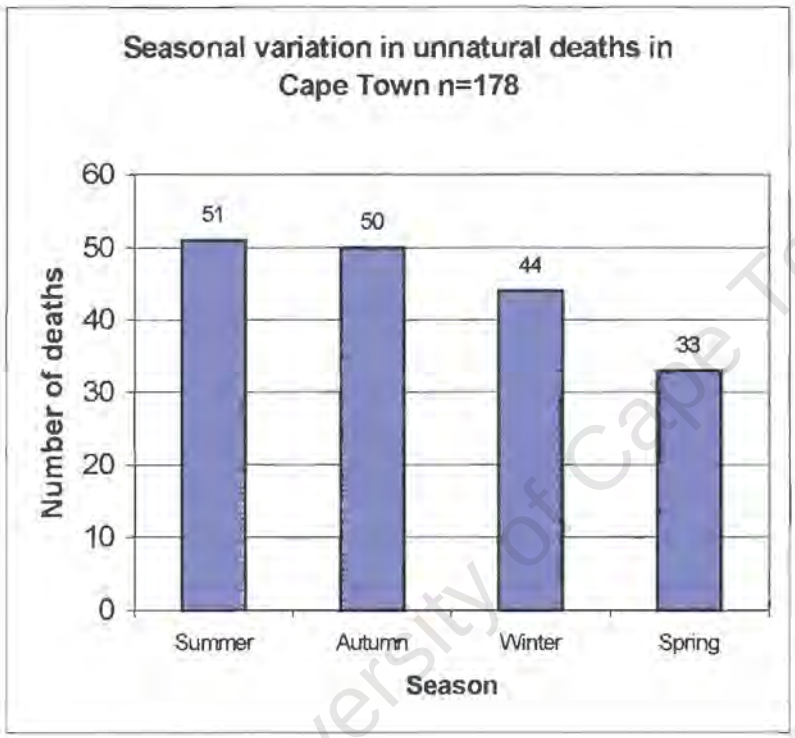
Among the males, MVA pedestrian fatalities was the leading external cause of their deaths, accounting for 27.2%. The 2nd leading causes of their death included both drowning and burns, each accounting for 12.7%. Notably, in drowning, there were approximately 8 males for every female victim. In the railway deaths, males outnumbered females 7 to 1; in the sharp and blunt object categories, males outnumbered females 5 to 1; in strangulation 3 to 1; and in firearm and transport-related deaths (MVA pedestrian and MVA passenger) males outnumbered females by approximately 2 to 1 - *see Annexure 2 Table 2.*

Among the females, MVA pedestrian fatalities alone did not outnumber other causes of their deaths. Burns and MVA pedestrian fatalities achieved equal percentages (24.7%) and were the leading causes of death amongst females. The 2nd and 3rd leading causes of their deaths were firearm deaths and MVA passenger deaths.

Notably, in drowning, there were approximately 8 males for every female victim. In the railway deaths, males outnumbered females 7 to 1; in the sharp and blunt object categories, males outnumbered females 5 to 1; in strangulation 3 to 1; and in firearm and transport-related deaths (MVA pedestrian and MVA passenger) males outnumbered females by approximately 2 to 1.

4. Seasonal variation of all unnatural deaths

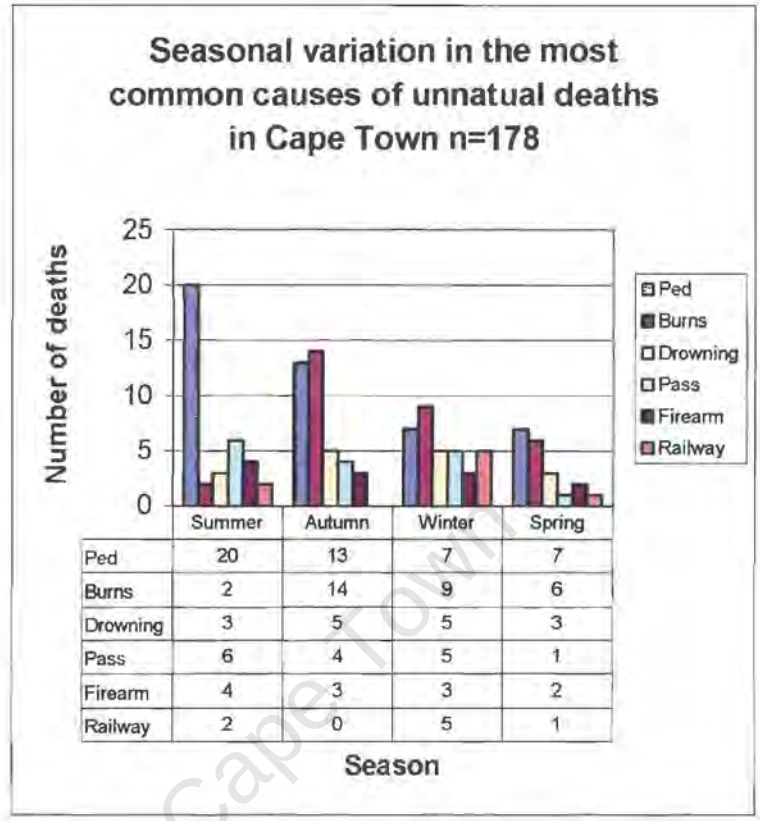
Of the 219 unnatural deaths, in only 178 cases was the season recorded (59.5%) **[Figure 2.I]**



The majority of deaths occurred in the Summer and Autumn seasons. Deaths in these seasons accounted for 28.7% and 28.1% of the total number of fatalities in Cape Town. These deaths together accounted for 56.8% of the total number of deaths in Cape Town. Deaths in Winter accounted for 24.7% while the least percentage occurred during Spring (18.5%) - *see Annexure 2 Table 3.*

5. Seasonal variation in the most common causes of unnatural deaths

[Figure 2.J]

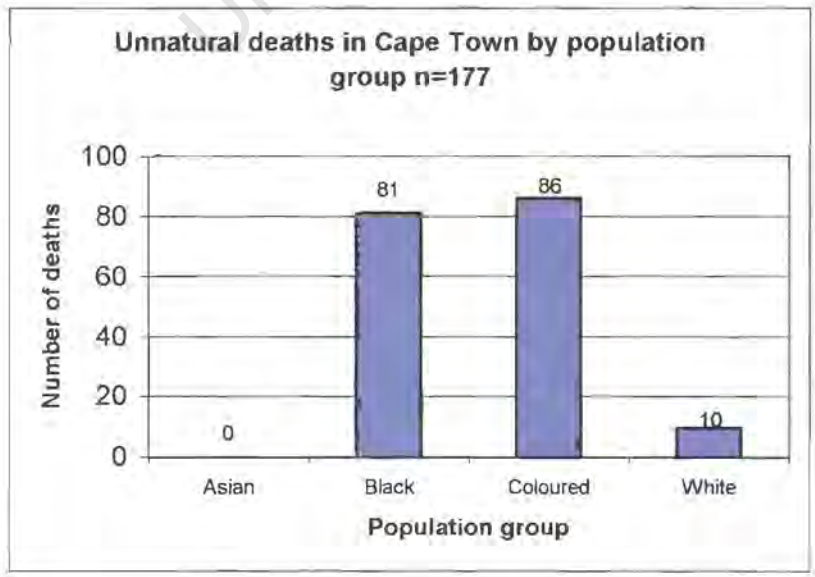


	Summer	Autumn	Winter	Spring
Ped	20	13	7	7
Burns	2	14	9	6
Drowning	3	5	5	3
Pass	6	4	5	1
Firearm	4	3	3	2
Railway	2	0	5	1

MVA pedestrian fatalities accounted for the majority of deaths in the Summer (39.2%) and Spring, whereas in Autumn and Winter, MVA pedestrian fatalities was found to be the 2nd leading cause of death. In these seasons, it was outnumbered by burn fatalities. As expected, the least number of burn fatalities occurred in the Summer. The highest number of drowning fatalities appears to have occurred in Autumn and Winter. However, deaths in these seasons did not significantly outnumber those occurring in the Summer and Spring. There was no significant seasonal variation observed in MVA passenger and firearm fatalities. Railway fatalities however appeared to peak in Winter. Due to the other external causes of death being of small number, no significant seasonal variation could be determined.

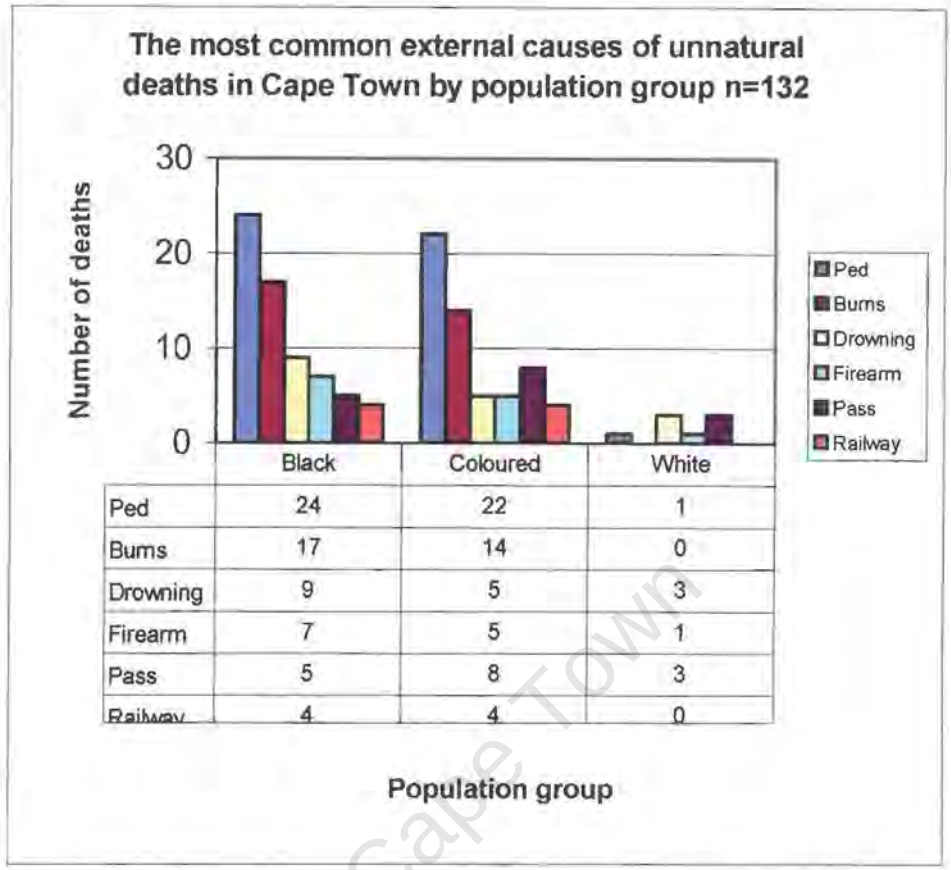
6. Variation in all unnatural deaths by population group

Of a total of 219 unnatural deaths only 177 (80.8%) of these cases had population group recorded **[Figure 2.K]**



In Cape Town the majority of deaths occurred in the Coloured population (48.6%). This was followed by the Black population (45.8%). The least number of unnatural fatalities occurred in the White population group.

7. Variation in the most common external causes of death by population group [Figure 2.L]



	Black	Coloured	White
Ped	24	22	1
Burns	17	14	0
Drowning	9	5	3
Firearm	7	5	1
Pass	5	8	3
Railway	4	4	0

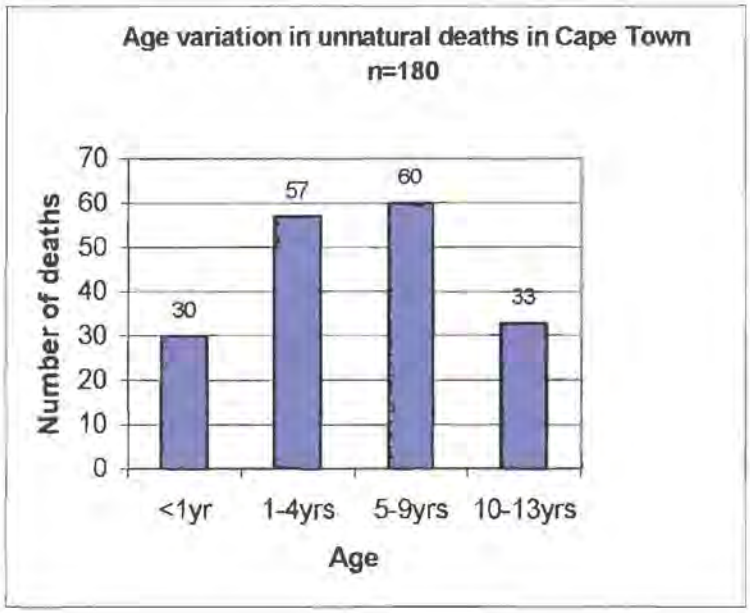
In both the Black and Coloured population groups, MVA pedestrian fatalities accounted for the majority of their deaths. Amongst the Black group, MVA pedestrian fatalities accounted for nearly 29.6% of the total number of their deaths, which was followed by burns (21%) and drowning (11.1%). MVA passenger deaths (9%) followed by firearm deaths (7.3%) had the next highest percentages.

With reference to Annexure 2 Table 4, interestingly, in sharp and blunt object deaths, the highest percentages were recorded in the Coloured population, the ratio being 5 to 1. In firearm and MVA pedestrian deaths the Black group outnumbered the Coloured group, differing only by 2 deaths which is considered to be insignificant. There was an equal number of railway deaths in the Black and Coloured population groups, and none occurred among the White population group. Amongst the Coloured group, MVA pedestrian fatalities accounted for 25,6% of their deaths, followed by burns and MVA passenger deaths. Amongst the Whites, in contrast to the other population groups, MVA pedestrian fatalities alone did not account for the majority of their deaths instead, both drowning and MVA passenger deaths together, were the leading causes, each accounting for 30%. MVA pedestrian fatalities and firearm deaths each accounted for 10%.

With reference to Annexure 2 Table 4, of the total number of MVA pedestrian fatalities, 51.1% were Black and 46.8% were Coloured. Only 2.1%, i.e. a single pedestrian death, was recorded among the White group. No deaths by burning were recorded in the White group, whereas in the Black population, burns accounted for 54.8%; and in the Coloured population, burns accounted for 45.2%. 52.9% of all deaths due to drowning in Cape Town occurred in the Black population and 29.4% of all drowning deaths occurred in the Coloured group, whereas only 17.6% occurred in the White group.

8. Age variation in unnatural deaths

Of a total number of 219 unnatural deaths recorded in Cape Town, there were only 180 cases (82.2%) for which age was recorded [**Figure 2.M**]



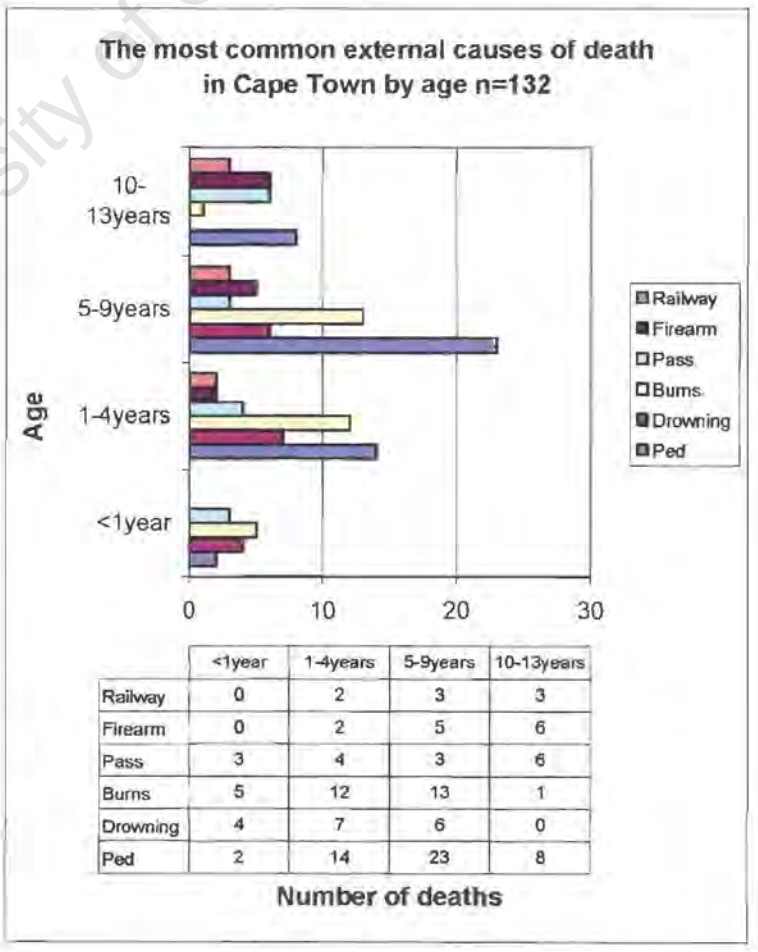
The majority of deaths occurred in the 5-9 and 1-4 year age groups, the former outnumbering the latter by only 3 deaths.

The 5-9 year age group accounted for 33.3% of the total number of deaths in Cape Town, while the 1-4 year age group accounted for 31.7%. Deaths in the 10-13 year age group accounted for 18.3%, and those in the less than 1 year of age (16.7%).

9. Age variation in the most common external causes of death

[**Figure 2.N**]

The majority of MVA pedestrian fatalities occurred within the 5-9 year age group, followed by the 1-4 and 10-13 year age groups. The least number occurred in children less than 1 year, as expected. The majority of drowning and burn fatalities occurred within the 1-9 year age group. There was no significant difference in the number of fatalities recorded in the 1-4 and 5-9 year age groups. The next highest number of burn fatalities occurred in the less than 1 year age group, and the least in the 10-13 year age group. There was no significant age variation observed in MVA passenger fatalities. Firearm and railway fatalities occurred within the 1-13 year age group. There was no significant age variation observed in railway fatalities. However, in firearm fatalities, the majority occurred in the 10-13 year age group.



	<1year	1-4years	5-9years	10-13years
Railway	0	2	3	3
Firearm	0	2	5	6
Pass	3	4	3	6
Burns	5	12	13	1
Drowning	4	7	6	0
Ped	2	14	23	8

However, in firearm fatalities, the majority occurred in the 10-13 year age group. Deaths in this age group did not outnumber those that occurred in the 5-9 year age group significantly.

With reference to *Annexure 2 Table 5*, in children less than 1 year, burns and abandonment accounted for the majority of external causes of death, each accounting for 16.7% of the death total. These were followed by drowning fatalities (13.3%) and MVA passenger deaths (10%). Only one death by sharp object was recorded in the less than 1 year and the 1-4 year age group, but was most common in the 10-13 year age group. Due to the small number of deaths recorded in each age group, due to the other death causes being of small number, significant age variation could not be determined.

10. External cause of death by age and manner

Of the total number of 219 non-natural deaths recorded in Cape Town, in only 180 cases was the age and apparent manner recorded (82.2%).

10.1.Homicide n=31

With reference to *Annexure 2,Table 6(a)* no significant variation was observed in the total number of homicidal deaths per age group. Due to there being small numbers recorded for the various external causes of death in the homicide category, it was not possible to establish age trends. Despite this limitation it does appear that in Cape Town more firearm homicides (81.8%) occur in the older child, i.e. the 5-13 year age group, whereas all other causes of homicidal deaths, apart from strangulation and blunt object related deaths, were exclusively confined to the less than 1 year age group.

10.2.Suicide n=4

With reference to *Annexure 2, Table 6(b)*, all the suicide deaths occurred in the older age group.

10.3.Other UID's n=57

With reference to *Annexure 2,Table 6(c)*, the majority of other UID's occurred in the 1-4 year age group (47.3%), and the 5-9 year age group (38.6%).

10.4.Transport-related deaths n=76

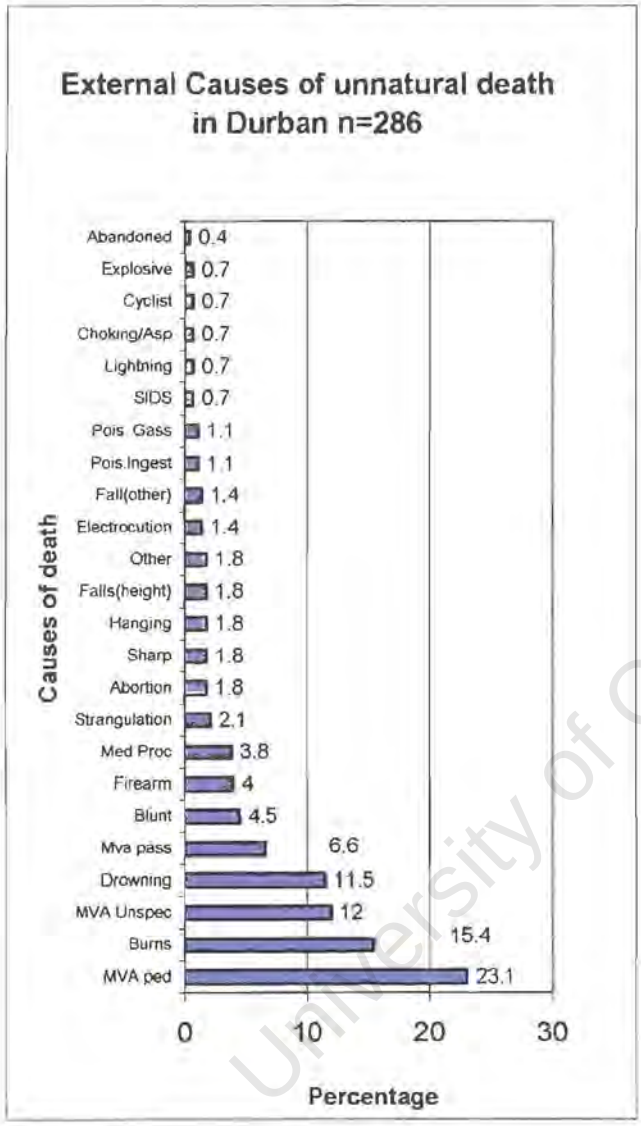
With reference to *Annexure 2, Table 6(d)* the majority of MVA pedestrian fatalities occurred in the 5-9 year age group (48,9%), followed by the 1-4 year age group (29,8%) and the least in children less than 1 year of age.

10.5.Undetermined deaths n=12

With reference to Annexure 2, Table 6(e), the majority of these deaths occurred in the less than 1 year age group. The leading external cause of death by this manner was found to be abortions/stillbirths, which accounted for 33,3% of the total number of deaths in children under 1 year. The number of fatalities recorded for the other causes of death by this manner, in this age group, did not vary significantly.

DURBAN

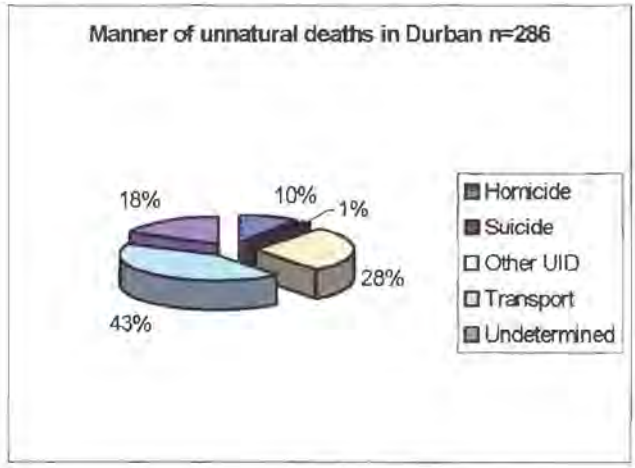
In Durban 93 natural deaths and 299 unnatural deaths were recorded.
Figure 3.A shows the external causes of unnatural deaths in this city. The manner of unnatural death was only recorded in 286 cases (95.7%).



The graph shows the leading external cause of death to be MVA pedestrian fatalities, followed by burns, MVA unspecified, drowning, MVA passenger fatalities, deaths by blunt object and firearm deaths. There were 4 deaths recorded as being "miscellaneous other". The external causes of these deaths however were not recorded.

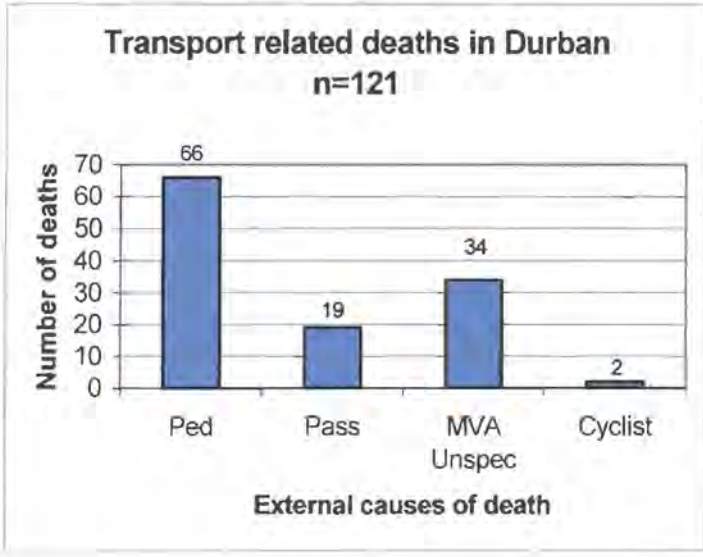
Figure 3.B depicts the manner of causation of unnatural deaths.

The leading manner of death in Durban was transport-related. This was followed by other UID's, undetermined deaths, homicidal deaths and suicidal deaths - *see Annexure 3, Table 1.*



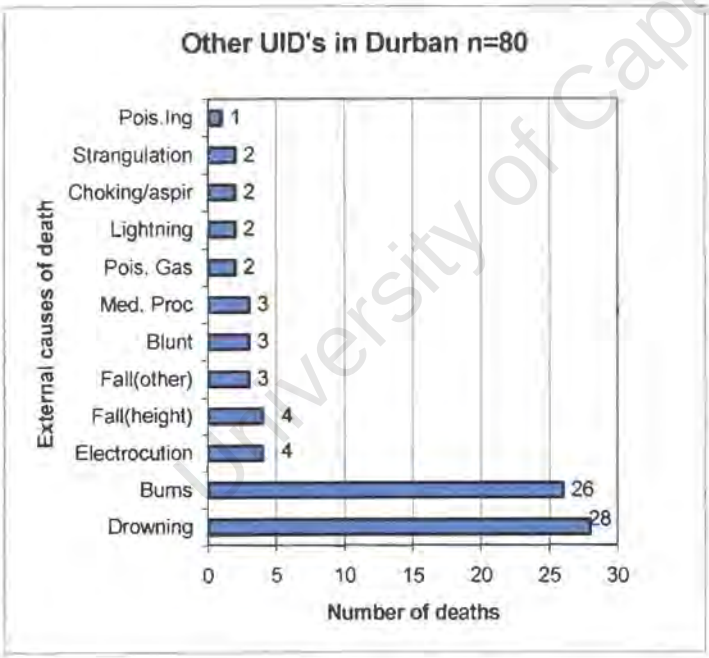
1. External causes of death by manner

1.1. Transport-related deaths [Figure 3.C]



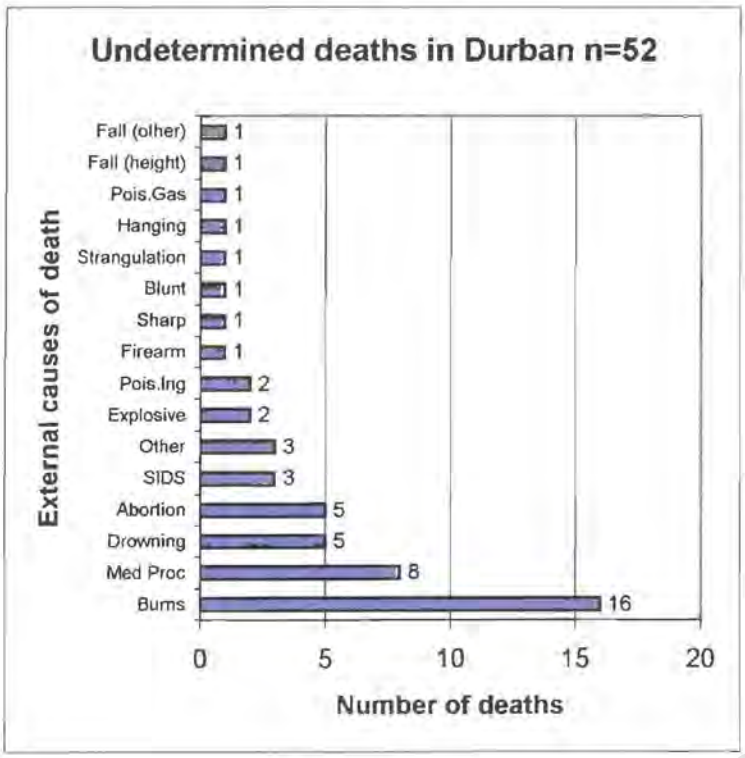
121 transport-related deaths were recorded. MVA pedestrian fatalities accounted for the majority of these deaths (54.5%). This was followed by MVA unspecified deaths, MVA passenger deaths and cyclist deaths.

1.2. Other UID's [Figure 3.D]



Drowning, followed by burns, electrocution, falls from a height and blunt object deaths accounted for the majority. Drowning and burns together accounted for 67.5% of the total number of deaths in this manner.

1.3. Undetermined deaths. **[Figure 3.E]**



Of the undetermined deaths, burns accounted for the majority (30.8%) which was followed by procedure-related deaths, abortion and drowning.

1.4. Homicidal deaths **[Figure 3.F]**

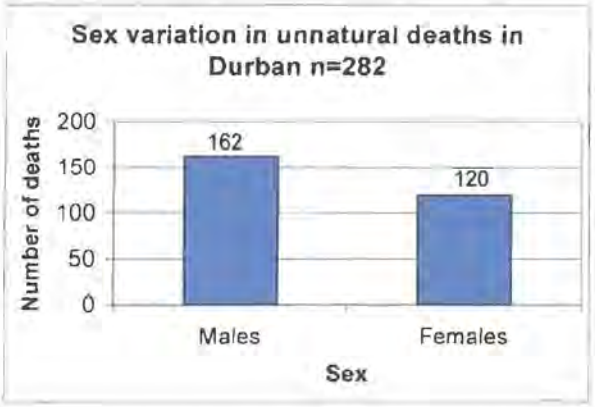
Within homicide, firearm, sharp and blunt object and strangulation were found to be the leading external causes. Firearm deaths and blunt object deaths each accounted for 31%, whereas sharp object and strangulation deaths accounted for 13.8% and 10.2% respectively. There was one homicidal abandonment recorded, accounting for 3.5% of the homicidal deaths - *see Annexure 3, Table 1.*

1.5. Suicide

There were 4 suicidal deaths recorded, of which 3 were deaths by hanging (75%), while 1 death was by firearm (25%).

2. Sex variation in all unnatural deaths

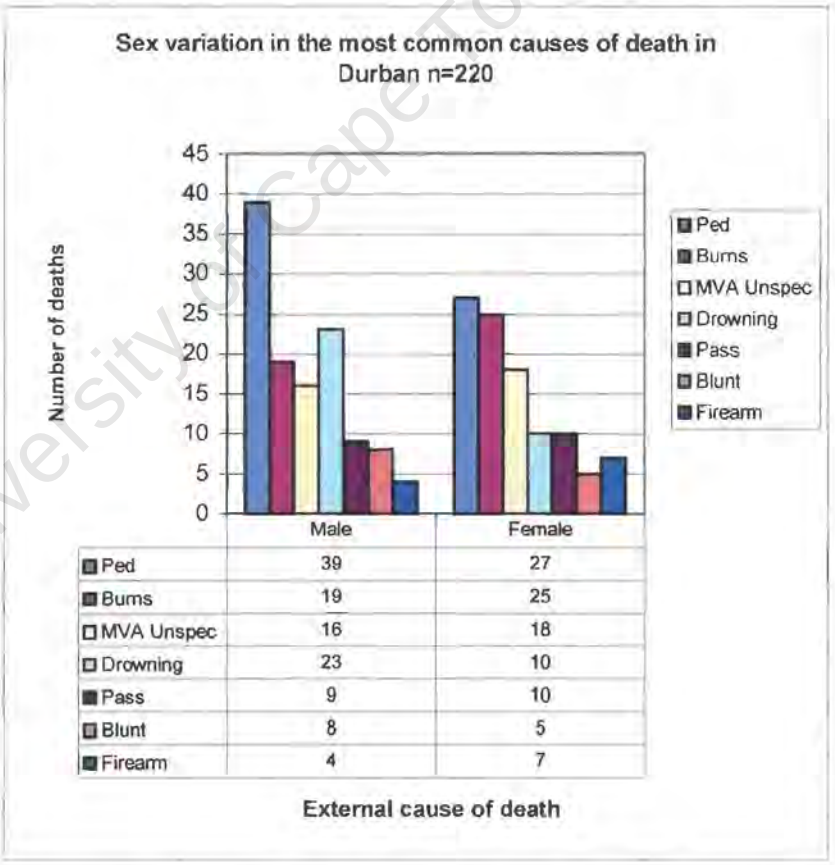
[Figure 3.G]
Of the total number of unnatural deaths recorded (299), in only 282 cases, was the sex recorded (94.3%).



Males outnumbered females by 42 deaths, accounting for 57.5% of the total number of unnatural deaths.

3. Sex variation in the most common external causes of unnatural deaths in Durban

[Figure 3.H]



Among both males and females, MVA pedestrian fatalities accounted for the majority of their deaths. Amongst the females, the 2nd leading cause of their deaths was burns. Among the females, MVA pedestrian fatalities did not outnumber other external causes of death, which was found to be in contrast to the male death profile. The 3rd leading cause of death amongst females was MVA unspecified. An equal number of drowning and MVA passenger fatalities was recorded amongst females. Firearm deaths accounted for the 5th highest external cause, and blunt object deaths for the least.

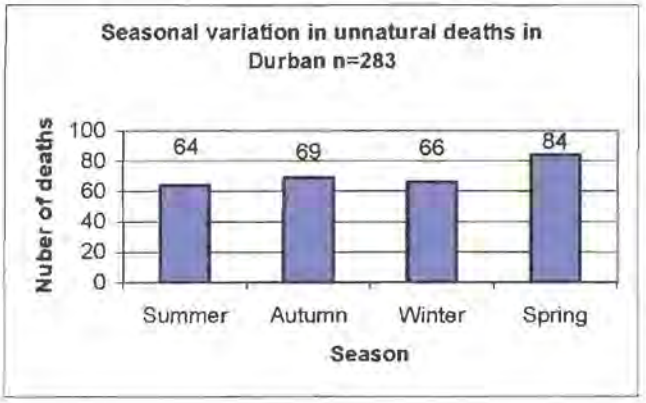
Amongst the males, burns, accounted for the 2nd highest external cause of their deaths. The next highest was drowning, MVA (unspecified) and passenger deaths.

In contrast to the female death profile, there were more blunt object deaths recorded than firearm deaths - *see Annexure 3, Table 2.*

4. Seasonal variation of all unnatural deaths

[Figure 3.I]

Of a total of 299 unnatural fatalities, in only 289 cases was the season recorded.

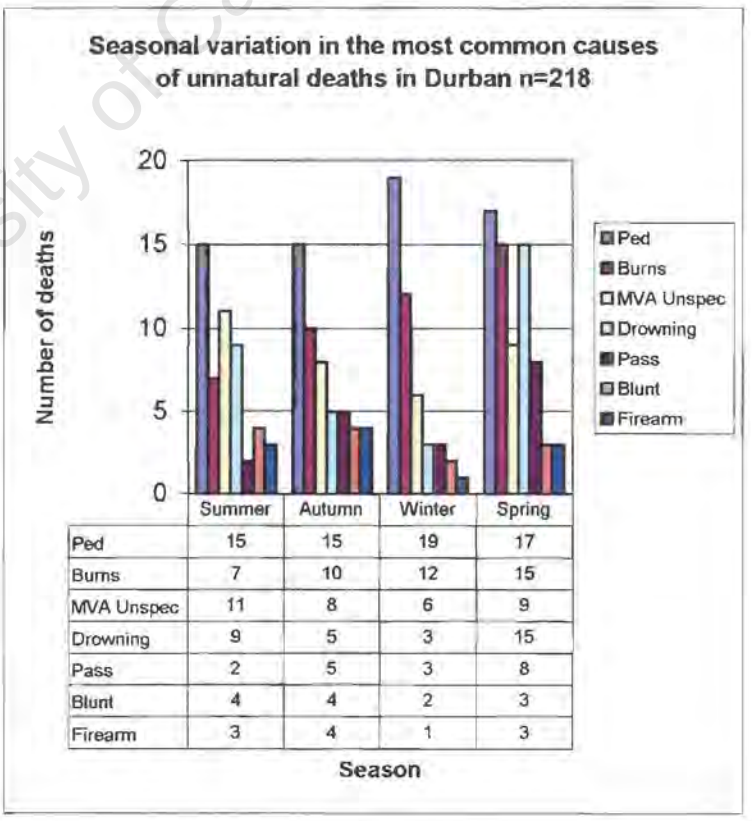


The majority of deaths occurred in Spring (29.7%). The next highest number of fatalities occurred in the Autumn, Summer, and Winter. There was however no significant variation noted in the number of Summer, Autumn, and Winter fatalities - *see Annexure 3, Table 3.*

5. Seasonal variation in the most common external causes of unnatural death

[Figure 3.J]

MVA pedestrian fatalities appeared to peak in Winter, whereas burns peaked in Spring. Compared to other seasons, the majority of MVA pedestrian and burn fatalities occurred in the Winter and Spring. As expected, drowning fatalities were highest in the Summer season, although the fatalities did not significantly outnumber those in the Spring. There was no significant seasonal variation noted in firearm and blunt object fatalities. The highest number of MVA passenger fatalities occurred in Spring and Autumn. There was also no significant seasonal variation noted for MVA (unspecified) deaths.

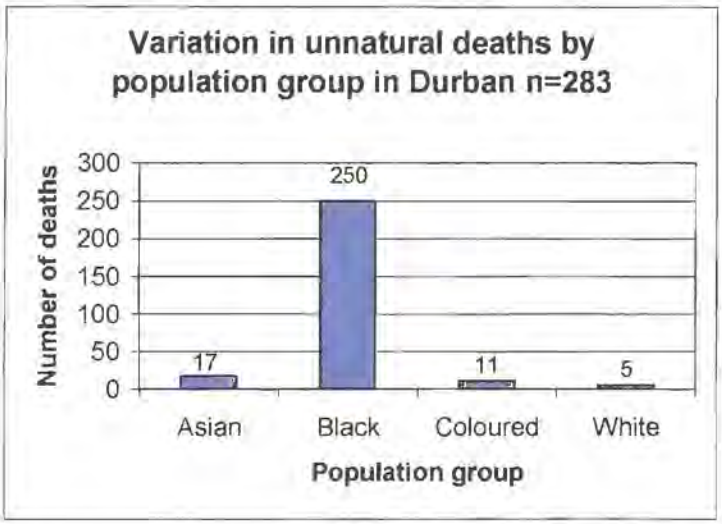


	Summer	Autumn	Winter	Spring
Ped	15	15	19	17
Burns	7	10	12	15
MVA Unspec	11	8	6	9
Drowning	9	5	3	15
Pass	2	5	3	8
Blunt	4	4	2	3
Firearm	3	4	1	3

6. Variation in all unnatural deaths by population group

[Figure 3.K]

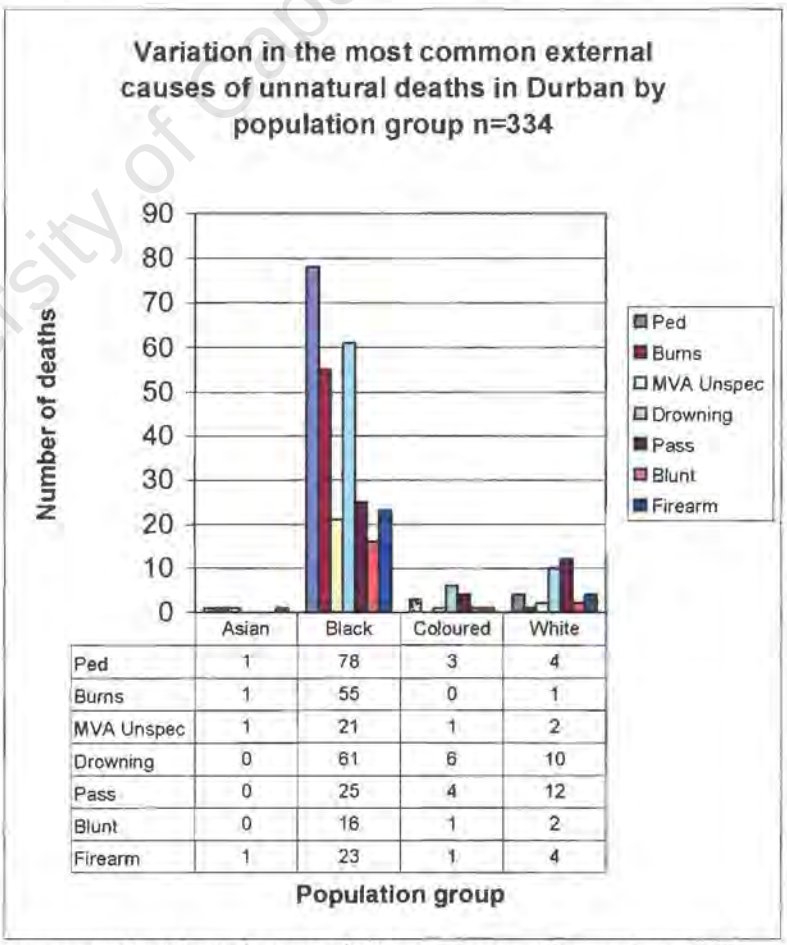
Of the 299 fatalities recorded in Durban, in only 283 cases was the population group recorded (94.6%).



The majority of unnatural deaths occurred in the Black population (88.3%). The Asian, followed by the Coloured population accounted for the 2nd and 3rd highest number of unnatural deaths. The least number of deaths occurred in the White population.

7.The most common external causes of unnatural death by population group

[Figure 3.L]



	Asian	Black	Coloured	White
Ped	1	78	3	4
Burns	1	55	0	1
MVA Unspec	1	21	1	2
Drowning	0	61	6	10
Pass	0	25	4	12
Blunt	0	16	1	2
Firearm	1	23	1	4

The Black population accounted for the majority of the specified external causes of death. With reference to Annexure 2, Table 2, among the Black population group MVA pedestrian fatalities accounted for 24% of the total number of their deaths. Burns and drowning were the 2nd and 3rd leading causes of their deaths, accounting for 17.2% and 11.6%. Figures for causes of death in the Asian, Coloured and White population groups were small, and significantly lower than those for the Black population.
Among the Coloured group, pedestrian fatalities accounted for the majority of deaths. No burn deaths were recorded in this population group. Drowning and MVA passenger deaths had the 2nd highest number of deaths in the Coloured group which together accounted for 3,6% of the total number of their deaths. Firearm deaths, strangulation, hanging and deaths related to a medical procedure accounted for 9.1% - *see Annexure 3, Table 4.*

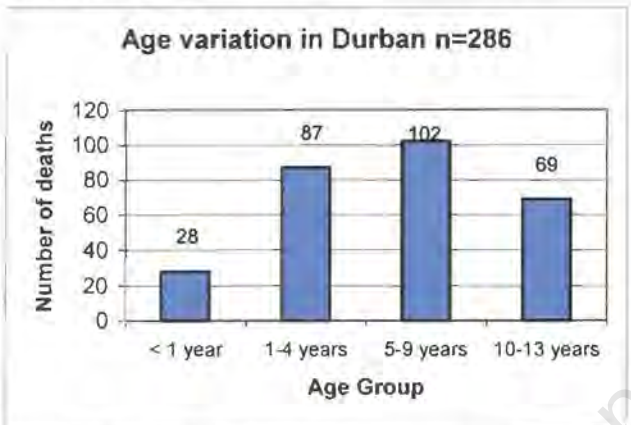
deaths, strangulation, hanging and deaths related to a medical procedure accounted for 9.1% - *see Annexure 3, Table 4.*

Amongst the White group, transport-related deaths (MVA pedestrian, MVA passenger and cyclist fatalities) combined, accounted for 60% of the total number of deaths, of which pedestrian fatalities, as in the Coloured and Black groups, did not dominate. MVA passenger, MVA pedestrian and cyclist deaths each accounted for 20% of the total number of deaths for the White group, whereas drowning accounted for 40%.

8. Age variation in all unnatural deaths

[Figure 3.M]

Of the 299 fatalities recorded in Durban, there were only 286 cases for which age was recorded.

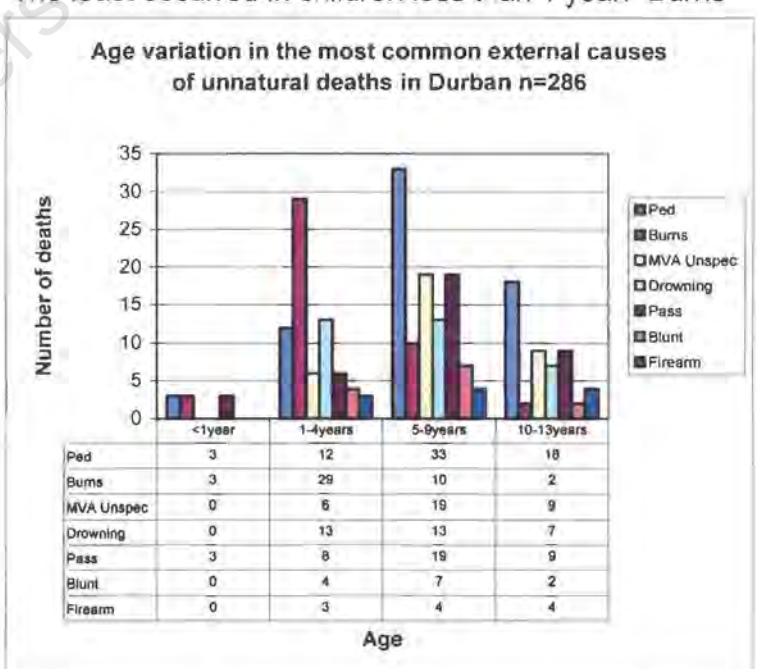


The 5-9 year age group accounted for the majority of unnatural deaths (35.7%). The next highest number of deaths occurred in the 1-4 year age group, and the 10-13 year age group. The least number occurred in the less than 1 year age group.

9. Age variation in the most common external causes of unnatural deaths

[Figure 3.N]

The highest number of MVA pedestrian, MVA passenger, burns, blunt object deaths and MVA (unspecified) deaths occurred in the 5-9 year age group. The 2nd highest number of MVA pedestrian fatalities occurred in the 10-13 year age group, followed by the 1-4 year age group. The least occurred in children less than 1 year. Burns peaked in the 1-4 year age group. The next highest number of burn fatalities occurred in the 5-9 year age group, whilst a small number only was recorded in the other age groups The highest number of drowning fatalities occurred in the 1-4 and 5-9 year age groups, the number of fatalities in these age groups, being equal. The next highest was noted in the 10-13 year age group. None occurred in children less than 1



	<1year	1-4years	5-9years	10-13years
Ped	3	12	33	18
Burns	3	29	10	2
MVA Unspec	0	6	19	9
Drowning	0	13	13	7
Pass	3	8	19	9
Blunt	0	4	7	2
Firearm	0	3	4	4

deaths recorded in children less than 1 year. No significant age variation in firearm deaths was noted between ages 1-13 years - *see Annexure 3, Table 5.*

The majority of deaths due to strangulation occurred in children less than 1 year. No significant variation in sharp object deaths, like firearm deaths, occurred in the relevant age groups. Amongst children less than 1 year, deaths associated with a medical procedure, as well as abortions, accounted for the majority.

10. External cause of death by age and manner

Of the total number of 299 unnatural deaths recorded in Durban, in only 286 cases was the age, apparent manner, and the external cause of death recorded (95.7%)

10.1. Homicide (n=29)

With reference to Annexure 3, Table 6(a), the highest number of homicidal deaths occurred in the 5-9 year age group, accounting for 34,5% of the total number of homicidal deaths. The leading external cause of death was due to blunt object homicide, followed by firearm homicide.

The next highest number of homicidal deaths was recorded in the 1-4 (31%) and 10-13 (27,6%) age groups, with the least number being recorded in children less than 1 year (7%). There was no significant variation in the number of fatalities recorded for the other external causes of death in the 1-4 year age group, and therefore it was not possible to establish a leading cause of death. The same applied in the 10-13 year age group, although firearm homicide was noted to outnumber other causes of death by a maximum of 2 fatalities.

10.2. Suicide (n=4)

With reference to Annexure 3, Table 6(b), four suicides were recorded, all of which occurred in the 10-13 year age group.

10.3. Other UID's (n=80)

With reference to Annexure 3, Table 6(c), the highest number of deaths in this category occurred in the 1-4 year age group (51.5%), followed by the 5-9 year age group (26.3%), with the 3rd highest number being recorded in the 10-13 year age group (18.8%), and the least in children less than 1 year (3.8%). In the 10-13 year age group the leading external causes of death by this manner were drowning, drowning and electrocution.

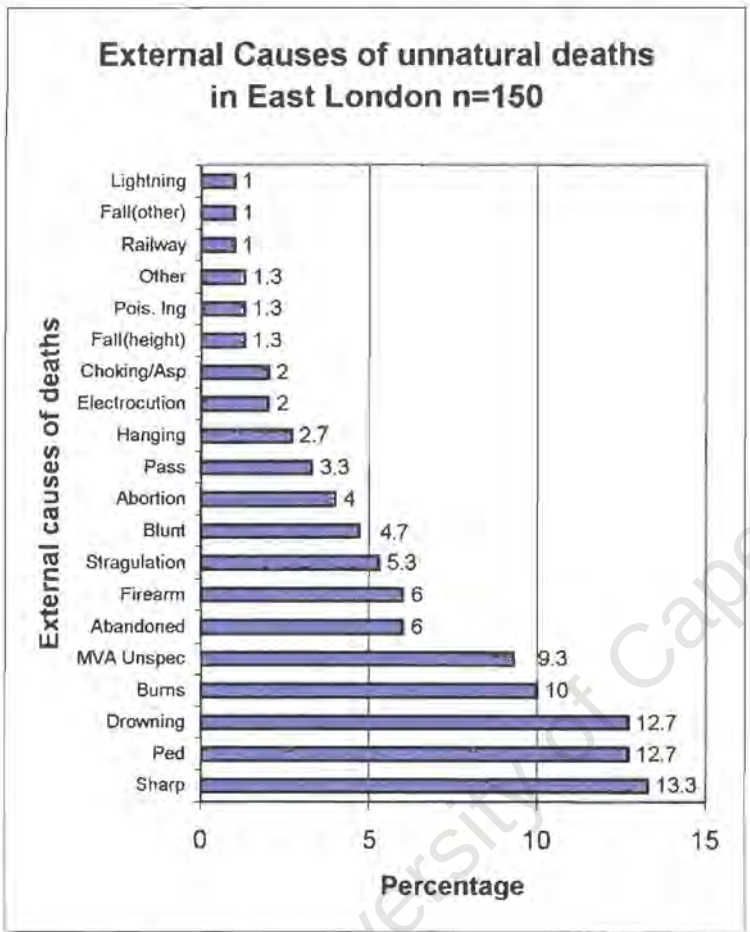
10.4. Transport-related deaths (n=121)

With reference to Annexure 3, Table 6 (d), the majority of transport-related deaths occurred in the 5-9 year age group (49.6%) and the next highest in the 10-13 year age group (30%) and the 1-4 year age group (16.5%). The least number occurred in children less than 1 year of age. MVA pedestrian fatalities, followed by MVA passenger deaths, were the leading causes of death in all age groups, except in children less than 1 year of age, where equal numbers of MVA pedestrian and MVA passenger deaths were recorded.

10.5. Undetermined deaths (n=52)
With reference to Annexure 3, Table 6 (e), the majority of these deaths occurred in the less than 1 and 1-4 year age groups, each accounting for 32.7% of the total number of undetermined deaths. In children less than 1 year the leading external causes were abortion/stillbirth and medical procedure related, whereas in the 1-4 year age group, the leading external cause of death was burns. In the 5-9 and 10-13 year age groups, no significant variation in the causes of death was observed.

EAST LONDON

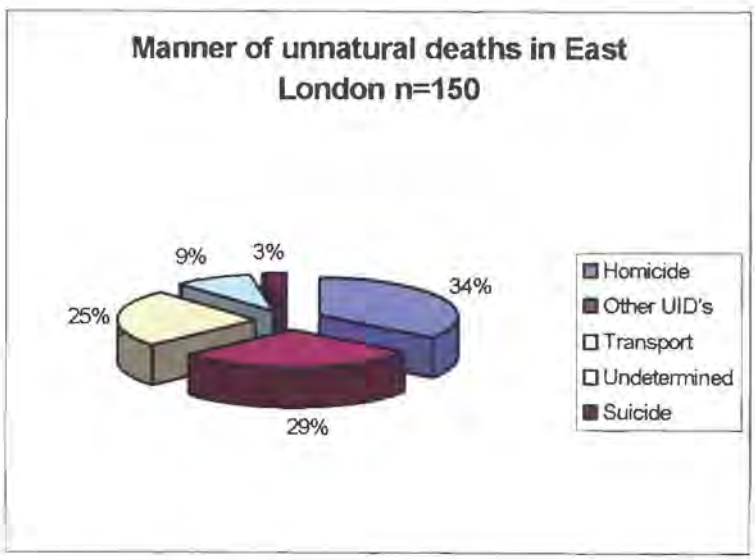
There were 56 natural fatalities and 156 unnatural fatalities recorded in this city, of which there were only 150 cases in which the manner was recorded.
Figure 4.A shows all the external causes of death in East London. 2 deaths were designated "miscellaneous other". In both cases, the exact cause of death was not recorded.



As is evident, sharp object deaths, followed by MVA pedestrian fatalities, drowning, burns, MVA unspecified, abandonment and firearm deaths were the leading causes of unnatural deaths.

Manner of death **[Figure 4.B]**

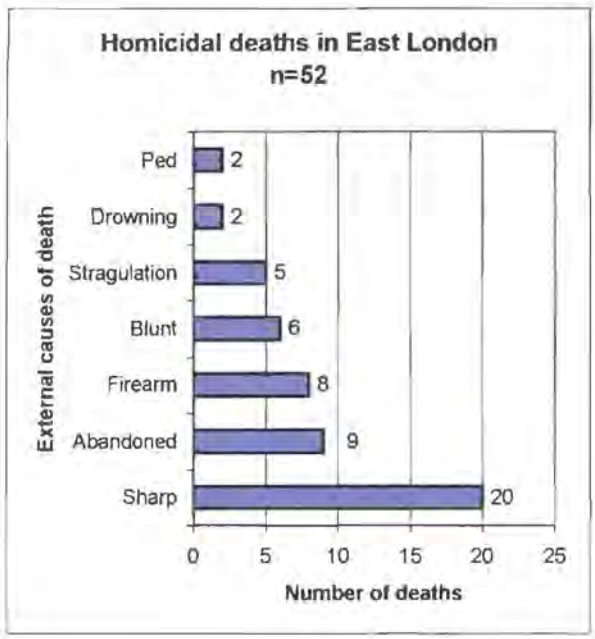
Homicide accounted for 34%. This was followed by other UID's, transport-related deaths and undetermined deaths. Suicide accounted for 3% of all manners of death - *see Annexure 4, Table 1.*



1. External causes of death by manner

1.1. Homicide

Figure 4.C depicts homicidal deaths in this city, of which there were 52 cases recorded.

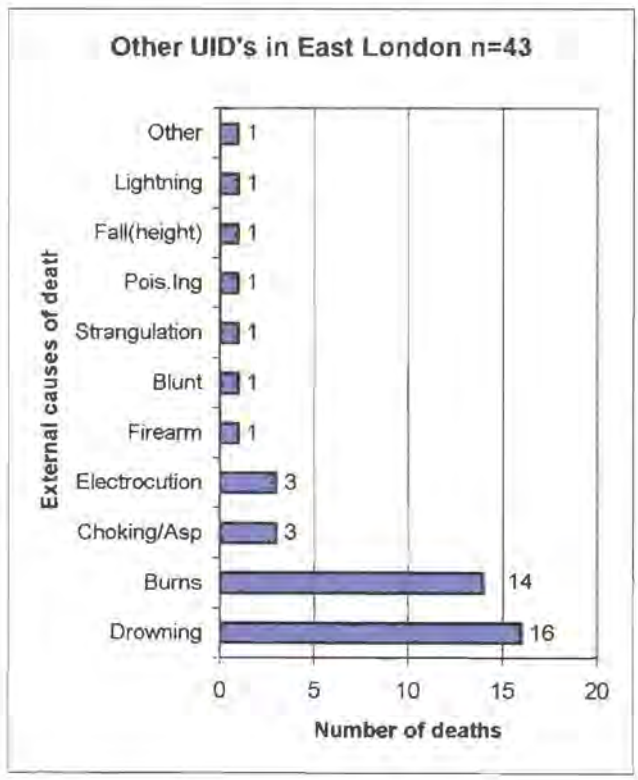


Within homicide, deaths due to sharp object, followed by abandonment, firearm, blunt object and strangulation were the leading external causes (*see Annexure 4, Table 1*). Sharp object homicide accounted for 38.5% of all homicidal deaths in this city.

1.2. Other UID's

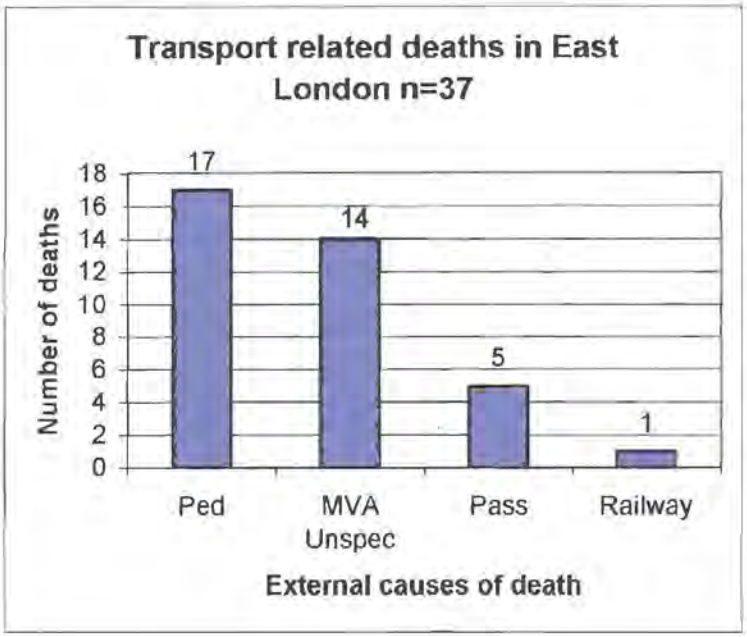
Figure 4.D depicts the external causes of death which, by manner, were other UID's.

Drowning, followed by burns, choking/aspiration and electrocution were the leading causes of death by this manner.



1.3. Transport-related deaths

Figure 4.E shows the external causes of death in this category.

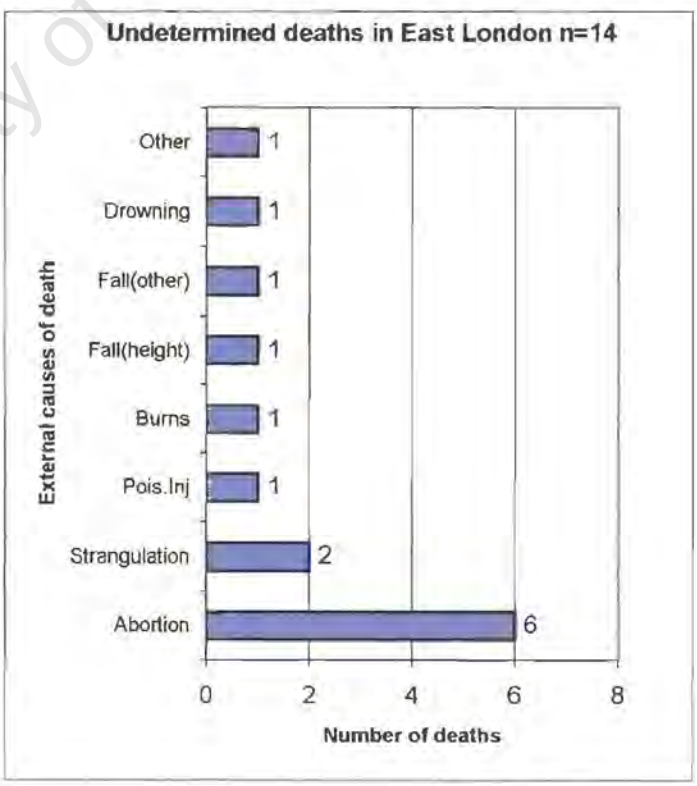


MVA pedestrian fatalities and MVA unspecified fatalities were the leading external causes of death. Only 1 railway fatality was recorded.

1.4.Undetermined deaths

Figure 4.F shows the external causes of death which, by manner, were undetermined.

Abortion and strangulation were found to be the leading external causes in this category.

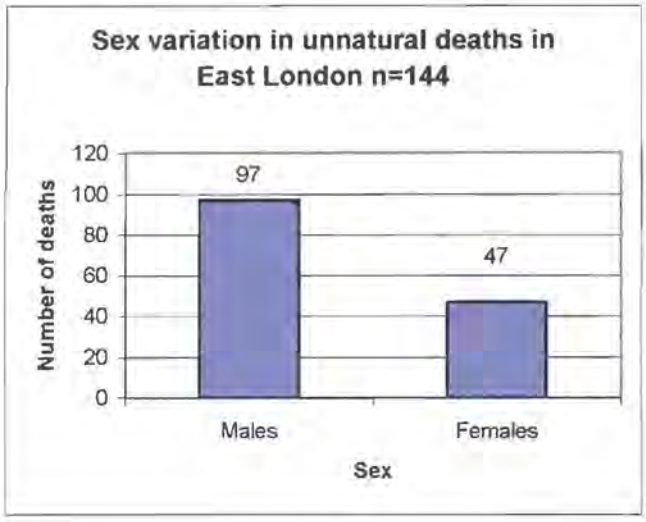


1.5. Suicide

There were 4 suicidal deaths recorded in East London, all of which were due to hanging.

2. Sex variation in all unnatural deaths

[Figure 4.G]
Of the 156 unnatural fatalities, there were only 144 cases in which sex was recorded.

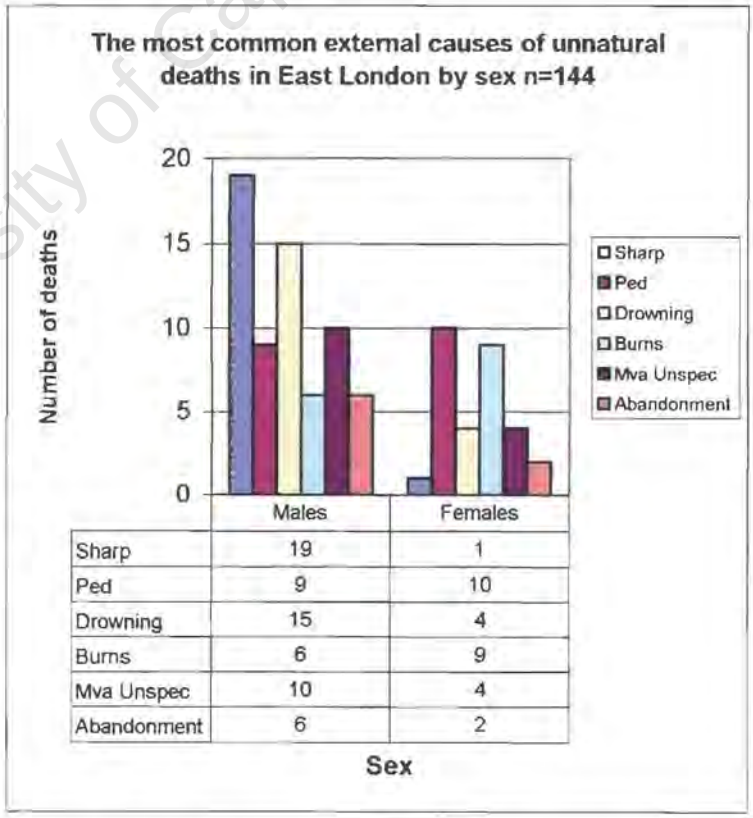


Males outnumbered females, accounting for 67.4% of all unnatural deaths.

3. Sex variation in the most common external causes of unnatural deaths

[Figure 4.H]

The top 3 leading causes of unnatural death among the males were sharp object fatalities, drowning and MVA unspecified fatalities. Amongst the females, however, it was MVA pedestrian fatalities, burns and drowning. MVA pedestrian fatalities accounted for 9.3% of deaths amongst the males, which is in contrast to the female death profile, where it accounted for 21.3%. Only 1 death by sharp object was recorded amongst the females compared to the 19 amongst the males. A higher number of deaths by abandonment was found amongst the males compared to the females. In two categories of transport-related deaths, i.e. MVA passenger and MVA unspecified, males outnumbered females 2 to 1, and nearly 3 to 1 respectively. In death by drowning, there were 4 male victims for 1 female victim - *see Annexure 4, Table 2.*

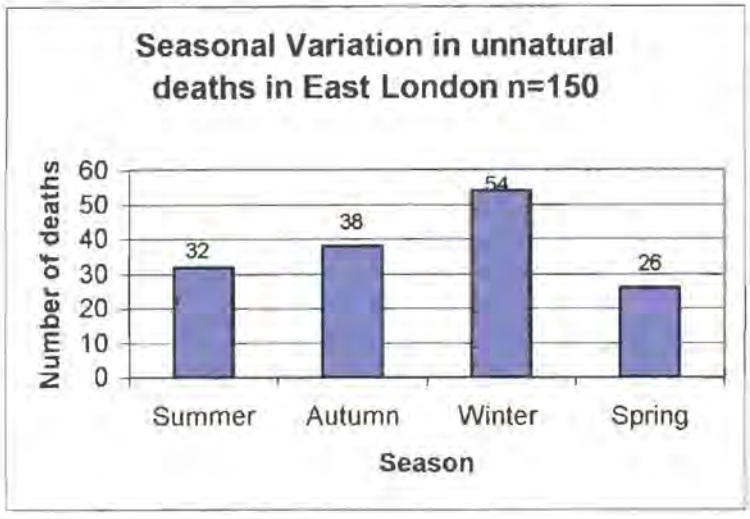


	Males	Females
Sharp	19	1
Ped	9	10
Drowning	15	4
Burns	6	9
Mva Unspec	10	4
Abandonment	6	2

4. Seasonal variation of all unnatural deaths

[Figure 4.I]

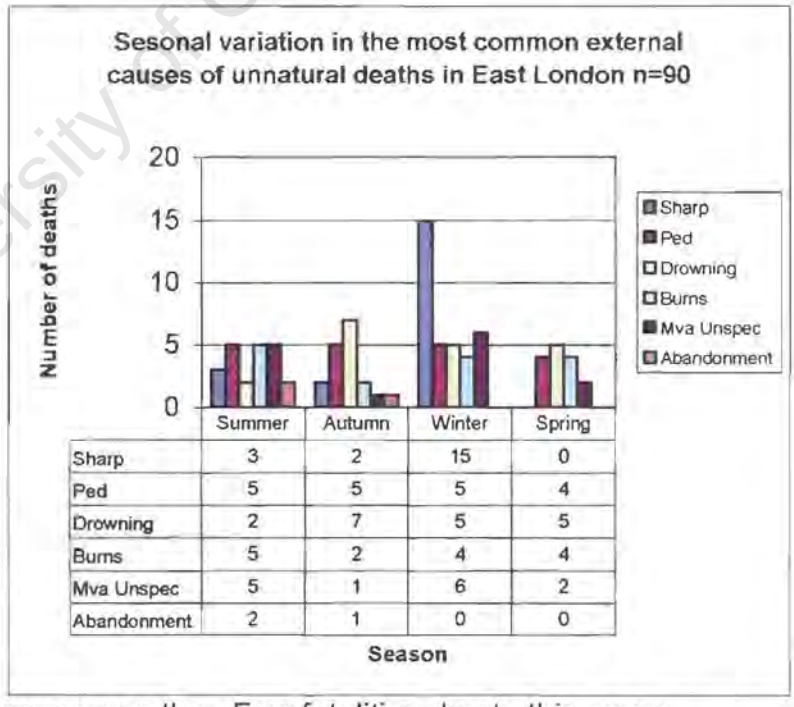
Of the 156 unnatural fatalities, there were only 150 cases in which the month was recorded.



The highest number of deaths occurred in the Winter (36%) followed by the Autumn (25,3%) months. The next highest occurred in the Summer months, and the least in Spring - *see Annexure 4, Table 3.*

5. Seasonal variation in the most common causes of unnatural deaths

[Figure 4.J]



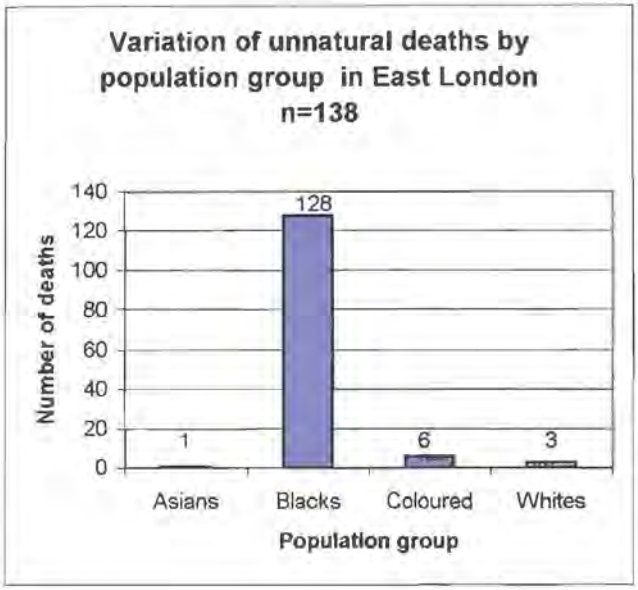
	Summer	Autumn	Winter	Spring
Sharp	3	2	15	0
Ped	5	5	5	4
Drowning	2	7	5	5
Burns	5	2	4	4
Mva Unspec	5	1	6	2
Abandonment	2	1	0	0

Of note, sharp object deaths peaked in Winter, with none occurring in Spring. The highest number of drowning fatalities occurred in the Autumn and the least in Summer. The number of drowning fatalities recorded in Winter and Spring were equal. The least number of burns occurred within Autumn. There was however no significant difference in the number of burn fatalities which had occurred in the other seasons. The majority of MVA unspecified deaths occurred in the Winter and Summer months. Few fatalities due to this cause, occurred in the other seasons. With regards to abandonment, the highest number of fatalities was recorded in Winter, but no significant fatality variation was noted in the other seasons. The number of deaths due to falls, choking/aspiration, poisoning and railway injuries was small, so precluding the establishment of seasonal variation in these categories.

6. Variation in all unnatural deaths by population group

[Figure 4.K]

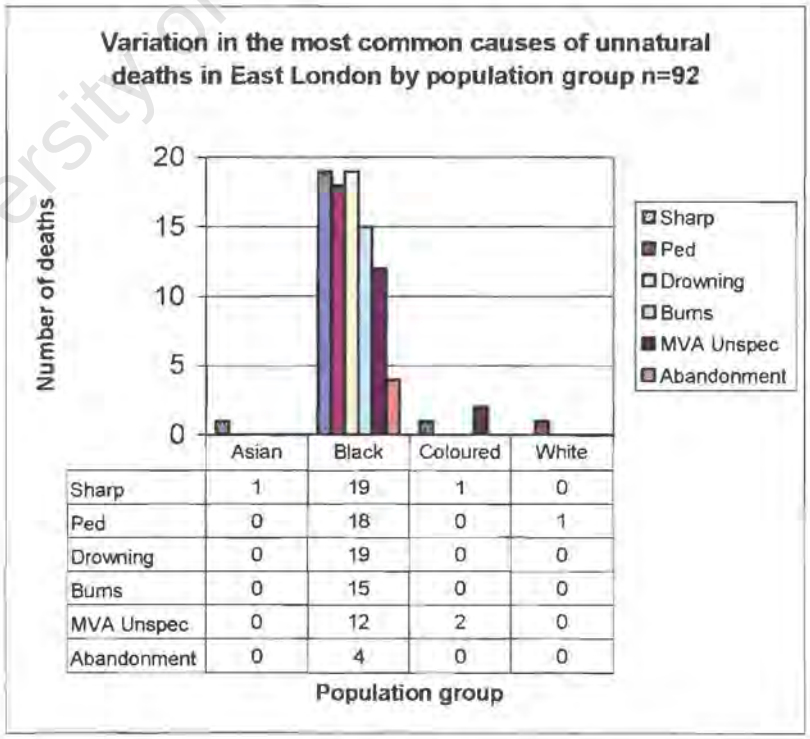
Of the total number of 156 fatalities, there were only 138 cases in which the population group was recorded.



The highest number of unnatural deaths occurred amongst the Black population followed by the Coloured, White and Asian population groups. Only a few deaths were recorded in the latter population groups. The Black population accounted for 92.8%, whereas the Coloured, White and Asian population groups accounted for 4.3%, 2.2% and 0.7% of the unnatural death total.

7. Variation in the most common external causes of death by population group

[Figure 4.L]



	Asian	Black	Coloured	White
Sharp	1	19	1	0
Ped	0	18	0	1
Drowning	0	19	0	0
Burns	0	15	0	0
MVA Unspec	0	12	2	0
Abandonment	0	4	0	0

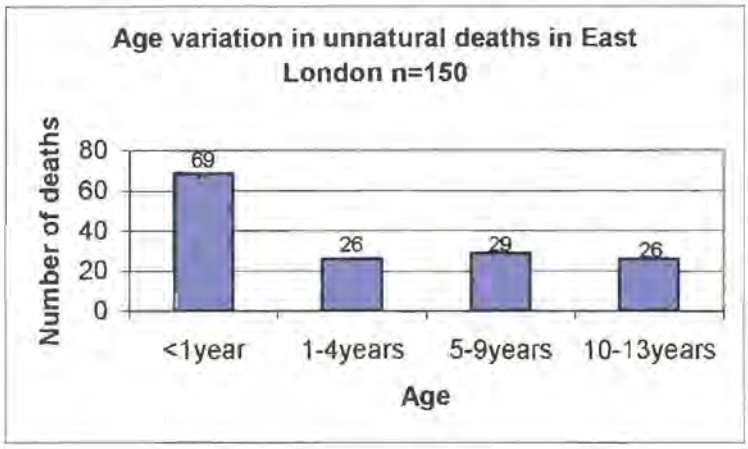
The Black population accounted for the highest number of deaths due to the specified external causes. Among the Black group, drowning and sharp object fatalities accounted for the majority of deaths (14.1% each). These causes individually outnumbered MVA pedestrian fatalities by only 1 death. Together drowning, sharp object and MVA pedestrian fatalities accounted for 43.7% of the total number of non-natural deaths in the Black population group. The highest number of firearm fatalities was also recorded amongst the Black population - *see Annexure 4, Table 4.* Among the Coloured group the majority of fatalities were transport-related, i.e. MVA passenger and MVA unspecified, which each accounted for 33.3% of their deaths.

Only 3 deaths were recorded in the White group, and only 1 death, i.e. by sharp object, was recorded in the Asian group. The death figures for these population groups were small, so precluding accurate assessment.

8. Age variation in all unnatural deaths

[Figure 4.M]

Of the total number of 156 fatalities, there were only 150 cases in which age was recorded.



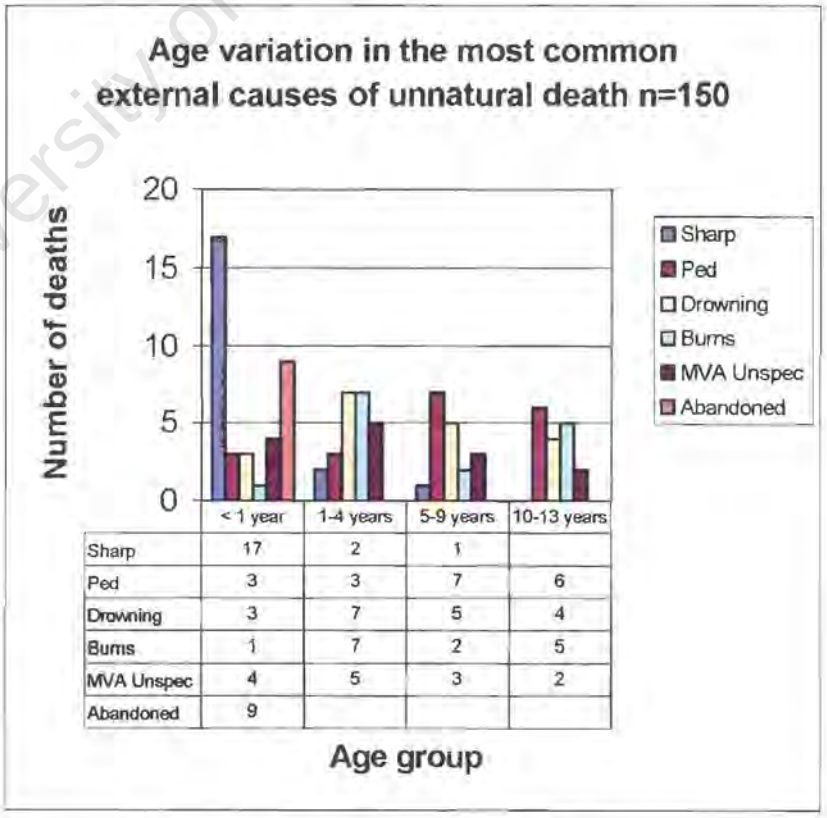
The majority of deaths occurred in children less than 1 year of age (46%). There appeared to be no significant variation in the number of deaths recorded in the other age groups.

9. Age variation in the most common external causes of unnatural death

[Figure 4.N]

In children less than 1 year, sharp object deaths accounted for the majority, i.e. 24.6% of their deaths. The 2nd leading cause of their deaths was abandonment. Abortion was the 3rd leading cause of their deaths, accounting for 8.7%.

In the 1-4 year age group, the leading causes of their death was burns and drowning, which each accounted for 26.9% of their deaths. The next leading cause of death in this age group was transport-related, i.e. MVA unspecified and pedestrian fatalities - *see Annexure 4, Table 5.*



	< 1 year	1-4 years	5-9 years	10-13 years
Sharp	17	2	1	
Ped	3	3	7	6
Drowning	3	7	5	4
Burns	1	7	2	5
MVA Unspec	4	5	3	2
Abandoned	9			

In the 5-9 year age group, the leading external cause of their deaths was due to MVA pedestrian fatalities, followed by drowning, whereas in the 10-13 year age group it

In the 5-9 year age group, the leading external cause of their deaths was due to MVA pedestrian fatalities, followed by drowning, whereas in the 10-13 year age group it was MVA pedestrian fatalities followed by burns and then drowning. The least number of burns and drowning fatalities occurred in children less than 1 year in this city.

10. External cause of death by age and manner

Of the total number of 156 unnatural deaths recorded in East London, in only 150 cases was the age, apparent manner, and the external cause of death recorded (96.2%)

10.1. Homicide (n=52)

The majority of homicides occurred in the less than 1 year age group, accounting for 76,9% of the total number of homicide deaths in East London. 7,7% of the total number of homicides occurred in each of the 3 other age groups. Within the less than 1 year age group, sharp object homicide accounted for 42,5% of their deaths. Of the total number of firearm homicides (8) and sharp object homicides (20) in East London, 50% and 85% respectively occurred in the less than 1 year age group. Due to the small number of other external causes of homicidal deaths, no significant age variation could be established - *see Annexure 4, Table 6(a).*

10.2. Suicide (n=4)

All the suicide deaths in East London (4) were due to hanging, and all of these deaths occurred in the 10-13 year age group - *see Annexure 4 Table 6(b).*

10.3. Other UID's (n=43)

The highest number of burn fatalities was recorded in the 1-4 year and 10-13 age groups. The highest number of drowning fatalities was recorded in the 1-4 year age group, with no deaths by drowning being recorded in the less than 1 year age group. The number of fatalities declined within the higher age groups - *see Annexure 4, Table 6 (c).*

10.4. Transport-related deaths (n=37)

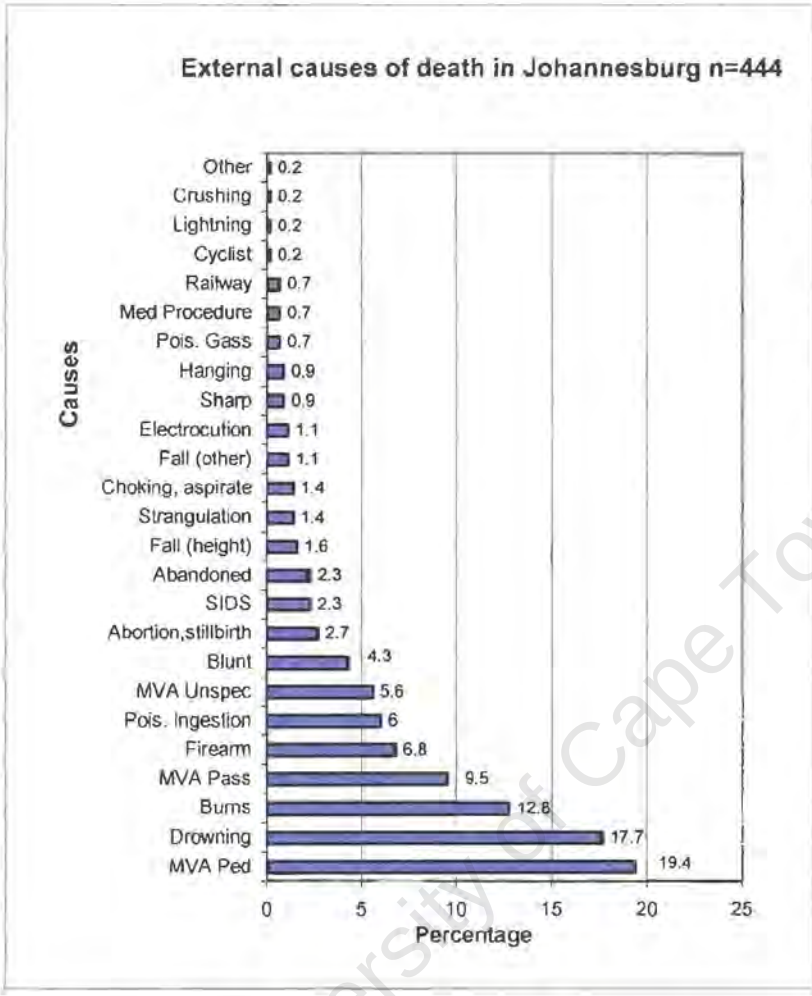
MVA Pedestrian fatalities peaked in the 5-9 and 10-13 year age groups. No significant age trends could be established with regards to the other external causes of death in this category - *see Annexure 4, Table 6(d).*

10.5. Undetermined deaths (n=14)

The majority of deaths whereby the manner was not ascertained occurred in the less than 1 year age group (71,4%), wherein abortion/stillbirth and strangulation were the leading external causes of death. The 5-9 year age group had the 2nd highest number of undetermined deaths in which poisoning by ingestion and falls were the leading external causes - *see Annexure 4, Table 6(e).*

JOHANNESBURG

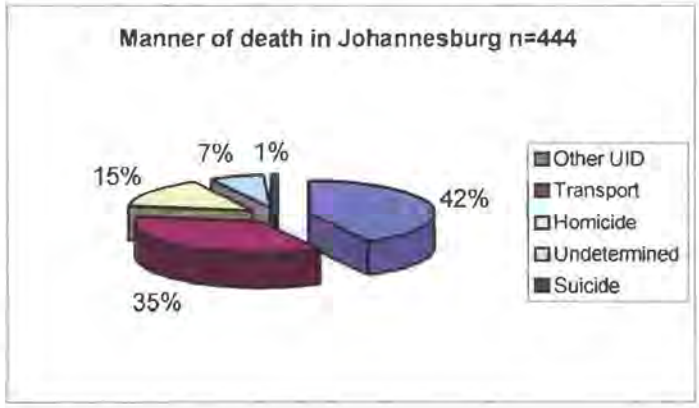
There were 216 natural fatalities and 444 unnatural fatalities recorded in Johannesburg. **Figure 5.A** shows the external causes of unnatural deaths in this city.



The graph demonstrates the 6 leading external causes of death in Johannesburg as being MVA pedestrian fatalities, followed by drowning, burns, MVA passenger fatalities, firearm deaths, and deaths by ingestion of poison. One death designated as miscellaneous other was due to an allergic reaction.

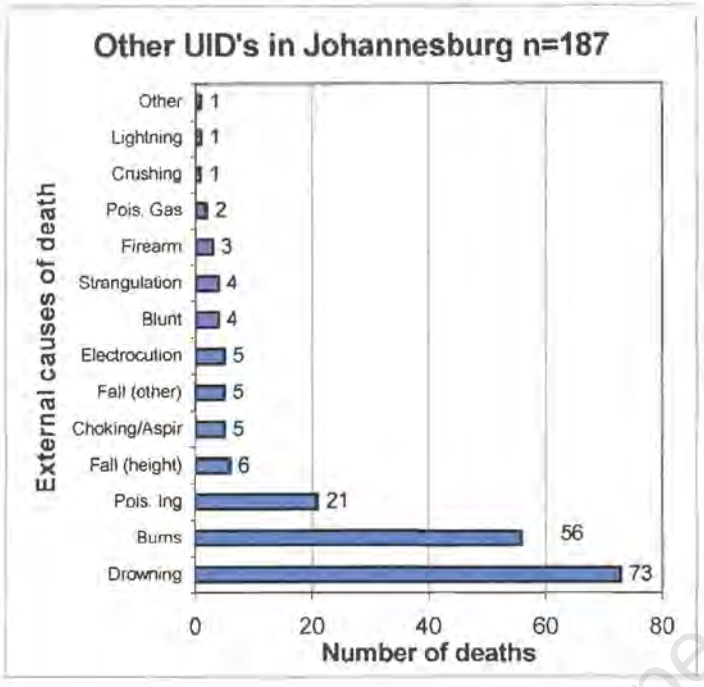
Figure 5.B depicts the manner of causation of unnatural deaths.

Other UID's, followed by transport-related deaths, were leading manners of unnatural death in this city. Together these two categories accounted for 77% of all deaths in this city. Homicide was found to be the next most common manner of death, followed by undetermined and suicidal deaths - *see Annexure 5, Table 1.*



1. External causes of death by manner

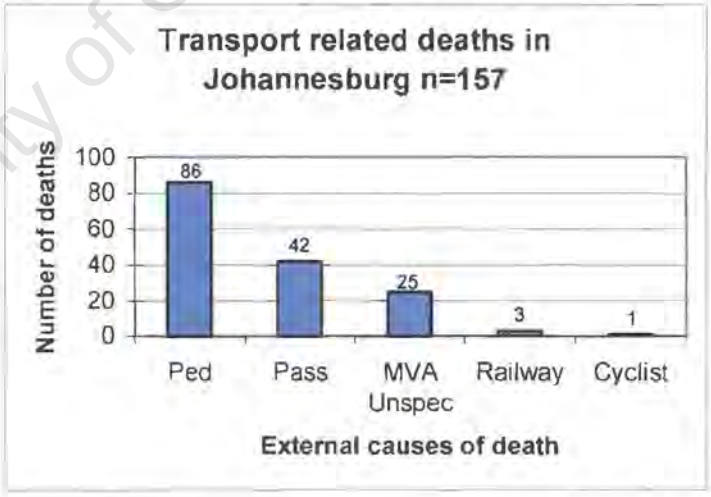
1.1. Other UID's [**Figure 5.C**]
Figure 5.C depicts the external causes of death by this manner.



Deaths due to drowning, burns, and poisoning by ingestion accounted for the majority of other UID's. Notably, 5 deaths by electrocution had also occurred.

1.2. Transport-related deaths [**Figure 5.D**]

Figure 5.D depicts the external causes of transport-related deaths, of which 157 were recorded. MVA pedestrian fatalities accounted for the majority, i.e. over 50% of deaths. This was followed by MVA passenger deaths and MVA deaths which were unspecified.



1.3. Homicidal deaths [**Figure 5.E**]

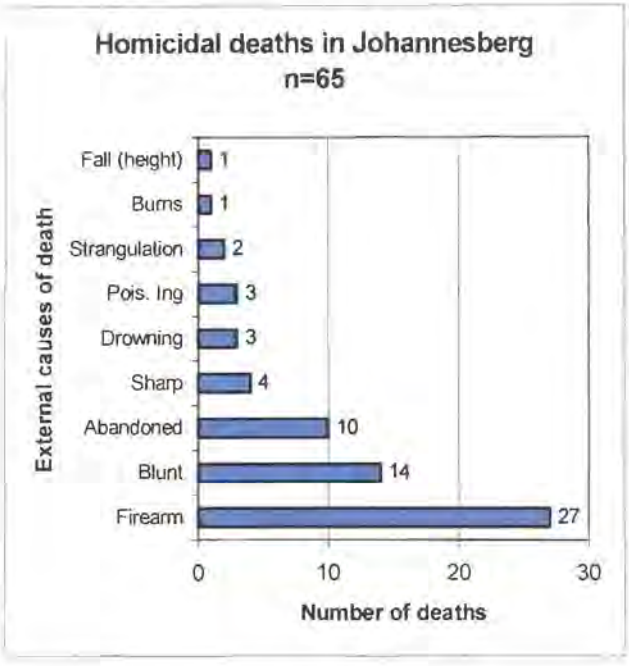
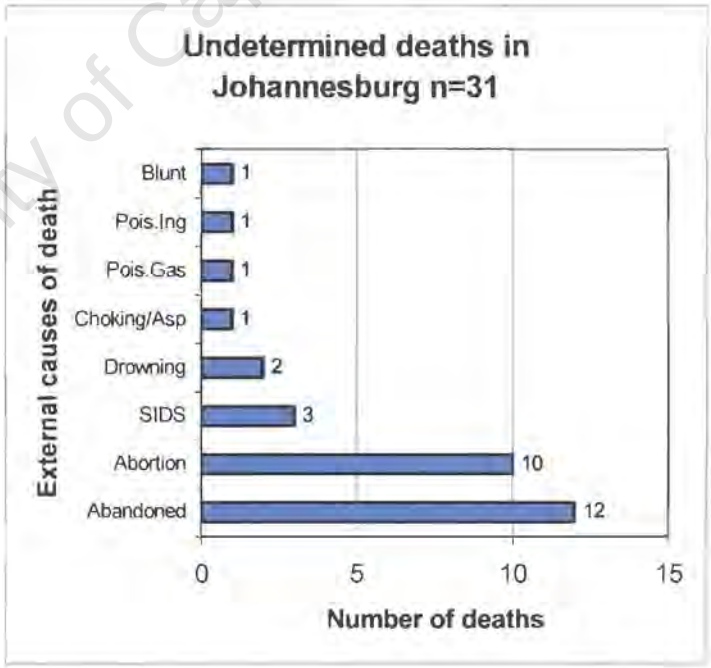


Figure 5.E depicts the external causes of death in homicide, of which 65 were recorded. Amongst the homicidal deaths, firearm homicide accounted for the majority. This was followed by blunt object homicide, homicidal abandonment of babies and sharp object homicide.

1.4. Undetermined deaths [**Figure 5.F**]

Figure 5.F depicts undetermined deaths, i.e. the manner of which could not be ascertained. The number of these deaths recorded was 31.

Abandonment of babies and abortion were the two leading causes of death in this category. SIDS and drowning followed this.



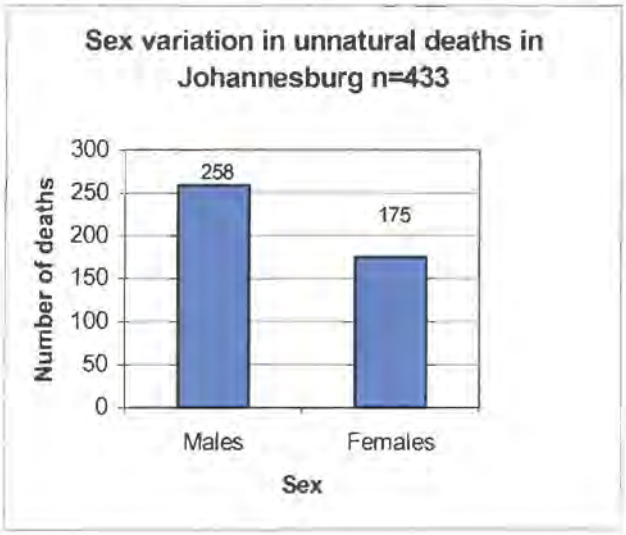
1.5. Suicide

There were 4 suicidal deaths recorded. 3 deaths were by hanging and the other by ingestion of poison.

2. Sex variation in all unnatural deaths

[Figure 5.G]

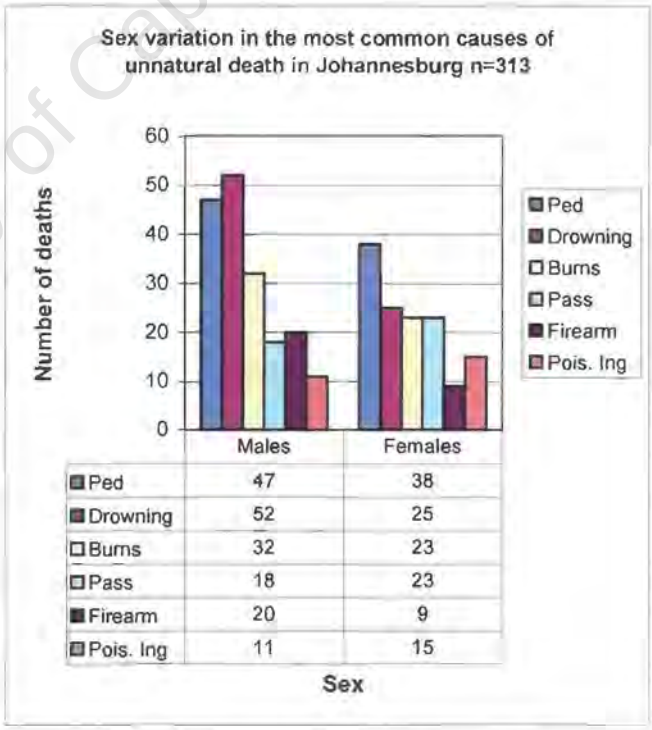
Of the 444 unnatural deaths recorded in Johannesburg, there were only 433 cases in which the sex was recorded **(see Figure 5.G)**



Males accounted for the majority (59.6%) of unnatural deaths.

3. Sex variation in the most common external causes of unnatural deaths

Figure 5.H shows the sex variation in the most common external causes of unnatural deaths in Johannesburg.



Among the males drowning fatalities accounted for the majority of deaths, i.e. 20.2% of the male death total. The 2nd leading cause of their death was MVA pedestrian fatalities. The former outnumbered the latter by only 5 deaths. The 3rd leading cause of their death was burns.

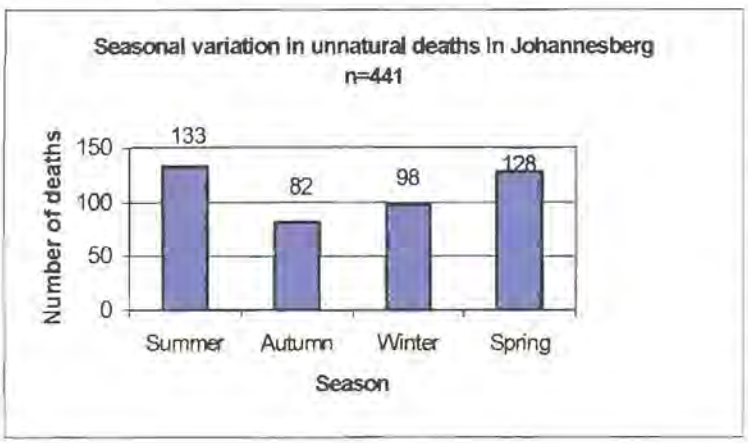
Among the females pedestrian fatalities outnumbered all causes of their deaths, accounting for 21.7% of their death total. The 2nd leading cause of their death was drowning, unlike the male death profile where deaths by drowning minimally outnumbered MVA pedestrian deaths. Amongst the females, MVA pedestrian fatalities significantly outnumbered drowning fatalities, i.e. by 13 deaths. Amongst the females, death by drowning minimally outnumbered burn fatalities, whereas amongst the males, drowning outnumbered burns by 20 deaths. There was, in fact, no significant difference in number of fatalities observed for burns, drowning and MVA passenger fatalities amongst the females. More deaths by ingestion of poison occurred amongst the females than the males, whereas

significantly more firearm fatalities occurred amongst the males than the females - *see Annexure 5, Table 2.*

4. Seasonal variation in all unnatural deaths

[Figure 5.I]

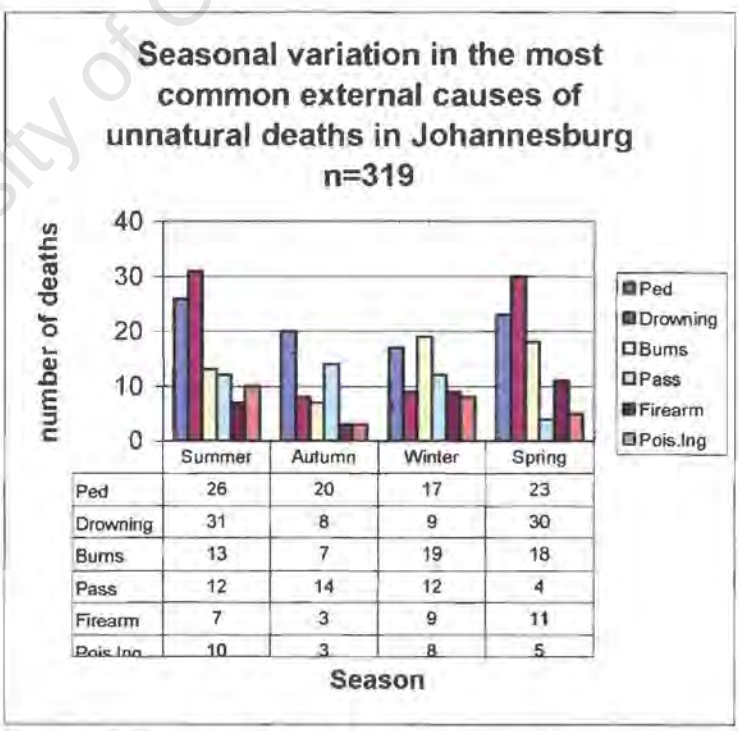
Of the 444 unnatural deaths recorded in this city, in only 441 cases was the season recorded



In Johannesburg the majority (30.2% of all unnatural deaths occurred in Summer, with the 2nd highest number (29%) occurring in the Spring. The 3rd highest number occurred in the Winter, and the least in the Autumn - *see Annexure 5, Table 3.*

5. Seasonal variation in the most external causes of unnatural deaths

[Figure 5.J]

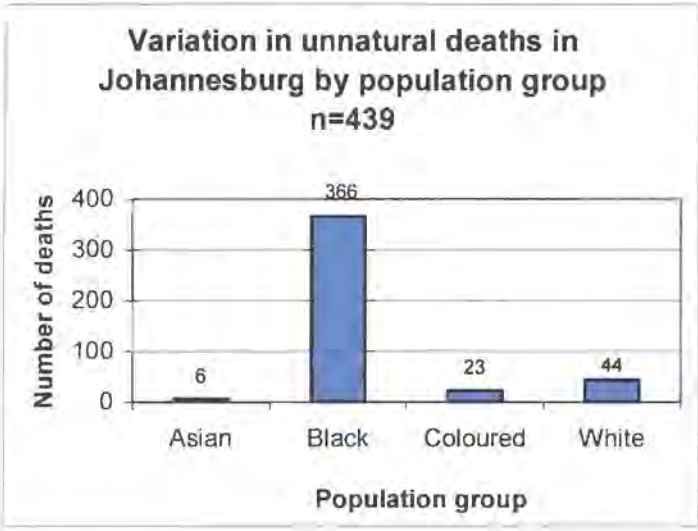


There was no significant seasonal variation noted in MVA pedestrian fatalities. Drowning fatalities, however, appeared to peak in Summer and Spring. The least number of drowning fatalities occurred in Autumn and Winter, with there being no significant difference in the number of drowning fatalities in these two seasons. The highest number of burn fatalities occurred in Winter and Spring, again there being no significant variation between the number of fatalities occurring in these two seasons. The least number of MVA passenger fatalities was recorded in Spring whereas, in the other seasons, there was no significantly variation in the number of fatalities. The least number of firearm fatalities occurred in Autumn whereas, within the other seasons, there was no significant difference in the number of fatalities. The least number of deaths due to ingestion of poison occurred in Autumn whereas, in the other seasons, no significant difference in fatality numbers could be observed.

6. Variation in all unnatural deaths by population group

[Figure 5.K]

Of the 444 unnatural deaths recorded, there were only 439 cases in which population group was recorded [**Figure 5.K**].

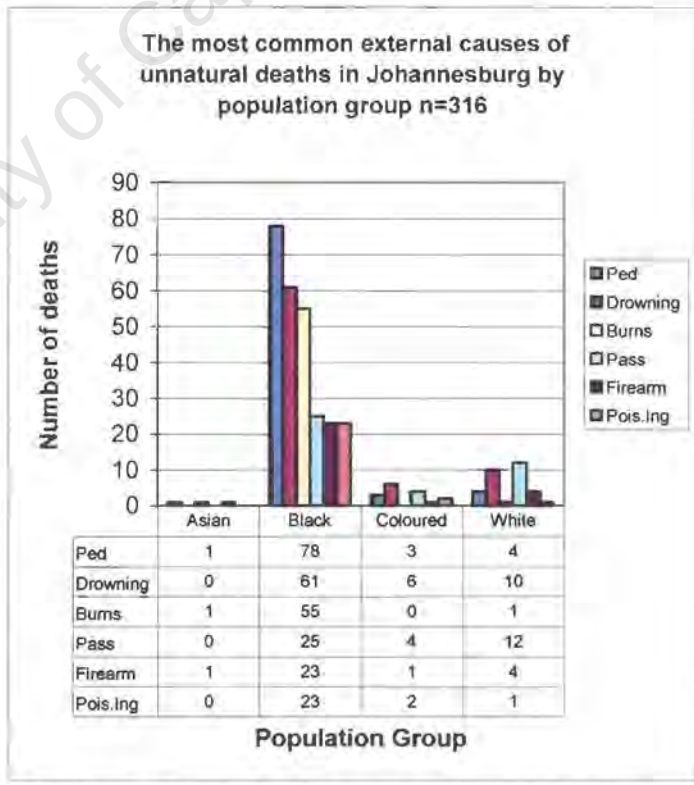


The majority, i.e. 83,4% of all non-natural death in Johannesburg occurred in the Black population group. The White population, followed by the Coloured population had the 2nd and 3rd highest numbers of unnatural fatalities respectively, with the lowest number being recorded in the Asian population group.

7. Variation in the most common causes of unnatural deaths by population group

[Figure 5.L]

The Black population had the highest number of all external causes of death, as demonstrated in the graph. Among the Black population the three leading external causes of death were MVA pedestrian fatalities, drowning and burns. MVA pedestrian fatalities alone accounting for 31.3% of their deaths. There was no significant difference in the number of MVA passenger and firearm fatalities, and fatalities due to ingestion of poison within the Black population group. Drowning, in contrast to the death profile in the Black group, followed by MVA passenger deaths, were the leading causes in the Coloured population, drowning accounting for 26.1% of deaths in this group. There were no burn fatalities recorded in this group, whereas in the Black population burn fatalities accounted for 15% of their deaths - *see Annexure 5, Table 4.*



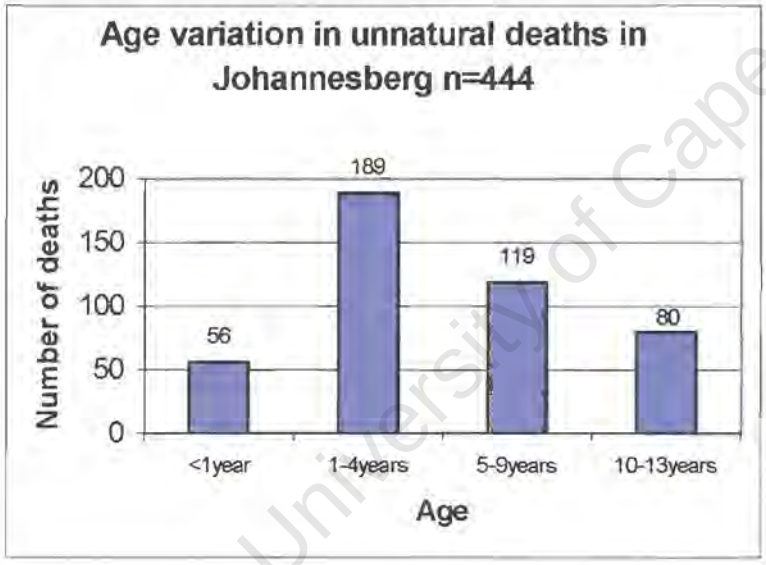
MVA pedestrian fatalities was the 3rd leading external cause of death in the Coloured population group, whereas only two deaths by choking/aspiration and poisoning by ingestion were recorded in this group which, when compared to the Black group, is proportionately significant.

In the White population, MVA passenger deaths, followed by drowning, accounted for the majority of their deaths. MVA passenger deaths only outnumbered drowning fatalities by 2 deaths. Compared to the other population groups, the number of firearm-related deaths was proportionately higher.

Only 6 non-natural deaths were recorded in the Asian population. Interestingly, there were no deaths by drowning recorded in this group.

8. Age variation in unnatural deaths

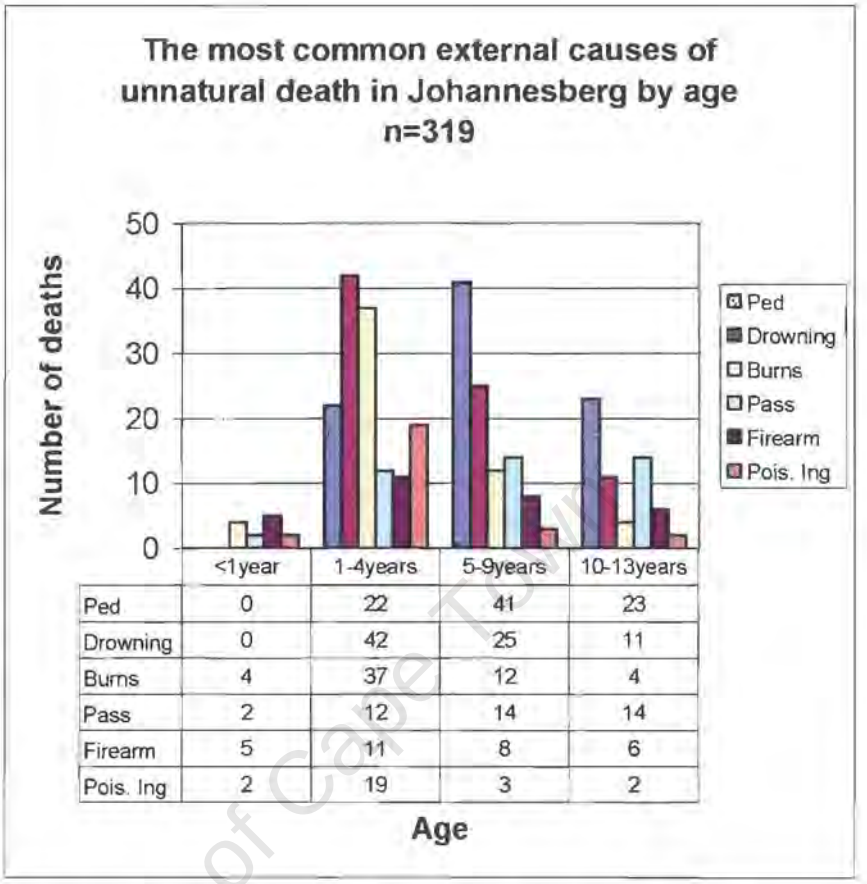
Of the total number of 444 unnatural deaths, in all cases the age was recorded **[Figure 5.M]**



The majority of unnatural deaths (42.6%) occurred in the 1-4 year age group. The 5-9 year age group had the next highest number of fatalities, accounting for 26.8% and the 10-13 year age group the next highest (18%). The least number of fatalities occurred in children less than 1 y ear (12.6%).

9. Age variation in the most common external causes of unnatural death

[Figure 5.N]



	<1year	1-4years	5-9years	10-13years
Ped	0	22	41	23
Drowning	0	42	25	11
Burns	4	37	12	4
Pass	2	12	14	14
Firearm	5	11	8	6
Pois. Ing	2	19	3	2

In the 5-9 year age group, the leading causes of their death included MVA pedestrian fatalities, followed by drowning, MVA passenger and burn deaths. The 10-13 year age group followed the same trend in external causes of death as the aforementioned group.

In the 1-4 year age group, the leading external causes of their deaths included drowning, followed by burns and MVA pedestrian fatalities. It is notable that the highest number of deaths due to ingested poison occurred within this age group. The highest number of firearm fatalities also occurred in this age group. There was no significant difference between the number of firearm fatalities recorded in the 10-13 and 1-4 year age groups, the former age group outnumbering the latter by one 1 death.

With reference to *Annexure 5, Table 5*, in children less than 1 year old, the major external cause of death was due to abortion which accounted for 21.4% of their deaths. This was followed by SIDS. There were no drowning fatalities recorded in this age group, however, there were 4 burn fatalities recorded here, which accounted for 7.1% of their deaths.

10. External cause of death by age and manner

Of the total number of 461 unnatural deaths recorded in Johannesburg, in only 444 cases was the age, apparent manner, and the external cause of death recorded (93.6%)

10.1. Homicide (n=65)
With reference to *Annexure 5, Table 6(a)*, the majority of homicidal deaths occurred in the 1-4 year age group, accounting for 43,1% of the total number of homicides in Johannesburg. Children less than 1 year old accounted for the next highest proportion (24,6%), followed by those aged 5-9 years (18,5%), and those aged 10-13 years(14%). In the 1-4 year age group, firearm homicide accounted for 35,7% of their deaths, followed by blunt object homicide (32,1%). Firearm homicide in this age group accounted for most of the homicide deaths in Johannesburg. In children less than 1 year, abandonment was the leading cause, accounting for 62,5% of their homicidal deaths. In both the 10-13 year and 5-9 year age groups, firearm homicide dominated.

10.2. Suicide(n=4)
There were 4 suicidal deaths recorded in Johannesburg, 3 by hanging and 1 by poison ingestion, all of which occurred in the older age group - *see Annexure 5, Table 6(b).*

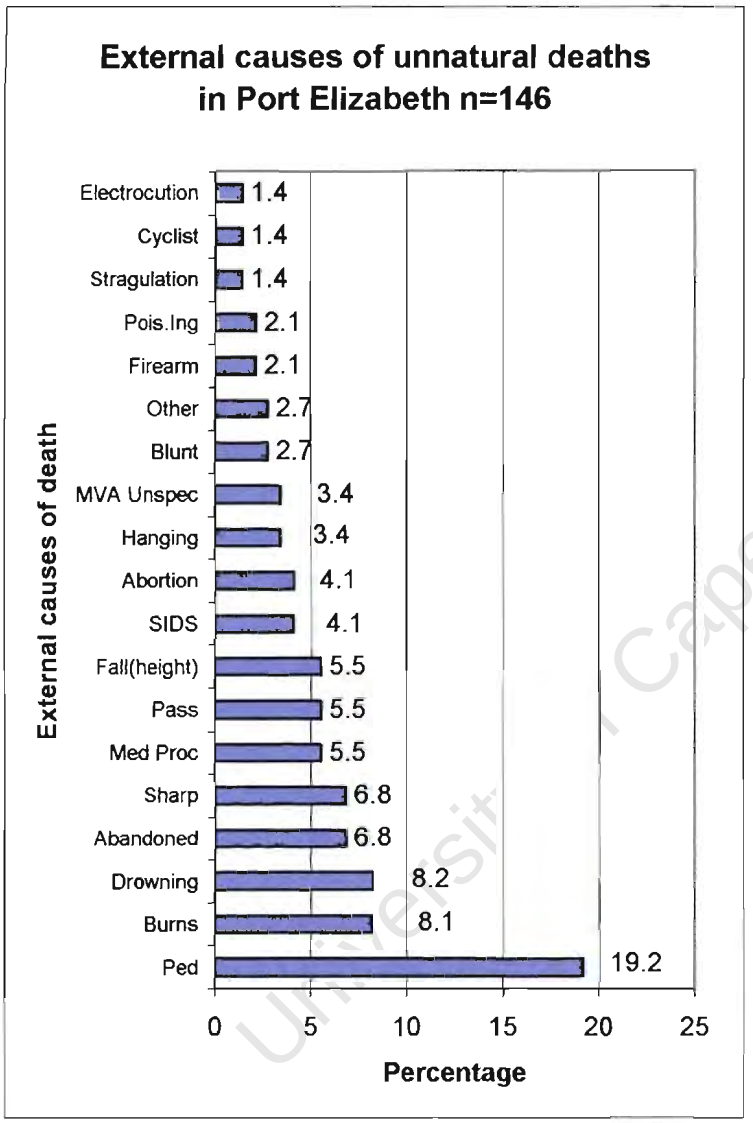
10.3. Other UID's (n=187)
The majority of unintentional injury deaths occurred in the 1-4 year age group, accounting for 58,8% of the total number of deaths by this manner. The 2nd and 3rd highest number of fatalities in this category occurred in the 5-9 year age group (23%) and the 10-13 year age group (10,7%). Drowning and burns were the leading external causes of their deaths - *see Annexure 5, Table 6(c).* The least number of unintentional injury deaths was recorded in the less than 1 year age group (7,5%), the leading external causes being burns (28,6%) and choking/aspiration (21,4%).

10.4.. Transport-related deaths (n=157)
MVA pedestrian fatalities and MVA passenger deaths, accounted for the majority of transport-related deaths, the highest number of MVA pedestrian fatalities being recorded in the 5-9 year age group. This was followed by the 10-13 year and 1-4 year age groups, there being a difference of only 1 death between them - - *see Annexure 5, Table 6(d).*

10.5. Undetermined deaths (n=31)
Of the 31 deaths which by manner were undetermined, the majority occurred in children less than 1 year of age (72,4%). Abortion/Stillbirth and SIDS were the leading external causes of death in this category. The 2nd highest number of undetermined deaths was recorded in the 1-4 year age group, where the leading external cause of death was medical procedure related - - *see Annexure 5, Table 6(e).*

PORT ELIZABETH

There were 156 natural fatalities and 152 unnatural fatalities recorded in Port Elizabeth. Of the 152 unnatural deaths, there were only 146 cases in which the external cause of death and the manner of death was recorded. **Figure 6.A** depicts the causes of unnatural deaths in this city.

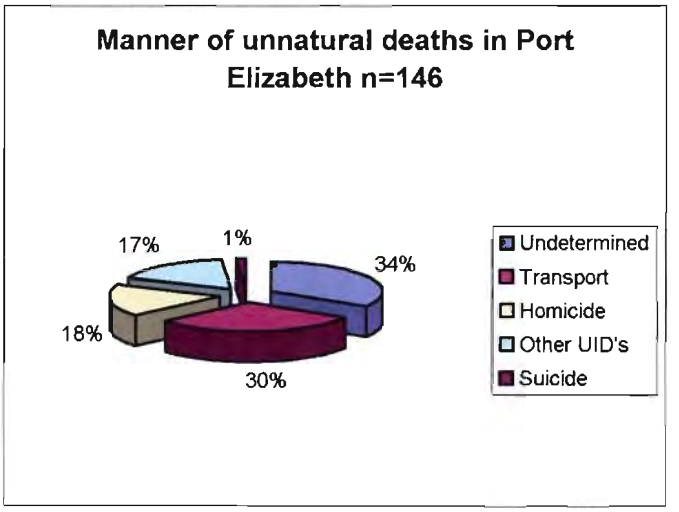


MVA pedestrian fatalities accounted for the majority of deaths. Burns, drowning, abandonment, sharp object, medical procedure related deaths, MVA passenger deaths and falls from a height followed this. There were 4 deaths which were designated miscellaneous other. These deaths accounted for 2.7%. 1 deaths was recorded as having been due to dehydration. In the other 3 cases, the cause of death was not recorded.

Manner of death

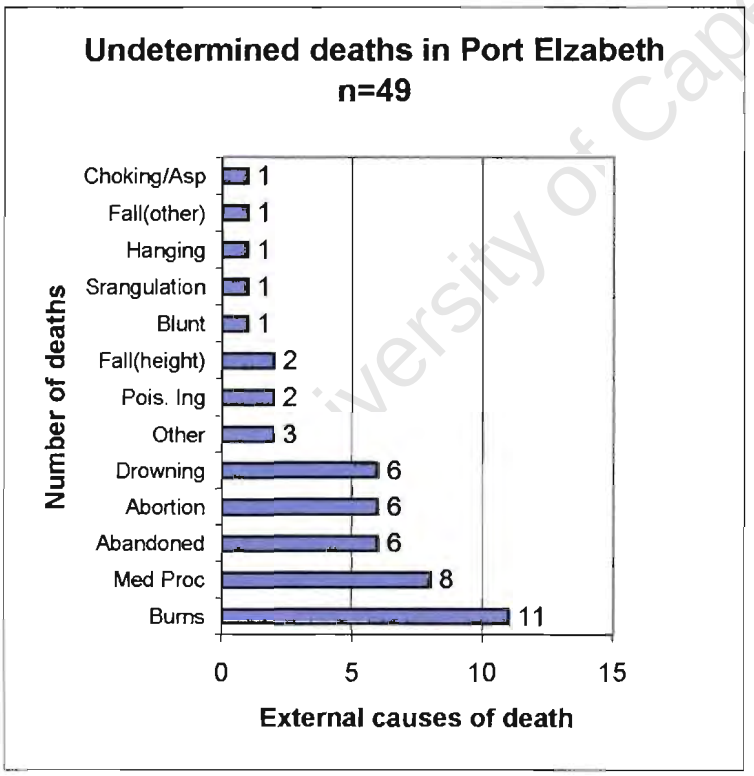
Figure 6.B depicts the manner of death

In this city, undetermined deaths accounted for the majority of unnatural deaths (34%) This was followed by transport-related deaths which accounted for 30%, homicide (18%) and other UID's (17%). There were only 2 suicidal deaths in Port Elizabeth, which accounted for 1% of all manner of deaths in this city - *see Annexure 6, Table 1.*



1. External causes of death by manner

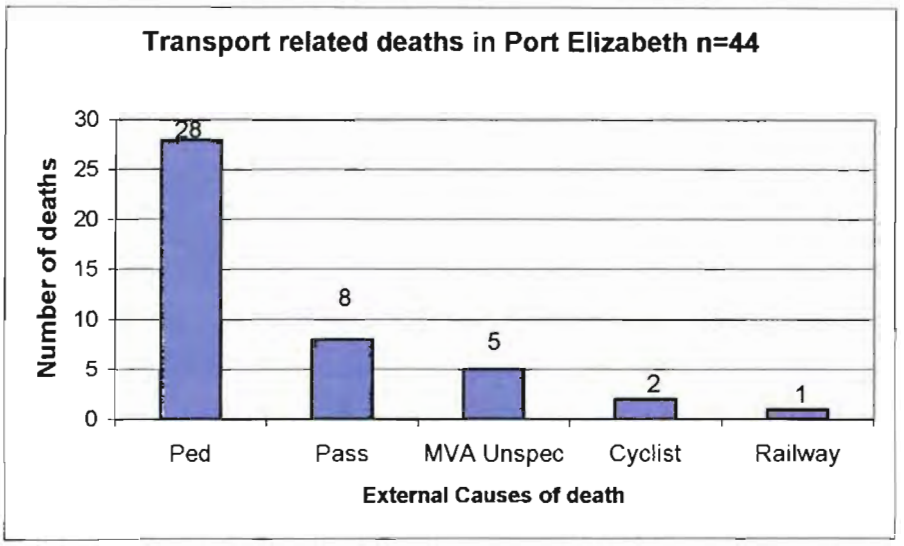
1.2.Undetermined deaths **[Figure 6.C]**



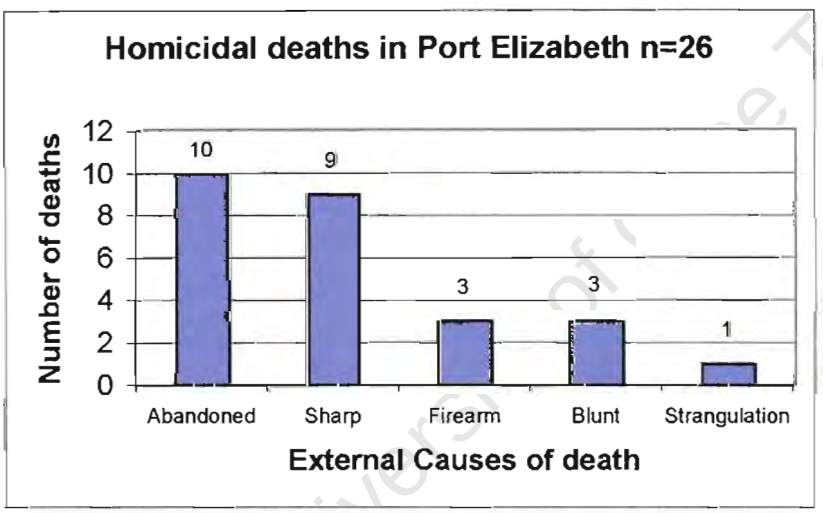
Burns, medical procedure related deaths, abandonment, abortion and drowning were the leading external causes of death in this category. Burns accounted for 22.5% of all undetermined deaths, whilst medical-procedure related deaths accounted for 16.3%.

1.2. Transport-related deaths **[Figure 6.D]**

As is evident, MVA pedestrian fatalities accounted for the majority.



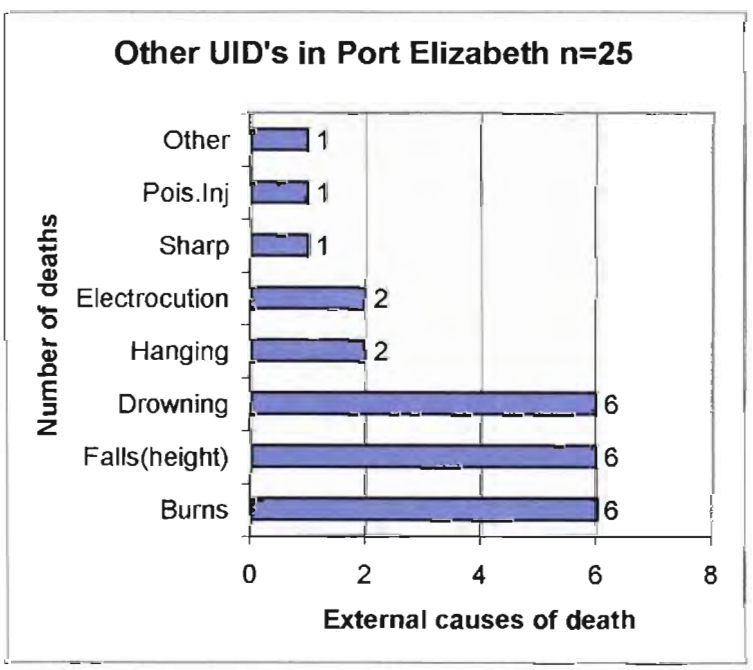
1.3. Homicidal deaths **[Figure 6.E]**



Abandonment and sharp object homicide accounted for the majority of deaths, 38.5% and 34,6% of the total number of homicide deaths. Firearm homicide and blunt object homicide each accounted for 11.5%.

1.4.Other UID's **[Figure 6.F]**

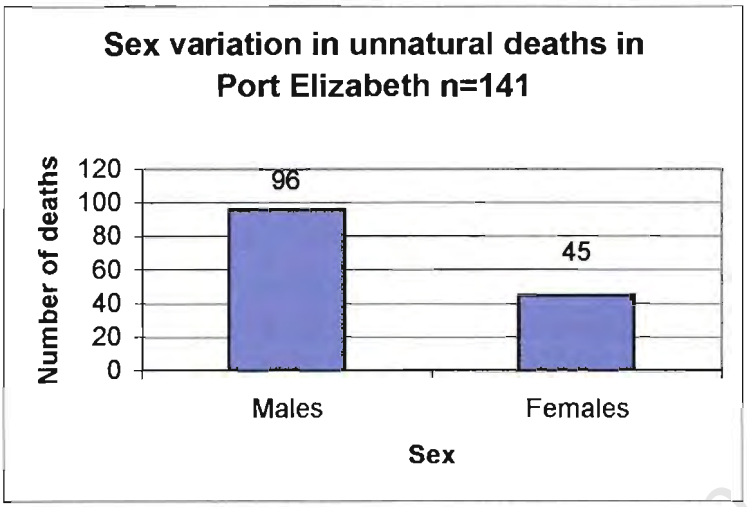
Burns, followed by falls from a height and drowning accounted for the majority of deaths in this category.



1.5.Suicide
There were 2 suicidal deaths recorded in this city, both of which were due to hanging
.

2. Sex variation of all unnatural deaths

[Figure 6.G]
Of the total number of 152 fatalities, there were only 142 cases for which sex was recorded.

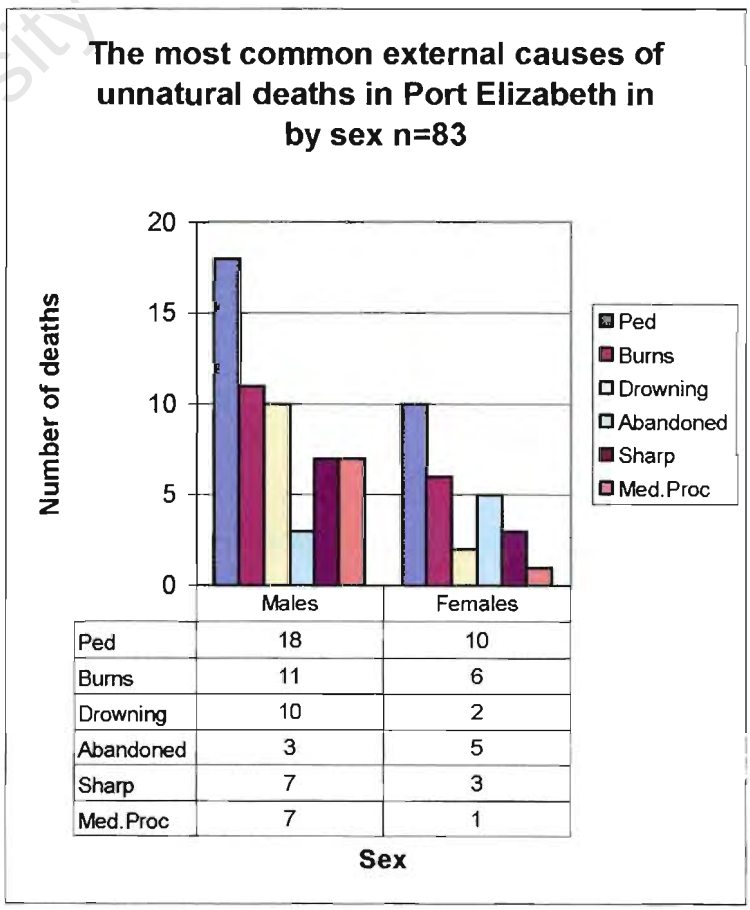


Males accounted for the majority of deaths (68.1%).

3. Sex variation in the most common external causes of unnatural death

[Figure 6.H]

Amongst both males and females, MVA pedestrian fatalities and burns were the leading external causes of their deaths. Drowning amongst the males was the 3rd leading cause of their deaths, whereas amongst the females it was abandonment. There were more deaths due to sharp object and medical procedures amongst the males than the females. With reference to *Annexure 6, Table 2*, in deaths due to falls from heights, medical procedure related deaths and drowning, males far outnumbered females (7 to 1 and 5 to1 respectively). In contrast, males outnumbered females modestly in the transport-related death categories, i.e. MVA pedestrian and passenger



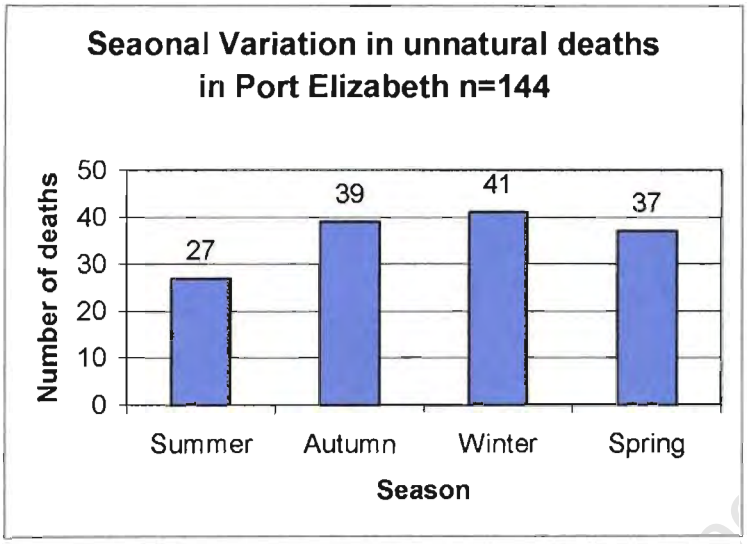
	Males	Females
Ped	18	10
Burns	11	6
Drowning	10	2
Abandoned	3	5
Sharp	7	3
Med.Proc	7	1

deaths. There were 2 male victims for every 1 female victim in MVA pedestrian fatalities, and 3 males for 1 female in MVA passenger deaths.

4. Seasonal variation in all unnatural deaths

[Figure 6.I]

Of the total number of 152 unnatural deaths recorded in this city, there were 144 (94.7%) of cases for which the month of death was recorded.

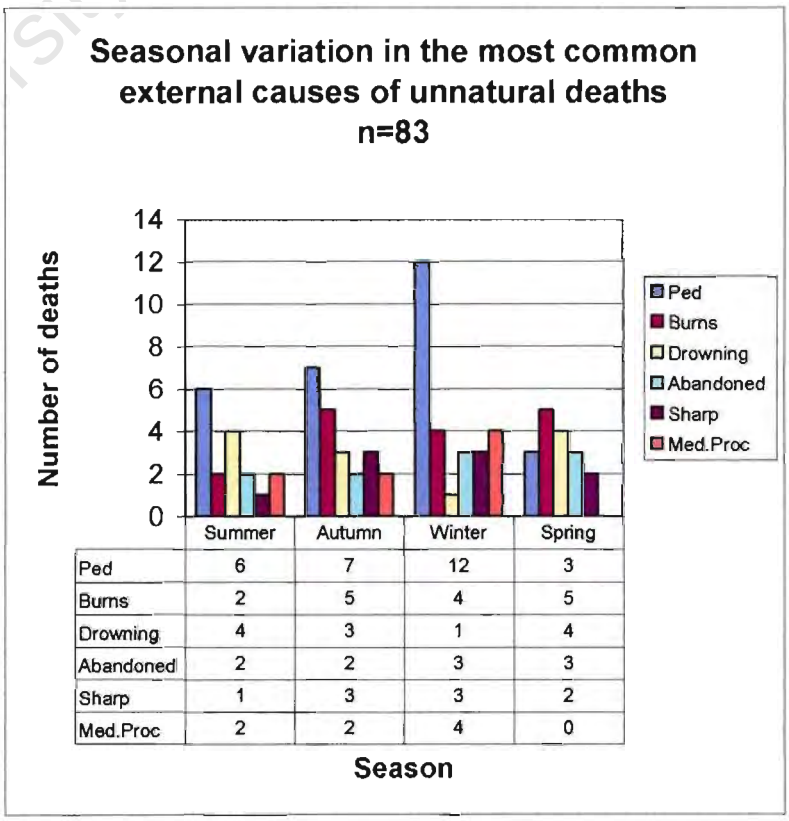


The majority of deaths occurred in the Winter and Autumn months. The least occurred in the Summer months - *see Annexure 6, Table 3.*

5. Seasonal variation in the most common external causes of unnatural deaths

[Figure 6.J]

In all the seasons, except for Spring, MVA pedestrian fatalities accounted for the majority of deaths, peaking in Winter. In Spring the majority of deaths were due to burns. There was, however, no significant seasonal trends in burn fatalities. Although the lowest number of drowning fatalities occurred in Winter, no significant seasonal trend was observed in this death category, due to the number of fatalities being small. There were also no significant seasonal trends noted in the other external causes of death.

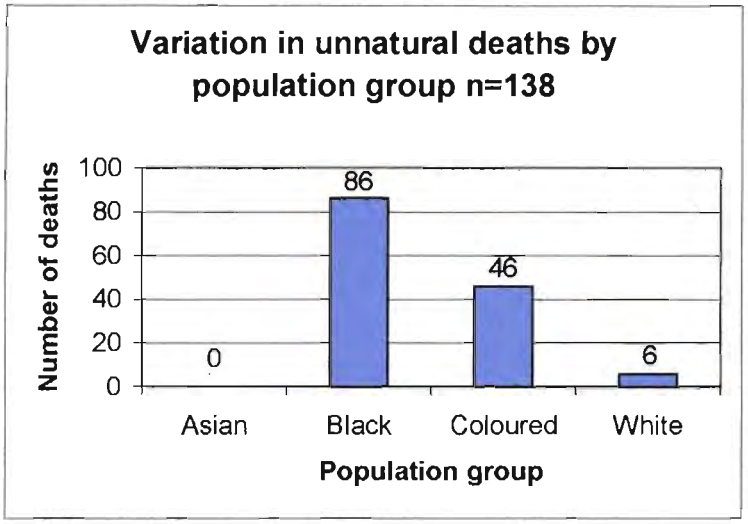


	Summer	Autumn	Winter	Spring
Ped	6	7	12	3
Burns	2	5	4	5
Drowning	4	3	1	4
Abandoned	2	2	3	3
Sharp	1	3	3	2
Med.Proc	2	2	4	0

6. Variation in all unnatural deaths by population group

[Figure 6.K]

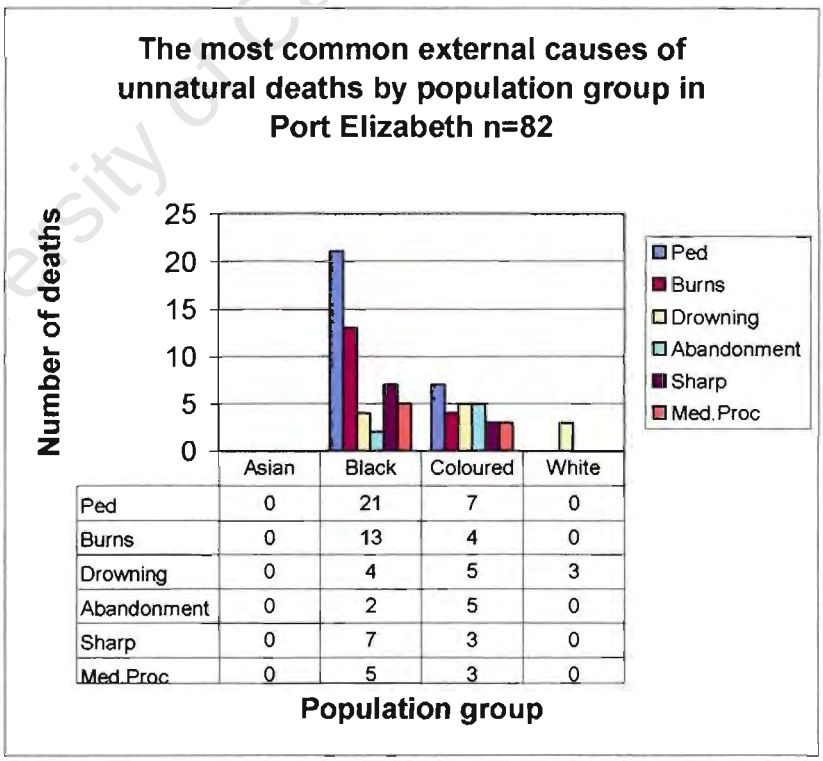
Of the 152 fatalities, there were only 138 cases in which the population group was recorded.



The majority of unnatural fatalities occurred in the Black population (62.3%). The Coloured population had the 2nd highest number of fatalities which accounted for 33.3. The White population had the least number of deaths. No Asian child fatalities were recorded in Port Elizabeth.

7. Variation in the most common causes of death by population group

[Figure 6.L]



Amongst the Black population, the leading external cause of their deaths was MVA pedestrian fatalities which accounted for 24.4%. Burns, followed by sharp object and medical procedure related deaths were the other leading causes of their deaths.

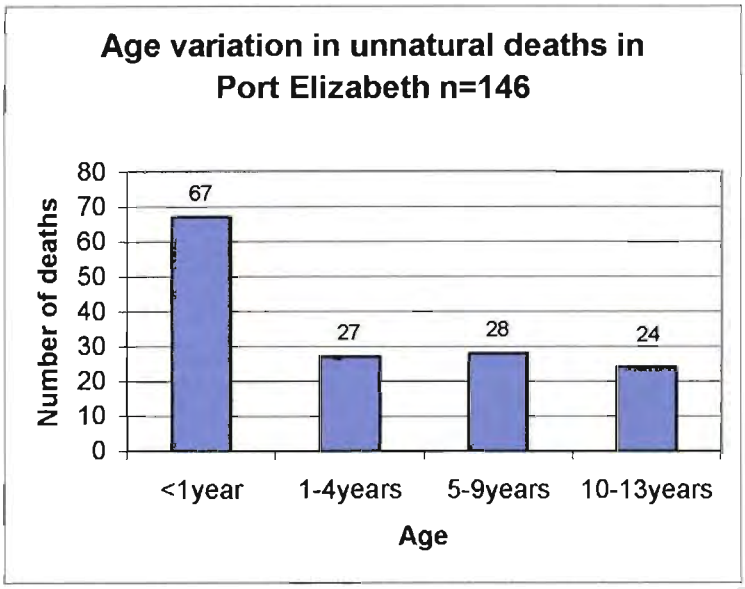
Amongst the Coloured population, MVA pedestrian fatalities also accounted for the majority (15.2%). This was followed by deaths due to drowning, abandonment and burns. The number of fatalities due to sharp object and deaths which were associated with medical procedures were higher in the Black population than in the Coloured population.

In the White population, there were no MVA pedestrian fatalities recorded. However, drowning fatalities accounted for 50% of their deaths - *see Annexure 6, Table 4.* Other fatalities recorded in this group were a fall from a height, death due to electrocution and a passenger death.

8. Age variation in all unnatural deaths

[Figure 6.M]

Of the 152 unnatural fatalities, in only 146 cases was the age recorded.

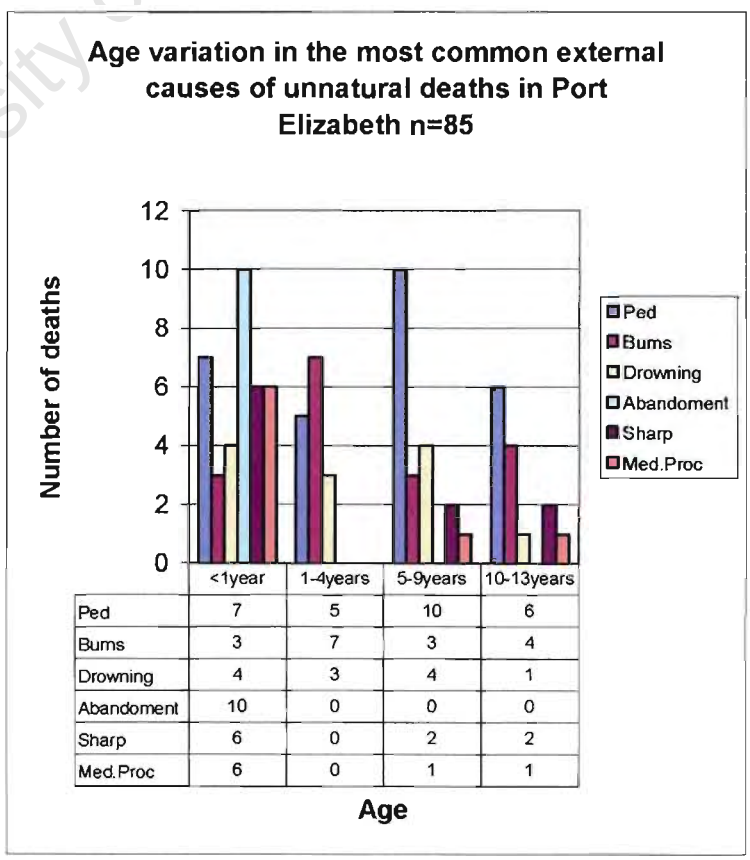


The majority of unnatural deaths occurred in children less than 1 year age. Deaths in this age group accounted for 45.9% of all unnatural deaths in this city. The next highest number of fatalities occurred in the 5-9, 1-4 and 10-13 year age group.

9. Age variation in the most common causes of unnatural death

[Figure 6.N]

The highest number of MVA pedestrian fatalities was recorded in the 5-9 year age group and the next highest in the less than 1 year age group, the 10-13 and the 1-4 year age groups. The majority of burn fatalities however occurred in children 1-4 years, followed by those aged 10-13 years. There was no difference in the number of burn fatalities recorded in the less than 1 year and 5-9 year age groups.



	<1year	1-4years	5-9years	10-13years
Ped	7	5	10	6
Bums	3	7	3	4
Drowning	4	3	4	1
Abandoment	10	0	0	0
Sharp	6	0	2	2
Med.Proc	6	0	1	1

The majority of drowning fatalities occurred in the 5-9 and less than 1 year age groups, the next highest being in the 1-4 year age group, and the least in children aged 10-13 years. With reference to *Annexure 6, Table 5*, abandonment was the leading external cause of death in the less than one year age group; the highest number of sharp object and medical procedure related deaths

occurred in this age group, whilst only a few fatalities due to the aforementioned external causes of death occurred in the 5-13 age group.

10. External cause of death by age and manner

Of the total number of 152 unnatural deaths recorded in Port Elizabeth, in only 146 cases was the age, apparent manner, and the external cause of death recorded (96.1%).

10.1. Homicide (n=26)

The majority of homicidal deaths occurred in the less than 1 year age group (80,8%). Abandonment, followed by sharp object homicide were the leading external causes of death in this age group. In the 5-9 and 10-13 year age groups, there were only 3 deaths by sharp object, accounting for 33,3% of all sharp object homicides, whereas 66,7% of these deaths occurred in the less than one year age group. As the number of firearm and blunt object homicides in this city was small, no significant age trend could be established. However, it would appear that most of these deaths occurred in the less than one year age group - *see Annexure 6, Table 6(a).*

10.2. Suicide (n=2)

There were 2 cases of suicide by hanging recorded in this city, both of which occurred in the 10-13 year age group - *see Annexure 6, Table 6(b).*

10.3. Other UID's (n=25)

The majority of deaths by this manner occurred in the less than 1 year age group (44%), followed by the 1-4 year age group (28%). The number of unintentional injury deaths declined in the older age groups. There was no significant variation in the fatality rates recorded for children less than 1 year of age - *see Annexure 6, Table 6(c).*

10.4. Transport-related deaths (n=44)

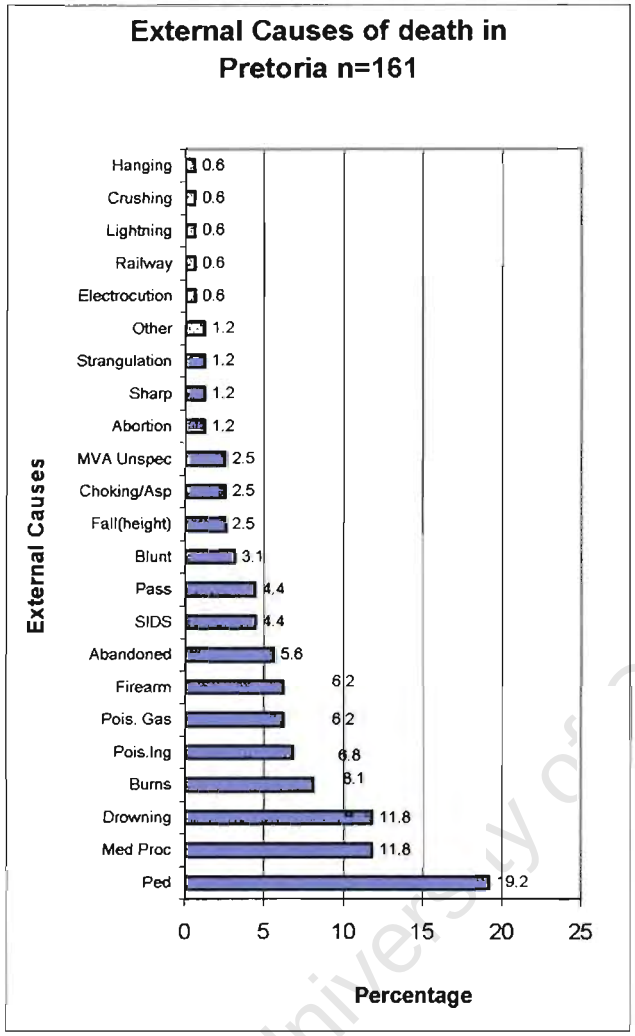
Most transport related deaths occurred in the 5-9 year age group (35,5%), and the less than 1 year age group (25%). The next highest number occurred in the 10-13 year age group (21,4%) and the least in the 1-4 year age group (17,9%) - *see Annexure 6, Table 6(d).*

10.5. Undetermined deaths (n=49)

Most of these deaths occurred in the less than 1 year age group (53,1%) where abortion, SIDS and medical procedure related deaths were the 3 leading external causes, each accounting for 23,1% to the total number of undetermined deaths - *see Annexure 6, Table 6(e).* The 1-4 and 5-9 year age groups had the 2nd and 3rd highest number of undetermined deaths. In the former age group, burns (45,5%) accounted for the most of their deaths and in the latter age group, it was drowning (57,1%).

PRETORIA

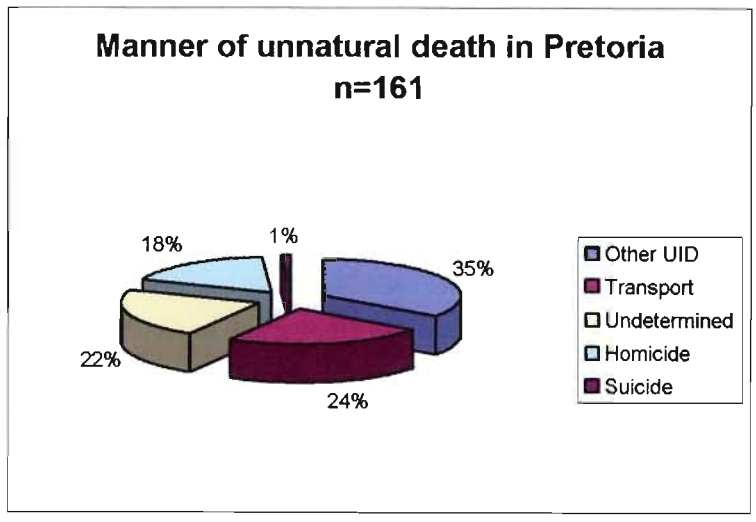
There were 14 natural fatalities and 172 unnatural fatalities recorded in Pretoria. Of the 172 deaths, in only 161 cases was the manner of death recorded. **Figure 7.A** shows the external causes of death in this city.



MVA Pedestrian fatalities, medical procedure related deaths, drowning, burns, poisoning by ingestion, poisoning by gassing and firearm deaths accounted for the majority. There was 1 death recorded as "miscellaneous other". The actual external cause of this death was not, however, reported.

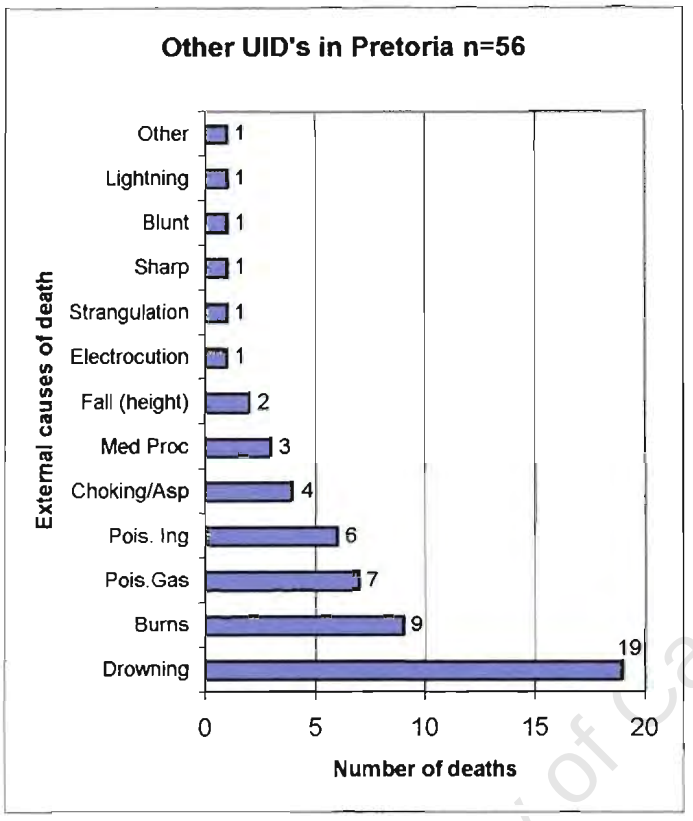
Manner of death **[Figure 7.B]**

Other UID's, followed by transport-related deaths (23.6%) accounted for the highest percentage of all manners of unnatural death in Pretoria. Undetermined deaths had the 3rd highest percentage. and homicidal deaths had the 4th highest. Suicide accounted for 1% of deaths in this city - *see Annexure 7, Table 1.*



1. External causes of death by manner

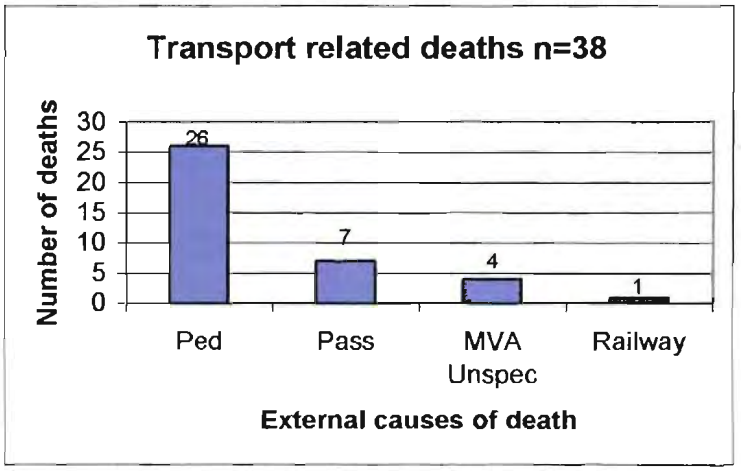
1.1. Other UID's **[Figure 7.C]**



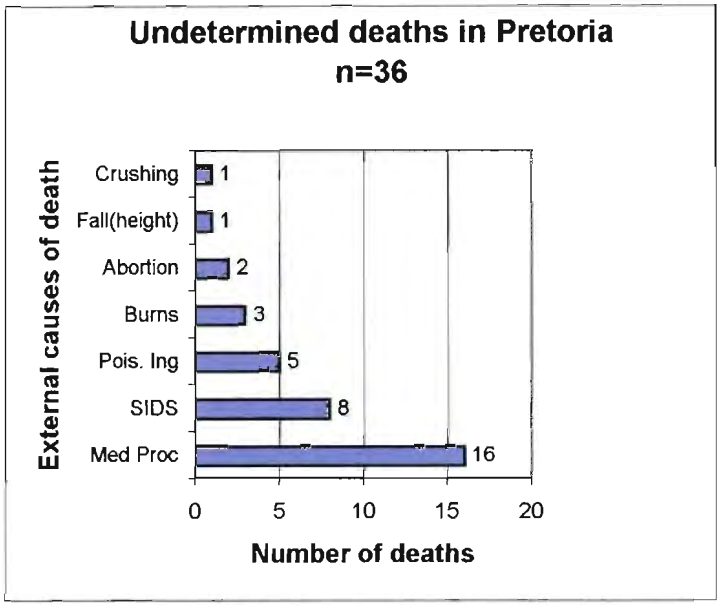
Drowning, followed by burns, poisoning by gassing and then poisoning by ingestion accounted for the majority.

1.2. Transport-related deaths **[Figure 7.D]**

MVA pedestrian fatalities, followed by MVA passenger fatalities, accounted for the majority of transport-related deaths. Only 1 railway death was recorded in this city.



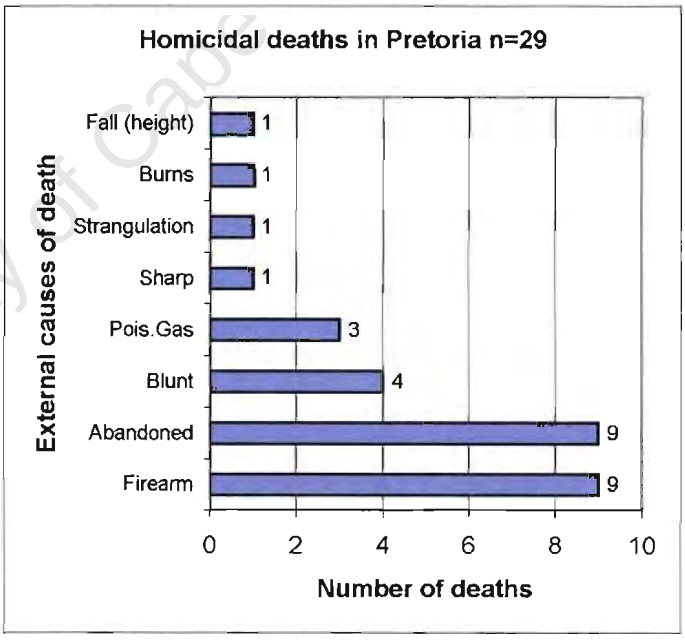
1.3. Undetermined deaths **[Figure 7.E]**



There were 36 undetermined deaths recorded in Pretoria. Of these, medical procedure related deaths, SIDS and poisoning by ingestion accounted for the majority.

1.4. Homicidal deaths **[Figure 7.F]**

There were 29 homicidal deaths recorded. Of these, firearm deaths, abandonment, blunt object and poisoning by gassing accounted for the majority. Only 1 death by sharp object, strangulation, burns and fall from a height was recorded.

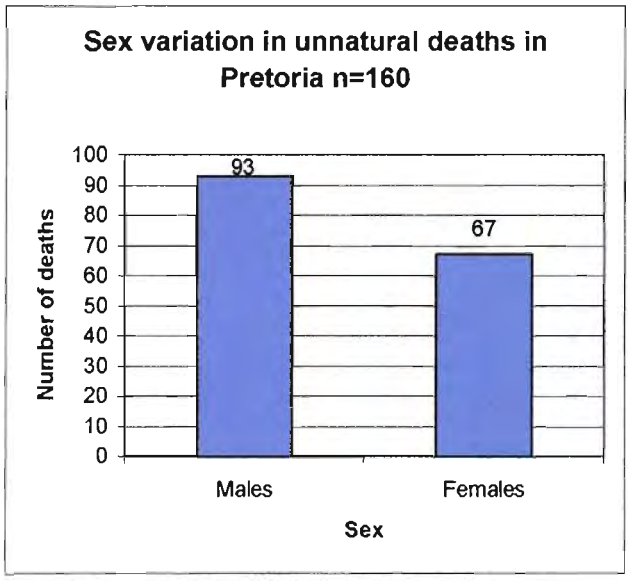


1.5. Suicide

There were only 2 suicidal deaths, namely a firearm death and a death by hanging.

2. Sex variation in all unnatural deaths

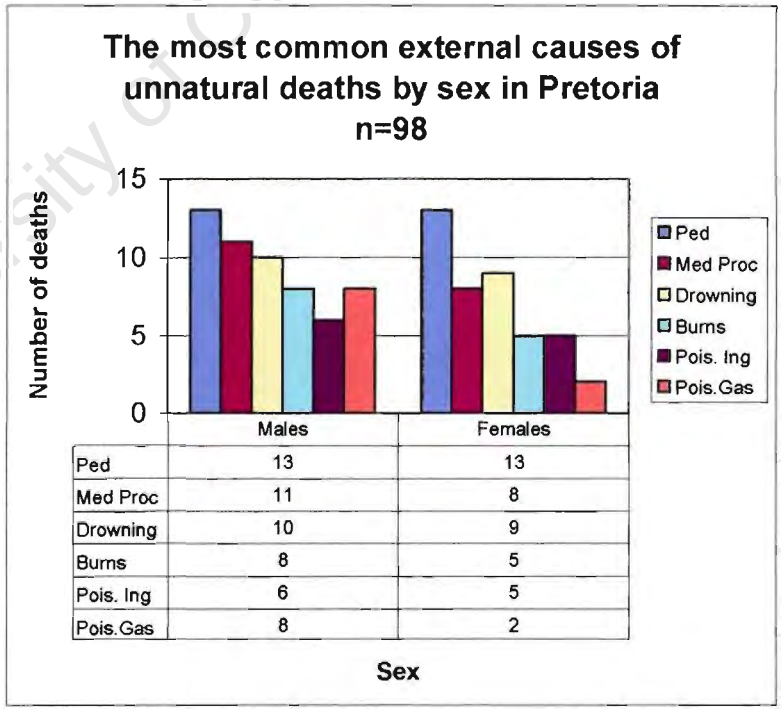
[Figure 7.G]



Males accounted for the majority of unnatural deaths (58.1%).

3. Sex variation in the most common external causes of death

[Figure 7.H]



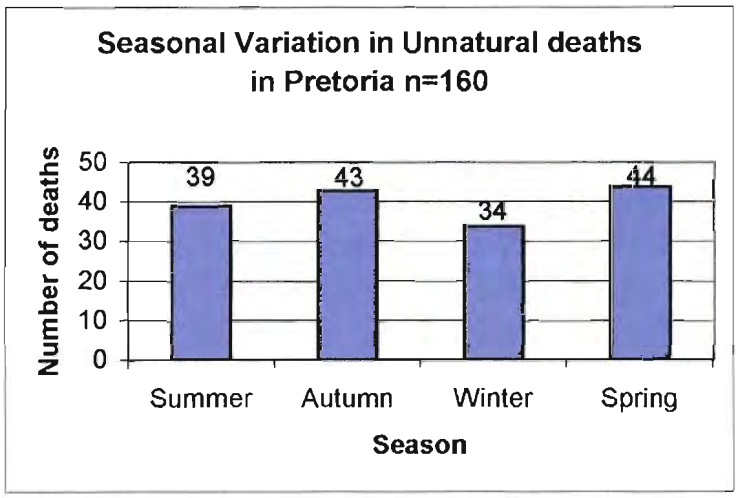
	Males	Females
Ped	13	13
Med Proc	11	8
Drowning	10	9
Burns	8	5
Pois. Ing	6	5
Pois.Gas	8	2

MVA pedestrian fatalities amongst both sexes accounted for the majority of deaths. Amongst the males, the 2nd and 3rd leading external cause of their deaths was medical procedure related deaths and drowning. Amongst the females, it was also drowning and medical procedure related deaths, the former outnumbering the latter by only 1 fatality. Amongst the males, a higher number of burn fatalities and poisoning by gassing was recorded compared to the females. Amongst the females, an equal number of burn fatalities and poisoning by ingestion was recorded. With reference to *Annexure 7, Table 2*, in burn deaths, firearm deaths and SIDS, males outnumbered females by 2 to 1, whereas in deaths due to poisoning by gassing they outnumbered the females 4 to 1.

4. Seasonal variation in all unnatural deaths

[Figure 7.I]

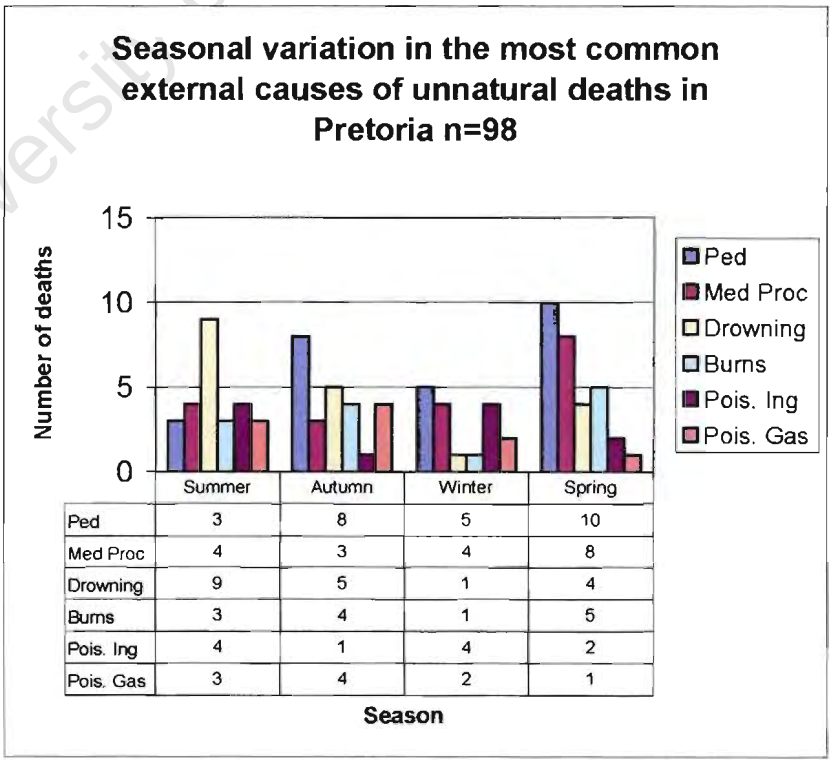
Of the 161 unnatural fatalities recorded in Pretoria, in only 160 cases was the month of death was recorded.



The majority of deaths occurred in the Spring (27,5%). The next highest number of deaths occurred in the Autumn (26.8%) and Summer (24.3%). The least occurred in Winter (21.3%) - *see Annexure 7, Table 3.*

5. Seasonal variation in the most common external causes of death

[Figure 7.J]



	Summer	Autumn	Winter	Spring
Ped	3	8	5	10
Med Proc	4	3	4	8
Drowning	9	5	1	4
Burns	3	4	1	5
Pois. Ing	4	1	4	2
Pois. Gas	3	4	2	1

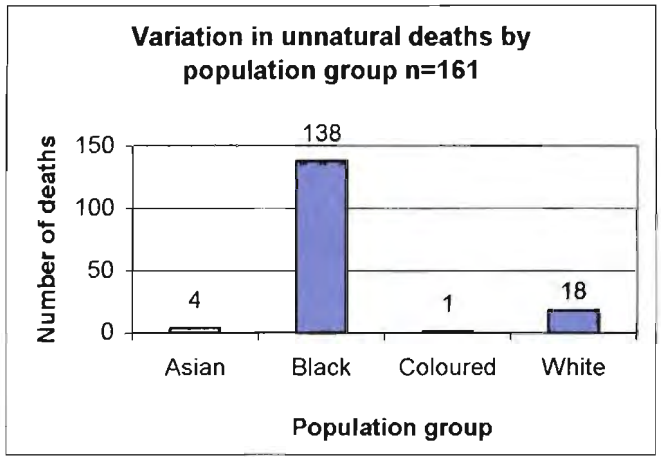
In all seasons, apart from Summer, MVA pedestrian fatalities accounted for the majority of deaths. In Summer, however, it was drowning fatalities which accounted for the majority. The majority of medical procedure related deaths occurred in the Spring, there being no significant variation noted within the other seasons. The highest number of burn fatalities was also recorded in Spring. Interestingly, the least occurred in Winter. There was no significant seasonal variation noted in fatalities due to poisoning by gassing. The highest number of deaths due to poisoning by ingestion however, occurred in the Summer and Winter.

In Winter, both MVA pedestrian fatalities and deaths due to abandonment, were the leading external causes of death. There was no seasonal variation noted in the firearm-related deaths. Due to the number of SIDS cases being small, no seasonal variation could be established.

6. Variation in all unnatural deaths by population group

[Figure 7.K]

Of the total number of 172 fatalities, in only 161 cases was the population group recorded.



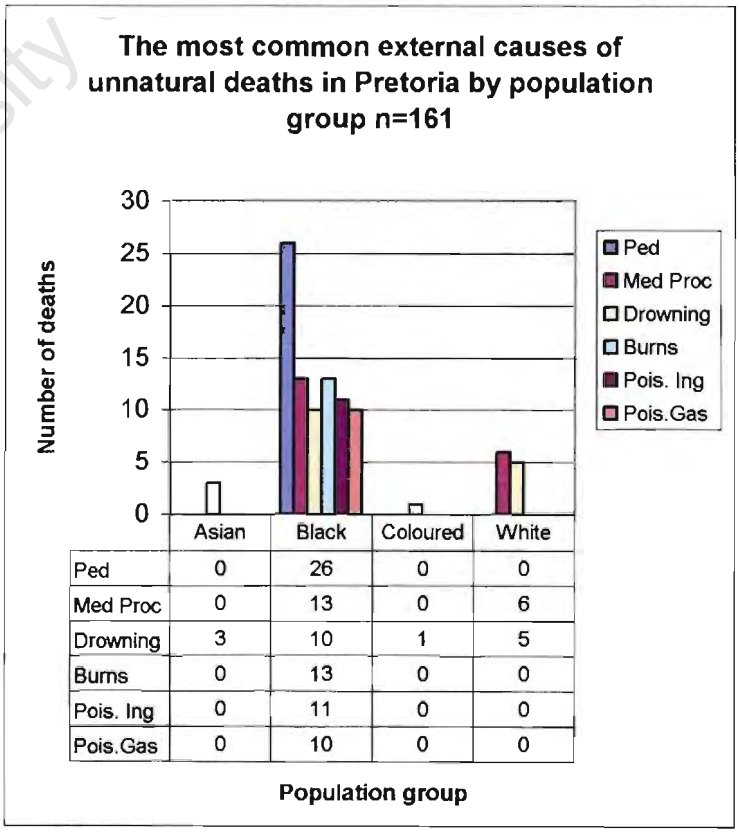
The highest number of unnatural deaths occurred in the Black population group (85.7%). The next highest number occurred in the White population group (11.2%), followed by the Asian group (2.5%) and Coloured group (0.62%).

7. Variation in the most common external causes of death by population group

[Figure 7.L]

The highest number of deaths due to the specified external causes, occurred in the Black population group. In the Black population, MVA pedestrian fatalities, outnumbered all the other external causes of death. With reference to *Annexure 7, Table 4*, MVA pedestrian fatalities accounted for 18.8% of their deaths, whilst both medical procedure related deaths and burns each accounted for 9.4%.

In the White population, medical procedure related deaths was the leading external cause of their deaths, followed by drowning and firearm deaths.



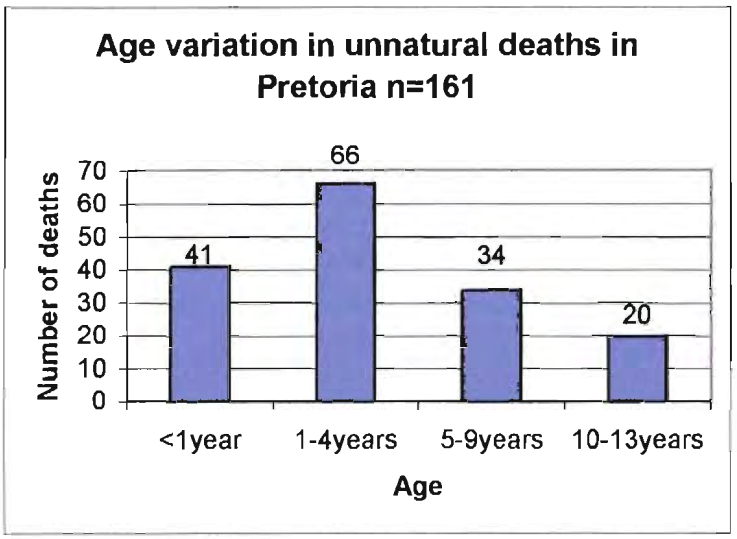
	Asian	Black	Coloured	White
Ped	0	26	0	0
Med Proc	0	13	0	6
Drowning	3	10	1	5
Burns	0	13	0	0
Pois. Ing	0	11	0	0
Pois.Gas	0	10	0	0

The number of fatalities recorded in the Asian population was small, i.e. 4 deaths, of which 3 were due to drowning. The other included death by abandonment.

A single death in the Coloured population was recorded and this was due to drowning.

8. Age variation in all unnatural deaths

[Figure 7.M]

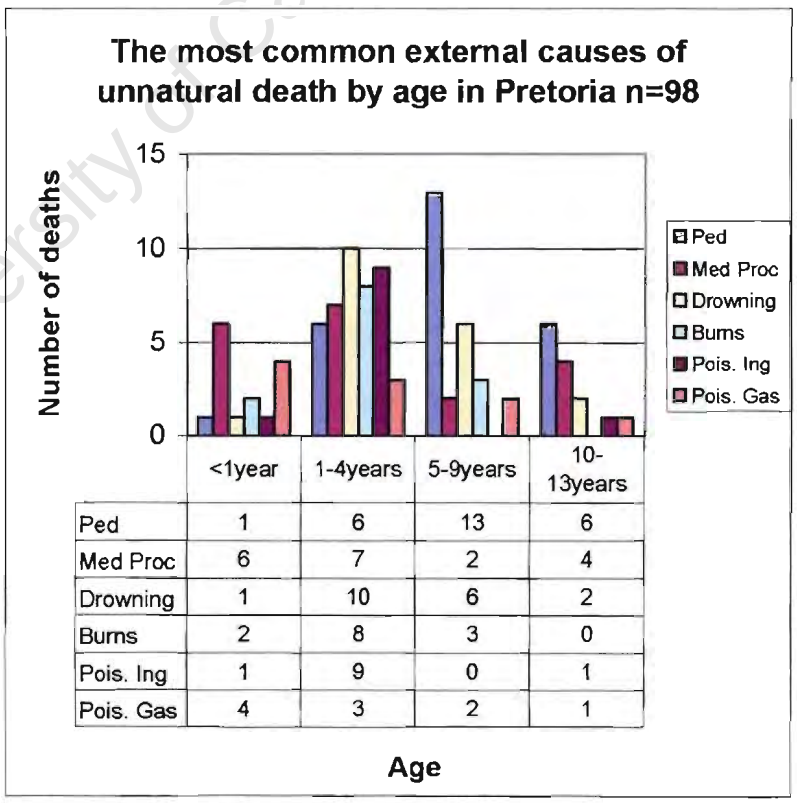


It is evident that the majority of unnatural deaths occurred in the 1-4 year age group (41%) and the next highest occurred in children less than 1 year (25.5%). The 5-9 year age group accounted for the 3rd highest number of deaths, and the least occurred in the 10-13 year age group.

9. Variation in the most common external causes of death

[Figure 7.N]

MVA pedestrian fatalities peaked in the 5-9 year age group, whereas drowning fatalities peaked in the 1-4 year age group. All of the specified external causes of unnatural death appear to have occurred in the 1-4 year age group and in children less than 1 year. The least number of deaths due to the specified external causes of death occurred in the less than one year age group, apart from poisoning by gassing. Interestingly, fatalities due to poisoning by gassing occurred in all age groups, the highest number, however, was recorded in children less than 1 year.



	<1year	1-4years	5-9years	10-13years
Ped	1	6	13	6
Med Proc	6	7	2	4
Drowning	1	10	6	2
Burns	2	8	3	0
Pois. Ing	1	9	0	1
Pois. Gas	4	3	2	1

In children less than 1 year, the leading external cause of their death was found to be abandonment (22%), followed by medical procedure related deaths and SIDS - *see Annexure 7, Table 5.*

Most 10-13 year age olds, like in the 5-9 year olds, died in MVA pedestrian accidents. Other external causes of death in the 10-13 year age group for which high

numbers were recorded included medical procedure related deaths and firearm related deaths. This age group had the second highest firearm-related death figure in comparison to the other age groups. The 1-4 year age group had the highest figure.

10. External cause of death by age and manner

Of the total number of 172 unnatural deaths recorded in Pretoria, in only 161 cases was the age, apparent manner, and the external cause of death recorded (93.6%)

10.1. Homicide (n=29)

With reference to *Annexure 7, Table 6 (a)*, the majority of homicidal deaths occurred in the less than one year age group, accounting for 51,7% of the total number of homicidal deaths. The second highest number of homicidal deaths (27,6%) was recorded in the 1- 4 year age group, the number declining within the consecutive higher age groups. In children less than 1 year old, the leading homicidal external cause of their death was abandonment, whereas in the 1- 4year age group, it was firearm related. No significant age variation could be established in the other external causes of deaths due to homicide.

10.2. Suicide (n=2)

Of the 2 suicidal deaths, one by hanging and one by firearm, both occurred in the older child - *see Annexure 7, Table 6(b).*

10.3. Other UID's (n=56)

With reference to *Annexure 7, Table 6 (c)*, the majority of deaths by this manner occurred in the 1-4 year age group (58,9%), where drowning and burns were found to be the leading external causes of death. The second highest number of other UID's occurred in the 5-9 year age group, with drowning being the leading external cause. There was no significant difference in the total number of fatalities by this manner in the 10-13 and less than 1 year age groups, the latter age group outnumbering the former by only 1 death.

10.4. Transport-related deaths (n=38)

The majority of transport-related deaths occurred in the 5-9 year age group (42,1%), followed by the 1-4 year age group (28,9%). The 10-13 year age group had the third highest number of transport-related deaths (18,4%) whilst the least was recorded in the less than 1 year age group (10,5%) - *see Annexure 7, Table 6 (d).*

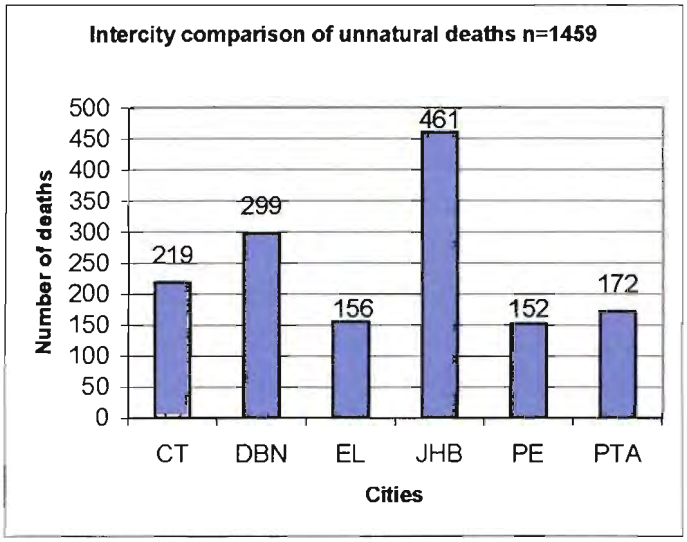
10.5. Undetermined deaths (n=36)

The majority of undetermined deaths occurred in the less than 1 year age group, where SIDS, followed by medical procedure related deaths were the leading external causes. The 1-4 year age group accounted for the second highest number of undetermined deaths, where the leading external cause of death was medical procedure related - *see Annexure 7, Table 6 (e).*

Chapter 5

INTERCITY COMPARISON

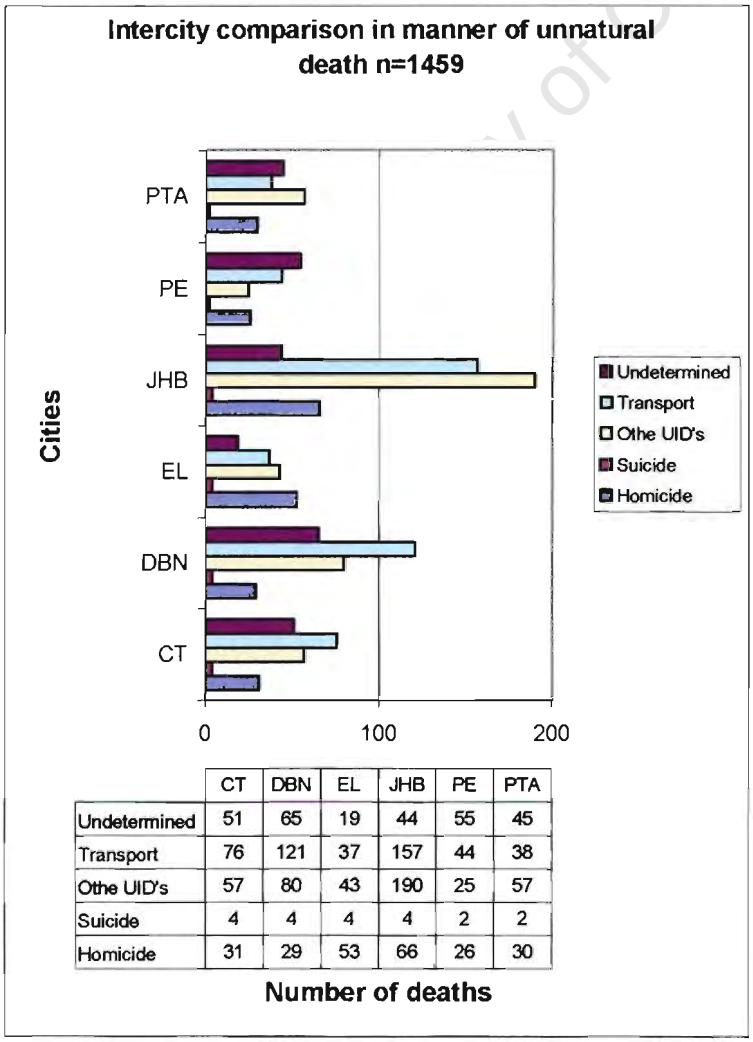
Intercity comparison of all unnatural deaths [Figure 8.A]



Annexure 8, Table1

The highest number of unnatural deaths was recorded in Johannesburg which accounted for 31.6% of the total number. The next highest number was recorded in Durban, Cape Town, Pretoria, East London and Port Elizabeth. Durban and Cape Town accounted for 20.5% and 50% of the death total, whilst Pretoria and East London accounted for 11.8% and 10% respectively. Port Elizabeth accounted for the least percentage, i.e. 10.4%- see

Intercity comparison in manner of unnatural deaths [Figure 8.B]



	CT	DBN	EL	JHB	PE	PTA
Undetermined	51	65	19	44	55	45
Transport	76	121	37	157	44	38
Othe UID's	57	80	43	190	25	57
Suicide	4	4	4	4	2	2
Homicide	31	29	53	66	26	30

In both Cape Town and Durban, the manner of death by rank were similar. In both cities, the leading manner of death was transport-related, the 2nd and 3rd leading manner of death being other UID's, undetermined and homicidal deaths.

In Johannesburg and Pretoria, the leading manner of death was other UID's. In Johannesburg, the other manners of death in order of rank included transport-related, homicide and undetermined deaths. In Pretoria, however, it included undetermined deaths, transport-related and homicidal deaths.

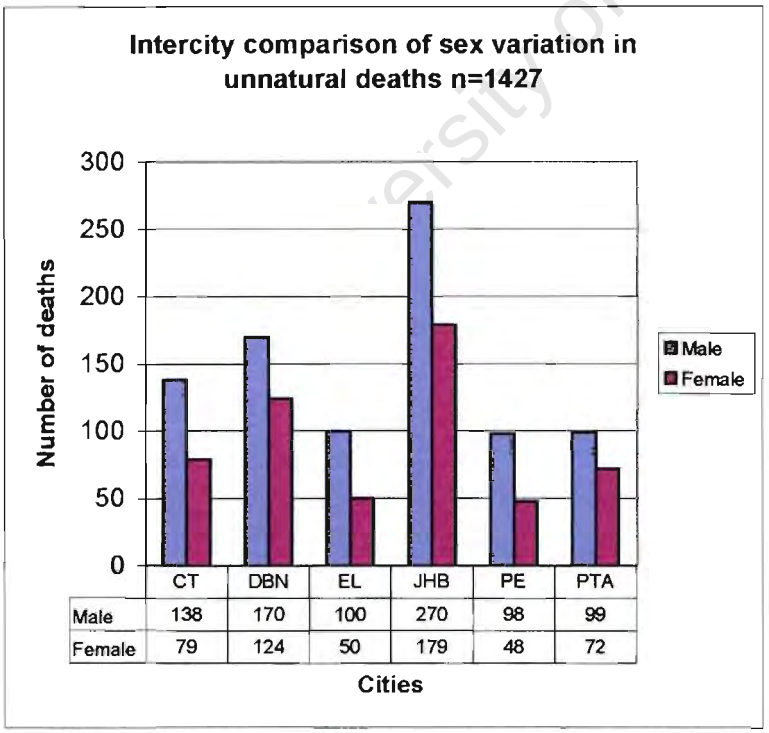
In East London, the leading manner of death was homicide, whereas in Port Elizabeth it was undetermined deaths. The other manners of death in

East London in order of rank included other UID's, transport-related and undetermined deaths. In Port Elizabeth it was transport-related deaths, other UID's and homicide.

In all 6 cities, deaths by suicide ranked the lowest.

With reference to *Annexure 8, Table 2*, the proportion of transport-related deaths in Pretoria and East London were similar, i.e. 23.7% and 23.1%. The highest proportion of transport-related deaths was recorded in Durban and the next highest in Cape Town, Johannesburg and Port Elizabeth. The highest proportion of other UID's was recorded in Johannesburg, and the next highest in Pretoria. The proportion of deaths by this manner in Cape Town, Durban and East London was very similar. The least proportion was present in Port Elizabeth. The highest proportion of homicide was recorded in East London. The homicide proportions were similar in Port Elizabeth and Pretoria, these two cities accounting for the next highest homicide proportion. The homicide proportion in Cape Town and Johannesburg were also similar. The least proportion was noted in Durban. With regards to undetermined deaths, the highest proportion was recorded in Port Elizabeth. Proportions of deaths by the aforementioned manner were similar in Cape Town, Durban and Pretoria. The 2nd lowest proportion was recorded in East London, and the lowest in Johannesburg. The highest proportion of suicides was recorded in East London, whilst proportions recorded amongst the other cities did not differ significantly.

Inter-city comparison of sex variation in all unnatural deaths.
Of the 1459 fatalities, there were only 1427 cases for which the sex was recorded (97.8%) **[Figure 8.C]**



	CT	DBN	EL	JHB	PE	PTA
Male	138	170	100	270	98	99
Female	79	124	50	179	48	72

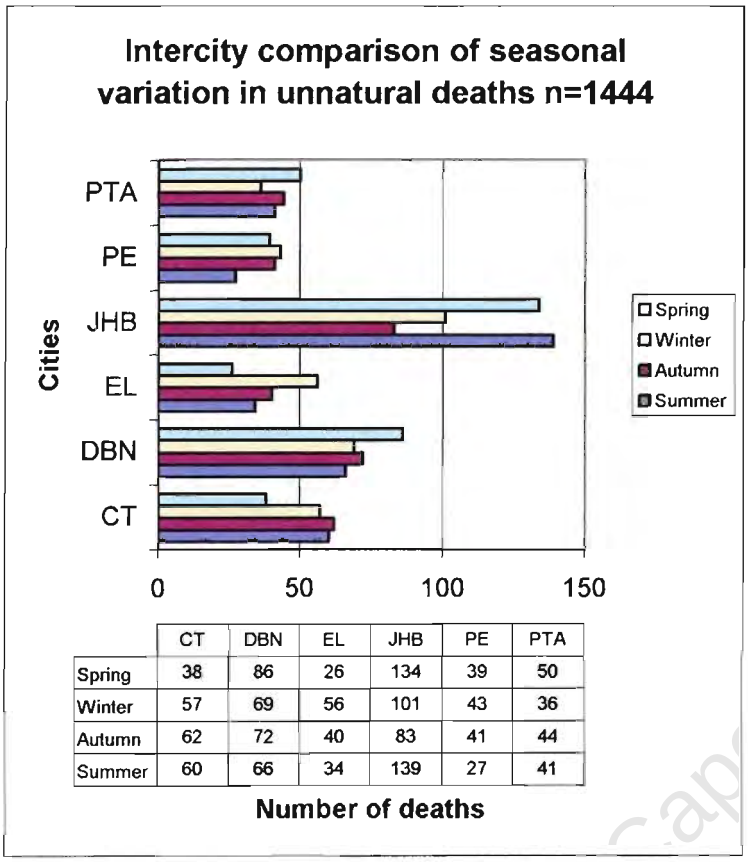
In all cities unnatural deaths in males outnumbered the female deaths. The males accounted for 61.3% of the total number of unnatural deaths.

With reference to *Annexure 8, Table 3*, of the total number of male deaths, Johannesburg, Durban and Cape Town accounted for the highest proportions, i.e. 30.9%, 19.4% and 15.8% respectively, whilst East London, Port Elizabeth and Pretoria each accounted for an equal proportion (11.4%).

Of the total number of female fatalities, the three former cities also represented the highest proportions, i.e. 32.4%, 22.5% and 14.3% respectively.

Intercity comparison of seasonal variation in unnatural deaths

Of the total number of 1459 unnatural deaths, there only 1444 cases in which the month of death was recorded (99%). **[Figure 8.D]**

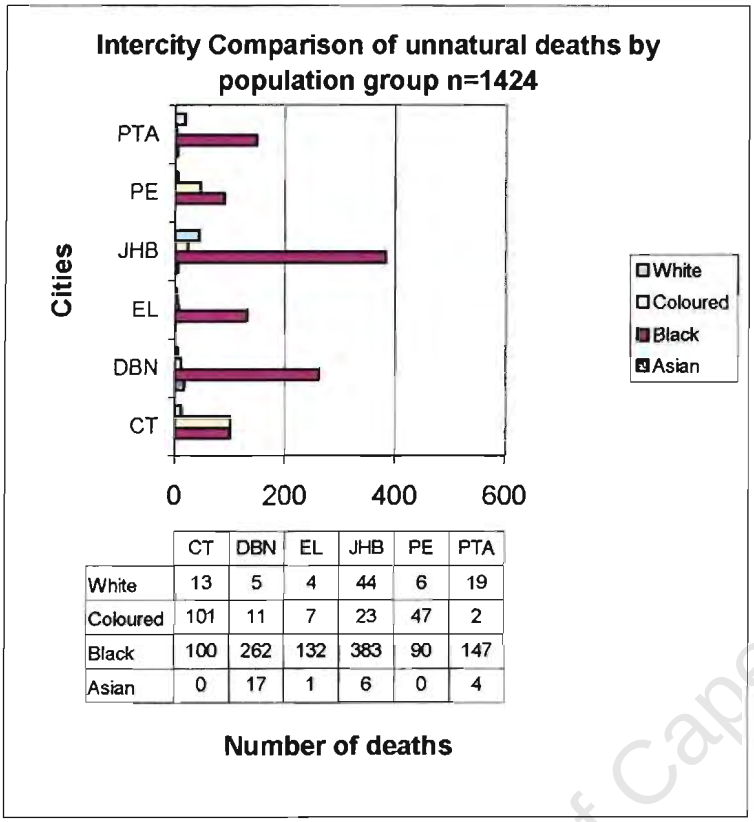


	CT	DBN	EL	JHB	PE	PTA
Spring	38	86	26	134	39	50
Winter	57	69	56	101	43	36
Autumn	62	72	40	83	41	44
Summer	60	66	34	139	27	41

In Johannesburg, unnatural deaths peaked in the Spring and Summer, there being no significant difference in the number of deaths recorded in these seasons. The next highest number of fatalities occurred in the Winter, followed by Autumn. In Durban and Pretoria, more unnatural deaths occurred in the Spring. In both of these cities, there was no significant difference noted in the number of deaths which had occurred in the other seasons. In Cape Town and East London, the least number of deaths occurred in the Spring. Whereas the highest number of unnatural fatalities occurred in the Winter in East London, in Cape Town, however, no significant difference in the number of fatalities was found to be present in the Winter, Autumn or Summer months. In Port Elizabeth, the least number of unnatural deaths occurred in the Summer months. There was, however, no significant difference in the number of fatalities present in the other seasons. The highest number of fatalities, however, did occur in the Winter months.

With reference to *Annexure 8, Table 4*, in all seasons, Johannesburg accounted for the highest proportion of unnatural deaths. During Summer and Autumn, Johannesburg, followed by Durban and Cape Town accounted for the highest proportions of unnatural deaths within these seasons. During Summer, however, Johannesburg not only accounted for the highest proportion, but the proportion was significantly higher than that recorded in the other 5 cities. In Autumn, although Johannesburg did account for the highest proportion of deaths in this season, it did not differ significantly from the recorded in Durban. In Winter, although Johannesburg did account for the highest proportion of unnatural deaths in this season, it was significantly higher than those recorded in the other 5 cities. There was no significant difference in the proportions represented by the other cities in this season. In Spring, again Johannesburg, followed by Durban accounted for the highest proportion of unnatural deaths in this season. There was no significant difference in the proportion represented by Cape Town (10.2%), Port Elizabeth (10.5%) and Pretoria (13.4%). The least proportion of unnatural deaths for this season was represented by East London.

Intercity comparison of unnatural deaths by population group
Of the 1459 fatalities, there were only 1424 cases (47.6%) in which the population group was recorded **[Figure 8.E]**

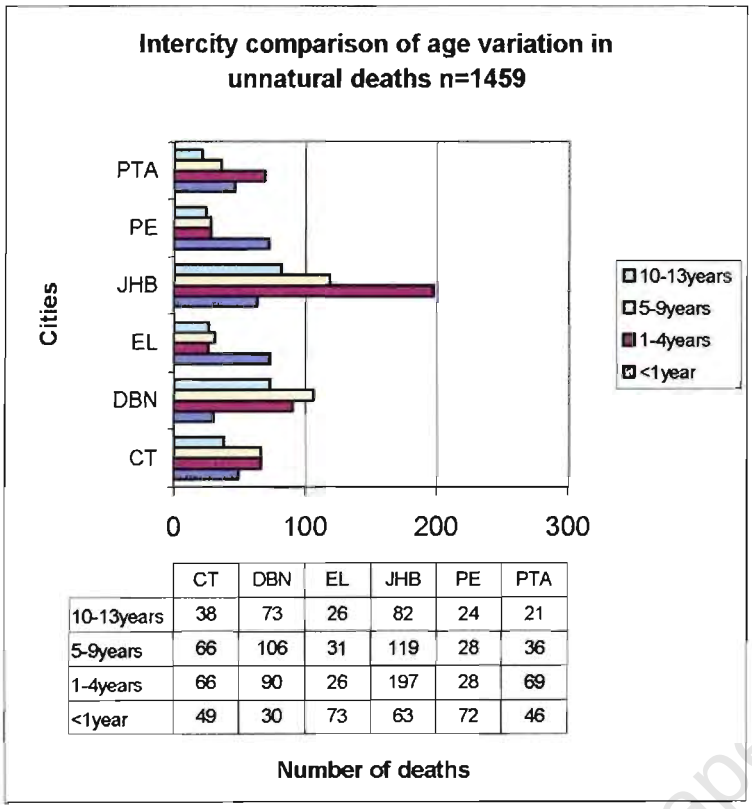


	CT	DBN	EL	JHB	PE	PTA
White	13	5	4	44	6	19
Coloured	101	11	7	23	47	2
Black	100	262	132	383	90	147
Asian	0	17	1	6	0	4

In all cities, apart from Cape Town, the highest number of unnatural deaths occurred within the Black population. In Cape Town, however, there was no significant difference in the number of unnatural deaths within the Black and Coloured population groups.

With reference to *Annexure 8, Table 5,* within the Black population Johannesburg accounted for the highest proportion of their unnatural deaths. The next highest proportion was represented by Durban (23.5%), Pretoria (13.2%) and East London (11.8%). In Cape Town and Port Elizabeth, the proportion was less than one-tenth (8.9% and 8.1%). The highest proportion of unnatural deaths in the Coloured population was represented by Cape Town (52.9%) and the next highest by Port Elizabeth (24.6%). In Durban, Pretoria, and East London, unnatural deaths in the Coloured population accounted for less than one-tenth of the total Coloured population death figure. The highest proportion of unnatural deaths within the White population was represented by Johannesburg (48.4%), and the next highest by Pretoria (20.9%) and Cape Town (14.3%). Durban, East London and Port Elizabeth each represented less than one-tenth of unnatural deaths in this population group. There were only 28 unnatural deaths in the Asian population, with Durban accounting for the highest proportion (60.7%). The next highest proportion was represented by Johannesburg, Pretoria and East London. No unnatural deaths occurred within the Asian population in Cape Town nor in Port Elizabeth.

Intercity Comparison of the age distribution of unnatural deaths
In all 1459 cases, the age was recorded **[Figure 8.F]**



	CT	DBN	EL	JHB	PE	PTA
10-13years	38	73	26	82	24	21
5-9years	66	106	31	119	28	36
1-4years	66	90	26	197	28	69
<1year	49	30	73	63	72	46

In Johannesburg and Pretoria, the highest number of unnatural deaths occurred in the 1-4 year age group. In contrast, the highest number of unnatural deaths occurred in the 5-9 year age group in Durban, and in children less than 1 year in East London and Port Elizabeth. In Cape Town, the number recorded in the 5-9 and 1-4 year age groups was equal. In East London and Port Elizabeth, there was no significant difference in the number of fatalities in the 1-4, 5-9 and 10-13 year age groups. In Pretoria, Johannesburg and Durban, the number of fatalities within these age groups did however differ significantly.

With reference to *Annexure 8, Table 6*, East London and Port Elizabeth accounted for the highest proportion of deaths in children less than 1 year, i.e. 21.9% and 21.6% respectively. Johannesburg, Cape Town, Pretoria and Durban represented the next highest proportions.

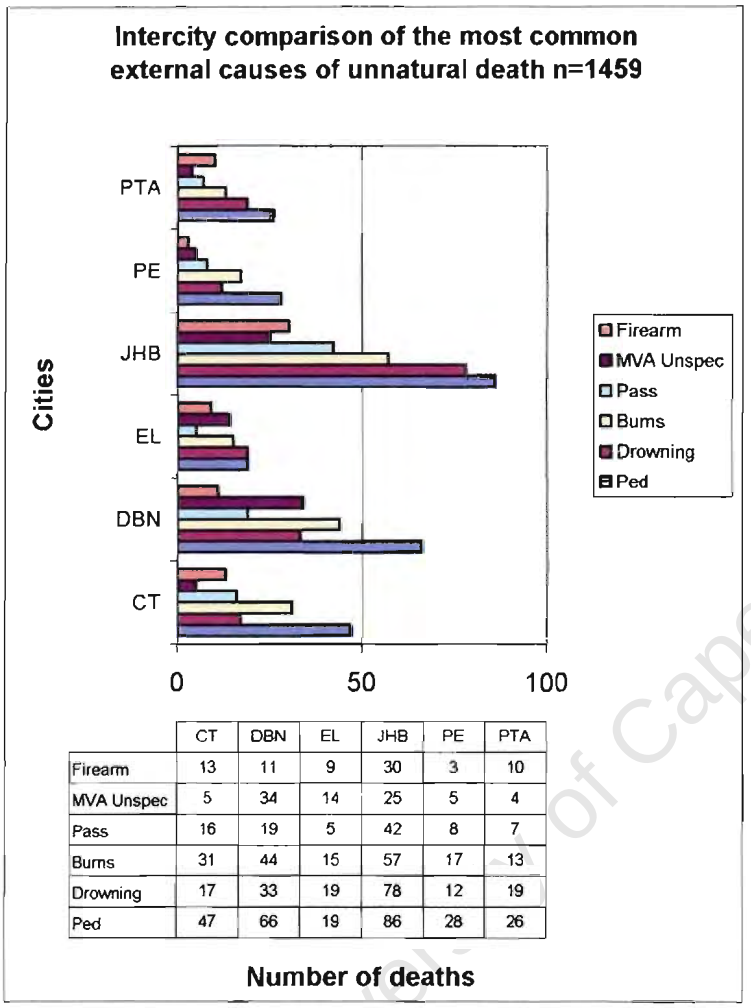
In East London and Port Elizabeth, 46.8% and 47.4% respectively, of all the unnatural deaths recorded in these cities occurred in children less than one year of age. In Pretoria and Cape Town, deaths in children less than 1 year accounted for 26.7% and 22.4% of the total number. The least proportions were observed in Johannesburg (13.7%) and Durban (10%).

Johannesburg accounted for the highest proportion of deaths in children aged 1-4 years (41.4%). The next highest was recorded in Durban (18.9%), Pretoria (14.5%), Cape Town (13.9%), East London (5.5%) and Port Elizabeth (5.9%). The proportions recorded for Pretoria and Cape Town did not differ significantly from each other, nor did those recorded in East London and Port Elizabeth.

Johannesburg, followed by Durban and Cape Town accounted for the highest proportion of deaths in the 5-9 and 10-13 year age groups. However, the proportions recorded in the former two cities for these age groups did not differ significantly from each other. The proportions recorded for the 10-13 year age group in Port Elizabeth and East London did not differ significantly, whereas they did in the 5-9 year age group.

Inter-City comparison of the most common external causes of unnatural deaths

As depicted in **Figure 8.G**, the 6 leading external causes of unnatural death in the study sample, in order of rank, were found to be pedestrian MVA's, drowning, burns, passenger MVA's, MVA unspecified and firearm injury.



	CT	DBN	EL	JHB	PE	PTA
Firearm	13	11	9	30	3	10
MVA Unspec	5	34	14	25	5	4
Pass	16	19	5	42	8	7
Burns	31	44	15	57	17	13
Drowning	17	33	19	78	12	19
Ped	47	66	19	86	28	26

There was a significant difference in the number of fatalities recorded per external cause of death in all cities, apart from East London. In East London, an equal number of MVA pedestrian and drowning fatalities were recorded, whereas in the other cities, MVA pedestrian fatalities outnumbered all of the other 5 external causes of death. The order of rank in the 6 external causes of death in Johannesburg and Pretoria were similar, i.e. pedestrian MVA's, followed by drowning, burns, passenger MVA's, MVA unspecified and firearm injury. In Durban and Cape Town it was also similar except that firearm fatalities outnumbered MVA unspecified fatalities.

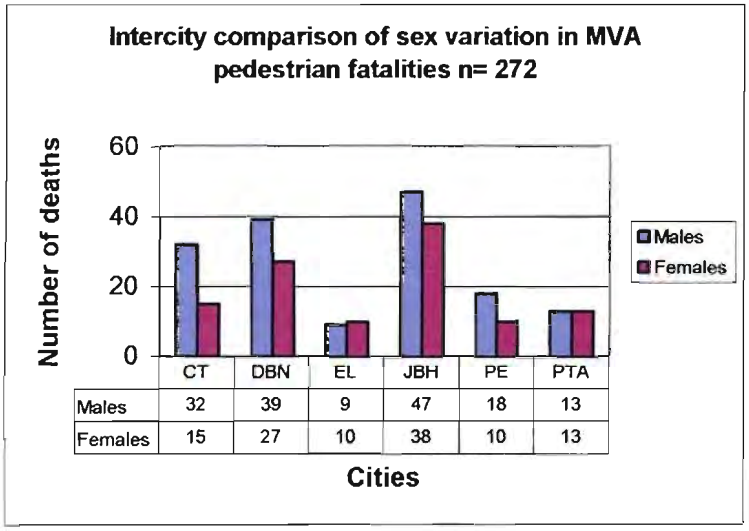
In East London and Port Elizabeth, few fatalities due to passenger MVA's and firearm injury were recorded.

An intercity comparison of the 3 leading external causes of unnatural death was done, as illustrated below. Due to the importance of firearm related deaths in children under 14 years of age, an intercity comparison of these deaths was also made even though firearm deaths were not top ranking.

MVA PEDESTRIAN FATALITIES

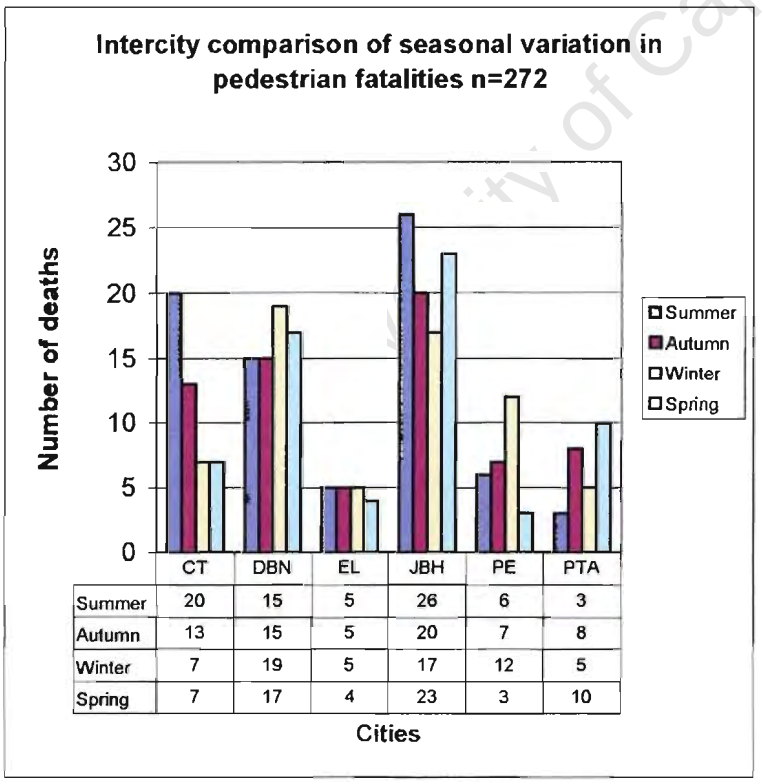
Intercity comparison of sex variation in MVA pedestrian fatalities

Of the total number of MVA pedestrian fatalities recorded in the study sample (272), there were only 244 cases, i.e. 89.7% in which the sex was recorded **[Figure 9.1]**



In all cities, apart from East London and Pretoria, male MVA pedestrian fatalities outnumbered female fatalities. In Pretoria, an equal number of fatalities were recorded for each sex, whereas in East London, there was no significant sex variation- see also *Annexure 8, Table 7.1.*

Intercity comparison of seasonal variation in MVA pedestrian fatalities [Figure 9.2]

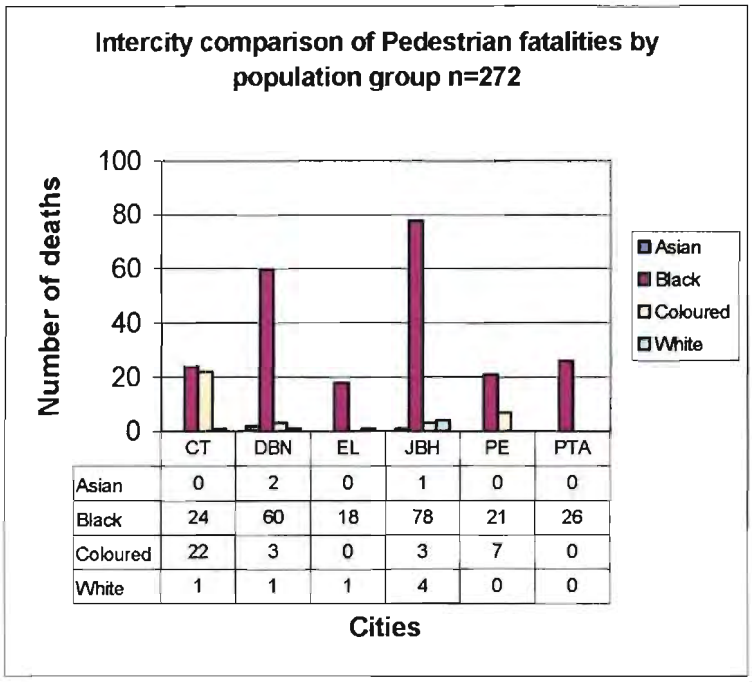


In both Cape Town and Johannesburg, the majority of MVA pedestrian fatalities occurred in the Summer, whereas in Durban and Port Elizabeth, the majority occurred in the Winter.

In Pretoria, the majority occurred in Spring and Autumn. In East London, Durban, and Johannesburg, no significant seasonal variation was evident.

With reference to *Annexure 8, Table 7.2*, Johannesburg accounted for the highest proportion of the deaths within the Summer, Autumn and Spring seasons. Within the Winter season, Durban accounted for the highest proportion.

Intercity comparison in population group variation in MVA pedestrian fatalities
Of the total number of MVA pedestrian fatalities (272) in all cases the race was recorded **[Figure 9.3]**



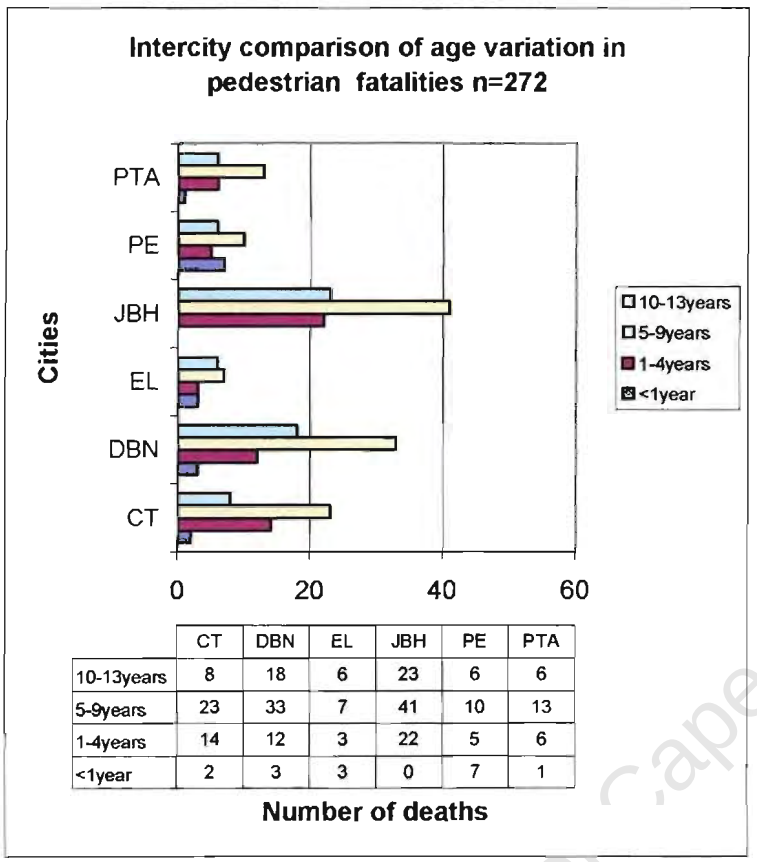
	CT	DBN	EL	JBH	PE	PTA
Asian	0	2	0	1	0	0
Black	24	60	18	78	21	26
Coloured	22	3	0	3	7	0
White	1	1	1	4	0	0

In all cities, apart from Cape Town, the Black population accounted for the highest number of MVA pedestrian fatalities, their number of fatalities far outnumbering that occurring in the other population groups. In Cape Town this was not so. There was no significant difference in the number of MVA pedestrian fatalities recorded for the Black and Coloured population groups. With reference to *Annexure 8, Table 7.3*, Johannesburg accounted for the majority of MVA pedestrian fatalities within the Black population (34.4%). The next highest proportion was recorded in Durban, Cape Town, Pretoria, Port Elizabeth and East London. Cape Town, however, accounted for the highest proportion of MVA pedestrian fatalities in the Coloured population group (62.9%). Port Elizabeth accounted for the next highest proportion (20%), whereas Durban and Johannesburg accounted for the least (8.6%). No fatalities within the Coloured population group were recorded in East London and Pretoria.

Johannesburg accounted for the highest proportion of MVA pedestrian fatalities within the White population group (57%). Cape Town, Durban and East London accounted for the least (14.3%) per city.

Intercity comparison of age variation in MVA pedestrian fatalities

Of the total number of MVA pedestrian fatalities (272), in all cases the age was recorded **[Figure 9.4]**



	CT	DBN	EL	JBH	PE	PTA
10-13years	8	18	6	23	6	6
5-9years	23	33	7	41	10	13
1-4years	14	12	3	22	5	6
<1year	2	3	3	0	7	1

In all cities, apart from East London, MVA pedestrian fatalities within the 5-9 year age group significantly outnumbered those within the other age groups. In East London, there was no significant difference in the number of fatalities recorded in the 5-9 and the 10-13 year age groups.

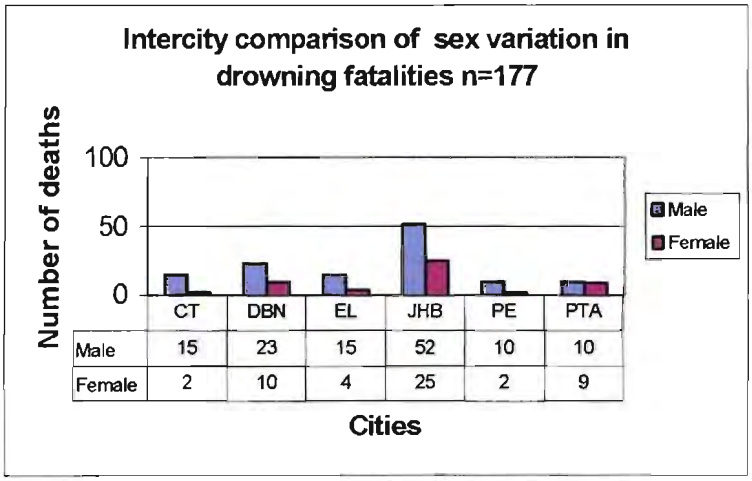
In all cities, apart from Port Elizabeth and East London, the least number of MVA pedestrian fatalities occurred in children less than 1 year. In Port Elizabeth, the 2nd highest number of MVA pedestrian fatalities occurred in the less than 1 year age group.

With reference to *Annexure 7, Table 7.4*, Port Elizabeth accounted for the highest proportion of fatalities in the less than 1 year age group. Durban and East London accounted for the 2nd highest (18.8% per city), whilst Cape Town and Pretoria accounted for 12.5% and 6.3% respectively.

Johannesburg accounted for the highest proportion of deaths in the 1-4 year age group (35.5%) and in both the 5-9 and 10-13 year age groups.

DROWNING FATALITIES

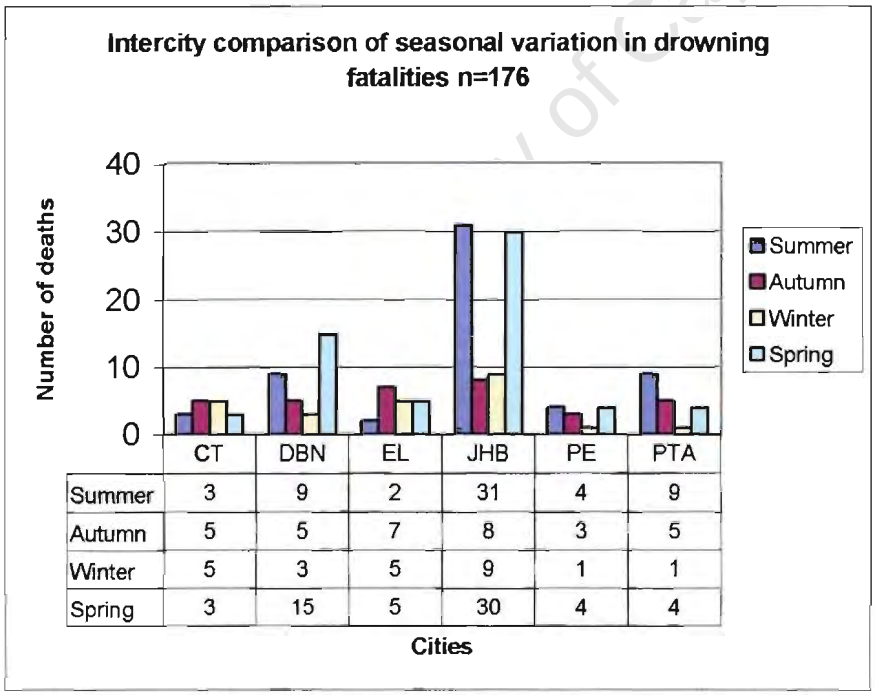
Intercity comparison of sex variation in drowning fatalities.
Of the 178 cases, there were 177 cases for which sex was recorded **[Figure 10.1]**



	CT	DBN	EL	JHB	PE	PTA
Male	15	23	15	52	10	10
Female	2	10	4	25	2	9

Males accounted for the majority of deaths in all cities. Johannesburg accounted for the highest proportion of male and female drowning fatalities – *see Annexure 8, Table 8.1*

Intercity comparison of seasonal variation in drowning fatalities
Of the total number of 178 drowning fatalities, in only 176 was the season recorded **[Figure 10.2]**



	CT	DBN	EL	JHB	PE	PTA
Summer	3	9	2	31	4	9
Autumn	5	5	7	8	3	5
Winter	5	3	5	9	1	1
Spring	3	15	5	30	4	4

With reference to *Annexure 8,Table 8.2*, of the total number of drowning fatalities, the majority occurred in Spring (34,7%), followed by Summer (33%), which were not significantly different in proportion. The 3rd highest number of drowning fatalities occurred during Autumn (18,8%), with the least number occurring in Winter (13,6%).

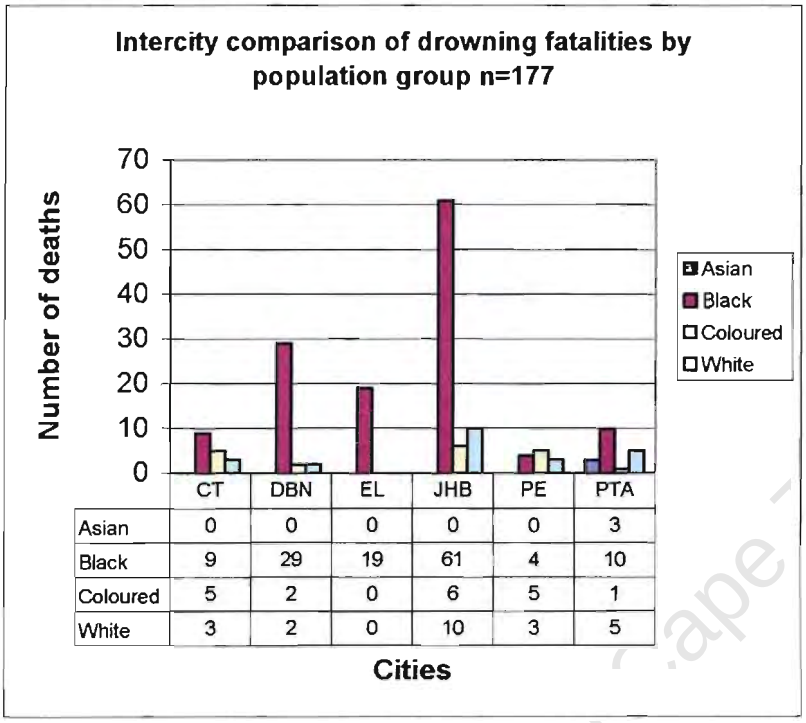
In Johannesburg, drowning fatalities peaked in the Spring and the Summer. In Durban fatalities peaked in Spring and in Pretoria, it peaked in the Summer. There was no significant seasonal variation evident in the other cities.

With reference to Annexure 8, Table 8.2, Johannesburg accounted for the highest proportion of drowning fatalities within each season. In Summer, both Durban and Pretoria accounted for the 2nd highest proportion of fatalities (15.5% per city). In Winter, both Cape Town and East London each accounted for one-fifth of the season's drowning fatalities, whilst Port Elizabeth and Pretoria each accounted for

less one-tenth. In Spring, all cities, apart from Johannesburg and Durban, accounted for the less than one-tenth of drowning fatalities in this season.

Intercity comparison of drowning fatalities by population group

Of the total number of 178 cases, there were only 177 cases in which the race was recorded **[Figure 10.3]**



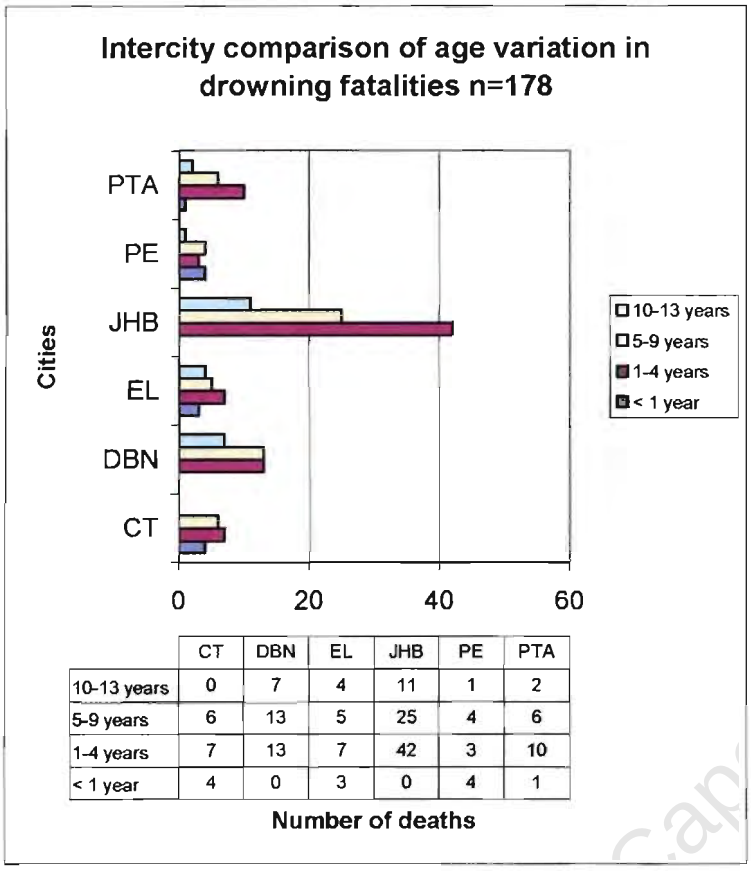
	CT	DBN	EL	JHB	PE	PTA
Asian	0	0	0	0	0	3
Black	9	29	19	61	4	10
Coloured	5	2	0	6	5	1
White	3	2	0	10	3	5

In all cities, apart from Port Elizabeth, the highest number of drowning fatalities was recorded in the black population group. In Port Elizabeth, although the highest number of drowning fatalities was recorded in the Coloured population group, it did not significantly differ from that recorded in the Black and White population groups.

In Cape Town, the 2nd highest number of drowning fatalities occurred in the Coloured population group, and the least in the White. In Durban, the number of deaths recorded within these two population groups, were equal. The highest number of drowning fatalities amongst the White population was however recorded in Johannesburg and Pretoria.

With reference to *Annexure 8, Table 8.3*, Johannesburg accounted for the highest proportion of deaths within the Black, Coloured and White population groups. Durban accounted for the 2nd highest proportion of deaths amongst the Black population group, whilst the 2nd highest proportion was accounted for in the Coloured population group by both Cape Town and Port Elizabeth (26.3% per city). Pretoria accounted for the 2nd highest proportion of deaths in the White population group.

Intercity comparison of age variation in drowning fatalities
The age was recorded in all 178 cases **[Figure 10.4]**



	CT	DBN	EL	JHB	PE	PTA
10-13 years	0	7	4	11	1	2
5-9 years	6	13	5	25	4	6
1-4 years	7	13	7	42	3	10
< 1 year	4	0	3	0	4	1

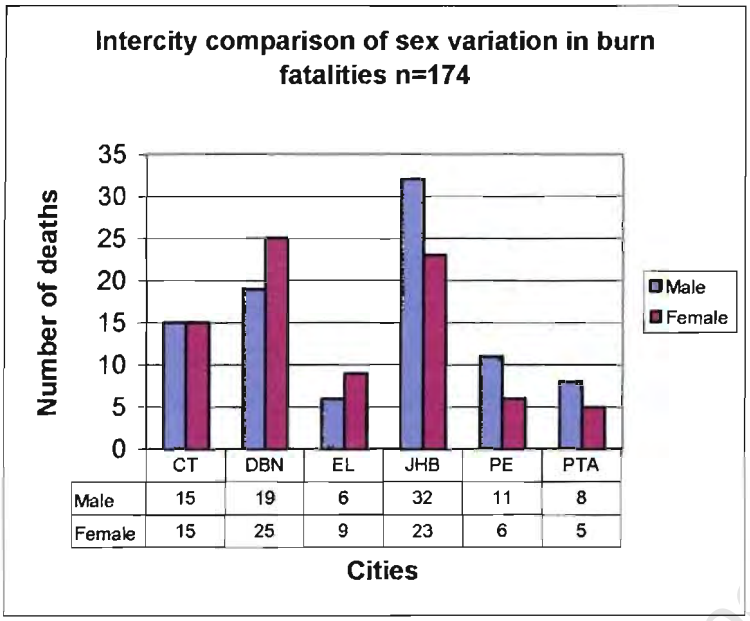
The highest number of drowning fatalities occurred in the 1-4 year age group in Johannesburg and Pretoria. The 2nd highest number occurred in the 5-9 year age group. In Cape Town, Durban, East London and Port Elizabeth, there was however, no significant difference in the number of fatalities recorded in the 1-4 and 5-9 year age groups.

The number of fatalities recorded in children less than 1 year was highest in Cape Town, Port Elizabeth and East London. No deaths in this age group occurred in Durban and Johannesburg, whereas a single fatality was recorded in Pretoria.

With reference to *Annexure 8, Table 8.4*, Cape Town and Port Elizabeth accounted for the highest proportion of deaths in children less than 1 year (33.3% per city). In all the other age groups, Johannesburg accounted for the highest proportion, and Durban for the 2nd highest.

BURN FATALITIES

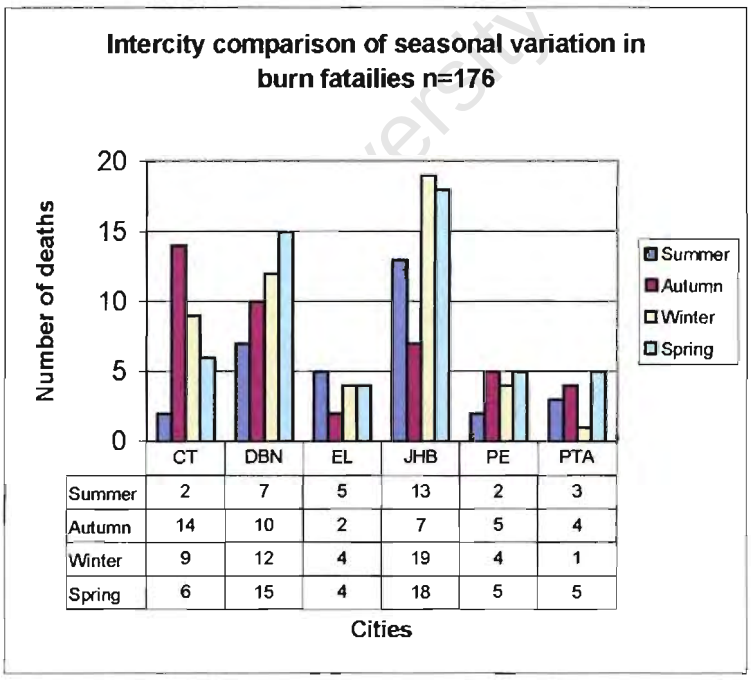
Intercity comparison of sex variation in burn fatalities.
Of the total number of 177 fatalities, there were only 174 cases in which sex was recorded **[Figure 11.1]**



	CT	DBN	EL	JHB	PE	PTA
Male	15	19	6	32	11	8
Female	15	25	9	23	6	5

In Johannesburg, Port Elizabeth and Pretoria, males accounted for the majority of burn fatalities. However, in Durban and East London, females accounted for the majority. In Cape Town, no significant sex variation was evident- see also *Annexure 8, Table 9.1.*

Intercity comparison of seasonal variation in burn fatalities.
Of the total number of 177 fatalities, in only 176 cases was the month of death recorded **[Figure 11.2]**



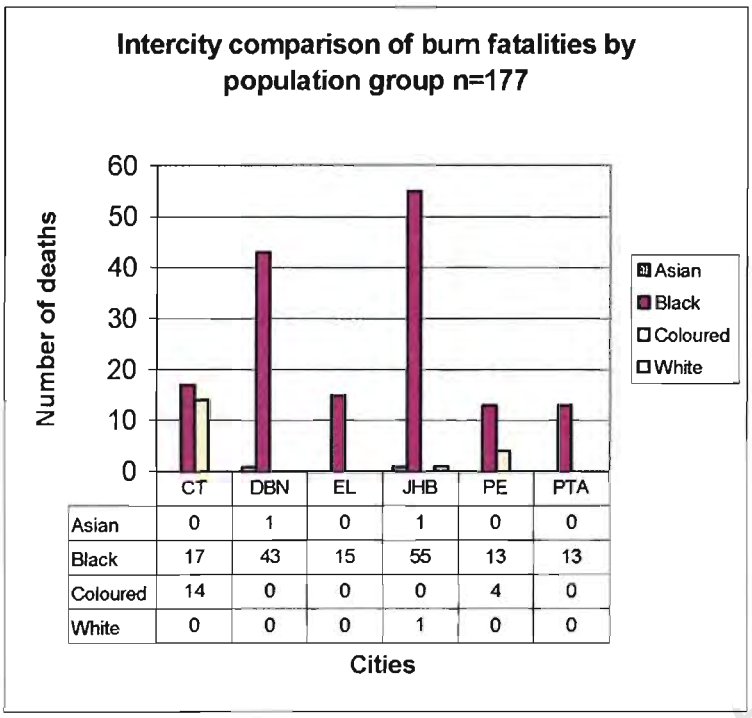
	CT	DBN	EL	JHB	PE	PTA
Summer	2	7	5	13	2	3
Autumn	14	10	2	7	5	4
Winter	9	12	4	19	4	1
Spring	6	15	4	18	5	5

Burn fatalities peaked in the Winter and Spring in Johannesburg and Durban. In Cape Town, burn fatalities peaked in the Autumn. The least number occurred in Summer.

There was no significant seasonal variation in the number of burn fatalities evident in the other cities.

With reference to *Annexure 8, Table 9.2*, Johannesburg accounted for the highest proportion of burn fatalities within Summer, Winter and Spring whereas in Autumn, Cape Town represented the highest proportion.

Intercity comparison of burn fatalities by population group.
In all 177 cases, the population group was recorded **[Figure 11.3]**



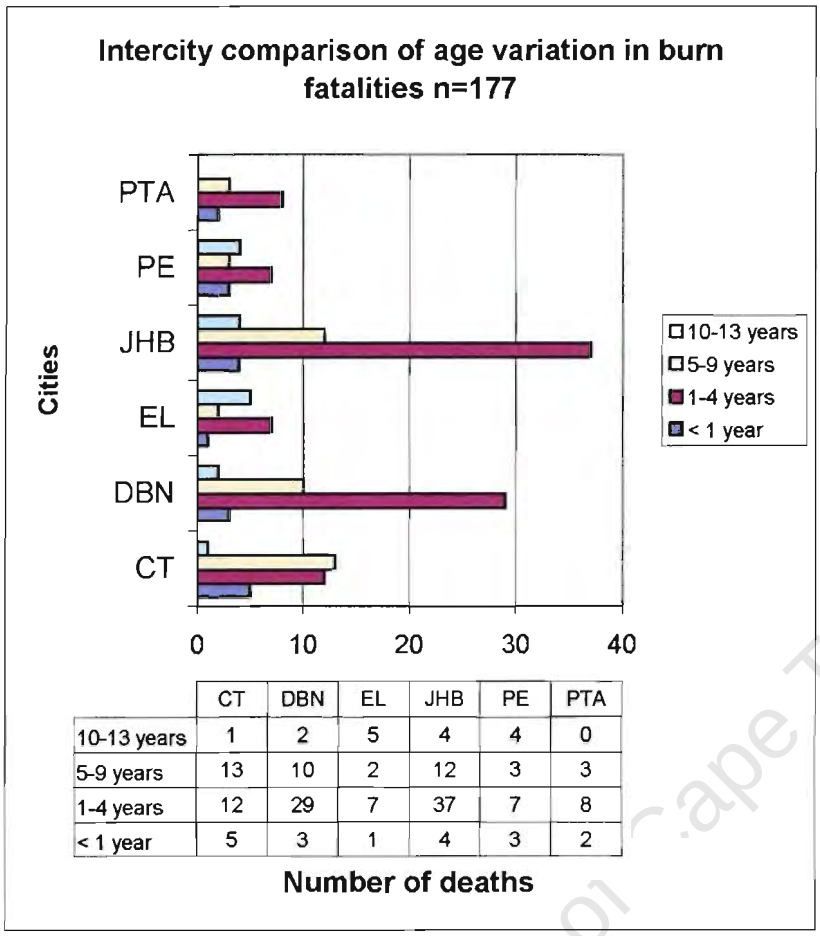
	CT	DBN	EL	JHB	PE	PTA
Asian	0	1	0	1	0	0
Black	17	43	15	55	13	13
Coloured	14	0	0	0	4	0
White	0	0	0	1	0	0

In all cities, the highest number of burn fatalities was recorded in the Black population. In Cape Town, however, there was no significant difference in the number of fatalities recorded in the in the Black and Coloured population groups. Burn fatalities in the White population group in all cities, were uncommon.

With reference to *Annexure 8, Table 9.3*, Johannesburg accounted for the highest proportion of deaths within the Black population group. Within the Coloured population, Cape Town accounted for the highest proportion. Within the Black population group, Durban accounted for the 2nd highest proportion and Cape Town for the 3rd (approximately one-tenth). East London, Port Elizabeth and Pretoria each accounted for less than one-tenth.

In the Asian population group, there only 2 burn fatalities recorded, 1 in Durban and the other in Johannesburg.

Intercity comparison of age variation in burn fatalities..
In all cases, the age was recorded **[Figure 11.4]**



	CT	DBN	EL	JHB	PE	PTA
10-13 years	1	2	5	4	4	0
5-9 years	13	10	2	12	3	3
1-4 years	12	29	7	37	7	8
< 1 year	5	3	1	4	3	2

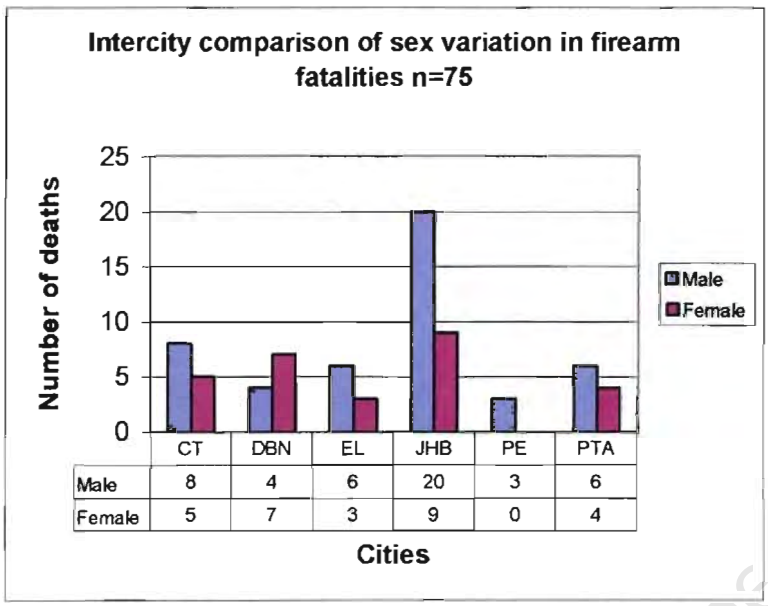
In all cities, apart from Cape Town, the highest number of burn fatalities was recorded in the 1-4 year age group. In Cape Town, there was no significant difference in the number of deaths recorded in the 1-4 and 5-9 year age groups.

In Durban, Johannesburg and Pretoria, the 2nd highest number of burn fatalities occurred within the 5-9 year age group. In East London and Port Elizabeth, it occurred within the 10-13 year age group.

Only a small number of burn fatalities occurred within the less than 1 year age group, hence significant intercity variation could not be established. Cape Town however, did account for the highest proportion of burn fatalities in this age group, and Johannesburg for the 2nd highest- see *Annexure 8, Table9.4*.

FIREARM FATALITIES

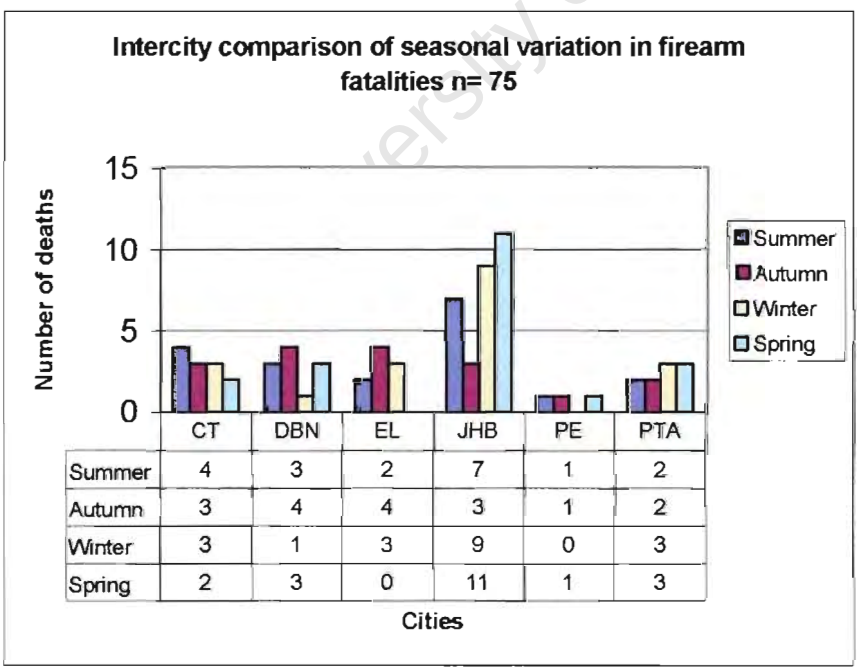
Intercity comparison of sex variation in firearm fatalities.
Of the total number of 76 fatalities, there were only 75 cases in which sex was recorded **[Figure 12.1]**



	CT	DBN	EL	JHB	PE	PTA
Male	8	4	6	20	3	6
Female	5	7	3	9	0	4

In all cities, apart from Durban, males accounted for the highest number of firearm fatalities. In Durban, female fatalities marginally outnumber male fatalities- see also *Annexure 8, Table10.1*

Intercity comparison of seasonal variation in firearm fatalities.
Of the 76 firearm fatalities, in only 75 cases was the month of death recorded **[Figure 12.2]**



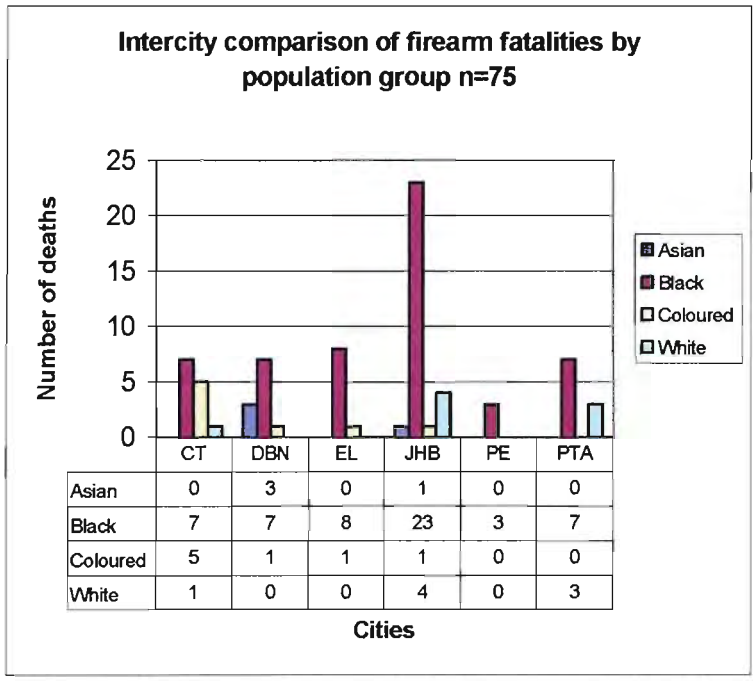
	CT	DBN	EL	JHB	PE	PTA
Summer	4	3	2	7	1	2
Autumn	3	4	4	3	1	2
Winter	3	1	3	9	0	3
Spring	2	3	0	11	1	3

In Johannesburg, the highest number of firearm fatalities occurred in Spring. The next highest number occurred in the Winter and Summer. There was no significant seasonal variation noted in firearm fatalities in the other cities.

With reference to *Annexure 8, Table 10.2*, in all seasons, apart from Autumn, Johannesburg accounted for the highest proportion of firearm fatalities.

Intercity comparison of firearm fatalities by population group.
Of the 76 firearm fatalities, in only 75 cases was the population group recorded

[Figure 12.3]



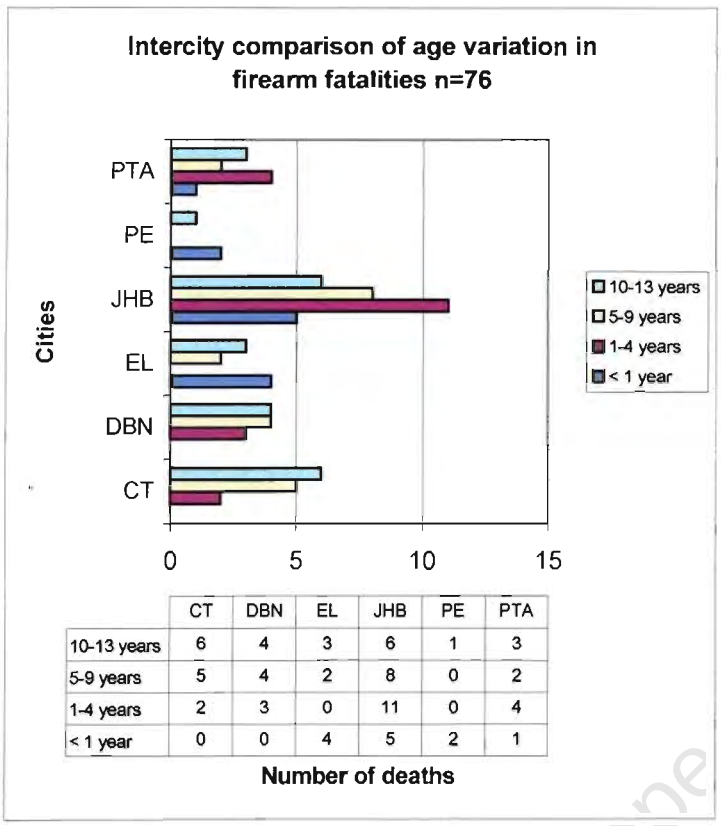
	CT	DBN	EL	JHB	PE	PTA
Asian	0	3	0	1	0	0
Black	7	7	8	23	3	7
Coloured	5	1	1	1	0	0
White	1	0	0	4	0	3

In all cities, the highest number of firearm fatalities occurred within the Black population. In Johannesburg and Pretoria , the 2nd highest number of fatalities occurred in the White population group, whereas in Cape Town and Durban, these occurred in the Coloured and Asian population groups respectively.

With reference to *Annexure 8, Table 10.3*, Durban accounted for the highest proportion of firearm fatalities within the Asian population, i.e. 75%, whilst Johannesburg accounted for the remainder.

Johannesburg accounted for the highest proportion of fatalities within the Black and White population groups whilst Cape Town accounted for the highest proportion within the Coloured population (62.5%). Pretoria accounted for the 2nd highest proportion of firearm fatalities within the White population group (37.5%), whilst Cape Town accounted for 12.5%.

Intercity comparison of age variation in firearm fatalities.
In all cases, the age was recorded **[Figure 12.4]**



	CT	DBN	EL	JHB	PE	PTA
10-13 years	6	4	3	6	1	3
5-9 years	5	4	2	8	0	2
1-4 years	2	3	0	11	0	4
< 1 year	0	0	4	5	2	1

In Johannesburg firearm fatalities peaked in the 1-4 year age group. In Cape Town and Durban, deaths occurred predominantly in the 5-9 and the 10-13 year age groups. There was no significant age variation evident in the other cities.

With reference to *Annexure 8, Table 10.4*, in all age groups, apart from the 10-13 year age group, Johannesburg accounted for the highest proportion of firearm fatalities. Notably, this city accounted for the highest proportion of firearm fatalities in the less than 1 year age group. The second highest was represented by East London.

INTERCITY COMPARISON OF SCENE INJURY

See Annexure 8, Table 11

MVA Pedestrian fatalities

The majority of pedestrian fatalities occurred on urban roads.

Drowning

Of the total number of drowning fatalities recorded in the study sample (178), there were only 72 cases in which the scene of drowning was recorded. The majority of drowning fatalities occurred in the sea/river/dam (45,4%). The next highest percentage occurred in a private house (42,4%), amusement facilities (3,5%), schools (2,3%) and residential institutes (1,7%). In Cape Town, Durban, East London, Port Elizabeth and Pretoria, the majority of drowning fatalities occurred in aquatic environments outside the home (sea/river/dam). In Johannesburg, however, the majority of drowning fatalities occurred in a private house (58,7%).

Burns

Of the total number of 177 burn fatalities, there were only 122 cases in which the scene of death was recorded. The majority of burn fatalities occurred in a private house (71,3%). The next highest percentage was recorded in informal settlements (14,8%). In all the cities, apart from Port Elizabeth, most fatalities occurred in a private house. In Port Elizabeth, however, 54,5% of deaths occurred in informal settlements, whilst 36,4% occurred in a private dwelling, and 9,1% occurred in a bar/shebeen.

Firearm

Of the total number of firearm fatalities recorded in the study sample (76), there were only 46 cases in which the scene of death was recorded. The majority of firearm fatalities (56,5%) occurred in a private house. The next highest occurred in urban roads (13%), open land (6,5%), informal settlements (6,5%), retail areas (4,4%) and bars/shebeens (4,4%). Other sites of firearm fatalities included residential institutes, amusement facilities and farms. The proportion of deaths occurring at each of these sites was 2,2%. Sites other than those listed above accounted for 2,3%.

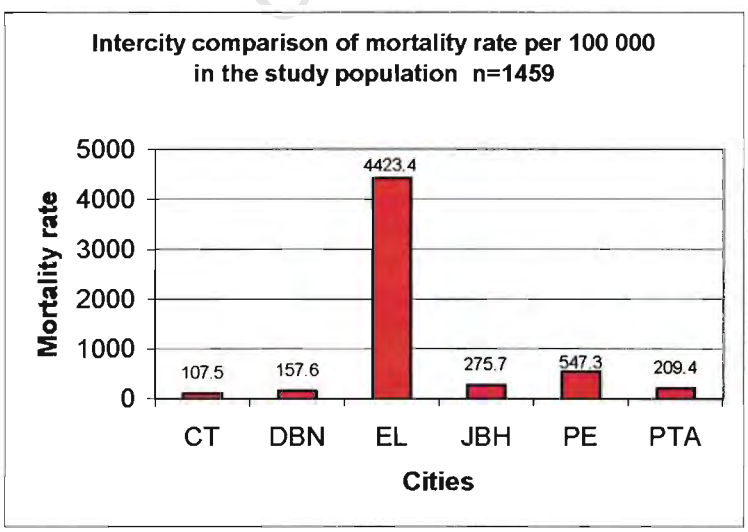
Of the 13 firearm fatalities recorded in Cape Town, in only 2 cases was the scene of death recorded, both of which occurred in a private house. Of the 11 fatalities recorded in Durban, in only 6 cases was the scene of death recorded, 4 of which occurred in a private house, 1 in an informal settlement and the other in a residential institute.

Of the 9 fatalities recorded in East London, in only 7 cases was the scene of death recorded, 4 of which occurred in a private house, 2 in an urban road and 1 in a shebeen. Of the 30 firearm fatalities recorded in Johannesburg, in only 20 cases was the scene of death recorded, the majority of which (11) occurred in a private house, 2 in an informal settlement, and on open land, 3 in an urban road and 1 in a retail area, and in an amusement facility.

Of the 3 deaths recorded in Port Elizabeth, the scene of death was recorded in all 3 cases. This included 1 in a private house, 1 in a bar/shebeen and 1 on a site other than that stipulated on the data collection form. Of the 10 deaths recorded in Pretoria, in only 8 cases was the scene of death recorded, 4 of which occurred in a private house, 1 in an urban road, 1 in a retail area, 1 on a farm and 1 on open land.

INTERCITY COMPARISON OF MORTALITY RATES IN CHILDREN UNDER 14 YEARS

The mortality rates for children less than 1 year, 1-4 year, 5-9 year and 10-13 years were calculated in all cities (per 100 000 population), and comparisons were made. Statistics for each age group from each city were obtained from the Statistics South Africa Census 2001 - *see Annexure 8, Table 12.* Mortality rates were calculated using total fatality figures recorded for each city. **Figure 13.1** depicts the mortality rates per 100 000 population of children under 14 years of age, in the individual cities

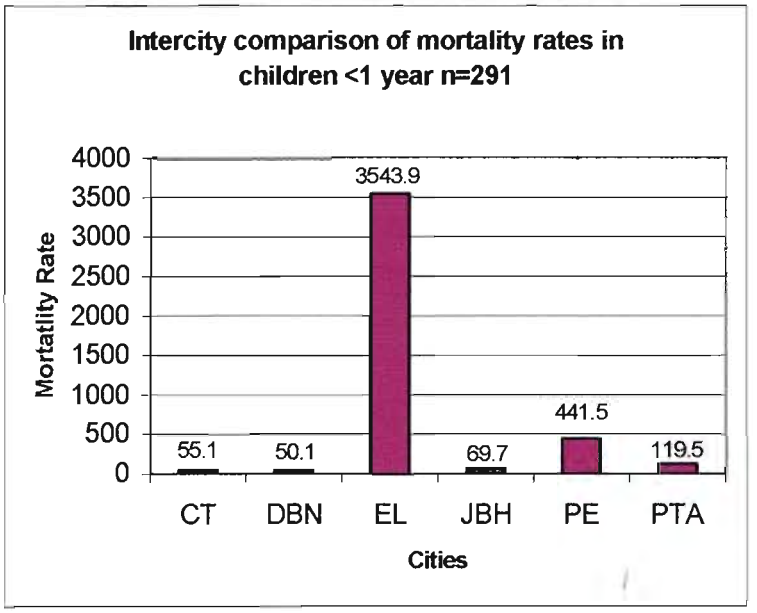


The highest mortality rate was present in East London. The next highest occurred in Johannesburg and Pretoria. The mortality rates in Durban and Pretoria were similar. The lowest mortality rate was present in Cape Town.- see also *Annexure 8, Table 13.*

Intercity mortality rates in the various age groups

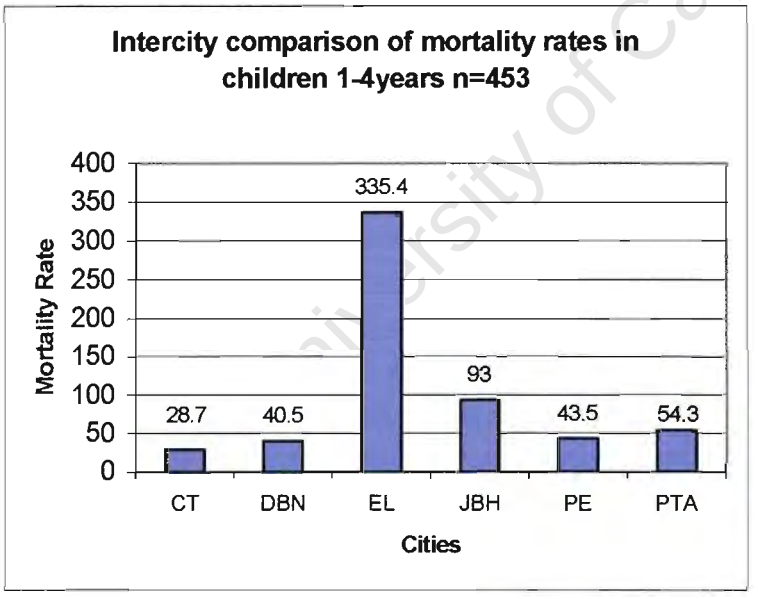
Mortality rates were calculated using the fatality figures derived from age group and external cause of death cross tabulations.

1. Intercity mortality rates in children less than 1 year
[Figure 13.2]



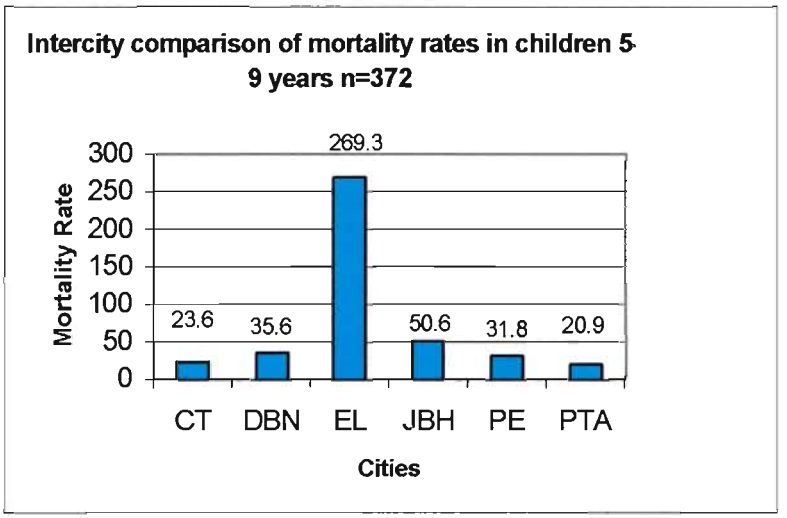
The highest mortality rate in this age group occurred in East London and the next highest in Port Elizabeth. In both cities, the mortality rates were significantly higher than those recorded in the other cities (95% confidence interval 2757.38 to 4485.03 for East London; and 342.12 to 560.63 for Port Elizabeth- see *Annexure 8, Table14.*

Intercity mortality rates in children aged 1-4 years
[Figure 13.3]



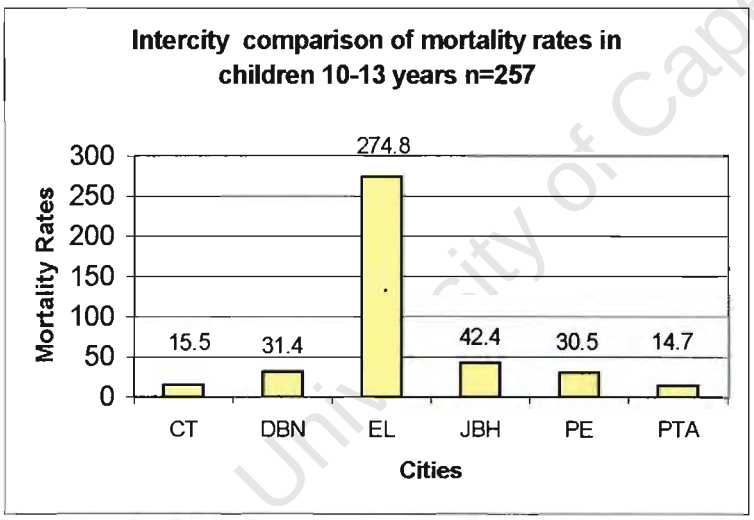
The highest mortality in this age group was found in East London, and the 2nd highest in Johannesburg (95% confidence interval 219.98 top 491.49 for East London, and 80.23 to 107.27 for Johannesburg). Using the 95% confidence intervals, the mortality rates recorded in the other cities were not significantly different.

Intercity mortality rates in children aged 5-9 years
[Figure 13.4]



The mortality rate in this age group was found to be highest in East London. The 2nd highest was recorded in Johannesburg (confidence interval 180.38 to 386.71 for East London, and 41.95 to 60.6 for Johannesburg). Using the 95% confidence interval, the mortality rates recorded for Cape Town, Durban, Port Elizabeth and Pretoria did not vary significantly, although the lowest mortality rate in this age group was present in Pretoria.

Intercity mortality rates in children aged 10-13 years
[Figure 13.5]



The highest mortality rate for this age group was recorded for East London (95% confidence interval 179.54 to 402.62). Using the 95% confidence interval, there was no significant difference in the mortality rates recorded in the other 5 cities.

Chapter 6

DISCUSSION AND RECOMMENDATIONS

DISCUSSION

In most developed countries, good control over infectious diseases has been achieved and it has practically been eradicated. This is due to the availability of good public health facilities. Trauma has now become the leading cause of death in children aged 1-14 years, not only in First World countries, but also in Third World countries [101]. South Africa has features of both a developed and developing country. Trauma in this country is the leading cause of death in children aged 5-14 years where mortality rates in this age group have been calculated to be 1.5 to 3.5 times higher than that in the United States of America [13]. Ninety percent (90%) of all childhood deaths in South Africa occur in children under the age of 5 years. These deaths are due to infectious diseases, e.g. gastroenteritis and respiratory disease [15]. According to J van der Spuy [84] in a study conducted between 1981 and 1985 on trauma-related deaths, natural deaths obscured the impact of trauma in children under 4 years of age, and that in fact it was underestimated.

The NIMSS has set up databases in major centres, which have facilities for data capturing. There are several limitations in the data received from the NIMSS used in this study. Firstly, the data has urban bias and so underestimates actual number of unnatural deaths. Were rural areas included, a more exact number of unnatural deaths could have been reported and their causes evaluated. Secondly, not all fatality cases had information for every item present on the NIMSS data collection form. Thirdly, the number of deaths not recorded on the NIMSS forms are unknown. Therefore, the NIMSS database in its present form may be inaccurate. This is clearly a limiting factor in this study, and the importance of accuracy of a surveillance database cannot be emphasised enough.

The proportion of unnatural deaths in this study was higher for males than for females. Among the females it represented 17% of deaths compared to 61.3% in the males. It has been documented in studies that males are more at risk for injury than females due to them being psychologically and physiologically different to females [103].

The leading manner of unnatural deaths in the study sample was transport-related, followed by other unintentional injury deaths. These accounted for 33% and 31% respectively of all manners of unnatural death. Undetermined deaths and homicide were the 3rd and 4th leading manners of death. Suicide was found to be uncommon.

The highest number of unnatural deaths by all manner occurred in the Black population group. Transport-related deaths and other UID's dominated. Amongst the Coloured group, transport-related and undetermined death categories dominated. Amongst the Whites, as in the Black population, the dominant manner of death was transport-related and other UID's. Due to the number of Asian deaths being small, no dominant manner of death was evident.
It is important to distinguish between children and adolescents, as their injury profile is different. [81] Childhood usually refers to children less than 15 years of age, but the term may be used also to describe persons under 19 years [16, 82]. The WHO however considers 10-14 year olds as young adolescents, and those 15-19 as late adolescents [83]. In this study, childhood was defined as children under the age of 14 years. The highest number of unnatural deaths occurred in the 1-4 and 5-9 year age groups. Their deaths represented 32.6% and 26.5% of all unnatural deaths in the study sample. The 3rd highest number of deaths occurred in children less than 1 year of age, which represented 22.8%, whilst the least occurred in the 10-13 year age group (18.1%).

In this study, children aged 5-9 years were found to be most at risk for transport-related deaths, whilst those aged 1-4 years were at risk for other UID's. The highest number of homicidal deaths (44.3%) and deaths of unknown intent or manner, i.e. undetermined deaths (51.3%) occurred in those younger than 1 year of age. This is in keeping with that found in England and Wales, and by NIMSS, in 2001 [40,102]. The differences in types of injury found amongst various age groups have been attributed to physical, cognitive, and behavioural factors in children.[104]

Deaths due to pedestrian MVA's accounted for the highest proportion of transport-related deaths, whereas burns, drowning and poisoning accounted for the highest amongst other UID's. In the undetermined category, abortion/stillbirth, burns, SIDS and medical procedures were the leading causes. Hanging accounted for the highest proportion of suicidal deaths. This is in keeping with a study conducted in Norway which compared characteristics of suicide amongst children younger than 15 years of age, and those aged 15-19 years, found that hanging occurred most often in the younger age group than in the older one [67].

In this intercity comparative study, the leading manner of unnatural death was found to differ from city to city. In Cape Town and Durban the leading manner of death was transport-related, whereas in East London it was homicide. In Pretoria and Johannesburg it was other UID's, whereas in Port Elizabeth in the majority of cases the manner of death was undetermined.

There were 6 main causes of unnatural death in the study sample. In order of rank these included pedestrian MVA's, drowning, burns, passenger MVA's, the unspecified category of MVA's, i.e. whereby passenger nor pedestrian was recorded, and firearm injuries. Pedestrian

MVA's accounted for 19.9%, i.e. one-fifth of all unnatural deaths whereas, drowning and burns accounted for 13% and 12.9% respectively. There was no significant variation in deaths due to these causes. Passenger MVA's, unspecified MVA's and firearm deaths each accounted for less than one-tenth of unnatural deaths. Pedestrian MVA's, burns and drowning were amongst the main causes of death in all cities reviewed in this study. As expected, pedestrian MVA's was found to be the leading cause of death in Cape Town, Durban, Johannesburg, Pretoria and Port Elizabeth as pedestrian MVA's are known to account for the majority of unnatural deaths in children under 10 years of age. [27] Astonishingly, in East London, both pedestrian MVA's and sharp force trauma were found to be leading causes of death, without significant difference between these two..

MVA PEDESTRIAN FATALITIES

Pedestrian MVA's are known to be the leading cause of death amongst children in the Black population. In this study, it was also found to be the leading cause of death amongst children in the Coloured population, in both Cape Town and Port Elizabeth, but was uncommon amongst the Whites and Asians in these towns. In a retrospective study conducted by Knobel [16] on non-natural deaths in children in Cape Town over a 15 year period (1966-1981), no significant variation in pedestrian fatalities was found amongst the various population groups (Black, Coloured and White).

In Cape Town, pedestrian fatalities appeared to peak in the Summer. However, in Port Elizabeth, they peaked in Winter. In Durban, East London and Johannesburg, there was no significant seasonal variation noted in the number of fatalities. In Pretoria, the highest number of pedestrian fatalities occurred in Spring and Autumn seasons. Apart from East London, in all cities, the 5-9 year age group was found to be most at risk for death due to pedestrian MVA's. In East London, there was no significant difference in the number of fatalities recorded in the 5-9 and 10-13 year age groups. Port Elizabeth was identified as having the highest number of pedestrian fatalities within the less than 1year age group. It represented a quarter (25%) of all pedestrian fatalities in this age group. The NIMMS did not record whether these deaths occurred in home driveways, or whether they occurred whilst the child was carried by an adult who was knocked over by a vehicle.

The high pedestrian fatality percentage in the Black and Coloured population groups was considered by Kibel et al [15] to be due to there being lower vehicle ownership in these population groups. Drunken driving, poor visibility of the oncoming vehicle or pedestrian, few traffic control devices and the absence of pavements in child play areas, are other factors which contribute to this [26]. Pedestrian MVA's account for a large proportion of head injury in children

[16,27,28,29]. Injuries sustained in these accidents tend to be severe, resulting in death soon afterwards. In some cases, the severity of the injuries is comparable to those seen in industrial accidents [27,30].

DROWNING FATALITIES

In Johannesburg, drowning was found to be the 2nd leading cause of unnatural death in the study sample. In Pretoria, Port Elizabeth, East London and Cape Town, it was the 3rd leading cause, whilst in Durban it was the 4th. Drowning fatalities peaked in both the Summer and Spring in Johannesburg, there being no significant variation in the number of deaths recorded in these seasons. In Cape Town, Port Elizabeth and East London, there was no significant seasonal variation in the number of deaths observed. In Durban however, deaths peaked in Spring, whereas in Pretoria they peaked in the Summer. The highest number of drowning fatalities occurred in the Black population in all cities, apart from East London, where no significant ethnic variation in the number of fatalities was observed.

Drowning was the 2nd leading cause of death amongst children in the Black population in Johannesburg, Durban and Port Elizabeth. In the two former cities and Pretoria, it was the second leading cause of death amongst the Whites, whereas in Cape Town, it was only the third leading cause of death amongst the Black and Coloured population groups. There was no significant variation in the number of deaths due to passenger MVA's and drowning in the the city's White population. It was one of the leading causes of death amongst the Black population group on East London, there being no significant difference in the number of fatalities recorded in the other population groups.

In this study, age differences in the drowning fatalities between and within population groups were not evaluated, however, intercity comparisons of age differences were made. The 1-4 year age group in both Johannesburg and Pretoria were most at risk for death by drowning. In Port Elizabeth and East London, no significant age variation was found. In Cape Town and Durban however, there was no variation in the number of fatalities recorded in the 5-9 and 1-4 year age groups. Cape Town and Port Elizabeth each represented 33.3% of deaths in children under 1 year of age, whilst East London represented a quarter (25%). There were no fatalities recorded in Durban and Johannesburg in this age group. Pretoria represented under one-tenth (8.3%). According to Kibel [20], the younger child was demonstrated to be more at risk for bucket drowning, which is unique to South Africa. A high incidence of it was found to be present in deprived communities. Whether the deaths in this age group in these cities were due to bucket drowning, will have to be investigated in further studies.

The place where drowning fatalities had occurred was poorly recorded by NIMSS. However, it does appear from the available data that in Cape Town, most drowning fatalities (53%) occurred outside the home, i.e. in seas/rivers/dams, while 41.2% of fatalities occurred in and around the home. This is in contrast to that documented by Cywes etal [13] who found that most fatal and non-fatal child drowning occurred at home, despite it being a coastal city. In a study conducted on drowning fatalities in Cape Town between 1980 and 1983, it was demonstrated that most drowning amongst adults occurs along the Atlantic coast line compared to the Indian coast line [19].

In Johannesburg, most drowning fatalities (58.6%) occurred in and around the home, whereas in Pretoria, Durban and East London, like Cape Town, the majority occurred outside the home. In Port Elizabeth, no significant difference was evident in the number of deaths occurring in and around the home versus outside the home.

BURN FATALITIES

In all cities, apart from Cape Town and East London, males accounted for the majority of burn fatalities. In East London, female fatalities outnumbered male fatalities, whereas in Cape Town, an equal number of fatalities occurred amongst both sexes. In all cities, the majority of burn fatalities occurred in the Black population, however in Cape Town there was no significant difference in the number of fatalities recorded in the Black and Coloured population groups. Significant seasonal variation was noted in the number of burn fatalities in Cape Town, Durban and Johannesburg. In Cape Town, burn fatalities peaked in Autumn, whereas in Durban and Johannesburg, fatalities peaked in both the Winter and Spring. There was no significant seasonal variation noted in burn fatalities in East London, Port Elizabeth and Pretoria. In all cities, the 1-4 year age group was most at risk, except in Cape Town, where both the 5-9 and 1-4 year group were found to be at risk. Differences in the type of burns sustained by younger and older children have been demonstrated [56]. Children aged 10-16 years of age sustained fire and chemical burns, whereas the young child sustained scalds. In this study, the type of burn which had caused death, could not be evaluated as it was not recorded by NIMSS. In a study conducted at Salt River Mortuary, Cape Town, between 1990 and 1991 it was however demonstrated that 75% of burn fatalities in children under 14 were due to residential fires in which wood and paraffin were used as fuel [54].

In all cities, apart from Port Elizabeth and East London, the highest number of burn fatalities occurred at home. In Port Elizabeth and East London, most occurred in informal settlements.

MVA PASSENGER FATALITIES

In Cape Town, Durban and Johannesburg, deaths due to passenger MVA's were found to be among the 6 common causes of childhood unnatural death. In both Johannesburg and Durban, the majority of deaths occurred in the Black population whereas in Cape Town, it occurred in the Coloured group. Passenger MVA's, besides drowning, was the leading cause of death in the White population group. The age group most at risk was found to be the 5-9 year group in Durban, and the 10-13 year group in Cape Town. In Johannesburg no significant age variation was evident. Deaths due to passenger MVA's were found to be uncommon in Pretoria, East London, and Port Elizabeth, possibly reflecting the low vehicle usage. Legislation enforcing restraint of children in cars has been shown to reduce child passenger morality [86].

FIREARM FATALITIES

Johannesburg followed by Cape Town and Durban, represented the highest proportions of firearm related deaths in the study population. The majority of deaths occurred in the Black population in all cities with the exception of Cape Town, where there was no significant difference in the number of fatalities between the Black and the Coloured groups. No significant age variation was evident in Pretoria, Port Elizabeth, and East London. In Johannesburg, however, fatalities peaked in the 1-4 year age group, whereas in Cape Town, and Durban, the 5-9 and the 10-13 year age groups were at risk. With the exception of Cape Town, and Durban, firearm related deaths were recorded in the less than 1 year age group; Johannesburg, and East London accounted for the majority.

Of the total number of 76 firearm related deaths, 67 deaths i.e. 88.2% were homicidal, whilst 4 deaths were suicidal and 4 were unintentional. The latter accounted for 5.3% of firearm related deaths. In 1 case, the manner of death was undetermined.

An increasing incidence of firearm-related death and injury was demonstrated in Cape Town and Kwazulu Natal. In Kwazulu Natal, firearm related injury in children under 13 years was found to have a 10% mortality rate. As in Cape Town, in only a few cases could the circumstances regarding the injury or death, be accurately evaluated. In Cape Town, this was attributed to poor record keeping by the Police and Health Care Workers. [1,17]

CAUSES OF DEATH PECULIAR TO INDIVIDUAL CITIES

In Pretoria, common causes of childhood unnatural death included inhalation of poisonous gas, ingestion of poison, and medical procedures. In Port Elizabeth, the causes included abandonment, medical procedures, and sharp force trauma.

In terms of the Inquest Act, No. 59 of 1959, all iatrogenic deaths warrant a medico-legal autopsy as these deaths are deemed to be unnatural. Pretoria and Port Elizabeth accounted for the majority of medical procedure related deaths in the study population. In most of these cases the manner of death was unascertained (undetermined deaths).

In Pretoria, medical procedures was the second leading cause of death amongst the Black population and the leading cause of death in the White group. These deaths were most common amongst males and in the 1-4 year age group. In Port Elizabeth, it ranked as the 6th leading childhood unnatural death. The majority of these deaths occurred in the Black population and in children under 1 year of age.

Abandonment in Port Elizabeth occurred predominantly amongst males in the coloured population. It was the leading cause of death in the less than 1 year age group in this city. In a study conducted in North Carolina, USA, on abandonment of newborns and infanticide, male babies also outnumbered the females. The majority of abandoned babies were Black, and the perpetrators were found to be the mother. The main causes of death were found to be strangulation and asphyxia.[105] In Port Elizabeth , the manner of death in abandonment, in most cases could not be determined.

In both Johannesburg and Pretoria, ingestion of poison was found to be amongst the leading causes of child unnatural death. The majority of these deaths occurred in the Black population and within the 1-4 year age group. In Johannesburg, female deaths outnumbered male deaths, whereas in Pretoria, the reverse was evident. Inhalation of poisonous gas in Pretoria was found to occur predominantly in the less than 1 year and the 10-13 year age group. The Black population was also most at risk.

The NIMMS did not record the type of poison ingested or inhaled and thus this could not be evaluated. It is however known that paraffin ingestion is the most common cause of acute poisoning in the Black South African paediatric population [86,90]. Children 12-23 months were found to be most at risk as demonstrated in a study conducted in the then Transvaal and Bophutatswana.[86,90]

The highest number of deaths due to train accidents occurred in Cape Town. It accounted for 57.1% of all deaths due to this cause. Within Cape Town, train accidents was found to be the 6th leading cause of child unnatural deaths. Both the Black and the Coloured groups were equally at risk. These deaths peaked in Winter.

A high number of homicide-related deaths due to blunt force trauma was recorded in Durban. The Black child aged 5-9 years was found to be most at risk. Further investigation is needed as to whether or not these deaths were associated with child abuse.

Deaths due to sharp force trauma was found to not only be the leading cause of death in East London, but it was the leading cause of death amongst Black children less than 1 year of age. It accounted for 24.6% of deaths in this age group. These deaths occurred predominantly in the winter, male infants being most at risk. Interestingly, there were no deaths due to sharp force trauma in the older age groups. In Port Elizabeth, deaths due to sharp force trauma, also occurred predominantly in children under 1 year of age, but it was not the leading cause of death. Only a single fatality was recorded in the 5-9 year and the 10-13 year age groups whereas 6 occurred in the less than 1 year age group.

A study conducted at Red Cross Children's Hospital, Cape Town, between 1998 and 2001, described characteristics regarding shield injuries. Children who had sustained injury were found to have been used as shields when adult violence took place. The perpetrator in all of these cases were male, whereas in 85% of cases a female was the intended victim of the assault [106]. Some injuries sustained by small children, particularly, that caused by a weapon e.g. a sharp object, were deemed to be highly suggestive of shielding.

SUDDEN INFANT DEATH SYNDROME

The number of SIDS cases was found to be very small in all cities, e.g. only 2 deaths due to SIDS was recorded in Cape Town. The reason for the small numbers recorded should be investigated by the NIMSS. It is possible that these deaths are recorded as natural deaths instead of undetermined deaths. SIDS is defined as the "sudden unexpected death of an infant or young child, the cause of which remains unascertained despite a thorough post-mortem examination" [68].

MORTALITY RATES

East London was found to have the highest mortality rate in the study population. It also had the highest mortality rate for all individual age groups. Johannesburg had the second highest mortality rate, whilst Cape Town had the lowest.

RECOMMENDATIONS

Since pedestrian motor vehicle accidents have been shown to be the leading cause of unnatural death in the study sample, prevention strategies targeting the Black 5-9 year old in all cities, and the Coloured children of similar age in Port Elizabeth and Cape Town, should be implemented. This could include promoting road safety education at all schools. Education programmes have

been shown to reduce child pedestrian mortality [86]. Funds for the upgrade of roads, i.e. improving visibility, establishing pavements and pedestrian control devices, should be made available by authorities. Education regarding drunken driving should be promoted, as it is also thought to contribute to pedestrian fatalities, especially over weekends [16].

The 1-4 year old Black child was identified as being most at risk for drowning, specifically in Johannesburg. The less than 1 year age group was also at risk for drowning in Cape Town, Port Elizabeth and East London. From the NIMSS data, it does appear that the majority of fatalities occurred at home in Johannesburg, whilst in the remaining cities it occurred outside the home. The NIMSS did not record where at home the drowning fatality occurred. In order to implement prevention strategies, it is important that this be recorded, i.e. swimming pool, bath tube, bucket. Programmes which teach children to swim should be implemented at school, where possible, so targeting 5-9 year olds, whilst community-based programmes could educate care-givers about supervising infants and toddlers while in bath tubs. It could also educate them about the dangers of buckets. Education regarding securing the swimming pool and maintaining adequate supervision should also be undertaken.

The majority of burn fatalities also occurred at home. Again NIMSS did not record what type of burns caused death, e.g. scald, fire, chemical burn. This would be important when prevention strategies need to be implemented. In so doing, the risk factors involved could be evaluated as to whether they are amenable to change by legislation [56]. Studies have shown that education alone did not decrease burn injuries or mortality rates, however legislation enforcing fire resistant sleep-wear for toddlers, did [60].

Children aged 1-4 years in Johannesburg were found to be most at risk for firearm fatalities. From the available data, it does appear that in this city, and all others, the majority of firearm-related fatalities occurred at home. Deaths due to firearm injuries, in 88.2% of cases, were homicidal-related. Deaths due to unintentional firearm injuries accounted for only 5.3%. Studies have shown that unintentional firearm injury deaths are preventable by educating gun owners about safe gun storage in homes and proper handling of guns [34]. Further research regarding homicidal firearm-related deaths is needed so as to elucidate the socio-economic factors involved in these deaths.

Further investigation into the medical procedure related deaths in Pretoria, the deaths due to blunt force trauma in Durban, and abandonment of babies in Port Elizabeth, is indicated.

East London was demonstrated not only to have the highest child mortality rate in the study sample, but also the highest number of deaths due to sharp force trauma in children under 1 year of age. Investigation into the psychosocial issues involved in the deaths in this age group is indicated. It would be interesting to determine in future studies whether these deaths were associated with shielding, and whether or not the shielding was intentional. Authorities should focus on East London when funds are made available, so as to improve infrastructure and education, which could reduce the child mortality rate there.

It will also be necessary to investigate the use of alcohol and drugs, specifically in the 10-13 year age group.

It is important that standardised autopsy protocols be used by all pathologists in cases of sudden unexpected infant deaths. The NIMSS data collection form should be changed to allow for more detail regarding these deaths. Preferably, a separate data collection form should be used, which lists autopsy findings and the special investigations pertaining to each case. This would enable researchers to differentiate between a true Sudden Infant Death Syndrome case as opposed to a sudden unexpected infant death, where the death was due to natural causes. This would also then increase the recording of SIDS cases.
Babies who were allegedly born dead often present to the state mortuaries especially when the birth was not witnessed by medical personnel. The NIMSS data collection form does make provision for the recording of stillbirths and abortion as a single item. This item, to data capturers, can be confusing especially if they are not familiar with the law regarding concealment of birth, stillbirth, and abortion. In terms of the Births, Marriages and Deaths Registration Act no.81, 1963, a stillbirth is a child that was viable, i.e. achieved 6 months of gestation, but showed no sign of life after complete birth. Concealment of birth in terms of the Criminal Procedures Act no. 51, 1977, is the concealment of a dead, viable newborn. An abortion in terms of the Abortion and Sterilization Act, 1975, is the abortion of a live foetus with the intent to kill it.
It is recommended that the NIMSS data form be changed so as include stillbirth, abortion, concealment of birth as separate items. The item abandoned baby should then only be used for babies who are not newly born.

The NIMSS data collection form should also include information regarding child abuse, to facilitate future research. In essence it should be revised so as to record information that would be necessary for the implementation of injury prevention strategies. At present, unfortunately, only limited pertinent information can be derived from the data captured. The quality of work delivered by data capturers should be assessed and efforts to educate them as to how to complete

the data collection form should be made. Efforts to ensure that the data capturers are consistent in how they record the data should also be made by the NIMMS.

Data capturers where possible should also have access to the medico-legal post mortem reports, and hence be affiliated to various Forensic departments so as collect data not only regarding the circumstances of the deaths, but also data regarding the anatomic site of injury.
The validity of data collected depends completely on the reliability of the data capturers. Therefore, it is vital that a certain level of quality control has to be instituted to secure reliability of the data. Only when the greatest care is taken, while collecting data, will the interpretation be useful and the recommendations be meaningful.

CONCLUSION

The leading cause of unnatural death in this intercity comparative study was found to be pedestrian motor vehicle accidents, which accounted for one-fifth of all unnatural deaths. Other leading causes of unnatural death included drowning and burns. It is important that the South African public be made aware of the death toll incurred by motor vehicles on the paediatric population. Prevention strategies aimed, not only at reducing child pedestrian mortality, but also deaths due to drowning and burns, should be implemented nationally.

The data collected by NIMSS appears at present rather inadequate in being of value in identifying risk factors for child injury and death. It is of vital importance that pertinent data, which would aid implementation of prevention strategies be also obtained by NIMSS e.g. location of death, type of burn injury sustained, associated child abuse etc. The need for consistency in the capturing of the data and hence training of staff to collect the data accurately should be addressed by the NIMSS. The present NIMMS data collection form needs to be revised and formulated in a manner which would not only capture pertinent data, but would be understandable and unambiguous to all data capturers.

There is a need for further investigation into child mortality in the Eastern Cape, specifically in East London, where the child mortality rate appears to be very high.

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APPENDICES

ANNEXURE 1

Table 1 : Overview of transport-related deaths

	No. of deaths	Percentage
MVA Ped	270	57.1
MVA Pass	97	20.5
MVA Unspec	87	18.4
Train casualty	14	3.0
Cyclist	5	1.1

Table 2 : Overview of other UID's

	No. of deaths	Percentage
Drowning	156	34.8
Burns	142	31.7
Poisoning ingestion	34	7.6
Falls heights	22	4.9
Electrocution	15	3.3
Choking	15	3.3
Poisoning gassing	11	2.5
Strangulation	10	2.2
Other falls	9	2.0
Blunt object	9	2.0
Medical Procedure	6	1.3
Lightning	5	1.1
Firearm	4	0.9
Miscellaneous other	4	0.9
Sharp object	2	0.4
Hanging	2	0.4
Crushing	2	0.4

Table 3 : Overview of undetermined deaths

External cause of death	No. of deaths	Percentage
Medical procedure	36	18.6
Abortion/ Stillborn	34	17.5
Burns	31	16.0
SIDS	29	14.9
Drowning	16	8.2
Poisoning ingestion	13	6.7
Miscellaneous other	7	3.6
Falls height	5	2.6
Strangulation	4	2.1
Blunt object	4	2.1
Falls other	3	1.5
Poisoning gassing	2	1.0
Hanging	2	1.0
Choking / aspiration	2	1.0
Firearm	1	0.5
Sharp object	1	0.5
Crushing	1	0.5

Table 4 : Overview of homicide

	No. of deaths	Percentage
Firearm	67	29
Sharp	44	19
Abandoned	44	19
Blunt	41	17.7
Sharp	14	6
Drowning	6	2.6
Burns	4	1.7
Pois.gas	4	1.7
Pois.ing.	3	1.3
Fall (height)	2	0.9
MVA Ped	2	0.9
Other	1	0.4

Table 5 : Overview of suicide

	No. of deaths	Percentage
Hanging	14	70
Firearm	4	20
Poison ingestion	2	10

Table 6 : Overview of the manner of unnatural deaths by sex

	Male	Female	M:F ratio
Homicide % within manner	149 17.0	77 13.9	1.9 : 1
Suicide % within manner	16 1.8	4 0.7	4 : 1
Other UID's % within manner	289 33.0	160 29.0	1.8 : 1
Transport % within manner	275 31.4	196 35.5	1.4 : 1
Undetermined % within manner	146 16.7	115 20.8	1.3 : 1
Total % within manner	875	552	1.6 : 1

Table 7 : Overview of the manner of unnatural deaths by season

	Summer	Autumn	Winter	Spring
Homicide	54 14.7	46 13.4	76 21.0	55 14.7
Suicide	5 1.4	4 1.2	5 1.3	6 1.6
Other UID's	118 32.2	104 30.4	96 26.5	131 35.1
Transport	130 35.4	119 34.0	116 32.0	107 28.6
Undetermined	60 16.3	69 20.2	69 19.1	74 19.8
Totals	367	342	362	373

Table 8 : Overview of the manner of unnatural deaths by population group

	Homicide	Suicide	Other UID's	Transport	Undetermined
Asian % within manner % within group	6 2.7 21.4	3 15 10.7	7 1.5 25	9 1.9 32.1	3 1.2 10.7
Black % within manner % within group	174 78.3 15.6	12 60 1.1	372 82.5 33.4	368 78 33	188 72.8 16.9
Coloured % within manner % within group	34 15.3 17.8	4 20 2.1	36 8 18.8	66 14 34.6	51 19.7 26.7
White % within manner % within group	8 3.6 8.8	1 5 1.1	36 8 39.6	29 6.1 31.9	17 6.6 18.7
Total % within manner % within group	222	20	451	472	259

Table 9 : Overview of the manner of unnatural deaths by age

	Homicide	Suicide	Other UID's	Transport	Undetermined
< 1 year	104		50	36	143
% within age	44.3		11.1	7.6	51.3
1-4 years	57		235	115	69
% within age	24.2		52	24.3	24.7
5-9 years	39		113	196	38
% within age	16.6		25	41.4	13.6
10-13 years	35	20	54	126	29
% within age	14.9	100	11.9	26.6	10.4
Totals	235	20	452	473	279
% within age	100	100	100	100	100

Table 10 : Overview of scene of death

Scene of death	No. of deaths	Percentage
Urban Road	487	39.7
Private house	358	29.2
Sea / river / dam	82	6.7
Medical services	64	5.2
Informal settlement	52	4.2
Open land	32	2.6
Other	26	2.1
Country Road	23	1.9
Residential Institution	22	1.8
Industrial	16	1.3
Amusement	15	1.2
Countryside	11	0.9
Retail	11	0.9
Farm	10	0.8
School	9	0.7
Bar / shebeen	6	0.5

ANNEXURE 2

Table 1 : External cause of death by manner in Cape Town
n = 180

	Homicide	Suicide	Other UID's	Transport	Undetermined	Total
Firearm count	11	2				13
% within ext cause	84.6	15.4				100
% within manner	35.9	50				
% within city						7.2
Sharp count	6					6
% within ext cause	100					100
% within manner	19.4					
% within city						3.3
Blunt count	5				1	6
% within ext cause	83.3				16.7	100
% within manner	16.1				8.3	
% within city						3.3
Strangulation count	2		2			4
% within ext cause	50		50			100
% within manner	6.5		28.6			
% within city						2.2
Hanging count		1				1
% within ext cause		100				100
% within manner		25				
% within city						0.6
Poison ingest count		1	4		2	7
% within ext cause		14.3	57.1		28.6	100
% within manner		25	7		16.7	
% within city						3.9
Poison gas count	1					1
% within ext cause	100					100
% within manner	3.2					
% within city						0.6
Burns count			31			31
% within ext cause			100			100
% within manner			54.4			
% within city						17.2
Fall height count			3			3
% within ext cause			100			100
% within manner			5.1			
% within city						1.7
Fall other count			1			1
% within ext cause			100			100
% within manner			1.3			
% within city						0.6
Crushing count			1			1
% within ext cause			100			100
% within manner			1.3			
% within city						0.6
Choking/Asp count			1			1
% within ext cause			100			100
% within manner			1.3			
% within city						0.6
Drowning count	1		14		2	17
% within ext cause	5.9		82.4		11.8	100
% within manner	3.2		24.6		16.7	
% within city						9.4

MVA Ped count % within ext cause % within manner % within city				47 100 61.8		47 100 26.1
MVA Pass count % within ext cause % within manner % within city				16 100 21.1		16 100 9
MVA Unspec count % within ext cause % within manner % within city				5 100 6.6		5 100 2.8
Railway count % within ext cause % within manner % within city				8 100 10.5		8 100 4.4
Med Proc count % within ext cause % within manner % within city					1 100 8.3	1 100 0.6
SIDS count % within ext cause % within manner % within city					2 100 16.7	2 100 1.1
Abortion/Still count % within ext cause % within manner % within city					3 100 25	3 100 1.7
Abandoned count % within ext cause % within manner % within city	5 100 16.1					5 100 2.8
Explosive count % within ext cause % within manner % within city					1 100 8.3	1 100 0.6
Totals count % within city	31 17.2	4 2.2	57 31.7	76 42.2	12 6.7	180 100

Table 2 : External causes of death in Cape Town by sex
n = 179

	Male	Female	Total	M:F ratio
Firearm count	8	5	13	1.6:1
% within ext cause	61.5	38.5	100	
% within manner	6.8	8.2	15	
Sharp count	5	1	6	5:1
% within ext cause	83.3	16.7	100	
% within manner	4.2	1.6	5.8	
Blunt count	5	1	6	5:1
% within ext cause	83.3	16.7	100	
% within manner	4.2	1.6	5.8	
Strangulation count	3	1	4	3:1
% within ext cause	75	25	100	
% within manner	2.5	1.6	4.1	
Hanging count	1		1	
% within ext cause	100		100	
% within manner	0.9		0.9	
Poison ingest count	2	5	7	1:2.5
% within ext cause	28.6	71.4	100	
% within manner	1.7	8.2	9.9	
Poison gas count	1		1	
% within ext cause	100		100	
% within manner	0.9		0.9	
Burns count	15	15	30	1:1
% within ext cause	50	50	100	
% within manner	17.7	24.6	42.3	
Fall height count	1	2	3	0.5:1
% within ext cause	33.3	66.7	100	
% within manner	0.9	3.3	4.2	
Fall other count	1		1	
% within ext cause	100		100	
% within manner	0.9		0.9	
Crushing count	1		1	
% within ext cause	100		100	
% within manner	0.9		0.9	
Choking/Asp count	1		1	
% within ext cause	100		100	
% within manner	0.9		0.9	
Drowning count	15	2	17	7.5:1
% within ext cause	88.2	11.8	100	
% within manner	12.7	3.3	16	
MVA Ped count	32	15	47	2.1:1
% within ext cause	68.1	31.9	100	
% within manner	27.1	24.6	51.7	
MVA Pass count	9	7	16	1.3:1
% within ext cause	56.3	43.8	100	
% within manner	7.6	11.5	19.1	
MVA Unspec count	3	2	5	1.5:1
% within ext cause	60	40	100	
% within manner	2.5	3.3	5.8	
Railway count	7	1	8	7:1
% within ext cause	87.5	12.5	100	
% within manner	6	1.6	7.6	
Med Proc count	1		1	
% within ext cause	100		100	
% within manner	0.9		0.9	

SIDS count % within ext cause % within manner	1 50 0.9	1 50 1.6	2 100 2.15	1:1
Abortion/Still count % within ext cause % within manner	1 33.3 0.9	2 66.7 3.3	3 100 4.2	0.5:1
Abandoned count % within ext cause % within manner	5 100 4.2		5 100 4.2	
Explosive count % within ext cause % within manner		1 100 1.6	1 100 1.6	
Totals count % within city	118 65.9	61 34.1	179 100	

Table 3 : External causes of death in Cape Town by season
n = 178

	Summer	Autumn	Winter	Spring	Total
Firearm	4	3	3	2	12
Sharp	1	2	3	0	6
Blunt	1	2	1	2	6
Strangulation	2	2	0	0	4
Hanging	0	1	0	0	1
Poison ingest	3	1	2	1	7
Poison gas	0	0	0	1	1
Burns	2	14	9	6	31
Fall height	0	1	1	1	3
Fall other	0	0	1	0	1
Crushing	1	0	0	0	1
Choking/Asp	0	1	0	0	1
Drowning	3	5	5	3	16
MVA Ped	20	13	7	7	47
MVA Pass	6	4	5	1	16
MVA Unspec	1	1	0	3	5
Railway	2	0	5	1	8
Med Proc	0	0	1	0	1
SIDS	1	0	0	1	2
Abortion/Still	2	0	0	1	3
Abandoned	1	0	1	3	5
Explosive	1	0	0	0	1
Totals	51	50	44	33	178
% within city	28.7	28.1	24.7	18.5	100

Table 4 : External causes of death in Cape Town by population group
n = 177

	Black	Coloured	White	Total
Firearm count	7	5	1	13
% within ext cause	53.8	38.5	7.7	100
% within manner	8.6	5.8	10	7.3
Sharp count	1	5		6
% within ext cause	16.7	83.3		100
% within manner	1.2	5.8		3.4
Blunt count	1	5		6
% within ext cause	16.7	83.3		100
% within manner	1.2	5.8		3.4
Strangulation count	3	1		4
% within ext cause	75	25		100
% within manner	3.7	1.2		2.3
Hanging count	1			1
% within ext cause	100			100
% within manner	1.2			0.6
Poison ingest count	4	3		7
% within ext cause	57.1	42.9		100
% within manner	4.9	3.5		4
Poison gas count		1		1
% within ext cause		100		100
% within manner		1.2		0.6
Burns count	17	14		31
% within ext cause	54.8	45.2		100
% within manner	21	16.3		17.5
Fall height count		2	1	3
% within ext cause		66.7	33.3	100
% within manner		2.3	10	1.7
Fall other count	1			1
% within ext cause	100			100
% within manner	1.2			0.6
Crushing count			1	1
% within ext cause			100	100
% within manner			10	0.6
Choking/Asp count	1			1
% within ext cause	100			100
% within manner	1.2			0.6
Drowning count	9	5	3	17
% within ext cause	52.9	29.4	17.6	100
% within manner	11.1	5.8	30	9.6
MVA Ped count	24	22	1	47
% within ext cause	51.1	46.8	2.1	100
% within manner	29.6	25.6	10	26.6
MVA Pass count	5	8	3	16
% within ext cause	31.3	50	18.8	100
% within manner	6.2	9.3	30	9
MVA Unspec count	3	2		5
% within ext cause	60	40		100
% within manner	3.7	2.3		2.8
Railway count	4	4		8
% within ext cause	50	50		100
% within manner	4.9	4.7		4.5
Med Proc count		1		1
% within ext cause		100		100
% within manner		1.2		0.6

SIDS count % within ext cause % within manner		2 100 2.3		2 100 1.1
Abortion/Still count % within ext cause % within manner		1 100 1.2		1 100 0.6
Abandoned count % within ext cause % within manner		4 100 4.7		4 100 2.3
Explosive count % within ext cause % within manner		1 100 1.2		1 100 0.6
Total count % within city	81 45.8	86 48.6	10 5.6	177 100

Table 5 : External cause of death in Cape Town by age
n = 180

	< 1 y	1-4 y	5-9 y	10-13 y	Total
Firearm count % within age group		2 3.5	5 8.3	6 18.2	13 7.2
Sharp count % within age group	1 3.3	1 1.8		4 12.1	6 3.3
Blunt count % within age group		4 7	2 3.3		6 3.3
Strangulation count % within age group	1 3.3	1 1.8	2 3.3		4 2.2
Hanging count % within age group				1 3	1 0.5
Poison ingest count % within age group		3 5.3	2 3.3	2 6.1	7 3.99
Poison gas count % within age group	1 3.3				1 0.6
Burns count % within age group	5 16.7	12 21.1	13 21.7	1 3	31 17.2
Fall height count % within age group		2 3.5	1 1.7		3 1.7
Fall other count % within age group	1 3.3				1 0.6
Crushing count % within age group		1 1.8			1 0.6
Choking/Asp count % within age group		1 1.8			1 0.6
Drowning count % within age group	4 13.3	7 12.3	6 10		17 9.4
MVA Ped count % within age group	2 6.7	14 24.6	23 38.3	8 24.2	47 26.1
MVA Pass count % within age group	3 10	4 7	3 5	6 18.2	16 8.9
MVA Unspec count % within age group		3 5.3		2 6.1	5 2.8
Railway count % within age group		2 3.5	3 5	3 9.1	8 4.4
Med Proc count % within age group	1 3.3				1 0.6
SIDS count % within age group	2 6.7				2 1.1
Abortion/Still count % within age group	3 10				3 1.7
Abandoned count % within age group	5 16.7				5 2.8
Explosive count % within age group	1 3.3				1 0.6
Totals count % within city	30 100	57 100	60 100	33 100	180 100

Table 6(a). : Homicide by age and manner

	< 1 year	1-4 years	5-9 years	10-13 years	Total
Firearm % within age group		2 33.3	5 62.5	4 50	11 35.5
Sharp % within age group	1 11.1	1 16.7		4 50	6 19.4
Blunt % within age group		3 50	2 25		5 16.1
Strangulation % within age group	1 11.1		1 12.5		2 6.5
Poison gas % within age group	1 11.1				1 3.2
Drowning % within age group	1 11.1				1 3.2
Abandoned % within age group	5 55.6				5 16.1
TOTALS % within manner % within age group	9 29 100	6 19.4 100	8 25.8 100	8 25.8 100	31 100 100

Table 6(b) : Suicide by age and manner

	< 1 year	1-4 years	5-9 years	10-13 years	Total
Firearm % within age group				2 50	2 50
Hanging % within age group				1 25	1 25
Poison ingest % within age group				1 25	1 25
TOTALS % within manner % within city				4 100 100	4 100 100

Table 6(c) : Other UID's by age and manner

	< 1 year	1-4 years	5-9 years	10-13 years	Total
Strangulation % within age group		1 3.7	1 4.5		2 3.5
Poison ingest % within age group		3 11.1	1 4.5		4 7
Burn % within age group	5 71.4	12 44.4	13 59.1	1 100	31 54.4
Fall height % within age group		2 7.4	1 4.5		3 5.3
Fall other % within age group	1 14.3				1 1.8
Crushing % within age group		1 3.7			1 1.8
Choking/Asp % within age group		1 3.7			1 1.8
Drowning % within age group	1 14.3	7 25.9	6 27.3		14 24.6
TOTALS % within manner % within age group	7 12.3 100	27 47.4 100	22 38.6 100	1 1.7 100	57 100 100

Table 6(d) : Transport-related deaths by age and manner

	< 1 year	1-4 years	5-9 years	10-13 years	Total
MVA Ped % within age group	2 40	14 60.9	23 793	8 42.1	47 61..8
MVA Pass % within age group	3 60	4 17.4	3 10.3	6 31.6	16 21.1
MVA Unspec % within age group		3 13		2 10.5	5 6.6
Railway % within age group		2 8.7	3 10.3	3 15.8	8 10.5
TOTALS % within manner % within age group	5 6.6 100	23 30.3 100	29 38.2 100	19 25 100	76 100 100

Table 6(e) : Undetermined deaths by age and manner

	< 1 year	1-4 years	5-9 years	10-13 years	Total
Blunt % within age group		1 100			1 8.3
Poison ingest % within age group			1 100	1 100	2 16.7
Drowning % within age group	2 22.2				2 16.7
Med Proc % within age group	1 11.1				1 8.3
SIDS % within age group	2 22.2				2 16.7
Abortion/Still % within age group	3 33.3				3 25
Explosive % within age group	1 11.1				1 8.3
TOTALS % within age group % within manner	9 100 77	1 100 8.3	1 100 8.3	1 100 8.3	12 100 100

ANNEXURE 3

Table 1 : External causes of death by manner in Durban
n = 286

	Homicide	Suicide	Other UID's	Transport	Undetermined	Total
Firearm count	9	1			1	11
% within ext cause	81.8	9.1			9.1	100
% within manner	31	25			1.9	
% within city						3.8
Sharp count	4				1	5
% within ext cause	80				20	100
% within manner	13.8				1.9	
% within city						1.7
Blunt count	9		3		1	13
% within ext cause	69.2		23.1		7.7	100
% within manner	31		3.75		1.9	
% within city						4.5
Strangulation count	3		2		1	6
% within ext cause	50		33.3		16.7	100
% within manner	10.3		2.5		1.9	
% within city						2.1
Hanging count		3			1	4
% within ext cause		75			25	100
% within manner		75			1.9	
% within city						1.4
Poison (ingest) count			1		2	3
% within ext cause			33.3		66.7	100
% within manner			1.25		3.9	
% within city						1
Poison (gas) count			2		1	3
% within ext cause			66.7		33.3	100
% within manner			2.5		1.9	
% within city						1
Burns count	2		26		16	44
% within ext cause	4.5		59.1		36.4	100
% within manner	6.9		32.5		30.8	
% within city						15.4
Fall (height) count			4		1	5
% within ext cause			80		20	100
% within manner			5		1.9	
% within city						1.7
Fall (other) count			3		1	4
% within ext cause			75		25	100
% within manner			3.75		1.9	
% within city						1.4
Choking/Asp count			2			2
% within ext cause			100			100
% within manner			2.5			
% within city						0.7
Drowning count			28		5	33
% within ext cause			84.8		15.2	100
% within manner			35		9.6	
% within city						11.5
Lightning count			2			2
% within ext cause			100			100
% within manner			2.5			
% within city						0.7

MVA Ped count % within ext cause % within manner % within city				66 100 54.5		66 100 23.1
MVA Pass count % within ext cause % within manner % within city				19 100 15.7		19 100 6.6
MVA Unspec % within ext cause % within manner % within city				34 100 28.1		34 100 11.8
Cyclist count % within ext cause % within manner % within city				2 100 1.7		2 100 0.7
Med Proc count % within ext cause % within manner % within city			3 27.3 3.75		8 72.7 15.4	11 100 3.8
SIDS count % within ext cause % within manner % within city					3 100 5.8	3 100 1
Abortion/Still count % within ext cause % within manner % within city					5 100 9.6	5 100 1.7
Abandoned count % within ext cause % within manner % within city	1 100 3.5					1 100 0.3
Electrocution count % within ext cause % within manner % within city			4 100 5			4 100 1.4
Explosive count % within ext cause % within manner % within city					2 100 3.9	2 100 0.7
Other count % within ext cause % within manner % within city	1 25 3.5				3 75 5.8	4 100 1.4
Totals count % within city	29 100	4 100	80 100	121 100	52 100	286 100

Table 2 : External causes of death in Durban by sex
n = 282

	Male	Female	Total	M to F ratio
Firearm count % within ext cause % within manner	4 36.4 2.5	7 63.6 5.8	11 100	1 : 1.7
Sharp count % within ext cause % within manner	4 80 2.5	1 20 0.8	5 100	4 : 1
Blunt count % within ext cause % within manner	8 61.5 4.9	5 38.5 4.2	13 100	1.6 : 1
Strangulation count % within ext cause % within manner	2 33.3 1.2	4 66.7 3.3	6 100	1 : 2
Hanging count % within ext cause % within manner	4 100 2.5		4 100	
Poison ingest count % within ext cause % within manner	2 66.7 1.2	1 33.3 0.8	3 100	2 : 1
Poison gas count % within ext cause % within manner	2 66.7 1.2	1 33.3 0.8	3 100	2 : 1
Burns count % within ext cause % within manner	19 43.2 11.7	25 56.8 20.8	44 100	1 : 13
Fall height count % within ext cause % within manner	4 80 2.5	1 20 0.8	5 100	4 : 1
Fall other count % within ext cause % within manner	4 100 2.5		4 100	
Choking/Asp count % within ext cause % within manner	1 50 0.6	1 50 0.8	2 100	1 : 1
Drowning count % within ext cause % within manner	23 69.7 14.2	10 30.3 8.3	33 100	2.3 : 1
Lightning count % within ext cause % within manner	2 100 1.2		2 100	
MVA Ped count % within ext cause % within manner	39 59.1 24.1	27 40.9 22.5	66 100	1.4 : 1
MVA Pass count % within ext cause % within manner	9 47.4 5.6	10 52.6 8.3	19 100	0.9 : 1
MVA Unspec count % within ext cause % within manner	16 47.1 9.9	18 52.9 15	34 100	1 : 1.1
Cyclist count % within ext cause % within manner	2 100 1.2		2 100	

Med Proc count % within ext cause % within manner	7 63.6 4.3	4 36.4 3.3	11 100	1.8 : 1
SIDS count % within ext cause % within manner	1 33.3 0.6	2 66.7 1.6	3 100	1 : 2
Abortion/Stil count % within ext cause % within manner	1 100 0.6		1 100	
Abandoned count % within ext cause % within manner	1 100 0.6		1 100	
Electrocution count % within ext cause % within manner	3 75 1.9	1 25 0.8	4 100	3 : 1
Explosive count % within ext cause % within manner	1 50 0.6	1 50 0.8	2 100	1 : 1
Other count % within ext cause % within manner	3 75 1.9	1 25 0.8	4 100	3 : 1
Totals count % within city	162 57.4	120 42.6	282 100	

Table 3 : External causes of death in Durban by season
n = 283

	Summer	Autumn	Winter	Spring	Total
Firearm	3	4	1	3	11
Sharp	1	2	0	2	5
Blunt	4	4	2	3	13
Strangulation	2	3	1	0	6
Hanging	1	0	0	3	4
Poison ingest	0	0	2	1	3
Poison gas	1	2	0	0	3
Burns	7	10	12	15	44
Fall height	1	2	2	0	5
Fall other	1	0	2	1	4
Choking/Asp	0	1	1	0	2
Drowning	9	5	3	15	32
Lightning	0	0	2	0	2
MVA Ped	15	15	19	17	66
MVA Pass	2	5	3	8	18
MVA Unspec	11	8	6	9	34
Cyclist	0	1	1	0	2
Med Proc	3	3	4	1	11
SIDS	0	1	2	0	3
Abortion/Still	0	0	2	2	4
Abandoned	0	0	1	0	1
Electrocution	1	1	1	1	4
Explosive	1	1	0	0	2
Other	1	1	1	1	4
Totals % within city	64 22.6	69 24.4	66 23.3	84 29.7	283 100

Table 4 : Causes of death in Durban by population group
n = 283

	Asian	Black	Coloured	White	Total
Firearm count	3	7	1		11
% within ext cause	27.3	63.6	9.1		100
% within manner	17.6	2.8	0.9		
Sharp count		5			5
% within ext cause		100			100
% within manner		2			
Blunt count		12	1		13
% within ext cause		92.3	7.7		100
% within manner		4.8	0.9		
Strangulation count	1	4	1		6
% within ext cause	16.7	66.7	16.7		100
% within manner	5.9	1.6	0.9		
Hanging count	1	3			4
% within ext cause	25	75			100
% within manner	5.9	1.2			
Poison ingest count		3			3
% within ext cause		100			100
% within manner		1.2			
Poison gas count		3			3
% within ext cause		100			100
% within manner		1.2			
Burns count	1	43			44
% within ext cause	2.3	97.7			100
% within manner	5.9	17.2			
Fall height count	2	3			5
% within ext cause	40	60			100
% within manner	11.8	1.2			
Fall other count		4			4
% within ext cause		100			100
% within manner		1.6			
Choking/Asp count		2			2
% within ext cause		100			100
% within manner		0.8			
Drowning count		29	2	2	33
% within ext cause		87.9	6.1	6.1	100
% within manner		11.6	1.8	40	
Lightning count		2			2
% within ext cause		100			100
% within manner		0.8			
MVA Ped count	2	60	3	1	66
% within ext cause	3	90.9	4.5	1.5	100
% within manner	11.8	24	27.2	20	
MVA Pass count	2	14	2	1	19
% within ext cause	10.5	73.7	10.5	5.3	100
% within manner	11.8	5.6	1.8	20	
MVA Unspec count	2	32			34
% within ext cause	5.9	94.1			100
% within manner	11.8	12.8			
Cyclist count	1			1	2
% within ext cause	50			50	100
% within manner	5.9			20	

Med Proc count % within ext cause % within manner		10 90.9 4	1 9.1 0.9		11 100
SIDS count % within ext cause % within manner		3 100 1.2			3 100
Abortion/Still count % within ext cause % within manner		2 100 0.8			2 100
Abandoned count % within ext cause % within manner	1 100 5.9				1 100
Electrocution count % within ext cause % within manner		4 100 1.6			4 100
Explosive count % within ext cause % within manner		2 100 0.8			2 100
Other count % within ext cause % within manner	1 25 5.9	3 75 1.2			4 100
Totals count % within city	17 6	250 88.3	11 3.9	5 1.8	283 100

Table 5 : External causes of death in Durban by age
n = 286

	< 1 year	1-4 years	5-9 years	10-13 y	Total
Firearm count % within age group		3 3.4	4 3.9	4 5.8	11
Sharp count % within age group		3 3.4		2 2.9	5
Blunt count % within age group		4 4.6	7 6.9	2 2.9	13
Strangulation count % within age group	3 10.7	1 1.1	1 1	1 1.4	6
Hanging count % within age group				4 5.8	4
Poison ingest count % within age group		1 1.1	1 1	1 1.4	3
Poison gas count % within age group	1 3.6	2 2.3			3
Burns count % within age group	3 10.7	29 33.3	10 9.8	2 2.9	44
Fall height count % within age group		1 1.1	1 1	3 4.3	5
Fall other count % within age group		2 2.3	1 1	1 1.4	4
Choking/Asp count % within age group	1 3.6	1 1.1			2
Drowning count % within age group		13 14.9	13 12.7	7 10.1	33
Lightning count % within age group		1 1.1		1 1.4	2
MVA Ped count % within age group	3 10.7	12 13.8	33 32.4	18 26.1	66
MVA Pass count % within age group	3 10.7	2 2.3	8 7.8	6 8.7	19
MVA Unspec count % within age group		6 6.9	19 18.6	9 13	34
Cyclist count % within age group				2 2.9	2
Med Proc count % within age group	5 17.9	3 3.4	3 2.9		11
SIDS count % within age group	2 7.1	1 1.1			3
Abortion/Still count % within age group	5 17.9				5
Abandoned count % within age group	1 3.6				1
Electrocution count % within age group				4 5.8	4
Explosive count % within age group	1 3.6			1 1.4	2
Other count % within age group		2 2.3	1 1	1 1.4	4
Totals count % within age group	28 100	87 100	102 100	69 100	286 100

Table 6(a) : Homicide by age and manner

	< 1 year	1-4 years	5-9 years	10-13 years	Total
Firearm % within age group		2 22.2	4 40	3 37.5	9 31
Sharp % within age group		2 22.2		2 25	4 13.8
Blunt % within age group		2 22.2	5 50	2 25	9 31
Strangulation % within age group	1 50		1 10	1 12.5	3 10.3
Burn % within age group		2 22.2			2 6.9
Abandoned % within age group	1 50				1 3.4
Other % within age group		1 11.1			1 3.4
TOTALS % within manner % within age group	2 7 100	9 31.0 100	10 34.5 100	8 27.6 100	29 100 100

Table 6(b) : Suicide by age and manner

	< 1 year	1-4 years	5-9 years	10-13 years	Total
Firearm % within age group				1 25	1 25
Hanging % within age group				3 75	3 75
TOTALS % within age group				4 100	4 100

Table 6(c) : Other UID's by age and manner

	< 1 year	1-4 years	5-9 years	10-13 years	Total
Blunt % within age group		2 4.9	1 4.8		3 3.8
Strangulation % within age group	1 33.3	1 2.4			2 2.5
Poison ingest % within age group		1 2.4			1 1.3
Poison gas % within age group		2 4.9			2 2.5
Burn % within age group	1 33.3	17 41.5	7 33.3	1 6.7	26 32.5
Fall height % within age group		1 2.4	1 4.8	2 13.3	4 5
Fall other % within age group		2 4.9		1 6.7	3 3.8
Choking/Asp % within age group	1 33.3	1 2.4			2 2.5
Drowning % within age group		11 26.8	11 52.4	6 40	28 35
Lightning % within age group		1 2.4		1 6.7	2 2.5
Med Proc % within age group		2 4.9	1 4.8		3 3.8
Electrocution % within age group				4 26.7	4 5
TOTALS % within manner % within age group	3 3.8 100	41 51.3 100	21 26.3 100	15 18.8 100	80 100 100

Table 6(d) : Transport-related by age and manner

	< 1 year	1-4 years	5-9 years	10-13 years	Total
MVA Ped % within age group	3 50	12 60	33 55	18 51.4	66 54.5
MVA Pass % within age group	3 50	2 10	8 13.3	6 17.1	19 15.7
MVA Unspec % within age group		6 30	19 31.7	9 25.7	34 28.1
Cyclist % within age group				2 5.7	2 1.7
TOTALS % within manner % within age group	6 5 100	20 16.5 100	60 49.6 100	35 30 100	121 100 100

Table 6(e) : Undetermined deaths by age and manner

	< 1 year	1-4 years	5-9 years	10-13 years	Total
Firearm % within age group		1 5.9			1 1.95
Sharp % within age group		1 5.9			1 1.9
Blunt % within age group			1 9.1		1 1.9
Strangulation % within age group	1 5.9				1 1.9
Hanging % within age group				1 14.3	1 1.9
Poison ingest % within age group			1 9.1	1 14.3	2 3.85
Poison gas % within age group	1 5.9				1 1.95
Burn % within age group	2 11.85	10 58.8	3 27.3	1 14.3	16 30.8
Fall height % within age group				1 14.3	1 1.9
Fall other % within age group			1 9.1		1 1.9
Drowning % within age group		2 11.8	2 18.2	1 14.3	5 9.6
Med Proc % within age group	5 29.4	1 5.9	2 18.2		8 15.4
SIDS % within age group	2 11.85	1 5.9			3 5.8
Abortion/Still % within age group	5 29.4				5 9.6
Explosive % within age group	1 5.9			1 14.3	2 3.8
Other % within age group		1 5.9	1 9.1	1 14.3	3 5.8
TOTALS % within manner % within age group	17 32.7 100	17 32.7 100	11 21.2 100	7 13.5 100	52 100 100

ANNEXURE 4

Table 1 : External causes of death in East London by manner
n = 150

	Homicide	Suicide	Other UID's	Transport	Undetermined	Total
Firearm count	8		1			9
% within ext cause	88.9		11.1			100
% within manner	15.4		2.3			
% within city						6
Sharp count	20					20
% within ext cause	100					100
% within manner	38.5					
% within city						13.3
Blunt count	6		1			7
% within ext cause	85.7		14.3			100
% within manner	11.5		2.3			
% within city						4.7
Strangulation count	5		1		2	8
% within ext cause	62.5		12.5		25	100
% within manner	9.6		2.3		14.3	
% within city						5.3
Hanging count	4					4
% within ext cause	100					100
% within manner						
% within city						2.7
Poison (ingest) count			1		1	2
% within ext cause			50		50	100
% within manner			2.3		7.1	
% within city						1.3
Burns count			14		1	15
% within ext cause			93.3		6.7	100
% within manner			32.6		7.1	
% within city						10
Fall (height) count			1		1	2
% within ext cause			50		50	100
% within manner			2.3		7.1	
% within city						1.3
Fall (other) count					1	1
% within ext cause					100	100
% within manner					7.1	
% within city						0.7
Choking/Asp count			3			3
% within ext cause			100			100
% within manner			7			
% within city						2
Drowning count	2		16		1	19
% within ext cause	10.5		84.2		5.3	100
% within manner	3.9		37.2		7.1	
% within city						12.7
Lightning count			1			1
% within ext cause			100			100
% within manner			2.3			
% within city						0.7
MVA Ped count	2			17		19
% within ext cause	10.5			89.5		100
% within manner	3.8			46		
% within city						12.7

MVA Pass count % within ext cause % within manner % within city				5 100 13.5		5 100 3.3
MVA Unspec count % within ext cause % within manner % within city				14 100 37.8		14 100 9.3
Railway count % within ext cause % within manner % within city				1 100 2.7		1 100 0.7
Abortion/Still count % within ext cause % within manner % within city					6 100 43	6 100 4
Abandoned count % within ext cause % within manner % within city	9 100 17.3					9 100 6
Electrocution count % within ext cause % within manner % within city			3 100 7			3 100 2
Other count % within ext cause % within manner % within city			1 50 2.3		1 50 7.1	2 100 1.3
Totals count % within manner % within city	52 100 34.7	4 100 2.7	43 100 28.7	37 100 24.7	14 100 9.3	150 100 100

Table 2 : External causes of death in East London by sex
n = 144

Cause of death	Male	Female	Total	M:F ratio
Firearm % within ext cause % within manner	6 66.7 6.2	3 33.3 6.4.	9 100	2 : 1
Sharp % within ext cause % within manner	19 95 19.6	1 5 2.1.	20 100	19 : 1
Blunt % within ext cause % within manner	3 42.9 3.1	4 57.1 8.5	7 100	1 : 1.3
Strangulation % within ext cause % within manner	4 50 4.1	4 50 8.5	8 100	1 : 1
Hanging % within ext cause % within manner	3 75 3.1	1 25 2.1	4 100	3 : 1
Poison (ingest) % within ext cause % within manner	2 100 2.1		2 100	
Burns % within ext cause % within manner	6 40 6.2	9 60 19.2	15 100	1 : 1.5
Fall (height) % within ext cause % within manner	2 100 2.1		2 100	
Fall (other) % within ext cause % within manner	1 100 1		1 100	
Choking/Asp % within ext cause % within manner	2 66.7 2.1	1 33.3 2.1	3 100	2 : 1
Drowning % within ext cause % within manner	15 78.9 15.5	4 21.1 8.5	19 100	3.8 : 1
Lightning % within ext cause % within manner	1 100 1		1 100	
MVA Ped % within ext cause % within manner	9 47.4 9.3	10 52.6 21.3	19 100	1 : 1
MVA Pass % within ext cause % within manner	3 60 3.1	2 40 4.3	5 100	1.5 : 1
MVA Unspec % within ext cause % within manner	10 71.4 10.3	4 28.6 8.5	14 100	2.5 : 1
Railway % within ext cause % within manner		1 100 2.1	1 100	
Abortion/Still % within ext cause % within manner	1 50 1	1 50 2.1	2 100	1 : 1

Abandoned % within ext cause % within manner	6 75 6.2	2 25 4.3	8 100	3 : 1
Electrocution % within ext cause % within manner	3 100 3.1		3 100	
Other % within ext cause % within manner	1 100 1		1 100	
Totals % within city % within manner	97 67.4 100	47 32.6 100	144 100 100	

Table 3 : Seasonal trends in external causes of death in East London
n = 150

	Summer	Autumn	Winter	Spring	Total
Firearm	2	4	3	0	9
Sharp	3	2	15	0	20
Blunt	1	2	2	2	7
Strangulation	3	2	3	0	8
Hanging	0	1	1	2	4
Poison (ingest)	1	1	0	0	2
Burns	5	2	4	4	15
Fall (height)	0	1	1	0	2
Fall (other)	0	0	0	1	1
Choking/Asp	0	3	0	0	3
Drowning	2	7	5	5	19
Lightning	0	0	0	1	1
MVA Ped	5	5	5	4	19
MVA Pass	0	2	2	1	5
MVA Unspec	5	1	6	2	14
Railway	0	0	0	1	1
Abortion/Still	1	2	1	2	6
Abandoned	2	1	5	1	9
Electrocution	2	1	0	0	3
Other	0	1	1	0	2
Totals % within city	32 21.3	38 25.3	54 36	26 17.3	150 100

Table 4 : Causes of death in East London by population group
n = 138

	Asian	Black	Coloured	White	Total
Firearm % within ext cause % within manner		8 88.9 6.25	1 11.1 16.7		9 100
Sharp % within ext cause % within manner	1 5	19 95 14.8			20 100
Blunt % within ext cause % within manner		7 100 5.5			7 100
Strangulation % within ext cause % within manner		6 100 4.7			6 100
Hanging % within ext cause % within manner		4 100 3.1			4 100
Poison (ingest) % within ext cause % within manner		1 50 0.8	1 50 16.7		2 100
Burns % within ext cause % within manner		15 100 11.7			15 100
Fall (height) % within ext cause % within manner		2 100 1.6			2 100
Fall (other) % within ext cause % within manner		1 100 0.8			1 100
Choking/Asp % within ext cause % within manner		3 100 2.3			3 100
Drowning % within ext cause % within manner		19 100 14.8			19 100
Lightning % within ext cause % within manner		1 100 0.8			1 100
MVA Ped % within ext cause % within manner		18 94.7 14.1		1 5.3 33.3	19 100
MVA Pass % within ext cause % within manner		3 60 2.3	2 40 33.3		5 100
MVA Unspec % within ext cause % within manner		12 85.7 9.4	2 14.3 33.3		14 100
Railway % within ext cause % within manner		1 100 0.8			1 100
Abortion/Still % within ext cause % within manner		1 50 0.8		1 50 33.3	2 100

Abandoned % within ext cause % within manner		4 100 3.1			4 100
Electrocution % within ext cause % within manner		3 100 12.3			3 100
Other % within ext cause % within manner				1 100 33.3	1 100
Totals % within city % within manner	1 0.7 100	128 92.8 100	6 4.3 100	3 2.2 100	138 100 100

Table 5 : External causes of death in East London by age
n = 150

	< 1 year	1-4 years	5-9 years	10-13 years	Total
Firearm count % within age group	4 5.8		2 6.9	3 11.5	9
Sharp count % within age group	17 24.6	2 7.7	1 3.4		20
Blunt count % within age group	3 4.3	1 3.8	2 6.9	1 3.8	7
Strangulation count % within age group	7 10.1	1 3.8			8
Hanging count % within age group				4 15.4	4
Poison (ingest) count % within age group			2 6.9		2
Burns count % within age group	1 1.4	7 26.9	2 6.9	5 19.2	15
Fall (height) count % within age group	1 1.4		1 3.4		2
Fall (other) count % within age group			1 3.4		1
Choking/Asp count % within age group	3 4.3				3
Drowning count % within age group	3 4.3	7 26.9	5 17.2	4 15.4	19
Lightning count % within age group				1 3.8	1
MVA Ped count % within age group	3 4.3	3 11.5	7 24.1	6 23.1	19
MVA Pass count % within age group	4 5		2 6.9		5
MVA Unspec count % within age group	4 5.8	5 19.2	3 10.3	2 7.7	14
Railway count % within age group	1 1.4				1
Abortion/Still count % within age group	6 8.7				6
Abandoned count % within age group	9 13				9
Electrocution count % within age group	3 4.3				3
Other count % within age group	1 1.4		1 3.4		2
Totals count % within age group	69 100	26 100	29 100	26 100	150 100

Table 6.a : Homicide by age and manner

	< 1 year	1-4 years	5-9 years	10-13 years	Total
Firearm % within age group	4 10		1 25	3 75	8 15.4
Sharp % within age group	17 42.5	2 50	1 25		20 38.5
Blunt % within age group	3 7.5		2 50	1 25	6 11.5
Strangulation % within age group	4 10	1 25			5 9.6
Drowning % within age group	2 5				2 3.6
MVA Ped % within age group	1 2.5	1 25			2 3.8
Abandoned % within age group	9 22.5				9 17.3
TOTALS % within manner % within age group	40 76.9 100	4 7.7 100	4 7.7 100	4 7.7 100	52 100

Table 6.b. : Suicide by age and manner

	< 1 year	1-4 years	5-9 years	10-13 years	Total
Hanging % within age group				4 100	4 100
TOTALS % within manner % within age group				4 100 100	4 100 100

Table 6.c. : Other UID's by age and manner

	< 1 year	1-4 years	5-9 years	10-13 years	Total
Firearm % within age group			1 10		1 2.3
Blunt % within age group		1 7.1			1 2.3
Strangulation % within age group	1 11.1				1 2.3
Poison (ingest) % within age group			1 10		1 2.3
Burn % within age group	1 11.1	6 42.9	2 20	5 50	14 32.6
Fall (height) % within age group			1 10		1 2.3
Choking/Asp % within age group	3 33.3				3 7
Drowning % within age group		7 50	5 50	4 40	16 37.2
Lightning % within age group				1 10	1 2.3
Electrocution % within age group	3 33.3				3 7
Other % within age group	1 11.1				1 2.3
TOTALS % within manner % within age group	9 20.9 100	14 32.5 100	10 23.3 100	10 23.3 100	43 100

Table 6.d. : Transport by age and manner

	< 1 year	1-4 years	5-9 years	10-13 years	Total
MVA Ped % within age group	2 20	2 28.6	7 58.3	6 75	17 45.9
MVA Pass % within age group	3 30	1 7.1	2 16.7		5 13.5
MVA Unspec % within age group	4 40	5 71.4	3 25	2 25	14 37.8
Railway % within age group	1 10				1 2.7
TOTALS % within manner % within age group	10 27 100	7 19 100	12 32.4 100	8 21.6 100	37 100

Table 6.e : Undetermined by age and manner

	< 1 year	1-4 years	5-9 years	10-13 years	Total
Strangulation % within age group	2 20				2 14.3
Poison (ingest) % within age group			1 33.3		1 7.1
Burn % within age group		1 100			1 7.1
Fall (height) % within age group	1 10				1 7.1
Fall (other) % within age group			1 33.3		1 7.1
Drowning % within age group	1 10				1 7.1
Abortion/Still % within age group	6 60				6 42.9
Other % within age group			1 33.3		1 7.1
TOTALS % within manner % within age group	10 71.4 100	1 7.1 100	3 21.4 100		14 100 100

ANNEXURE 5

Table 1 : External causes of death in Johannesburg by manner
n = 444

	Homicide	Suicide	Other UID's	Transport	Undetermined	Total
Firearm count % within ext cause % within manner % within city	27 90 41.5		3 10 1.6			30 100 6.8
Sharp count % within ext cause % within manner % within city	4 100 6.1					4 100 0.9
Blunt count % within ext cause % within manner % within city	14 73.3 21.5		4 21.1 2.1		1 5.3 3.2	19 100 4.3
Strangulation count % within ext cause % within manner % within city	2 33.3 3.1		4 66.7 2.1			6 100 1.4
Hanging count % within ext cause % within manner % within city		3 100 75				3 100 0.7
Poison (ingest) count % within ext cause % within manner % within city	3 11.5 4.6	1 3.8 25	21 80.8 11.2		1 3.8 3.2	26 100 6
Poison (gas) count % within ext cause % within manner % within city			2 66.7 11.7		1 33.3 3.2	3 100 0.7
Burns count % within ext cause % within manner % within city	1 1.8 1.5		56 98.2 29.9			57 100 12.8
Fall (height) count % within ext cause % within manner % within city	1 14.4 1.5		6 85.7 3.2			7 100 1.6
Fall (other) count % within ext cause % within manner % within city			5 100 2.7			5 100 1.1
Crushing count % within ext cause % within manner % within city			1 100 0.5			1 100 0.2
Choking/Asp count % within ext cause % within manner % within city			5 83.3 2.7		1 16.7 3.2	6 100 1.4
Drowning count % within ext cause % within manner % within city	3 3.8 4.6		73 93.6 39		2 2.6 6.5	78 100 17.6

Lightning count % within ext cause % within manner % within city			1 100 0.5			1 100 0.2
MVA Ped count % within ext cause % within manner % within city				86 100 54.8		86 100 19.4
MVA Pass count % within ext cause % within manner % within city				42 100 26		42 100 9.5
MVA Unspec count % within ext cause % within manner % within city				25 100 15.9		25 100 5.6
Railway count % within ext cause % within manner % within city				3 100 1.9		3 100 0.7
Cyclist count % within ext cause % within manner % within city				1 100 0.6		1 100 0.7
Med Proc count % within ext cause % within manner % within city					3 100	3 100 0.7
SIDS count % within ext cause % within manner % within city					10 100 32.3	10 100 2.3
Abortion/Still count % within ext cause % within manner % within city					12 100 38.7	12 100 2.7
Abandoned count % within ext cause % within manner % within city	10 100 15.4					10 100 2.3
Electrocution count % within ext cause % within manner % within city			5 100 2.7			5 100 1.1
Other count % within ext cause % within manner % within city			1 100 0.5			1 100 0.2
Totals count % within city	65 14.6	4 0.9	187 42.1	157 35.4	31 7	444 100

Table 2 : External causes of death in Johannesburg by sex
n = 433

	Male	Female	Total	M:F ratio
Firearm count	20	9	29	2 : 1
% within ext cause	7.8	5.1		
% within manner	69	31		
Sharp count	3	1	4	3 : 1
% within ext cause	1.2	0.6		
% within manner	75	25		
Blunt count	10	8	18	1.3 : 1
% within ext cause	3.9	4.6		
% within manner	55.6	44.4		
Strangulation count	4	2	6	2 : 1
% within ext cause	1.6	1.1		
% within manner	66.7	33.3		
Hanging count	3		3	
% within ext cause	1.2			
% within manner	100			
Poison (ingest) count	11	15	26	1 : 1.4
% within ext cause	4.3	8.6		
% within manner	42.3	57.7		
Poison (gas) count	1	2	3	0.5 : 1
% within ext cause	0.4	1.1		
% within manner	33.3	66.7		
Burns count	32	23	55	10 : 1
% within ext cause	12.4	13.1		
% within manner	58.2	41.8		
Fall (height) count	6	1	7	6 : 1
% within ext cause	2.3	0.6		
% within manner	85.7	14.4		
Fall (other) count	4	1	5	4 : 1
% within ext cause	1.6	0.6		
% within manner	80	20		
Crushing count	1		1	
% within ext cause	0.4			
% within manner	100			
Choking/Asp count	3	3	6	
% within ext cause	1.2	1.7		
% within manner	50	50		
Drowning count	52	25	77	2.1 : 1
% within ext cause	20.2	14.3		
% within manner	67.5	32.5		
Lightning count		1	1	
% within ext cause		0.6		
% within manner		100		
MVA Ped count	47	38	85	1.2 : 1
% within ext cause	18.2	21.7		
% within manner	55.3	44.7		
MVA Pass count	18	23	41	1 : 1.3
% within ext cause	7	13.1		
% within manner	43.9	56.1		
MVA Unspec count	16	9	25	1.8 : 1
% within ext cause	6.2	5.1		
% within manner	64	36		

Railway count % within ext cause % within manner	2 0.8 66.7	1 0.6 33.3	3	2 : 1
Cyclist count % within ext cause % within manner	1 0.4 100		1	
Med Proc count % within ext cause % within manner	1 0.4 33.3	2 1.1 66.7	3	0.5 : 1
SIDS count % within ext cause % within manner	3 1.2 30	7 4 70	10	1 : 2.3
Abortion/Still count % within ext cause % within manner	8 3.1 72.7	3 1.7 27.3	11	2.7 : 1
Abandoned count % within ext cause % within manner	6 2.3 85.7	1 0.6 14.3	7	6 : 1
Electrocution count % within ext cause % within manner	5 1.9 100		5	
Other count % within ext cause % within manner	1 0.4 100		1	
Totals count % within city	258 59.6	175 40.4	433 100	

Table 3 : Seasonal trends in causes of death in Johannesburg
n = 441

	Summer	Autumn	Winter	Spring	Total
Firearm	7	3	9	11	30
Sharp	2		1	1	4
Blunt	3	4	4	8	19
Strangulation	1	3	1	1	6
Hanging	2		1	0	3
Poison (ingest)	10	3	8	5	26
Poison (gas)	1	2			3
Burns	13	7	19	18	57
Fall (height)		1	2	4	7
Fall (other)	3		1	1	5
Crushing				1	1
Choking/Asp	2	2	1	1	6
Drowning	31	8	9	30	78
Lightning				1	1
MVA Ped	26	20	17	23	86
MVA Pass	12	14	12	4	42
MVA Unspec	11	6	3	5	25
Railway		2	1		3
Cyclist				1	1
Med Proc				3	3
SIDS	3	3	1	3	10
Abortion/Still		2	4	4	10
Abandoned	2	1	4	2	9
Electrocution	3			2	5
Other		1			1
Totals	33	82	98	128	441
% within city	30.2	18.6	22.2	29	100

Table 4 : External causes of death in Johannesburg by population group
n = 439

	Asian	Black	Coloured	White	Total
Firearm count	1	23	1	4	29
% within ext cause	16.7	6.3	4.3	9.1	
% within manner	3.4	79.3	3.4	13.8	100
Sharp count		3		1	4
% within ext cause		0.8		2.3	
% within manner		75		25	100
Blunt count		16	1	2	19
% within ext cause		3.8	4.3	4.5	
% within manner		84.2	5.3	10.5	100
Strangulation count		4	1	1	6
% within ext cause		1.1	4.3	2.3	
% within manner		66.7	16.7	16.7	100
Hanging count	1	2			4
% within ext cause	16.7	0.5			
% within manner	33.3	66.7			100
Poison (ingest) count		23	2	1	26
% within ext cause		6.3	8.7	2.3	
% within manner		88.5	7.7	3.8	100
Poison (gas) count		2	1		3
% within ext cause		0.5	4.3		
% within manner		66.7	33.3		100
Burns count	1	55		1	57
% within ext cause	16.7	15.0		2.3	
% within manner	1.8	96.5			100
Fall (height) count		7			7
% within ext cause		1.9			
% within manner		100			100
Fall (other) count		4		1	5
% within ext cause		1.1		2.3	
% within manner		80		20	100
Crushing count		1			1
% within ext cause		0.27			
% within manner		100			100
Choking/Asp count		3	2	1	6
% within ext cause		0.8	8.7	2.3	
% within manner		50	33.3	16.7	100
Drowning count		61	6	10	77
% within ext cause		16.7	26.1	22.7	
% within manner		79.2	7.8	13	100
Lightning count		1			1
% within ext cause		0.27			
% within manner		100			100
MVA Ped count	1	78	3	4	86
% within ext cause	16.7	21.3	13	9.1	
% within manner	1.2	90.7	3.5	4.7	100
MVA Pass count		25	4	12	41
% within ext cause		6.8	17.4	27.3	
% within manner		61	9.8	29.3	100
MVA Unspec count	1	21	1	2	25
% within ext cause	16.7	5.7	4.3	4.5	
% within manner	4	84	4	8	100

Railway count % within ext cause % within manner		3 0.8 100			3 100
Cyclist count % within ext cause % within manner				1 2.3 100	1 100
Med Proc count % within ext cause % within manner		1 0.27 33.3		2 4.5 66.7	3 100
SIDS count % within ext cause % within manner	1 16.7 10	7 1.9 70	1 4.3 10	1 2.3 10	10 100
Abortion/Still count % within ext cause % within manner		11 3.0 100			11 100
Abandoned count % within ext cause % within manner		9 2.5 100			9 100
Electrocution count % within ext cause % within manner		5 1.4 100			5 100
Other count % within ext cause % within manner	1 0.27 100				1 100
Totals count % within city	6 1.4	366 83.4	23 5.2	44 10	439 100

Table 5 : External causes of death in Johannesburg by age
n = 444

	< 1 year	1-4 years	5-9 years	10-13 y	Total
Firearm count % within age	5 8.9	11 5.8	8 6.7	6 7.5	30
Sharp count % within age		3 1.6		1 1.3	4
Blunt count % within age	3 5.4	12 6.3	3 2.5	1 1.3	19
Strangulation count % within age		4 2.1		2 2.5	6
Hanging count % within age				3 3.8	3
Poison (ingest) count % within age	2 3.6	19 10.1	3 2.5	2 2.5	26
Poison (gas) count % within age	1 1.8	1 0.5	1 0.8		3
Burns count % within age	4 7.1	37 19.6	12 10.1	4 5	57
Fall (height) count % within age	2 3.6	2 2.1	1 0.8		7
Fall (other) count % within age		4 2.1	1 0.8		5
Crushing count % within age			1 0.8		1
Choking/Asp count % within age	3 5.4	1 0.5		2 2.5	6

Drowning count % within age		42 22.2	25 21	11 13.8	78
Lightning count % within age				1 1.3	1
MVA Ped count % within age		22 11.6	41 34.5	23 28.8	86
MVA Pass count % within age	2 3.6	12 6.3	14 11.8	14 17.5	42
MVA Unspec count % within age		8 4.2	8 6.7	9 11.3	25
Railway count % within age		3 1.6			3
Cyclist count % within age		1 0.5			1
Med Proc count % within age	1 1.8	2 1.1			3
SIDS count % within age	10 17.9				10
Abortion/Still count % within age	12 21.4				12
Abandoned count % within age	10 17.9				10
Electrocution count % within age	1 1.8	2 1.1	1 0.8	1 1.3	5
Other count % within age		1 0.5			1
Totals count % within age group	56 100	189 100	119 100	80 100	444 100

Table 6.a : Homicide by age and manner

	< 1 year	1-4 years	5-9 years	10-13 years	Total
Firearm % within age group	4 25	10 35.7	7 58.3	6 66.7	27 41.5
Sharp % within age group		3 10.7		1 11.1	4 6.2
Blunt % within age group	2 12.5	9 32.1	2 16.7	1 11.1	14 21.5
Strangulation % within age group		2 7.1			2 3.1
Poison (ingest) % within age group		1 3.6	1 8.3	1 11.1	3 4.6
Burn % within age group		1 3.6			1 1.5
Fall (height) % within age group			1 8.3		1 1.5
Drowning % within age group		2 7.1	1 8.3		3 4.6
Abandoned % within age group	10 62.5				10 15.4
TOTALS % within manner % within age group	16 24.6 100	28 43.1 100	12 18.5 100	9 13.8 100	65 100 100

Table 6.b : Suicide by age and manner

	< 1 year	1-4 years	5-9 years	10-13 years	Total
Hanging % within age group				3 75	3 75
Poison (ingest) % within age group				1 25	1 25
TOTALS % within manner % within age group				4 100 100	4 100 100

Table 6.c : Other UID's by age and manner

	< 1 year	1-4 years	5-9 years	10-13 years	Total
Firearm % within age group	1 7.1	1 0.9	1 2.3		3 1.6
Blunt % within age group		3 2.7	1 2.3		4 2.1
Strangulation % within age group		2 1.8		2 10	4 2.1
Poison (ingest) % within age group	2 14.3	17 15.5	2 4.7		21 11.2
Poison (gas) % within age group	1 7.1	1 0.9			2 1.1
Burn % within age group	4 28.6	36 32.7	12 27.9	4 20	56 29.9
Fall (height) % within age group	2 14.3	4 3.6			6 3.2
Fall (other) % within age group		4 3.6	1 2.3		5 2.7
Crushing % within age group			1 2.3		1 0.5
Choking/Asp % within age group	3 21.4			2 10	5 2.7
Drowning % within age group		39 35.5	24 55.8	10 50	73 39
Lightning % within age group				1 5	1 0.5
Electrocution % within age group	1 7.1	2 1.8	1 2.3	1 5	5 2.7
Other % within age group		1 0.9			1 0.5
TOTALS % within manner % within age group	14 7.5 100	110 58.8 100	43 23 100	20 10.7 100	187 100 100

Table 6.d. : Transport by age and manner

	< 1 year	1-4 years	5-9 years	10-13 years	Total
MVA Ped		22	41	23	86
% within age group		47.8	65.1	50	54.8
MVA Pass	2	12	14	14	42
% within age group	100	26.1	22.2	30.4	26.8
MVA Unspec		8	8	9	25
% within age group		17.4	12.7	19.6	15.9
Railway		3			3
% within age group		6.5			1.9
Cyclist		1			1
% within age group		2.2			0.6
TOTALS	2	46	63	46	157
% within manner	1.3	29.3	40.1	29.3	100
% within age group	100	100	100	100	100

Table 6.e : Undetermined by age and manner

	< 1 year	1-4 years	5-9 years	10-13 years	Total
Blunt	1				1
% within age group	4.2				3.2
Poison (ingest)		1			1
% within age group		20			3.2
Poison (gas)			1		1
% within age group			100		3.2
Choking/Asp		1			1
% within age group		20			3.2
Drowning		1		1	2
% within age group		20		100	6.5
Med Proc	1	2			3
% within age group	4.2	40			9.7
SIDS	10				10
% within age group	41.7				32.3
Abortion/Still	12				12
% within age group	50				38.7
TOTALS	24	5	1	1	31
% within manner	77.5	16.1	3.2	3.2	100
% within age group	100	100	100	100	100

ANNEXURE 6

Table 1 : External causes of death by manner in Port Elizabeth
n = 146

	Homicide	Suicide	Other UID'S	Transport	Undetermined	Total
Firearm count % within ext cause % within manner % within city	3 100 11.5					3 100 2
Sharp count % within ext cause % within manner % within city	9 90 34.6		1 10 4			10 100 6.7
Blunt count % within ext cause % within manner % within city	3 75 11.5				1 25 2	4 100 2.7
Strangulation count % within ext cause % within manner % within city	1 50 3.9				1 50 2	2 100 1.3
Hanging count % within ext cause % within manner % within city		2 40 100	2 40 8		1 20 2	5 100 3.4
Poison (ingest) count % within ext cause % within manner % within city			1 33.3 4		2 66.7 4.1	3 100 2
Burns count % within ext cause % within manner % within city			6 35.3 24		11 64.7 22.5	17 100 11.4
Fall (height) count % within ext cause % within manner % within city			6 75 24		2 25 4.1	8 100 5.4
Fall (other) count % within ext cause % within manner % within city					1 100 2	1 100 0.7
Choking/Asp count % within ext cause % within manner % within city					1 100 2	1 100 0.7
Drowning count % within ext cause % within manner % within city			6 50 24		6 50 12.2	12 100 8.1
MVA Ped count % within ext cause % within manner % within city				28 100 63.3		28 100 18.8
MVA Pass count % within ext cause % within manner % within city				8 100 18.2		8 100 5.4

MVA Unspec count % within ext cause % within manner % within city				5 100 11.4		5 100 3.4
Railway count % within ext cause % within manner % within city				1 100 2.3		1 100 0.7
Cyclist count % within ext cause % within manner % within city				2 100 4.5		2 100 1.3
Medical proc count % within ext cause % within manner % within city					8 100 16.3	8 100 5.4
SIDS count % within ext cause % within manner % within city					6 100 12.2	6 100 4
Abortion/Still count % within ext cause % within manner % within city					6 100 12.2	6 100 4
Abandoned count % within ext cause % within manner % within city	10 100 38.5					10 100 6.7
Electrocution count % within ext cause % within manner % within city			2 100 8			2 100 1.3
Other count % within ext cause % within manner % within city			1 25 4		3 75 6.1	4 100 2.7
Total count % within manner % within city	28 100 17.8	2 100 1.4	25 100 17.1	44 100 30.1	49 100 33.6	146 100 100

Table 2 : External causes of death in Port Elizabeth by sex
n = 141

	Male	Female	Total	M : F Ratio
Firearm count % within ext cause % within manner	3 100 3.1		3 100 2.1	
Sharp count % within ext cause % within manner	7 70 7.3	3 30 6.7	10 100 7.1	2.3 : 1
Blunt count % within ext cause % within manner	2 50 2.1	2 50 4.4	4 100 2.8	1 : 1
Strangulation count % within ext cause % within manner		2 100 4.4	2 100 1.4	
Hanging count % within ext cause % within manner	5 100 5.2		5 100 3.6	
Poison (ingest) count % within ext cause % within manner	1 33.3 1	2 66.7 4.4	3 100 2.1	0.5 : 1
Burns count % within ext cause % within manner	11 64.7 11.5	6 35.3 13.3	17 100 12.1	1.8 : 1
Fall (height) count % within ext cause % within manner	7 87.5 7.3	1 12.5 2.2	8 100 5.7	7 : 1
Fall (other) count % within ext cause % within manner		1 100 2.2	1 100 0.7	
Choking/Asp count % within ext cause % within manner		1 100 2.2	1 100 0.7	
Drowning count % within ext cause % within manner	10 83.3 10.4	2 16.7 4.4	12 100 8.5	5 : 1
MVA Ped count % within ext cause % within manner	18 64.3 8.8	10 35.7 22.2	28 100 19.9	1.8 : 1
MVA Pass count % within ext cause % within manner	6 75 6.3	2 25 4.4	8 100 5.7	3 : 1
MVA Unspec count % within ext cause % within manner	5 100 5.2		5 100 3.6	
Railway count % within ext cause % within manner	1 100 1		1 100 0.7	
Cyclist count % within ext cause % within manner	2 100 2.1		2 100 1.4	
Medical proc count % within ext cause % within manner	7 87.5 7.3	1 12.5 2.2	8 100 5.7	7 : 1

SIDS count % within ext cause % within manner	3 50 3.1	3 50 6.7	6 100 4.3	
Abortion/Still count % within ext cause % within manner	1 20 1	4 80 8.9	5 100 3.6	0.25 : 1
Abandoned count % within ext cause % within manner	3 37.5 3.1	5 62.5 11.1	8 100 5.7	0.6 : 1
Electrocution count % within ext cause % within manner	2 100 2.1		2 100 1.4	
Other count % within ext cause % within manner	2 100 2.1		2 100 1.4	
Total count % within city	96 68.1	45 31.9	141 100	

Table 3 : Seasonal trends in external causes of death in Port Elizabeth
n = 144

	Summer	Autumn	Winter	Spring	Total
Firearm	1	1		1	3
Sharp	1	3	3	2	9
Blunt	2	1	1		4
Strangulation		1	1		2
Hanging		2	3		5
Poison (ingest)		2	1		3
Burns	2	5	4	5	16
Fall (height)		4	1	3	8
Fall (other)	1				1
Choking/Asp				1	1
Drowning	4	3	1	4	12
MVA Ped	6	7	12	3	28
MVA Pass	4	3	1		8
MVA Unspec	1		3	1	5
Railway			1		1
Cyclist				2	2
Medical proc	2	2	4		8
SIDS		3	1	2	6
Abortion/Still			3	3	6
Abandoned	2	2	3	3	10
Electrocution		1	1		2
Other	1	2		1	4
Totals % within city	27 18.8	39 27.1	41 28.5	37 25.7	144 100

Table 4 : External causes of death in Port Elizabeth per population group
n = 138

	Black	Coloured	White	Total
Firearm count	3			3
% within ext cause	100			100
% within manner	3.5			2.2
Sharp count	7	3		10
% within ext cause	70	30		100
% within manner	8.1	6.5		7.2
Blunt count	3	1		4
% within ext cause	75	25		100
% within manner	3.5	2.2		2.9
Strangulation count	2			2
% within ext cause	100			100
% within manner	2.3			1.4
Hanging count	5			5
% within ext cause	100			100
% within manner	5.8			3.6
Poison (ingest) count	3			3
% within ext cause	100			100
% within manner	3.5			2.2
Burns count	13	4		17
% within ext cause	76.5	23.5		100
% within manner	15.1	8.7		12.3
Fall (height) count	5	2	1	8
% within ext cause	62.5	25	12.5	100
% within manner	5.8	4.3	16.7	5.8
Fall (other) count		1		1
% within ext cause		100		100
% within manner		2.2		0.7
Choking/Asp count	1			1
% within ext cause	100			100
% within manner	1.2			0.7
Drowning count	4	5	3	12
% within ext cause	33.3	41.7	25	100
% within manner	4.7	10.9	50	8.7
MVA Ped count	21	7		28
% within ext cause	75	25		100
% within manner	24.4	15.2		20.3
MVA Pass count	4	3	1	8
% within ext cause	50	37.5	12.5	100
% within manner	4.7	6.5	16.7	5.8
MVA Unspec count	4	1		5
% within ext cause	80	20		100
% within manner	4.7	2.2		3.6
Railway count	1			1
% within ext cause	100			100
% within manner	1.2			0.7
Cyclist count		2		2
% within ext cause		100		100
% within manner		4.3		1.4
Medical proc count	5	3		8
% within ext cause	62.5	37.5		100
% within manner	5.8	6.5		5.8

SIDS count % within ext cause % within manner		6 100 13		6 100 4.3
Abortion/Still count % within ext cause % within manner	2 100 2.3			2 100 1.4
Abandoned count % within ext cause % within manner	2 28.6 2.3	5 71.4 10.9		7 100 5.1
Electrocution count % within ext cause % within manner		1 50 2.2	1 50 16.7	2 100 1.4
Other count % within ext cause % within manner	1 33.3 1.2	2 66.7 4.3		3 100 2.2
Total count % within city	86 62.3	46 33.3	6 4.3	138 100

Table 5 : External causes of death in Port Elizabeth by age
n = 146

	< 1 year	1-4 years	5-9 years	10-13 years	Total
Firearm count	2			1	3
% within age group	3			4.2	2.1
Sharp count	6		2	2	10
% within age group	9		7.1	8.3	6.8
Blunt count	3	1			4
% within age group	4.5	3.7			2.7
Strangulation count	1	1			2
% within age group	1.5	3.7			1.4
Hanging count	2		1	2	5
% within age group	3		3.6	8.3	3.4
Poison (ingest) count		3			3
% within age group		11.1			2.1
Burns count	3	7	3	4	17
% within age group	4.5	25.9	10.7	16.7	11.6
Fall (height) count	4	1	1	2	8
% within age group	6	3.7	3.6	8.3	5.5
Fall (other) count		1			1
% within age group		3.7			0.7
Choking/Asp count		1			1
% within age group		3.7			0.7
Drowning count	4	3	4	1	12
% within age group	6	11.1	14.3	4.2	8.2
MVA Ped count	7	5	10	6	28
% within age group	10.4	18.5	35.7	25	19.2
MVA Pass count	1	2	4	1	8
% within age group	1.5	7.4	14.3	4.2	5.5
MVA Unspec count		1	2	2	5
% within age group		3.7	7.1	8.3	3.4
Railway count	1				1
% within age group	1.5				0.7
Cyclist count				2	2
% within age group				8.3	1.4
Medical proc count	6		1	1	8
% within age group	9		3.6	4.2	5.5
SIDS count	6				6
% within age group	9				4.1
Abortion/Still count	6				6
% within age group	9				4.1
Abandoned count	10				10
% within age group	14.9				6.8
Electrocution count	1	1			2
% within age group	1.5	3.7			1.4
Other count	4				4
% within age group	6				2.7
Totals count	67	27	28	24	146
% within city	100	100	100	100	100

Table 6.a : Homicide by age and manner

	< 1 year	1-4 years	5-9 years	10-13 years	Total
Firearm % within age	2 9.5			1 33.3	3 11.5
Sharp % within age	6 28.6		1 100	2 66.7	9 34.6
Blunt % within age	3 14.3				3 11.5
Strangulation % within age		1 100			1 3.8
Abandoned % within age	10 47.6				10 38.5
TOTALS % within manner % within age	21 80.8 100	1 3.8 100	1 3.8 100	3 11.5 100	26 100 100

Table 6.b : Suicide by age and manner

	< 1 year	1-4 years	5-9 years	10-13 years	Total
Hanging % within age				2 100	2 100
TOTALS % within manner % within age				2 100 100	2 100 100

Table 6.c : Other UID's by age and manner

	< 1 year	1-4 years	5-9 years	10-13 years	Total
Sharp % within age			1 25		1 4
Hanging % within age	2 18.2				2 8
Poison (ingest) % within age		1 14.3			1 4
Burn % within age	2 18.2	2 28.6	2 50		6 24
Fall (height) % within age	2 18.2	1 14.3	1 25	2 66.7	6 24
Drowning % within age	3 27.3	2 28.6		1 33.3	6 24
Electrocution % within age	1 9.1	1 14.3			2 8
Other % within age	1 9.1				1 4
TOTALS % within manner % within age	11 44 100	7 28 100	4 16 100	3 12 100	25 100 100

Table 6.d : Transport by age and manner

	< 1 year	1-4 years	5-9 years	10-13 years	Total
MVA Ped	7	5	10	6	28
% within age	77.8	62.5	62.5	54.5	63.6
MVA Pass	1	2	4	1	8
% within age	11.1	25	25	9.1	18.2
MVA Unspec		1	2	2	5
% within age		12.5	12.5	18.2	11.4
Railway	1				1
% within age	11.1				2.3
Cyclist				2	2
% within age				18.2	4.5
TOTALS	9	8	16	11	44
% within manner	20.4	18.2	36.4	25	100
% within age	100	100	100	100	100

Table 6.e : Undetermined by age and manner

	< 1 year	1-4 years	5-9 years	10-13 years	Total
Blunt		1			1
% within age		9.1			2
Strangulation	1				1
% within age	3.8				2
Hanging			1		1
% within age			14.3		2
Poison (ingest)		2			2
% within age		18.2			4.1
Burn	1	5	1	4	11
% within age	3.8	45.5	14.3	80	22.4
Fall (height)	2				2
% within age	7.7				4.1
Fall (other)		1			1
% within age		9.1			2
Choking/Asp		1			1
% within age		9.1			2
Drowning	1	1	4		6
% within age	3.8	9.1	57.1		12.2
Med Proc	6		1	1	8
% within age	23.1		14.3	20	16.3
SIDS	6				6
% within age	23.1				12.2
Abortion/Still	6				6
% within age	23.1				12.2
Other	3				3
% within age	11.5				6.1
TOTALS	26	11	7	5	49
% within manner	53.1	22.4	14.3	10.2	100
% within age	100	100	100	100	100

ANNEXURE 7

Table 1 : External causes of death in Pretoria by manner
n = 161

	Homicide	Suicide	Other UID's	Transport	Undetermined	Total
Firearm count	9	1				10
% within ext cause	90	10				100
% within manner	31	50				
% within city						6.2
Sharp count	1		1			2
% within ext cause	50		50			100
% within manner	3.5		1.8			
% within city						1.2
Blunt count	4		1			5
% within ext cause	80		20			100
% within manner	13.7		1.8			
% within city						3.1
Strangulation count	1		1			2
% within ext cause	50		50			100
% within manner	3.5		1.8			
% within city						1.2
Hanging count		1				1
% within ext cause		100				100
% within manner		50				
% within city						0.6
Poison (ingest) count			6		5	11
% within ext cause			54.5		45.5	100
% within manner			10.7		13.9	
% within city						6.8
Poison (gas) count	3		7			10
% within ext cause	30		70			100
% within manner	10.3		12.5			
% within city						6.2
Burns count	1		9		3	13
% within ext cause	7.7		69.2		23.1	100
% within manner	3.5		16.1		8.3	
% within city						8.1
Fall (height) count	1		2		1	4
% within ext cause	25		50		25	100
% within manner	3.5		3.6		2.8	
% within city						2.5
Crushing count					1	1
% within ext cause					100	100
% within manner					2.8	
% within city						0.6
Choking/Asp count			4			4
% within ext cause			100			100
% within manner			7.1			
% within city						2.5
Drowning count			19			19
% within ext cause			100			100
% within manner			33.9			
% within city						11.8
Lightning count			1			1
% within ext cause			100			100
% within manner			1.8			
% within city						0.6

MVA Ped count % within ext cause % within manner % within city				26 100 68.5		26 100 16.1
MVA Pass count % within ext cause % within manner % within city				7 100 18.4		7 100 4.3
MVA Unspec count % within ext cause % within manner % within city				4 100 10.5		4 100 2.5
Railway count % within ext cause % within manner % within city				1 100 2.6		1 100 0.6
Medical proc count % within ext cause % within manner % within city			3 15.8 5.4		16 84.2 44.4	19 100 11.8
SIDS count % within ext cause % within manner % within city					8 100 22.2	8 100 5
Abortion/Still count % within ext cause % within manner % within city					2 100 5.6	2 100 1.2
Abandoned count % within ext cause % within manner % within city	9 100 31					9 100 5.6
Electrocution count % within ext cause % within manner % within city			1 100 1.8			1 100 0.6
Other count % within ext cause % within manner % within city			1 100 1.8			1 100 0.6
Total count % within city	29 18	2 1.2	56 34.8	38 23.6	36 22.4	161 100

Table 3 : Seasonal trends in external causes of death in Pretoria
n = 160

	Summer	Autumn	Winter	Spring	Total
Firearm	2	2	3	3	10
Sharp		1		1	2
Blunt	1	1	2	1	5
Strangulation	1			1	2
Hanging			1		1
Poison (ingest)	4	1	4	2	11
Poison (gas)	3	4	2	1	10
Burns	3	4	1	5	13
Fall (height)		3	1		4
Crushing				1	1
Choking/Asp	2	1	1		4
Drowning	9	5	1	4	19
Lightning				1	1
MVA Ped	3	8	5	10	26
MVA Pass	1	2	1	3	7
MVA Unspec	1	2	1		4
Railway			1		1
Medical proc	4	3	4	8	19
SIDS	3	3	1	1	8
Abortion/Still	1	1			2
Abandoned		2	5	1	8
Electrocution				1	1
Other	1				1
Totals % within city	39 24.4	43 27	34 21.2	44 27.4	160 100

Table 4 : External cause of death in Pretoria by population group
n = 161

	Asian	Black	Coloured	White	Total
Firearm count % within ext cause % within manner		7 70 5.1		3 30 16.7	10 100
Sharp count % within ext cause % within manner		2 100 1.5			2 100
Blunt count % within ext cause % within manner		4 80 2.9		1 20 5.6	5 100
Strangulation count % within ext cause % within manner		2 100 1.5			2 100
Hanging count % within ext cause % within manner		1 100 0.7			1 100
Poison (ingest) count % within ext cause % within manner		11 100 8			11 100
Poison (gas) count % within ext cause % within manner		10 100 7.2			10 100
Burns count % within ext cause % within manner		13 100 9.4			13 100
Fall (height) count % within ext cause % within manner		4 100 2.9			4 100
Crushing count % within ext cause % within manner		1 100 0.7			1 100
Choking/Asp count % within ext cause % within manner		4 100 2.9			4 100
Drowning count % within ext cause % within manner	3 15.8 75	10 52.6 7.2	1 5.3 100	5 26.3 27.8	19 100
Lightning count % within ext cause % within manner		1 100 1.5			1 100
MVA Ped count % within ext cause % within manner		26 100 18.8			26 100
MVA Pass count % within ext cause % within manner		6 85.7 4.3		1 14.3 5.6	7 100
MVA Unspec count % within ext cause % within manner		4 100 2.9			4 100
Railway count % within ext cause % within manner		1 100 0.7			1 100

Medical proc count % within ext cause % within manner		13 68.4 9.4		6 31.6 33.3	19 100
SIDS count % within ext cause % within manner		6 75 4.3		2 25 11.1	8 100
Abortion/Still count % within ext cause % within manner		2 100 1.5			2 100
Abandoned count % within ext cause % within manner	1 11.1 25	8 88.9 5.8			9 100
Electrocution count % within ext cause % within manner		1 100 0.7			1 100
Other count % within ext cause % within manner		1 100 0.7			1 100
Total count % within city	4 2.5	138 85.7	1 0.6	18 11.2	161 100

Table 5 : External causes of death in Pretoria by age
n = 161

	< 1 year	1-4 years	5-9 years	10-13 y	Total
Firearm count % within age group	1 2.4	4 6.1	2 5.9	3 15	10
Sharp count % within age group	1 2.4		1 2.9		2
Blunt count % within age group		3 4.5	2 5.9		5
Strangulation count % within age group	1 2.4	1 1.5			2
Hanging count % within age group				1 5	1
Poison (ingest) count % within age group	1 2.4	9 13.6		1 5	11
Poison (gas) count % within age group	4 9.8	3 4.5	2 5.9	1 5	10
Burns count % within age group	2 4.9	8 12.1	3 8.8		13
Fall (height) count % within age group	1 2.4	3 4.5			4
Crushing count % within age group	1 2.4				1
Choking/Asp count % within age group	1 2.4	3 4.5			4
Drowning count % within age group	1 2.4	10 15.2	6 17.6	2 10	19
Lightning count % within age group				1 5	1
MVA Ped count % within age group	1 2.4	6 9.1	13 38.2	6 30	26
MVA Pass count % within age group	1 2.4	3 4.5	3 8.8		7
MVA Unspec count % within age group	1 2.4	2 3		1 5	4
Railway count % within age group	1 2.4				1
Medical proc count % within age group	6 14.6	7 10.6	2 5.9	4 20	19
SIDS count % within age group	6 14.6	2 3			8
Abortion/Still count % within age group	2 4.9				2
Abandoned count % within age group	9 22				9
Electrocution count % within age group		1 1.5			1
Other count % within age group		1 1.5			1
Totals count % within age group	41 100	66 100	34 100	20 100	161 100

Table 6.a : Homicide by age and manner

	< 1 year	1-4 years	5-9 years	10-13 years	Total
Firearm % within age	1 6.7	4 50	2 50	2 100	9 31
Sharp % within age	1 6.7				1 3.4
Blunt % within age		2 25	2 50		4 13.8
Strangulation % within age		1 12.5			1 3.4
Poison (gas) % within age	3 20				3 10.3
Burn % within age	1 6.7				1 3.4
Fall (height) % within age		1 12.5			1 3.4
Abandoned % within age	9 60				9 31
TOTALS % within manner % within age	15 51.7 100	8 27.6 100	4 13.8 100	2 6.9 100	29 100 100

Table 6.b : Suicide by age and manner

	< 1 year	1-4 years	5-9 years	10-13 years	Total
Firearm % within age				1 50	1 50
Hanging % within age				1 50	1 50
TOTALS % within manner % within age				2 100 100	2 100 100

Table 6.c : Other UID's by age and manner

	< 1 year	1-4 years	5-9 years	10-13 years	Total
Sharp % within age			1 8.3		1 1.8
Blunt % within age		1 3			1 1.8
Strangulation % within age	1 16.7				1 1.8
Poison (ingest) % within age		5 15.2		1 20	6 10.7
Poison (gas) % within age	1 16.7	3 9.1	2 16.7	1 20	7 12.5
Burn % within age		7 21.2	2 16.7		9 16.1
Fall (height) % within age	1 16.7	1 3			2 3.6
Choking/Asp % within age	1 16.7	3 9.1			4 7.1
Drowning % within age	1 16.7	10 30.3	6 50	2 40	19 33.9
Lightning % within age				1 20	1 1.8
Med Proc % within age	1 16.7	1 3	1 8.3		3 5.4
Electrocution % within age		1 3			1 1.8
Other % within age		1 3			1 1.8
TOTALS % within manner % within age	6 10.7 100	33 58.9 100	12 21.4 100	5 9 100	56 100 100

Table 6.d. : Transport by age and manner

	< 1 year	1-4 years	5-9 years	10-13 years	Total
MVA Ped % within age	1 25	6 54.5	13 81.3	6 85.7	26 68.4
MVA Pass % within age	1 25	3 27.3	3 18.8		7 18.4
MVA Unspec % within age	1 25	2 18.2		1 14.3	4 10.5
Railway % within age	1 25				1 2.6
TOTALS % within manner % within age	4 10.5 100	11 28.9 100	16 42.1 100	7 18.5 100	38 100 100

Table 6.e : Undetermined by age and manner

	< 1 year	1-4 years	5-9 years	10-13 years	Total
Poison (ingest) % within age	1 6.3	4 28.6			5 13.9
Burn % within age	1 6.3	1 7.1	1 50		3 8.3
Fall (height) % within age		1 7.1			1 2.8
Crushing % within age	1 6.3				1 2.8
Med Proc % within age	5 31.3	6 42.9	1 50	4 100	16 44.4
SIDS % within age	6 37.5	2 14.3			8 22.2
Abortion/Still % within age	2 12.5				2 5.6
TOTALS % within manner % within age	16 44.4 100	14 38.9 100	2 5.6 100	4 11.1 100	36 100 100

ANNEXURE 8

Table 1 : Intercity comparison in the most common external causes of unnatural death

	CT	DBN	EL	JHB	PE	PTA	Total
MVA Ped count	47	66	19	86	28	26	272
% within cause	17.3	24.3	7	31.8	10.3	9.6	100
% within city	26.1	23.1	12.7	19.4	19.2	16.1	19.9
Drowning count	17	33	19	78	12	19	178
% within cause	9.6	18.5	10.6	43.8	6.7	10.7	100
% within city	9.4	11.5	12.7	17.6	8.2	11.8	13
Burns count	31	44	15	57	17	13	177
% within cause	17.5	24.9	8.5	32.2	9.6	7.3	100
% within city	17.2	15.4	10	12.8	11.6	8.1	13
MVA Pass count	16	19	5	42	8	7	97
% within cause	16.5	19.6	5.2	43.3	8.3	7.2	100
% within city	8.9	6.6	3.3	9.5	5.5	4.3	7.1
MVA Unspec count	5	34	14	25	5	4	87
% within cause	5.8	39.1	16.1	28.7	5.8	4.6	100
% within city	2.8	11.9	9.3	5.6	3.4	2.5	6.4
Firearm count	13	11	9	30	3	10	76
% within cause	17.1	14.5	11.8	39.5	3.9	13.2	100
% within city	7.2	3.9	6	6.8	2.1	6.2	5.6
Total count	129	207	81	318	73	79	887
% within city	100	100	100	100	100	100	100

Table 2 : Intercity comparison in the manner of death

	CT	DBN	EL	JHB	PE	PTA	Total
Homicide count	31	29	53	66	26	30	235
% within city	14.2	9.7	34	14.3	17.1	17.4	16.1
% within manner	13.2	12.3	22.6	28	11.1	12.8	100
Suicide count	4	4	4	4	2	2	20
% within city	1.8	1.4	2.6	0.9	1.3	1.2	1.4
% within manner	20	20	20	20	10	10	100
Other UID's count	57	80	43	190	25	57	452
% within city	26	26.8	27.6	41.2	16.5	33.1	30.9
% within manner	12.6	17.7	9.5	42	5.5	12.6	100
Transport count	76	121	37	157	44	38	473
% within city	37.8	40.5	23.7	34.1	29	22.1	32.4
% within manner	16.1	25.6	7.8	33.2	9.3	8	100
Undetermined count	51	65	19	44	55	45	279
% within city	23.3	21.8	12.2	9.5	36.2	26.2	19.1
% within manner	18.3	23.3	6.8	15.8	19.7	16.1	100
Totals count	219	299	156	461	152	172	1459
% within city	100	100	100	100	100	100	100
% of total fatalities	15	20.5	10.7	31.6	10.4	11.8	100

Table 3 : Intercity comparison in sex variation

	CT	DBN	EL	JHB	PE	PTA	Total
Male Count	138	170	100	270	98	99	875
% within age	15.8	19.4	11.4	30.9	11.2	11.3	100
% within city	63.6	57.8	66.7	60.1	67.1	57.9	61.3
Female Count	79	124	50	179	48	72	552
% within age	14.3	22.5	9.1	32.4	8.7	13	100
% within city	36.4	42.2	33.3	39.9	32.9	42.1	38.7
Total Count	217	294	150	449	146	171	1427
% within age	15.2	20.6	10.5	31.5	10.2	12	100
% within city	100	100	100	100	100	100	100

Table 4 : Intercity comparison of seasonal variation

	CT	DBN	EL	JHB	PE	PTA	Total
Summer	60	66	34	139	27	41	367
% for season	16.4	18	9.3	37.9	7.4	11.2	100
% for City	27.7	22.5	21.8	30.4	18	24	25.4
Autumn	62	72	40	83	41	44	342
% for season	18.1	21.1	11.7	24.3	12	12.9	100
% for City	28.6	24.6	25.6	18.2	27.3	25.7	23.7
Winter	57	69	56	101	43	36	362
% for season	15.8	19.1	15.5	28	11.9	10	100
% for City	26.3	23.6	35.9	22.1	28.7	5.8	25.1
Spring	38	86	26	134	39	50	373
% for season	10.2	23.1	7	36	10.5	13.4	100
% for City	17.5	29.4	16.7	29.3	26	29.2	25.8
TOTALS	217	293	156	457	150	171	1444

Table 5 : Intercity comparison in population group variation

	CT	DBN	EL	JHB	PE	PTA	Total
Asian Count		17	1	6		4	28
% within age		60.7	3.6	21.4		14.3	100
% within city		5.8	0.7	1.3		2.3	2
Black Count	100	262	132	383	90	147	1114
% within age	9	23.5	11.8	34.4	8.1	13.2	100
% within city	46.7	88.8	91.7	84	62.9	85.5	78.2
Coloured Count	101	11	7	23	47	2	191
% within age	52.9	5.8	3.7	12	24.6	1	100
% within city	47.2	3.7	4.9	5	32.9	1.2	13.4
White Count	13	5	4	44	6	19	91
% within age	14.3	5.5	4.4	48.4	6.6	20.9	100
% within city	6.1	1.7	2.8	9.6	4.2	11	6.4
Total Count	214	295	144	456	143	172	1424
% within age	15	20.7	10.1	32	10	12.1	100
% within city	100	100	100	100	100	100	100

Table 6 : Intercity comparison in age variation

	CT	DBN	EL	JHB	PE	PTA	Total
< 1 year count	49	30	73	63	72	46	333
% within age	14.7	9	21.9	18.9	21.6	13.8	100
% within city	22.4	10	46.8	13.7	47.4	26.7	22.8
1 – 4 year count	66	90	26	197	28	69	476
% within age	13.9	18.9	5.5	41.4	5.9	14.5	100
% within city	30.1	30.1	16.7	42.7	18.4	40.1	32.6
5-9 year count	66	106	31	119	28	36	386
% within age	17.1	27.5	8	30.8	7.3	9.3	100
% within city	30.1	35.5	19.9	25.8	18.4	20.9	26.5
10-13 year count	38	73	26	82	24	21	264
% within age	14.4	27.7	9.8	31.1	9.1	8	100
% within city	17.4	24.4	16.7	17.8	15.8	12.2	18.1
Total count	219	299	156	461	152	172	1459
% within age	15	20.5	10.7	31.6	10.4	11.8	100
% within city	100	100	100	100	100	100	100

Table 7.1 : Intercity comparison of MVA pedestrian fatalities by sex

	CT	DBN	EL	JHB	PE	PTA	Totals
Males	32	39	9	47	18	13	158
% within sex	20.2	24.7	5.7	29.7	11.4	8.3	100
Females	15	27	10	38	10	13	113
% within sex	13.3	23.9	8.8	33.6	8.8	11.6	100
Total count	47	66	19	85	28	26	371

Table 7.2 : Intercity comparison of MVA pedestrian fatalities by season

	CT	DBN	EL	JHB	PE	PTA	Totals
Summer	20	15	5	26	6	3	75
% within season	26.7	20	6.7	34.7	8	4	100
Autumn	13	15	5	20	7	8	68
% within season	19.1	22.1	7.4	29.4	10.3	11.8	100
Winter	7	19	5	17	12	5	65
% within season	10.8	29.7	7.7	26.1	18.5	7.7	100
Spring	7	17	4	23	3	10	64
% within season	10.9	26.6	6.3	36	4.7	15.6	100
TOTALS	47	66	19	86	28	26	272
% within season	17.3	24.3	7	31.6	10.3	9.6	100

Table 7.3 : Intercity comparison of MVA pedestrian fatalities by population group

	CT	DBN	EL	JHB	PE	PTA	Totals
Asian		2		1			3
% within group		66.7		33.3			100
Black	24	60	18	78	21	26	227
% within group	10.6	26.4	8	34.4	9.3	11.5	100
Coloured	22	3		3	7		35
% within group	62.9	8.6		8.6	20		100
White	1	1	1	4			7
% within group	14.3	14.3	14.3	57			100
TOTALS	47	66	19	86	28	26	272
% within group	17.3	24.3	7	31.6	10.3	9.6	100

Table 7.4 : Intercity comparison of MVA pedestrian fatalities by age

	CT	DBN	EL	JHB	PE	Pta	Totals
< 1 year	2	3	3		7	1	16
% within age	12.5	18.8	18.8		43.8	6.3	100
1-4 years	14	12	3	22	5	6	62
% within age	22.6	19.4	4.8	35.5	8.1	9.7	100
5-9 years	23	33	7	41	10	13	127
% within age	18.1	26	5.5	32.3	7.9	10.2	100
10-13 years	8	18	6	23	6	6	67
% within age	11.9	26.9	9	34.3	9	9	100
TOTAL	47	66	19	86	28	26	272
% within age	17.3	24.3	7	31.6	10.3	9.6	100

Table 8.1 : Intercity comparison of drowning by sex

	CT	DBN	EL	JHB	PE	PTA	Totals
Males	15	23	15	52	10	10	125
% within sex	12	18.4	12	41.6	8	8	100
Females	2	10	4	25	2	9	52
% within sex	3.8	19.2	7.7	48.1	3.8	17.4	100
TOTAL	17	33	19	77	12	19	177

Table 8.2 Intercity comparison of drowning by season

	CT	DBN	EL	JHB	PE	PTA	Totals
Summer	3	9	2	31	4	9	58
% within season	5.2	15.5	3.5	53.5	7	15.5	100
Autumn	5	5	7	8	3	5	33
% within season	15.2	15.2	21.2	24.2	9.1	15.2	100
Winter	5	3	5	9	1	1	24
% within season	20.8	12.5	20.8	37.5	4.2	4.2	100
Spring	3	15	5	30	4	4	61
% within season	5	24.6	8.2	49.2	6.6	6.6	100
TOTALS	16	32	19	78	12	19	176
% within city	9.1	18.2	10.8	44.3	6.8	10.8	100

Table 8.3 : Intercity comparison of drowning by population group

	CT	DBN	EL	JHB	PE	PTA	Totals
Asian % within population. group						3 100	3 100
Black % within population. group	9 6.8	29 22	19 14.4	61 46.2	4 3	10 7.6	132 100
Coloured % within population. group	5 26.3	2 10.5		6 31.6	5 26.3	1 5.3	19 100
White % within population. group	3 13	2 8.7		10 43.5	3 13	5 21.7	23 100
TOTALS % within city	17 9.6	33 18.6	19 10.7	77 43.5	12 6.8	19 10.7	177 100

Table 8.4 : Intercity comparison of drowning by age

	CT	DBN	EL	JHB	PE	PTA	Totals
< 1 year % within age group	4 33.3		3 25		4 33.3	1 8.3	12 100
1-4 years % within age group	7 8.5	13 15.9	7 8.5	42 51.2	3 3.7	10 12.2	82 100
5-9 years % within age group	6 10.2	13 22	5 8.5	25 42.4	4 6.8	6 10.2	59 100
10-13 years % within age group		7 28	4 16	11 44	1 4	2 8	25 100
Totals % within city	17 9.6	33 18.5	19 10.7	78 43.8	12 6.7	19 10.7	178 100

Table 9.1 : Intercity comparison of burns by sex

	CT	DBN	EL	JHB	PE	PTA	Totals
Males % within sex	15 16.5	19 20.9	6 6.6	32 35.2	11 12.1	8 8.7	91 100
Females % within sex	15 18.1	25 30.1	9 10.8	23 27.7	6 7.2	5 6.1	83 100
TOTAL	30	44	15	55	17	13	174

Table 9.2 Intercity comparison of burns by season

	CT	DBN	EL	JHB	PE	PTA	Totals
Summer % within season	2 6.3	7 22	5 15.1	13 40.6	2 6.3	3 9.4	32 100
Autumn % within season	14 33.3	10 23.8	2 4.8	7 16.7	5 11.9	4 9.5	42 100
Winter % within season	9 18.4	12 24.5	4 8.2	19 38.8	4 8.2	1 2	49 100
Spring % within season	6 11.3	15 28.3	4 7.6	18 34	5 9.4	5 9.4	53 100
TOTALS % within city	31 17.6	44 25	15 8.5	57 32.4	16 9.1	13 7.4	176 100

Table 9.3 : Intercity comparison of burns by population group

	CT	DBN	EL	JHB	PE	PTA	Total
Asian		1		1			2
% within population group		50		50			100
Black	17	43	15	55	13	13	156
% within population group	10.9	27.6	9.6	35.3	8.3	8.3	100
Coloured	14				4		18
% within population group	77.8				22.2		100
White				1			1
% within population group				100			100
TOTALS	31	44	15	57	17	13	177
% within city	17.5	24.9	8.5	32.2	9.6	7.4	100

Table 9.4 : Intercity comparison of burns by age

	CT	DBN	EL	JHB	PE	PTA	Total
< 1 year	5	3	1	4	3	2	18
% within age group	62.5	16.7	5.6	22.2	16.7	11.1	100
1-4 years	12	29	7	37	7	8	100
% within age group	12	29	7	37	7	8	100
5-9 years	13	10	2	12	3	3	43
% within age group	30.2	23.3	4.7	28	7	7	100
10-13 years	1	2	5	4	4		16
% within age group	6.25	12.5	31.25	25	25		100
TOTALS	31	44	15	57	17	13	177
% within city	17.5	24.9	8.5	32.2	9.6	7.4	100

Table 10.1 : Intercity comparison of firearm fatalities by sex

	CT	DBN	EL	JHB	PE	PTA	Totals
Males	8	4	8	29	3	6	60
% within sex	13.3	6.7	13.3	48.3	5.4	10	100
Females	5	7	1	29		4	46
% within sex	10.9	15.2	2.2	63		8.7	100
TOTAL	13	11	9	58	3	10	106

Table 10.2 : Intercity comparison of firearm fatalities by season

	CT	DBN	EL	JHB	PE	PTA	Totals
Summer	4	3	4	7	1	2	21
% within season	19.1	14.2	19.1	33.3	4.8	9.5	100
Autumn	3	4	2	3	1	2	15
% within season	20	26.7	13.3	20	6.7	13.3	100
Winter	3	1	3	9		3	19
% within season	15.8	5.3	15.8	47.4		15.8	100
Spring	2	3		11	1	3	20
% within season	10	15		55	5	15	100
TOTALS	12	11	9	30	3	10	75
% within city	16	14.7	12	40	4	13.3	100

Table 10.3 : Intercity comparison of firearm fatalities by population group

	CT	DBN	EL	JHB	PE	PTA	Totals
Asian		3		1			4
% within population group		75		25			100
Black	7	7	8	23	3	7	55
% within population group	12.7	12.7	14.6	41.8	5.5	12.5	100
Coloured	5	1	1	1			8
% within population group	62.5	12.5	12.5	12.5			100
White	1			4		3	8
% within population group	12.5			50		37.5	100
TOTALS	13	11	9	29	3	10	75
% within city	17.3	14.7	12	38.7	4	13.3	100

Table 10.4 : Intercity comparison of firearm fatalities by age

	CT	DBN	EL	JHB	PE	PTA	Totals
< 1 year			4	5	2	1	12
% within age			33.3	41.7	16.7	8.3	100
1-4 years	2	3		11		4	20
% within age	10	15		55		20	100
5-9 years	5	4	2	8		2	21
% within age	23.8	14.1	9.5	38.1		9.5	100
10-13 years	6	4	3	6	1	3	23
% within age	26.1	17.4	13	26.1	4.2	13	100
TOTALS	13	11	9	30	3	10	76
% within city	17.1	14.5	11.8	39.5	3.9	13.2	100

Table 11 : Intercity comparison of scene of injury by most common causes of unnatural death

External cause		CT	DBN	EL	JHB	PE	PTA	Total
Firearm	Private House	2	4	4	11	1	4	26
	% within scene	7.7	15.4	15.4	42.3	3.8	15.4	100
	% within city	100	66.7	57.1	55	33.3	50	56.5
	Residential Institution		1					1
	% within scene		100					100
	% within city		16.7					2.2
	Bar/Shebeen			1		1		2
	% within scene			50		50		100
	% within city			14.3		33.3		4.4
	Amusement				1			1
	% within scene				100			100
	% within city				5			2.2
	Urban Road			2	3		1	6
	% within scene			33.3	50		16.7	100
	% within city			28.6	15		12.5	13
	Retail				1		1	2
	% within scene				50		50	100
	% within city				5		12.5	4.4
	Farm						1	1
	% within scene						100	100
	% within city						12.5	2.2
	Open land				2		1	3
	% within scene				66.7		33.3	100
	% within city				10		12.5	6.5
	Other					1		1
	% within scene					100		100
	% within city					33.3		2.2
	Informal settlement		1		2			3
	% within scene		33.3		66.7			100
	% within city		16.7		10			6.5
	Total	2	6	7	20	3	8	46
	% within scene	4.4	13	15.2	43.5	6.5	17.4	100
	% within city	100	100	100	100	100	100	100

Burn	Private House	25	18	3	32	4	5	87
	% within scene	28.7	20.7	3.5	36.8	4.6	5.8	100
	% within city	92.6	75	37.5	72.7	36.4	62.5	71.3
	Residential Institution	1			2			3
	% within scene	33.3			66.7			100
	% within city	3.7			4.6			2.5
	Bar/Shebeen					1		1
	% within scene					100		100
	% within city					9.1		0.8
	Retail				1			1
	% within scene				100			100
	% within city				2.3			0.8
	School		2					2
	% within scene		100					100
	% within city		8.3					1.6
	Medical Service						1	1
	% within scene						100	100
	% within city						12.5	0.8
	Industrial				1		1	2
	% within scene				50		50	100
	% within city				2.3		12.5	1.6
	Farm			2			1	3
	% within scene			66.7			33.3	100
	% within city			25			12.5	2.5
	Open land		1					1
	% within scene		100					100
	% within city		4.2					0.8
	Other			3				3
	% within scene			100				100
	% within city			37.5				2.5
	Informal settlement	1	3		8	6		18
	% within scene	5.6	16.7		44.4	33.3		100
	% within city	3.7	12.5		18.2	54.6		14.8
	Total	27	24	8	44	11	8	122
	% within scene	22.1	19.7	6.6	36.1	9	6.6	100
	% within city	100	100	100	100	100	100	100
Drowning	Private House	7	9	6	44	2	5	73
	% within scene	9.6	12.3	8.2	60.3	2.7	6.9	100
	% within city	41.2	28.1	31.6	58.7	20	26.3	42.4

	Residential Institution	1	2					3
	% within scene	33.3	66.7					100
	% within city	5.9	6.3					1.74
	Amusement		2		3		1	6
	% within scene		33.3		50		16.7	100
	% within city		6.3		4		5.3	3.5
	School		1		3			4
	% within scene		25		75			100
	% within city		3.1		4			2.3
	Industrial				1			1
	% within scene				100			100
	% within city				1.3			0.6
	Farm					1		1
	% within scene					100		100
	% within city					10		0.6
	Sea/River/Dam	9	17	12	23	4	13	78
	% within scene	11.5	21.8	15.4	29.5	5.3	16.7	100
	% within city	52.9	53.1	63.2	30.7	40	68.4	45.4
	Open land		1					1
	% within scene		100					100
	% within city		3.1					0.6
	Countryside					1		1
	% within scene					100		100
	% within city					10		0.6
	Other			1		1		2
	% within scene			50		50		100
	% within city			5.3		10		1.2
	Informal settlement				1	1		2
	% within scene				50	50		100
	% within city				1.3	10		1.2
	Total	17	32	19	75	10	19	172
	% within scene	9.9	18.6	11.1	43.6	5.8	11.1	100
	% within city	100	100	100	100	100	100	100

Table 12 : Population statistics in the various age groups. 2001

0 – 1 year	Less than 1 year	1-4 years	5-9 years	10-13 years	Total
East London	1947	7751	10770	9462	29930
Port Elizabeth	15177	62052	87953	78716	243898
Johannesburg	62401	203182	234978	188644	689205
Pretoria	34308	121449	162373	136022	454153
Durban	55864	217234	286609	235808	795515
Cape Town	54436	198391	254030	212737	719594

Table 13 : Mortality rates per 100 000 calculated for each individual city

City	Total no. of deaths	Population	Mortality rate per 100 000
CT	219	719594	30.43382796
DBN	299	795515	37.58571491
EL	156	29930	521.2161711
JHB	461	689205	66.88866157
PE	152	243898	62.32113424
PTA	172	454152	37.87278268

Table 14 : Mortality rates per 100 000 calculated per age group for each individual city

CT	Death Total	Population	Mortality Rate per 100 000	95% CI
<1yr	30	54436	55.11058858	37.19 - 78.67
1-4yrs	57	198391	28.73114204	21.76 - 37.22
5yr-9	60	254030	23.61925757	18.02 - 30.4
10-13yrs	33	212737	15.5121112	10.68 - 21.78
DBN				
	Death Total	Population		
<1yr	28	55864	50.12172419	33.31 - 72.44
1-4yrs	88	217234	40.50931254	32.49 - 49.91
5yr-9	102	286609	35.58855444	29.02 - 43.2
10-13yrs	74	235808	31.38146289	24.64 - 39.4
EL				
	Death Total	Population		
<1yr	69	1947	3543.913713	2757.38 - 4485.03
1-4yrs	26	7751	335.4405883	219.18 - 491.49
5yr-9	29	10770	269.266481	180.38 - 386.71
10-13yrs	26	9462	274.7833439	179.54 - 402.62

JHB				
	Death Total	Population		
<1yr	56	62401	89.74215157	67.79 - 116.54
1-4yrs	189	203182	93.02005099	80.23 - 107.27
5yr-9	119	234978	50.64303892	41.95 - 60.6
10-13yrs	80	188644	42.4079218	33.63 - 52.78
PE				
	Death Total	Population		
<1yr	67	15177	441.4574685	342.12 - 560.63
1-4yrs	27	62052	43.51189325	28.68 - 63.31
5yr-9	28	87953	31.8351847	21.16 - 46.01
10-13yrs	24	78716	30.48935413	19.54 - 45.37
PTA				
	Death Total	Population		
<1yr	41	34308	119.5056547	85.78 - 162.12
1-4yrs	66	121449	54.34379863	42.03 - 69.14
5yr-9	34	162373	20.9394419	14.51 - 29.26
10-13yrs	20	136022	14.70350384	8.98 - 22.71

ANNEXURE 10

Subject: Thesis
Date: Tue, 13 May 2003 13:15:09 +0200
From: Van Der Heyde <yolande@curie.uct.ac.za>
Organization: University of Cape Town

TO WHOM IT MAY CONCERN

I am a registrar at Forensic medicine, UCT. I am wanting to do as a dissertation a comparative study on the causes of death in children under the age of 14 years. The study is an intercity comparison of mortuary data, contributing to the MRC database. I will thus be able to obtain the data from your mortuary for this age group from the MRC. I would like to know if it will be fine with you if I do so.

I would also like to inform you that the data obtained from the MRC will be anonymous i.e. no reference will be made to the mortuary. The data will be looked at from the city point of view. I would also like to know how you would like to be acknowledged in the thesis.

Kind regards

Yolande van der Heyde.