

INJURY SURVEILLANCE AT AN INTERMEDIATE STATE
HOSPITAL IN WINDHOEK

A THESIS SUBMITTED IN PARTIAL FULFILMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
MASTERS IN PUBLIC HEALTH
AT THE UNIVERSITY OF NAMIBIA

BY

LUSIA NGHITUKWA

MAIN SUPERVISOR: PROF. L. SMALL

CO-SUPERVISOR : Dr. L. PRETORIUS

February 2010

Declaration

I, Lusia Nghitukwa, declare hereby that this study is a true reflection of my own research, and that this work, or part thereof has not been submitted for a degree in any institution of higher education.

No part of this thesis may be reproduced, stored in any retrieval system, or transmitted in any form, or by means (e.g. electronic, mechanical, photocopying, recording or otherwise) without the prior permission of the author, or The University of Namibia shall in that behalf.

I, Lusia Nghitukwa, grant The University of Namibia the right to reproduce this thesis in whole or in part, in any manner or format, which The University of Namibia may deem fit, for any or institution requiring it for study and research; providing that The University of Namibia shall waive this right if the whole thesis has been or is being published in a manner satisfactory to the University.

Lusia Nghitukwa

Date

DEDICATION

This is dedicated to the victims of injuries, whose outcome depends on the knowledge, skills and attitude of health care workers.

ACKNOWLEDGEMENTS

The completion of this thesis and master programme could not have been accomplished without the significant support and assistance of many individuals. I am most grateful for the support and incredible guidance of my supervisors.

To Prof. L. Small, my thanks for your support and guidance during my entire programme of study and my special thanks to you for your unfailing patience and mentoring throughout the process of conducting the research and writing the thesis.

To Dr L. Pretorius, who has been my education mentor for many years and has never failed to believe in my ability to learn and demonstrate my learning through meaningful personal and professional accomplishments.

Thanks also to Ministry of Health and Social Services through Katutura State Hospital for granting me permission to conduct the study in the hospital, and in particular, the Emergency Department' staff that provide the resources and opportunities I needed to fulfill this important segment of my lifelong learning needs.

To Mrs. Ndeshipanda, a registered nurse who had assisted me in compiling and collect data. I won't forget your assistance, which you have carried cheerfully although you were doing double duty for your occupation and collection of data

smoothly. I am cherishing this friendship and invaluable assistance you have enriched to this research. Ndeshi, what else would I do without you?

I would also like to extend thanks to many individuals throughout the health sectors, WHO and UNICEF librarians who willingly opened and shared their storied as well as provided the information needed to make this study possible.

Without my family's loving support and understanding this academic effort could not have happened. A loving thanks to my husband, Thomas who always made sure there was a flame through my long hours of writing, and patiently allowed our home to become a library and research centre as I filled our house with books, files, newspapers and other related materials as well as computers. Thanks to my children Shali, Naomi, Natasha and Edith whose belief in my ability to accomplish this effort kept me go when I might have wavered along the way.

ABSTRACT

Injuries, whether intentional or unintentional is a major public health problem, killing million of people of all ages and sexes all over the world and leaving many more million disabled. Unintentional injuries occur as a result of human error, for example, road traffic accidents / road crashes, burns and drowning especially of children while intentional injuries are injuries sustained due to violent behaviors towards oneself, for instance, committing suicide or against other people like stabbing, gunshots to mention but a few. People of all economic groups suffer fatal injuries, but deaths rates due to injuries tend to be high in the lower income groups due to their inability to afford better quality medical care.

According to Ministry of Health and Social Services (MOHSS)' Health Information System, there is increase in injuries every year. The purpose of the study was to explore and describe the demographic profile of patients admitted with injuries in Katutura State Hospital during 2006 as well as the type and quality of interventions these patients received.

A quantitative, exploratory and descriptive research was conducted to provide a baseline information with regards to the topic as it is relatively new in Namibia.

The prominent findings were that, the intermediate hospital in this study deals with non fatal injuries, especially stab wounds. The majorities of the victims are males between the ages of 16-35 yrs, are mostly residents of Katutura location and its' suburbs. These

incidents mostly take place at night and during the weekends, particularly at the end of each month.

Recommendations were formulated based on the findings with specifically emphasis on the prevention of injuries through legal and municipal intervention and promotion of risk behavioral change.

TABLE OF CONTENTS**CONTENTS PAGE**

Title page i

Declaration ii

Dedication iii

Acknowledgement iv

Abstract v

Chapter 1: Overview of the study 1

1.1 Introduction 2

1.2 Background to the problem 5

1.3 Statement of the problem 7

1.4 The purpose of the study 8

1.5 Objectives of the study 8

1.6 The significance of the study 8

1.7 Definition of terminology 9

1.8 Summary 12

Chapter 2: Literature review 13

2.1 Introduction 13

2.2 The conceptual framework of the study 13

2.2.1 Concepts utilized from an epidemiological perspective 15

2.2.1.1 The role of the person in sustaining injury 15

2.2.1.2 The role of the environment in injury 28

2.2.1.3 The role of the time injury occurrence 29

2.2.2 Concepts utilised from the quality improvements component of the framework 30

2.2.2.1 The volume of patients assessed and treated at an emergency department 32

2.2.2.2 Health care professional interventions as determinants of the of the quality of care delivered 35

2.2.2.3 Record keeping as evidence of quality of care provided 38

2.2.3 Concepts utilised from the health promotion and injury prevention component of the framework 39

2.2.3.1 Injury prevention by means of legal and municipal enforcement 44

2.2.3.2 Injury prevention by promoting risk behaviour prevention 49

2.3 Summary 50

Chapter 3: Research methodology 51

3.1 Introduction 51

3.2 Research design 51

3.3 Population 52

3.4 Sample and sampling 53

3.5 The development of the research instrument 54

3.6 Testing of the instrument 56

3.7 Data collection 59

3.8 Data analysis 60

3.9 Ethical considerations 61

3.10 Permission to conduct the research 62

3.11 Summary 62

Chapter 4: Data analysis 63

4.1 Introduction 63

4.2 Personal and demographic data 63

4.2.1 The age distribution of the sample group 64

4.2.2 The gender distribution 65

4.2.3 Type of injuries females sustained 66

4.2.4 Area of residence 67

4.2.5 Employment status 68

4.2.6 Type of employment 69

4.2.7 Days of injuries 69

4.2.8 Time of injury occurrence 70

4.2.9 Place of injury 71

4.2.10 The cause of injury 72

4.2.11 Position and involvement in the road traffic accidents 73

4.2.12 The mechanism on how the road traffic injuries occurred during road traffic accidents 74

4.2.13 Protective devices 75

4.2.14 The recording of response times during pre-hospital activities 76

4.2.15 The category of emergency care workers on the scene of the emergency (pre-hospital) 78

4.2.16 The performing of neurological observations by pre-hospital emergency care practitioners 80

4.2.17 Vital signs done at the scene of emergency 82

4.2.18 Mode of arrival at the emergency department 83

4.2.19 Procedures performed on the scene of emergency 84

4.2.20 The assessment of patients by a medical officer 85

4.2.21 The recording of the time of admittance 86

4.2.22 The recording of vital signs 88

4.2.23 Detection and recording of abnormal signs 89

4.2.24 Treatment, interventions and procedures initiated after the secondary survey 90

4.2.25 “Injury care specific” treatment provided to patients 92

4.2.26 Health education provided 93

4.2.27 Discharge and transfer of the emergency department 94

4.2.28 Number of surgical procedures performed 95

4.2.29 Assessment of the documentation performed by the medical officer 96

4.3 Summary 97

Chapter 5: Summary of the research findings, conclusions, recommendations and limitations of the study 98

5.1 Introduction 98

5.2 The purpose of the study 98

5.3 Objectives 99

5.3.1 Objective 1 99

5.3.1.1 Summary of the findings and conclusions 99

5.3.1.2 Recommendations 100

5.3.2 Objective 2	101
5.3.2.1 Conclusion	102
5.3.2.2 Recommendations	103
5.3.3 Objective 3	111
5.3.3.1 Conclusion	112
5.3.3.2 Recommendations	113
5.4 Limitations of the study	113
5.5 Further research	114
5.6 Final summary	114
6. List of references	115

LIST OF TABLES

Table 4.1 The age distribution of the sample group	64
Table 4.1 Gender distribution of the injured patients	65
Table 4.3 The type of injuries females sustained	67
Table 4.4 The area of residence	67
Table 4.5 Employment status	68
Table 4.6 The type of employment of injured patients	69
Table 4.7 Days of injury occurrence	70
Table 4.8 Time of injury occurrence	70
Table 4.9 The place of injury occurrence	71
Table 4.10 Outline of the cause of injuries	72
Table 4.11 Position, involvement and outcome of road traffic accidents	73
Table 4.12 Mechanism involved during injuries sustained in the road traffic accidents	74
Table 4.13 Protective devices	76
Table 4.14 Illustration time recordings during pre-hospital activities	77
Table 4.15 The category of emergency personnel at the scene of an emergency	79
Table 4.16 Mode of arrival at the emergency department	83
Table 4.17 Procedures performed at the scene of injury	84
Table 4.18 An outline of patients being assessed by a medical practitioner	85
Table 4.19 An outline of abnormal signs detected and recorded	89
Table 4.20 An outline of emergency procedures performed in the emergency department	91
Table 4.21 An outline of “injury care” specific treatment given in the emergency department	92
Table 4.22 An outline of health education provided	93
Table 4.23 An outline of discharges and transfers from the emergency department	94
Table 4.24 Number of surgical procedures performed each month	95
Table 4.25 Assessment of the quality of documentation by the medical practitioner	96
Table 5.1 A violence prevention approach	103

LIST OF FIGURES

Figure 2.1 Conceptual Framework: Injury surveillance at an emergency department in the Katutura State Hospital	14
Figure 3.1 Correction of items in the instrument with the framework of the study	56
Figure 4.1 Performing of neurological observations at the scene of an emergency by pre-hospital emergency care practitioners	81
Figure 4.2 Vital signs at the scene of emergency	82

Figure 4.3 Recording of time of admittance at the emergency department 87

Figure 4.4 Recording of vital signs 88

ANNEXURES

Annexure A: A letter to the medical superintendent 129

Annexure B: Permission from the Ministry of Health and Social Services 131

Annexure C: Data collection instrument 132

1

CHAPTER 1 OVERVIEW OF THE STUDY

It is noted with great concern a dramatic increase in the incidences of intentional and unintentional injuries affecting people of all ages and sexes. The direct and indirect costs of injuries, both for those injured and for national economy are numerous, loss of lives, permanent disabilities and medical care expenses for injured people, to mention a few (Peden et al., 2008, p. 27).

Injuries can be prevented or controlled. Because of many causes and close interrelationships between the causes, a wide range of preventative strategies can be called for to curb the scourge of injuries.

Good recovery from any injuries depends upon the availability and accessibility quality of trauma care services from the scene of accident till the patient is discharged from the hospital.

Legislation is a powerful tool in the prevention of injuries and it can be considered as a test of commitment of all people to the cause of injuries (Peden et al., 2008, p. 28).

2

1. 1 Introduction

Injuries, whether unintentional or intentional, constitute a major public health problem, killing more than five million people worldwide each year and causing many more cases of disability. In general, Namibia is no exception. Injuries can be defined as a physical damage or hurt that results when a human body is suddenly subjected to intolerable levels of energy. These injuries can be intentional or unintentional. Unintentional injuries may occur due to human deficiencies or errors, while intentional injuries occur due to violent human behaviour towards themselves or towards others. People from all economic groups suffer from fatal injuries, but death rates due to injuries tend to be higher in the lower income groups (Krug, 2002, p. v).

This negligence has a historical connection as injuries were regarded as accident or random events, which occurred in each society all over the world.

Injury statistics in Canada report that more than 6,000 people were hospitalised as a result of injuries in the city of Nova Scotia in 2006. The same statistics further states that injuries are the leading cause of death from age 1 to 45 and emergency departments treat as many as 350 000 (Chapdeclaine & Maurice, 1996, p. 1). This statistics was supported by Culder (2009, p. 1) who reported that injuries especially caused by firearms are increasing and cause death in Canada.

3

Krug (2005, p.1), also states that poor people are also less likely to make a full recovery after an injury. The above citation is based on an official statement from the World Health Organisation (WHO). The leading causes of injury-related deaths are suicide, road traffic injuries, and falls (Krug, 2005, p. 1).

The National Injury Mortality Surveillance System (NIMSS) in South Africa has reported that in 2000 more than 32,000 homicides were reported countrywide; this data implies that the 7% mortality rate of violence-related deaths is nearly eight times the global rate of 8.8 deaths per 100,000 populations (Matzopoulos, Seedat, Marais & Van Niekerk, 2004, p. 1). Firearms were the leading external cause of homicides across all age groups from the age of five. Of 6,167 firearms deaths recorded by the NIMSS in 2003, 87% were violence-related, and the rest were mainly suiciderelated, except for 20 unintentional deaths (less than 1%), (Matzopoulos, Seedat,

Marais & Van Niekerk, 2004, p. 1).

Violence is also a concern in Namibia. The Namibian police report every Monday how many people died as a result of violence-related injuries. One reads news of people stabbed to death on a daily basis in daily newspapers. For instance, in The Namibian newspaper of 5th February 2008, three cases of murder were reported. In one case, the father killed his son, the aunt killed her nephew and a court case was reported of a man suspected of killing his wife and cutting her body into pieces. This is the third report of the slaying of women in Namibia and their bodies being cut into pieces and thrown away.

4

Road traffic accidents also increase morbidity and mortality in Namibia. The National Road Safety Council of Namibia (NRSC) reported that 94 deaths due to road traffic injuries were reported in 2006 while in 2007 a total of 57 road traffic deaths occurred during the December holiday period (National Road Safety Council (NRSC), 2007, P. 2).

Today, these injuries are known to be preventable. Krug (2005, p. 2) argues that the use of seatbelts, airbags, car seats for children, designated drivers as well as fencing around water areas, flame-resistant clothing and smoke detectors, together with early childhood education and family counselling to prevent violence, have all proved to be effective measures for preventing injuries. In Namibia the use of seatbelts is enforced by Road and Traffic law, Road and Traffic Act (Act no 22 of 1999) Ministry of Works Transport and Telecommunications (MWTC, 1999, p. 45).

The development of prevention strategies depends on availability of information, not only from a numerical (numbers) perspective, but also on the profile of injured patients. The profile is a broad term that summarises biographical and socioeconomic data, as well as indexing the severity of injuries (Peden et al. 2008, p. 41).

Injured patients also require specialised care and treatment. This involves correctly trained medical and nursing personnel, together with the availability of other members of the multi-disciplinary team. An optimum standard of treatment should also be rendered to these injured patients (Peden et al. 2008, p. 41).

5

Optimum treatment also necessitates certain facilities, such as a fully equipped emergency department, as well as operation rooms and critical care units, should these injured patients require such care and treatments. The provision of such facilities is based to some extent, on the availability of epidemiological surveillance data on injury (Peden et al., 2008, p. 41).

1.2 Background to the problem

The intermediate referral hospital is the Katutura State Hospital in Windhoek, which provides a direct service to an estimated population of more than 230,000 inhabitants while it also serves as a regional referral hospital, admitting patients from all thirteen regions of Namibia National Planning Commission (NPC), 2003, p. 3). The implication of this arrangement is that apart from regular emergency admittances, these might be an additional patient load due to this referral arrangement.

Thus the Katutura State Hospital is staffed with general medical practitioners and various medical specialists like surgeons, anaesthetists, and paediatricians, to mention but a few. The medical doctor assumes the role of team leader in patient care even though other health workers equally contribute to the total patient care. A functional multi-disciplinary team ensures that every patient receives quality care. Members of the multi-disciplinary team vary according to the type of injury the

patient has sustained, for example, if an injured patient has fractured limbs, an orthopaedic surgeon leads the team in treating such a patient.

6

The emergency department serves to receive and treat injured patients, while some of the operating theatres are close by for those patients who would require immediate surgical intervention.

The numbers of injured patients have escalated over the past five years. According to the Health Information System (HIS) in the Ministry of Health and Social Services (MoHSS) (2005, p. 5) report, there is a steady increase in the treatment of patients with injuries. In 2001 more than 4,956 patients were treated for injuries, while in 2002 the number increased to 5,563 and in 2003 there were 10,351 injured patients and the number has again increased and reached an alarming number of 10,895 in 2004. These figures are representative of the total population of Katutura.

In order to analyse these statistics, one must put them into perspective and context, which makes it necessary to classify and/or categorise them according to their injuries or demographic variables. The total number of injured patients as mentioned above may be used as a benchmark for the Ministry of Health and Social Services to allocate the necessary personnel and equipment. On the other hand, it may perhaps also assist in the compilation of prevention strategies for health authorities and road safety authorities and other related stakeholders.

As an intermediate hospital, the Katutura State Hospital can also implement these strategies to ensure optimum usage of allocated resources and to establish preventative measures to minimise the incidents of injuries in the society.

7

The recorded database information is needed to devise effective preventive strategies and to improve healthcare delivery to patients at emergency departments.

1.3 Statement of the problem

As stated earlier in the discussion, injury-related admissions have become a challenging phenomenon in the Namibian society. This statement is based on the statistics regarding injury-related admissions and an assumption that these injuries need to be addressed by means of prevention and health promotion strategies from within a public health perspective, as well on the assumption that a certain quality needs to be maintained or acquired, if it was found to be lacking. In order to implement health promotion and prevention strategies as well as to enhance quality improvement processes baseline information, also known as injury surveillance, is needed.

The problem is that the information on the demography of patients admitted with injuries in the Katutura State Hospital is not available as no such study was conducted before in this field.

Based on the problem statement the following purpose and objectives of the study are formulated.

8

1.4 The purpose of the study

The purpose of this study is to explore and describe the demographic profile of patients admitted with injuries to the Katutura State Hospital during 2006, as well the type and quality of care provided by health care professionals.

1.5 Objectives of the study

Based on the purpose of the study, the following objectives are stated to achieve the realization of the purpose of the study

To describe the demographic profile of injured patients treated at the emergency department during 2006 at the Katutura State Hospital;

To describe their morbidity profile (types of injuries being admitted); and

To explore and describe the type and quality of care provided to injured patients by health care professionals during the pre-hospital and hospital phases.

1.6 The significance of the study

The Katutura State Hospital, being an intermediate referral hospital, needs to be adequately managed to provide optimal care for all its injured patients. To be a wellmanaged

emergency department in a hospital requires specific information in its planning.

9

This study will provide a comprehensive description of the nature and severity of injuries, including morbidity description data for this level-2 trauma emergency department in Windhoek, namely the Katutura State Hospital. The provision of this comprehensive data for profiling injured (trauma) patients and determining their injury severity will enable the decision-makers to allocate more funds for the continuous training of emergency department staff to acquaint themselves with new developments in injury management and prepare the personnel for any emergency. It will also help the healthcare planners to design injury prevention strategies in collaboration with other stakeholders by using data on the profile of injured patients. The study will provide baseline information on injuries, as no information is available on the burden of injuries on healthcare services in Windhoek.

1.7 Definition of terminologies

Health care professionals

Health care professional is a person who is contracted to provide health care service to a patient (Health care professionals, 2008). In this study health care professionals refer to emergency medical technicians, registered nurses and medical practitioner.

Intermediate hospital

Intermediate means to act between others, in this instance the Katutura State Hospital is the intermediate hospital acting between other regional hospitals and clinics in the Khomas region that may subsequently be transferring patients to the Windhoek Central Hospital. The Ministry of Health and Social Services (MoHSS) in 1995

10

categorises the Katutura State Hospital as an intermediate referral hospitals together with the Oshakati and Rundu hospitals (MoHSS, 1995, p.7). The Katutura State Hospital acts as a referral hospital for the southern region; it also receives patients from the other two intermediate hospitals, namely Rundu and Oshakati hospitals. It serves also as a linkage between other intermediate hospitals and clinics with the Windhoek Central Hospital, which is classified as a level-1 hospital because it provides specialised services to patients like radiotherapy. Internationally, intermediate care hospital means hospital services which enable people to improve their independence and to provide a range of enabling, rehabilitative and treatment services in the community settings. This helps to prevent unnecessary admissions to hospitals (Intermediate care 2006).

Injury

Krug (2002, p. 5) defines “injury” as the physical damage that results when a human body is suddenly subjected to intolerable levels of energy”. He further subdivides

them into intentional injuries and unintentional injuries. Intentional injuries are assaults, gunshots, intimate partner assaults as well as self-inflicted injuries. Unintentional injuries are those injuries which occur accidentally, for example, road traffic accidents, falls, near drowning, to mention a few.

Emergency medical technician

Emergency medical technician is a medical professional, usually a member of the emergency medical service, who primarily provides pre-hospital advanced medical

11 and trauma care to patients according to the level their training, namely basic, intermediate and paramedics (Paramedic, 2007, p. 1).

Surveillance

According to Holder, et al. (2001, p. 11), “surveillance is an ongoing and systematic collection, analysis, interpretation and dissemination of health information”. It involves the keeping of records on individual cases, assembling information from those records, analysing and interpreting this information and reporting it to others. In this study, it also describes the type and quality of medical care provided to injured patients.

A level-2 trauma centre

Krug (2004, p. 14) describes a level-2 trauma centre as a centre whose personnel include general practitioner as well as specialists like orthopaedic surgeons, paediatricians, general surgeons, ophthalmologists, and other specialists available around the o’clock. The casualty department in the Katutura State Hospital fits the description of a level-2 trauma centre as it has all the abovementioned doctors available 24 hours a day.

The study is presented as follows:

Chapter 1: Introduction

Chapter 2: Literature review

Chapter 3: Research methodology

Chapter 4: Data analysis

12

Chapter 5: Summary of the research findings, conclusions, recommendations and limitations of the study

1.8 Summary

In chapter 1 the problem was formulated based on the background of a high incidence of injury-related admittances, but with no data on the types of injury and the treatment modalities implemented. The lack of data has prevented adequate health promotion and prevention strategies being implemented as well as evaluation of the quality of the current service delivery. The purpose of the study is therefore to explore and describe the morbidity profile of patients admitted with injuries in the Katutura State Hospital during 2006 as well the quality of care provided by the health care professionals.

The next chapter will be on the literature review.

13

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

The preceding chapter dealt with the problem statement, purpose and objectives of the study. In this chapter the literature review is presented. A literature review according to Babbie and Mouton (2005, p. 565) aims to contribute towards gaining a

clear understanding of the nature and meaning of the problem under study. The presentation of the literature is based on the conceptual framework selected for this study. This framework is an eclectic compilation of concepts from three applicable frameworks in health.

This eclectic framework will be discussed next.

2.2 The conceptual framework of the study

A conceptual framework represents the inter-related abstractions (concepts) that are assembled together in a rational scheme by virtue of their relevance to a common theme (Polit, Beck & Hungler, 2001, p. 459).

The conceptual framework in which this study was positioned, utilised concepts from epidemiology, concepts from health promotion as well as the quality of care delivered to injured patients.

14

In figure 2.1 an outline is provided to indicate the interrelationship between the different concepts utilised in the conceptual framework in this study.

Figure 2.1 Conceptual Framework: Injury surveillance at an emergency department in the Katutura State Hospital

Injury surveillance on
the extent and quality of
intervention provided
Epidemiological –
Person
Environment
Time
Health
promotion
and injury
prevention
aspects
Quality Improvement

15

As the purpose of this study is to provide a description of the demographic profile of the population under study as well as the type and quality of interventions received, the underlying assumptions are that the concepts from the framework could help in focussing the study.

These concepts will be discussed next.

2.2.1 Concepts utilised from an epidemiological perspective

Epidemiology in essence has as its interest the study of the inter-relatedness between the person, environment and time as being the cause, or otherwise, contributing to illness and disease (Last, Spasoff & Harris, 2000, p. 1). Epidemiology serves as the foundation and logic of intervention made in the interest of public health and preventive medicine (Epidemiology, 2009, p. 1).

Injury fits into the description as it either causes or leads to an illness. Also, there is an association between the person involved and the injury sustained. The same holds true for the association between injuries and the environment and time.

The role of the person in injuries will now be discussed.

2.2.1.1 The role of the person in sustaining injuries

A 'person' lives and experiences the world from within a certain paradigm (world view). A person also has a variety of personal attributes and characteristics, which

16

makes them unique and provides them their individuality. In addition, the person is

continuously growing and changing (Van der Merwe & Dawes, 2007, p. 131). These characteristics, worldviews and continuous changes, as well as growth, influences a person's daily activities as well as risk behaviour and injury prevention. This includes gender which will be focussed on separately.

The person as a human being with different age variations

In this study age refers to the age of the patients injured during the study period. Age is a continuous variable, one age continuously day by day. During this aging process, changes occur from being totally dependent on others to independence, and finally to a decline in physical strength (and sometimes cognitive abilities) and thus again total dependence on others (Van der Merwe & Dawes, 2007, p. 130).

These broadly mentioned phases of dependence (children), independence (adults) and the final physiological and sometimes psychological dependency that occurs with all age, all contribute to unique type of injuries.

The dependent age group phase

In this study, the dependent age group refers to children not yet at school who are younger than 7 and who have difficulty in identifying situations that are dangerous to themselves and others. This is a broad non-specific demarcation, and although not

17 completely exclusive and scientifically correct, is the best approach to use in the discussion of the relevant literature in this study.

During this age of vulnerability, children due to their inquisitive behaviour are prone to accidents and abuse. They may fall down stairs, be involved in incidents of neardrowning,

may be prone to pedestrian injuries, and are vulnerable to child abuse, to mention but a few. The worst form of any abuse is homicide and in this regard WHO estimates that almost 53,000 child deaths in 2002 was related to homicides (Pinheiro, 2006, p. 11).

Persons in this age group might also be victims of actions of caregivers suffering from Munchausen's syndrome by proxy. In this syndrome, the caregiver fabricates a child illness or actually creates false symptoms. The child might be put at risk and quite often is seen in the emergency department (Newberry & Criddle, 2006, p. 861). Pinheiro (2006, p. 15) also mentions that exposure of a child to violence in childhood may also result in greater susceptibility to lifelong social, emotional, and cognitive impairments, to obesity, and to health-related behaviours such as substance abuse. Social problems include anxiety, depression disorders, memory loss, as well as aggressive behaviour. It is this aggressive disorder that later in life may contribute to injuries due to assaults, fights and speeding.

After this period, the children reach an age of more independence, which also creates opportunities for more exposure to injuries.

18

The independent age group phase

This age group is characterised by at least being able to read and write, and be able to analyse dangerous situations. This age group could be defined as starting at around 8-10 years of age, as at this stage (age group), children appear to have about 90% of their final adult brain weight (Beebe & Funck, 2005, p. 814).

Again this is not a scientifically acknowledged demarcation, but for the purpose of the literature review, this is the most suitable.

It is during this phase that aspects like world views, personal characteristics like risk taking, peer pressure, and mental health aspects appear to contribute substantially to

the sustainment of injuries. Violence, either as a victim or the perpetrator, is also a frequent cause of injuries in this age group. This comment is supported with what is reported in the literature that injury from violence left an estimated 199,000 youths dead worldwide, indicating a rate of 9.2 per 100 000 (Annan, 2001, p. v).

Violence *per se* has more than one cause. It could be caused by:

- Homicide;
- Physical fighting and assaults; and
- Self-inflicted injuries, like suicides.

19

The statistics of the reported 199,000 deaths worldwide by Annan (2001, p. V), indicated that 30% of them were young people between the ages 15 - 35 years old and that their injuries were mainly caused by homicides and assaults. There is a fine line between assaults and homicides, most often it is only the degree of severity of assault and the usage of weapons.

The weapons used are mostly firearms and knives. The Centre for Disease Control (CDC) in the United States of America reported that of the 55% of young people that were murdered in 2003, 82% of the time the weapon involved was a firearm (USACDC, 2003, p. 4).

In South Africa, available statistics indicate that a firearm was the weapon used in 29% of all homicide cases (Matzopoulos, 2008, p. 3).

With regard to Namibia, no comparable statistics could be found to the type of weapon used, but mention was made in reports of the Ministry of Health and Social Services (MoHSS, 2004 (a), p. 31) that “guns” are used in domestic violence, of which a significant percentage resulted in homicides.

Earlier the role of physical fighting and assaults as being part of the bigger picture of violence has been mentioned. Markowitz (2000, p. 286) states that many adolescents tend to engage in physical fighting and assaulting others after alcohol consumption at outlet places. Physical fighting starts with verbal assault and spitting in the face.

20

Most weapons used in this kind of fighting are, for instance, knives and broken bottles.

Not all assaults result in deaths but still cause severe physiological and psychological damages. This is especially true during situations of domestic violence (Meyer, 2010, p.1). The topic of domestic violence will be discussed under the heading “the female person as a silent injured victim”.

Apart from being injured due to violence, injury could also be self inflicted, like in attempted suicides. The group defined or described as “independent” are as such also the group of persons who initiate these “self-harm” activities. When admitted to the emergency department after unsuccessful attempts, the skills of specially trained health providers are required, for instance, registered nurses with education and practice in mental health (Wikipedia (a) 2010, p. 1).

. However, it is observed and assumed that the impact of suicides on the emergency care department is envisaged to escalate.

In this regard the World Health Organization (WHO) estimates that each year, approximately one million people die from suicide, representing a global mortality rate of 16 people per 100,000 or 1 death every 40 seconds. It is predicted that by 2020 the rate of deaths will increase to 1 death every 20 seconds (Joner, 2005, p. 27). The World Health Organisation (WHO) has further comments that in the previous 45 years, suicide rates have increased by 60% worldwide. This makes suicide the third

leading cause of deaths among those aged 15 - 44 years (Joner, 2005, p. 26).

21

Joner (2005, p. 27) also states that more than 30,000 people die in the United States of America every year, meaning that 1 person dies every 18 minutes due to suicide. The incidence for men is approximately four times higher than for females. The pattern of male mortality is partly related to a tendency towards violent behaviour more common in men than in women.

In a similar trend, South Africa is rapidly becoming known as one of the major suicide capitals in the world. In 2004 Clarke reported in the National Injury Mortality Surveillance System (NIMSS) that 10% of all unnatural deaths in South Africa were due to suicide, a figure that far exceeds the yearly world average of 16 for every 100,000. At least 2 fatal suicides occur in South Africa every hour and 20 attempted suicides occur every 60 seconds (Clarke, 2004, p. 2).

In Namibia, Whittaker (2006, p. 4) reported in a Namibian newspaper that 432 people died due to suicide in 2006, and this number represents 22 per 100,000. Unfortunately, HIV/AIDS is also one of the contributing factors in some of the suicidal deaths in Namibia. Also in Namibia, mental health disorders, particularly depression and substance abuse, are associated with more than 90% of all cases of suicide (Whittaker, 2006, p. 4).

In conclusion, suicide results from complex socio-cultural factors and is more likely to occur during periods of socioeconomic, family and individual crises (e.g. loss of a loved one, unemployment) (Joner, 2005, p. 29). Although suicides are a major

22

contributor to injuries, other variables also contribute to the sustainment of injuries, such as gender and more specifically being female.

The female person as being vulnerable to injuries will be discussed next.

The female person as a silent injured victim

Though domestic violence is prominent in the literature, this was not the focus of this study. It is also of such a sensitive nature that direct questions could not be included in the questionnaire.

There are biological, social and environmental factors that act to the detriment of women (Wikipedia (b), 2009, p. 1). Women, being physically not as strong as males, are more vulnerable to domestic violence and because women depend on their partners for economical reasons, they do not leave their abusive partners. It is within this domestic environment that women sustain their injuries

Males are more prone to physical confrontation, resulting in fighting. Women are more prone to be the victims and not the aggressors. This unfortunate position that women find themselves in fluctuates within different cultures and socioeconomic groups, but the overall findings are the same: in general women are on the receiving end of domestic violence (Wikipedia (b) 2009, p. 1).

23

Homicide rates among women is around 4 per 100,000 across all age groups, with the exception of the group aged 5 -14 years, where it is about 2 per 100,000 (Krug, 2002, p. 6).

Women are more exposed to domestic violence and most of them sustain injuries due to assaults by their partners throughout the world. All that varies between countries are the remedies which are attempted, whether by legislative means or through material and psychological assistance for the victims (FIDH, 2007, p. 1). It however, remains largely concealed because of its personal nature and associated shame, guilt,

and taboos and the fear of women losing social support if the victim is totally dependant on the abuser (The International Federation of Human Rights Leagues (FIDH), 2007, p. 2).

Qureshi, Rabbini and Rizvi (2002, p. 224) stated that 28.7% of women reported severe physical violence in Pakistan; this includes kicking, punching, burns or hitting resulting in fractures to vital organs. The common sites of injuries were head, face, neck and arms.

Garcia-Moreno (2005, p. 29) reported that the most common act of violence reported by women was being slapped or having something thrown at them, the prevalence of which ranged from 9% in Japan City to 52% in the Peru province. The percentage of women who were hit with a fist by a partner is 42% in the Peru province with most sites falling between 11% and 21%. The acts mentioned above mostly create the likelihood of physical injury (Garcia-Moreno, 2005, p. 30). The author again stated

24
that women who reported physical violence by intimate partners were injured as a consequence of an assault by their intimate partner (Garcia-Moreno, 2005, p. 31). The tendency of violence directed against females is an international problem and will be highlighted with examples from different countries.

A study done in Greece some years ago showed that one woman in four who arrived at accident and emergency services had been beaten by her partner (FIDH, 2007, p. 3). In Austria, one woman in five is the victim of physical violence from a partner at least once in her life (FIDH, 2007, p. 2). The same sort of scenario is reported in numerous countries.

In Bangladesh, Brazil, Peru, Samoa, Serbia and Montenegro and Thailand over 15% of injured women reported that it had happened more than 5 times. Another quotation from India reveals another type of injury being inflicted against women, namely being burnt. In this country, every six hours, a young married woman is burnt, beaten to death or driven to commit suicide by the husband. Overall, a crime against women is committed every three minutes in India (Pandey, 2008, p. 1).

In Southern Africa, a similar trend is noted. In South Africa, it was reported that females accounted for approximately 19% of unnatural violence-related deaths. The leading cause of these deaths was homicides that accounted for 15% of deaths. Firearms overshadowed all other external causes of violence-related deaths in

25
females, accounting for 29% of unnatural deaths, whilst sharp objects accounted for 15% in the same gender group (Matzopoulos et al., 2004, p. 3).

In Namibia, the Ministry of Health and Social Services (MoHSS, 2004 (a), p. 31) reveals that "husbands or intimate partners usually use any object to attack women, be it a gun, knife or blunt object". The same study reveals that 5% of injuries sustained in houses are caused by assaults with fists. The Ministry of Health and Social Services (MoHSS 2004 (a), p. 34) further stated that in Namibia the most common problems are burst eardrums and eye injuries. Among females who were injured by their intimate partners in Namibia, 46% were injured once or twice, while 35% were injured three or five times, and 20% suffered injuries more than five times. The same ministry confirms in the quoted statistics that 23% of these women lost consciousness and 63% were so badly injured that they had to spend at least one night in the hospital (MoHSS, 2004 (a), p. 32).

Quite often the initial trigger for violence against females is alcohol abuse, low social class and unemployment on the side of the partner.

In India, a study showed that males who abused alcohol were significantly more likely to have been physically aggressive towards their spouses and to cause injuries to women (Benegal, Nayak, Murthy, Chandra and Gururay, 2005, p. 105).

Another study done in Costa Rica showed that among people who were married or living together, there were more females than males reporting that they had been
26

subjected to aggression resulting in injuries, usually after the partner had been heavily drinking alcohol. This finding is supported by the studies carried out by WHO which show that a woman who lives with a heavy alcohol drinker is at greater risk of sustaining physical violence-related injuries from the partner (Orozco, 2005, p. 81).

The previous discussion focussed on domestic violence *per se*, and not so much on the severity of the injuries sustained that needed medical attention. However, domestic violence is quite often the hidden cause of admittance to emergency care departments. All these women may be admitted to emergency departments where a great deal of suspicion is evoked by registered nurses, and medical officers, but where these healthcare workers need special training and skills to recognise it.

The male person as being an injured victim

The focus of this research is not about the biological differences between males and females, nor is the study about the developmental stages or phases of human beings. It is however necessary to refer to the biological “make-up” of the male and the contribution of this “make-up” to risk-taking behaviour, aggression and resultant injuries. Just as the previous discussion focussed on the female as being a potential victim of violence and thus injury, so is the male more prone to be the cause of violence and risk-taking behaviour, and thus a potential patient at the emergency care department.

27

If we discuss the concept male from a social constructionist’s perspective, it includes how males will react to females as well as to other men. In this regard masculinity has traditionally been associated with aggressive, assertive and authoritarian ideals. Violent behaviour from this perspective is described as being valorised as symbolic of masculinity and authority (Swartz, De la Rey & Duncan, 2006, p. 293).

Health care professionals will therefore from time to time be confronted with violence between men and violence caused by men, where an understanding of what is being meant by masculinity, would help to put a current situation within context. Almost everywhere in the world youth homicide rates are substantially higher among males than females, suggesting being a male is a strong demographic risk factor (Mercy, Butchart, Farrington & Cerda, 2002, p. 25). In South Africa Harris & Van Niekerk (2004, p. 17) reported that 58% of all unnatural deaths occurred among males and the statistics appear to be even higher in Brazil. In Brazil, the researchers Falbo, Buzzetti & Cattaneo (2001, p. 3) reported that 93% of people who die due to homicide in that country every year are males. This general worldwide trend applies to the younger generation as well. Gordon, MacKay & Rehfuess (2004, p. 30) reported that out of 180,000 children under the age of 15 years killed in road crashes annually worldwide, 111,559 are boys. This happen because boys have more freedom to roam in busy streets and because of their natural strength are more involved in physical fighting. These “boys” or younger generation for instance also carry weapons to school. In Scotland it is reported to be in the region of 34%, thus creating a new “environment” for injuries to occur.

28

Injuries in persons thus occur within a specific environment. The next discussion will therefore be on the role of the environment in injury.

2.2.1.2 The role of the environment in injury

The environment refers to the location where injury takes place as well as the contribution of the environment to injury. The environment plays a significant role in its contribution to injuries. This can be due to the geographic, infrastructure, and the socioeconomic category or classification of the specific environment.

Geographic location

With regard to the geographical location, the impact of nature is studied as a possible contributor to injuries. Natural disasters like excessive storms, hurricanes, extreme temperatures, etc, can all contribute to injuries, for example, the devastating earthquake in China, the Katrina hurricane in USA and the cyclone in Myanmar (“Tragedy in Myanmar,” 2008).

In Namibia and especially in the Windhoek area where the hospital in the study is located, extreme environmental conditions do not exist.

29

Infrastructure

With regard to the infrastructure, the effects of adequate lightning, tarred roads, easy access and possible policing are considered. Although the Windhoek municipality is trying its best to provide the community with electricity, Katutura suburbs are not yet fully electrified. Streets are poorly lit and assaults could therefore be more easily committed due to poor visibility (Menges, 2008, p. 5).

Riverbeds also make assaults more difficult to prevent as these areas are not easily policed and patrolled. In Windhoek this is particular relevant as a number of dry river beds cross the suburb in which the target hospital is located (Menges, 2008, p. 5).

2.2.1.3 The role of time of injury occurrence

The association of “time” with injury occurrence is also called temporal variation, (Cardona, Hurn, Mason, Scanlon & Veise-Berry, 1994, p. 92). This statement was supported by Fujita & Shibata (2006, p. 2) who also state that injuries happen at night in Japan. Knowing beforehand when an emergency department could be expecting a large number of patients could assist in allocating enough personnel. Knowledge about the times when certain injuries occur could also be used in the planning of injury prevention as there are times during which specific injuries occur. As example, road traffic crashes occur mostly during the night and during holidays and weekends. An even more specific time allocation could be found in the literature, as Sukhai & Van Niekerk (2004(a), p. 26) report that most road traffic accidents

30

occur on weekends between 17h00 and 22h00. In Namibia, injuries occur mostly between 20h00 and 05h00 on weekends and more specifically the last weekend of each month. On average more than 300 injured patients are admitted at the emergency department each weekend night at the target hospital (MoHSS, 2007, p. 3).

Matzopoulos (2008, p. 5) also established that the common days of injuries and homicide in South Africa are Saturdays and Sundays at night. However, someone may conclude that in general most of deaths from injuries occur frequently on weekends with Saturday as peak days.

The principles of the above discussion are linked with point 2.2.2.1 where the volume of patients assessed and treated at an emergency department is analysed as

affecting the quality of care delivered. This discussion topic is to follow later in this chapter.

It is not only the environment and time that need to be considered in injury-related aspects but also concepts of quality improvement. The next discussion is therefore on quality improvement.

2.2.2 Concepts utilised from the quality improvements component of the framework

Quality improvement, (2008) defines *quality* as the degree to which patient care services increase the probability of desired outcomes and reduce the probability of

31
 undesired outcomes given the current state of knowledge. Apart from the term “quality”, another term is also used, namely quality “improvement”

Quality improvement is a term used for a more comprehensive, broad-based approach to monitor and evaluate the appropriateness, effectiveness, and quality of care provided by health care professionals; it focuses on the whole system and not just the performance of individual practitioners (Quality improvements, 2008). This implies that quality healthcare services in a given health institution depend on the volume of patients seen, the effective nursing and medical intervention provided to them as well as the accuracy and completeness of the record keeping (documentation) that was maintained. In addition the effective intervention to provide efficient patient care also depends on the availability of skilled and knowledgeable staff.

A “dated” description is provided by Smith, Elting, Learn, Raut & Mansfield (2007, p. 3) to highlight “aspects” of care delivery that influence the quality of care delivered. Although dated, it specifically applies in this study. The aspects as discussed by Smith et al. (2007, p. 4) are:

- High volume of patients;

- High risk diagnoses or problems which in this study will be discussed as part of “Health care professionals’ interventions as determinants of the quality of care; and

- Problem areas.

32

This description encapsulates both definitions of *quality* as well as *quality improvement*. These aspects as described by Smith et al. (2007, p. 4) are used as the focus of the next three discussion points.

The high volume of patients being treated will be discussed first.

2.2.2.1 The volume of patients assessed and treated at an emergency department

The volume of patients influences the quality of care in the sense that the principle of “first come-first served” is not always applicable. Triage decisions sometimes have to be made based on the severity of injuries. Even with appropriate triage decisions, it might still happen that immediate care might not be possible, due to the sheer volume of patients and the nature of their injuries. This possibility, that proper triage might not be implemented due to a volume overload of patients, is in contradiction with the principles and beliefs of the World Health Organization. This organisation has identified three basic rights of the injured patient on arrival at an emergency unit, namely that:

- the likelihood of survival is maximised;

- life threatening injuries are managed appropriately and timeously, according to priorities; and

potentially disabling injuries are treated immediately so as to minimise functional impairment, pain and psychological suffering (WHO, 2003, p. 16).

33

A metaphor that could be used is one based on supply and demand. A scenario could develop where the “demand” (patients) exceeds the “supply” (the healthcare workers in the emergency department). The possibility arises in such a situation that optimum quality of care might then not be provided to the injured patients and that they will not receive their due care. Smith et al. (2007, p. 3) put it in perspective where they state that improved patient outcomes are directly proportional to patient volume and the resultant expertise gained by healthcare providers.

In this “supply” and “demand” imbalance, it is more realistic to target the “supply” and allocate more healthcare workers in order to provide the optimum care.

Simplistically it would mean to allocate more healthcare workers (medical practitioners and registered nurses). Formulas are available to suggest possible staffing ratios, but these ratios are based on the general population and not on emergency departments per se (Murray, Davies & Boushon, 2007, p. 1).

In this regard Murray et al. (2007, p. 1) provide a formula on how to calculate the ideal number of patients one medical practitioner can see. Their formula arrives at 20 patients per day. This formula is better related to “non-injured” situations and furthermore applicable to developed countries, which Namibia is not. This formula is thus not relevant for emergency departments. The literature abounds with existing ratios, not necessarily formulas, but they are also not applicable to the emergency care departments.

34

Certain approaches were however described to address the possible allocation of healthcare workers in the emergency care department. One such approach is by Smith et al. (2007, p. 3). They focus only on “nursing staff”. They base their approach on five steps that include one important function - namely to categorise the patients based on the acuity of their injuries. This aspect will be referred to when analysing the research findings and specifically findings with regard to documentation. Once this information is available, it could be possible to calculate the direct nursing care hours as well as the indirect nursing care hours required by each patient and thus the required number of “nurses”. They did however acknowledge in their discussion that this approach also has its flaws, as they explained that even with a low volume of patients a minimum number of staff members are still required.

A more recent approach found in the literature is to be proactive and to plan for situations when additional healthcare workers may be required. Although not providing a definite solution, it provides sound principles to plan for situations where the “demand” may exceed the “supply” Hamilton describes four phases to manage an emergency department. The first phase is called the mitigation phase where potential emergencies that could affect a specific hospital have to be identified. During this phase each possible emergency must be scored with regard to probability, risk and preparedness. Based on this score a decision can be made on how many healthcare workers may be required, as well as possible peak times, and the skills expected from them (Newberry & Criddle, 2006, p. 45 - 47).

35

2.2.2.2 Health care professional interventions as determinants of the quality of care delivered

Emergency care is provided by health care professionals (emergency medical technicians, medical practitioners and registered nurses). All of these professionals operate from within a specific scope of practice. The medical practitioner has a broad generalised scope and should be capable to deal with most emergencies.

Emergency Medical Technicians (EMTs) - manage patient according to the level of their training and qualification. EMT has responsibility to do quick assessment of the patient at the scene of emergency, do vital signs, recordings all the findings and interventions performed at the scene of emergency and transport the patient as soon as possible to the nearest hospital (Middlet, 2008, p. 3).

Registered nurses in Namibia are guided by their scope of practice as described in the Government Notice (No 13 of 1999) as a part of Nursing Act (Nursing Act No. 8 of 2004(b)), to carry out their nursing duties in any health institution, be it in the hospital or clinic. This is done to prevent them from acting beyond their scope of practice. The scope of practice is always expanded whenever a nurse improves skills in advanced training. Nurses are also guided by their job descriptions given to them by their employer.

It is expected of registered nurses working in emergency department to have expanded their scope of practice, especially in dealing with trauma and emergency 36

patients. Ideally, they should have received training in advanced trauma life support (ATLS) to deal with high risk situations.

A medical practitioner and a registered nurse practising in the emergency department should therefore be skilled in:

- Performing a primary survey and triage;

- Resuscitation;

- Performing a secondary survey;

- Assessing whether a patient is ready to be transferred or discharged; and

- Assessing the need for rehabilitation (CPSM, 2003, p. 2).

More development, especially with regard to the execution of the skills component, is usually expected from the medical practitioners. In many countries, it is requested that medical practitioners and registered nurses working in emergency unit provide proof of competency in advanced trauma life support (ATLS) or at least basic and advanced cardiac life support certification (Mabry & Bluff, 2003, p. 6).

The advanced trauma life support defines the order of interventions in the maintenance of airway, breathing and circulation and indicates the preferred interventions for each traumatic condition (Field, 2006, p. 13). Nicol & Steyn (2004, p. 21) state that the establishment of a patent airway is the first important component of resuscitation of the trauma victim since an obstructed airway can result in anoxia 37

and brain death within 3 to 4 minutes. This requirement could be as basic as just the correct positioning of a patient, or it may be necessary to intubate or perform a cricothyrotomy. These mentioned two skills are highly technical and risk laden. It is expected that successful completion of courses in basic and advanced cardiac life support should equip these healthcare workers to execute the above mentioned skills in order to ensure quality care.

Other skills required are sound diagnostic skills, specifically the rapid identification

of situations of decreased cardiac output. The healthcare workers thus have to be competent in maintaining circulation (Nicol & Steyn, 2004, p. 22). This may necessitate fluid resuscitation with sufficient crystalloid to produce a return to normal blood pressure. In addition skills are required to assess the level of consciousness and disability.

The secondary survey is carried out to do a thorough physical examination on injured patients from head to toes. This will enable the medical practitioner or registered nurse to identify injuries which were missed during primary survey. It is during this phase in Namibia that the medical practitioner (not the registered nurse) decides to transfer a patient to another department for further management or to discharge the patient from hospital. Alternatively, the patient might be referred for rehabilitation if the injury might cause deformity on the injured part of the body.

The above discussion focussed on the minimum knowledge and skills required by the medical practitioner, registered nurse and emergency medical technicians (EMTs) to

38 ensure quality care. The next discussion point under quality-related issues is the aspect of problem areas. Record keeping is regarded as a problem area (Dimond, 2005, p. 3).

2.2.2.3 Record keeping as evidence of quality of care provided

Effective communication among health care professionals is vital to the quality of care. Communication in the emergency department is maintained by means of patient records. A patient record (also known as a clinical record or patient health passport), is a formal legal document (Kozier, Erb, Berman & Snyder, 2004, p. 322). In addition, Dimond (2005, p. 1) states that patient records should be factual, consistent and accurate; they should be written as soon as possible after an event has occurred, providing current information on the patient; be written clearly, accurately and be dated, timed and signed; and written in terms that can be easily understood; no abbreviations, meaningless phrases or irrelevant speculation.

It is required that certain minimum information be documented. In an emergency department, it is necessary to adhere to documenting that includes at least the following:

- Date and time of first contact/ admission;
- Primary survey data;
- Vital signs; and
- Secondary survey data.

39

Second survey data is collected by means of a detailed physical examination to assess the extent of any injury missed during primary survey. This includes injury to thoracic organs and to evaluate the effect of other injuries to cardio respiratory systems (Mabry & Bluff, 2003, p. 23). Both the medical practitioner and registered nurse may be involved in this activity, depending on the situation in the emergency department at any given time. Specific checklists are available to focus on required activities which have to be performed. These checklists are also called flow sheets. Accurate and comprehensive recording keeping is necessary to assess whether the patient received optimum quality of care (Hutchinson & Sharples, 2006, p. 61). Apart from epidemiological considerations and quality improvement aspects, the principles and concepts of health promotion is crucial in injury prevention. The next discussion will focus on health promotion and injury prevention.

2.2.3 Concepts utilised from the health promotion and injury prevention

component of the framework

Injuries sustained can often be attributed to preventable causes and situations. The possibility and need for health promotion activities therefore exists. Health promotion is a process of enabling people to increase control over and to improve their health. It is about improving health by advancing, supporting, encouraging and placing it higher on personal agendas (Panday, Reddy, Ruiter, Bergstrom & De Vries, 2007, p. 9).

40

Health promotion can be described as a social, educational, political action that enhances public awareness of health, fosters healthy lifestyles and community action in support of health, and empowers people to exercise their rights and responsibility in shaping environments and policies that are conducive to health and their wellbeing. Health promotion is in fact, enlightened health activities; it is a process of activating the community, policy-makers, professionals and the public in favour of health supportive policies, systems and ways of living (Health promotion, 2009). The principles of health promotion and injury prevention are particularly important in areas of strengthening community ownership, partnership and coordination. Health promotion helps people control the factors that influence their health and quality of life. It focuses on groups of people, either the whole population or specific subgroups like the youth. It emphasises changing the environment so that behaviour may change.

Health promotion consists of a range of interventions that lead to improvements, maintenance, and prevention of decline in health status (Health promotion, 2009). (Health promotion, 2009) again mentions five main important components with regard to health education. These are similar to statements provided by the World Health Organization (WHO, 2005, p .37). These components are:

41

Health education which is the process of giving information where the aim is to promote health through conventional and innovative techniques like peer group education, multimedia use, and social participation;

Disease prevention which refers to interventions used in early diagnosis or prevention of specific diseases; in case of injury prevention, the identification of risk factors or risk behaviour among the most vulnerable group;

Health maintenance which refers to treatment interventions used to prevent a decline in health status, to prevent disability and morbidity in an injured population, and to promote wellbeing (physical, social, and mental wellbeing);

A health public policy which includes policy interventions that contributes to health promotion directly or by creating a supportive climate, for example the inclusion of a legal and fiscal policy, public transport policies (such as drinking and driving policies), international conventions, advertising regulations, and health systems organisations;

Fearnside & Simpson (2005, p. 21) state that early rehabilitation is an important component of health education in the injured person. They define rehabilitation as a process that maximises an impaired individual's functions by minimising deficits to achieve the highest quality of life possible. It further involves prevention of secondary injury and compensation and adaptation to disability leading to reintegration into community life. This is regarded as vital to prevent permanent disability and morbidity. Rehabilitation is also a part of health promotion programmes and is very important for those people who

become disabled due to injury, as rehabilitation prepares them to be independent and to achieve the highest level of independence possible.

42

Activities that are organised from an emergency department (or hospital) with regard to health promotion and injury prevention should be based on a situation analysis of the specific emergency department (hospital). Possible health promotion activities will be discussed here, and if applicable, referred to again when submitting the recommendations. This discussion is therefore only a literature perspective on how to prevent injuries.

An important indirect cause of injuries is alcohol abuse. Alcohol abuse could lead to violence or reckless behaviour that may cause injuries. The prevention of alcohol abuse is complex and should be initiated as early as possible. An example here is taken from Canada. In Novo Scotia, a special prevention programme is presented to schools in this specific Canadian region. The name of the programme is aptly called P.A.R.T.Y. This acronym stands for “*Prevention of Alcohol and Risk Related Trauma in Youth*” (Tallon & Murray, 2005, p.13). The mentioned authors reported it to be a very successful programme.

It is not only alcohol abuse that could be an indirect cause of injuries. Drugs may also be responsible for injuries. Again health promotion should be initiated as early as possible. Such an early example exists in Japan. In Japan, drug education has been systematically integrated into school curricula from elementary school through senior high school. The goal is to eliminate the occasional use of drugs and to reduce the demand of drugs among youths. School is the place where systematic health

43

education can be given to almost all children from ages 6 to 18 according to their developmental stages (Ozaki, Wada & Katsuno, 2005, p. 158).

Another example of a health promotion topic that may be introduced at an early stage to school children is violence prevention. The proponents here are Verdiami & Fazzino (2002, p. 13) who state that curricula development which includes texts and materials that promote non-violence, a culture of peace, tolerance, solidarity and human rights, should be started from an early age of schooling.

Depending on the sophistication of emergency departments and the available finances and human resources, the initiation of therapeutic programmes could also be considered. Brundtland (2002, p. VI) reveals that about 4 % of people died in Africa due to violence, which they “directed” against themselves, namely suicide. The need for therapeutic programmes and counselling therefore does exist, but this is a psychosocial dimension that is beyond the scope of this research (study) project. However, it is linked to prevention strategies as well as the “mix” of nursing and medical personnel needed in an emergency department.

To support health promotion activities in order to prevent injuries, certain legal and municipal prescriptions and laws are necessary.

44

2.2.3.1 Injury prevention by means of legal and municipal enforcement

Injuries may be simplistically classified as those caused intentionally and those acquired unintentionally. The intentional group of injuries relates to the violent aspects of human behaviour and includes all forms of violence including assault and domestic violence. Jordan (2002, p. 82) stresses that the prevention of urban violence-related injuries is an important fact in light of the fact that increasingly more people all over the world will live in urban areas.

The above discussion could be regarded as situations where more than health education and health promotion strategies are required. It might be necessary to enforce certain actions or behavioural changes by legal means. This becomes evident if the definition of violence is again analysed, especially as violence is a significant cause of injuries. Rosenberg & Mercy (1991), as quoted by Taylor et al. (2002, p. 197), define violence as the use of physical force with the intent of causing harm, injury or death.

The utilisation of physical force is usually through firearms, knives and committed when under the influence of alcohol. Legislation should therefore be directed first of all at these aspects. Alcohol abuse is also the cause of unintentional injuries, like motor vehicle crashes. Another cause of unintentional injuries is excessive speed when driving.

45

Legislation with regard to firearms already exists in Namibia, but another forward thinking suggestion is advocated by Krug et al. (2005, p. 56). The suggestion is that persons who purchase firearms should have secret codes on their “guns”/weapons so that such a gun cannot function without using that code. The authors are also of opinion that these measures will reduce injuries caused by illegal firearms.

Alcohol abuse is responsible for various types of violence. In an analysis of homicides in Philadelphia in the United States of America, alcohol was consumed by nearly two thirds of the perpetrators (Reilly & Bullock, 2005, p. 13). With regard to this, Krug (2002, p. 55) states that “the availability of alcohol should be reduced in the society, as alcohol is an important situational factor that can precipitate violence related injuries”. Reduction in the availability of alcohol will also minimise road traffic injuries as many road crashes are caused by persons intoxicated with alcohol. Apart from co-ordination problems that develop due to the intoxication, drivers might also tend to speed.

Excessive speed when driving is an international problem. In this regard Afukaar (2004, p.115) reports that excessive speeding contributes to around 30 % of all fatal crashes in high-income countries. In Africa similar findings are reported. Reilly & Bullock (2005, p.15) had stated that speed was identified as the main contributing factor in 50 % of road traffic injuries in Ghana between 1998 and 2000. They also attribute errors such as loss of control of the vehicle, excessive speeding, misjudgement, improper overtaking and underestimating the speed and

46

overestimating the distance of the approaching vehicle to 40 % of all police reported crashes in Kenya.

A law already exists with regard to alcohol use and driving in Namibia. In this regard the Road Act of 1999 stipulates that the blood alcohol concentration (BAC) level should not exceed the limit of 0.079 g per 1,000 millilitres in the blood specimen. The literature also advocates the submission of additional laws with regard to alcohol. One such possible law is to increase the tax on alcohol (Butchart, Phinney-Harvey, Mian & Furness, 2006, p. 37). The Road Act of 1999 mentioned earlier also makes provision for the limitation of speed in cities and towns and on national roads in Namibia. Drivers are not allowed to drive at speeds beyond 60 km/h in cities and towns and beyond 120km/h on national roads. Another consideration is the placement of cameras at traffic lights. These cameras take photographs of vehicles going through the lights when the signals are red (Peden et al., 2005 (b), p. 132). This “consideration” is already in use in the major cities in Namibia.

Drinking and driving could lead to motor vehicle crashes (road traffic accidents). Innocent bystanders, namely pedestrians and cyclists, are also affected in these accidents. Pedestrians and cyclists are also important road users who need injury preventive measures to be in place. Certain measures were proved to be effective, like:

Roadway barriers, including chains, fences and other devices, to physically separate pedestrians from vehicles;

47

Certain school-zone measures, for example, crossing guards and police enforcement to assist children to cross the road;

One-way streets and adequate roadway lighting have proved to be effective in increasing pedestrian safety;

The moving of a transit or school bus stop locations from the near side to the far side of the intersections is a promising intervention that provides some level of improved pedestrian safety (Mangus, Simons, Jacobson, Streib & Gomez 2004, p. 2); and

Bicycle helmets- programmes and campaigns directed at children and parents, the school community and corporate participation have proven successful in raising awareness of reducing head injuries sustained by cyclists (Mangus, et al. 2004, p. 2).

Finally the provision of bicycle lanes has also proven to reduce the morbidity and mortality rate in cyclists (Sleet, 2004, p. 84).

Some perspectives were also found on violence with possible municipal (local authority) guidelines. Jordan (2002, p. 136) states that a local authority can implement security system improvements and local zero tolerance policies such as design guides for physical security devices, for example video control of all public places and spaces that may prevent and reduce crime without necessarily giving rise to siege mentality. Soraya, Petrella & Andersson (2002, p. 19) suggest that for any local authority to have a safer city, it is important to identify and mobilise key partners at the local level who can contribute effectively to the reduction and prevention of crime. They are also of opinion that the creation of a local safety

48

coalition should be led by a public figure. In addition this coalition should be supported by a technical co-ordinator vigorously assessing the crime situation through a local safety programme (WHO, 2007, p. 27)

The concept of community policing is also found in the literature. Krug (2002, p. 55) emphasises that community policing has become an important law enforcement strategy to address youth violence and other criminal activities. It takes many forms. For instance, police collaborate with the community to report cases of criminal activities, or members of youth in communities form groups to patrol streets voluntarily.

Surjadi (2002, p. 212) suggests that improved reporting on violence cases at hospitals and in primary healthcare settings such as public health centres and private health facilities will assist in preventing domestic violence and violence in general. The author further states there is a need to train medical doctors, nurses and medical students about violence so that they know the problems and understand how to tackle it. The training is especially important for those who are on duty in clinics for obstetrics and gynaecology, maternity, mental health and dental health clinics. Another approach to injury prevention is to promote risk behaviour prevention

49

2.2.3.2 Injury prevention by promoting risk behaviour prevention

Risk is defined as a probability of an adverse outcome or a factor that raises this probability (Van der Merwe & Dawes, 2007, p. 129). Risk behaviour means behaviour which creates the possibility of injury occurring. Risk behaviour avoidance helps people at risk to refrain from taking actions that might put them in danger, and it is cost effective and saves many lives. To achieve this strategy, educational and therapeutic programmes are necessary.

Educational and therapeutic programmes as change agents in preventing risks

Some authors emphasise the importance of a good education as a preventative factor for risk taking behaviour. Krug (2002, p. 34) is of the opinion that incentives for pupils to complete secondary schooling, vocational training for underprivileged youths to develop skills, and programmes providing information on the effects of drug abuse will help to combat violence among the youth. Krug (2002, p. 24) also includes the school as a role player to directly or indirectly help students gain knowledge in order to prevent risks. Home-school partnership programmes that promote the involvement of parents, educational incentives for at-risk high school students, peer mediation and counselling, education on the dangers of drug abuse, and family therapy for children and adolescents at high risk are but some of the programmes that may be presented by the schools.

50

Brundtland (2002, p. 25) suggests that “therapeutic programmes for people at risk of harming themselves, including medical treatment for those suffering from psychiatric disorders, counselling for victims of violence or for those at risk of harming themselves should be developed, such as support groups and behavioural therapy for depression”.

2.3 Summary

This chapter discussed the applicable literature as it related to the purpose of the study. The outline of the framework was utilised to guide and present the discussion according to the three components of the framework.

The next chapter will address the research design and methodology.

51

Chapter 3

Research methodology

3.1 Introduction

This chapter outlines the research methodology of the study to achieve the stated purpose and objectives which were indicated in chapter 1.

The purpose of this study was to explore and describe the morbidity profile of patients admitted with injuries to the Katutura State Hospital during 2006, as well as the type and quality of care provided by the health care professionals.

3.2 Research design

A quantitative, exploratory, descriptive and contextual design was utilised in this study.

Quantitative refers to a study that uses quantification for the measuring of data (Struwig & Stead, 2004, p. 7). In this study the data comprised of information obtained from a checklist/questionnaire that allowed for quantification. A checklist/questionnaire as discussed in 3. 5, was used for each patient admitted to the casualty department. The types of injuries as well as treatment received were also indicated in

this checklist/ questionnaire.

52

Strydom, Fouche & Delport (2004, p. 142) establish that *descriptive* studies have as its main objective the accurate portrayal of the characteristics of persons, situations or groups and the frequency with which certain phenomena occur. In this study an extensive demographic profile compilation of patients was done.

Struwig & Stead (2004, p. 7) have pointed out that an *exploratory study* is research that is conducted to provide a basic familiarity with a topic. This approach is applicable to the study as it is relatively new in Namibia. As stated in the problem statement, no information is available on the profile of patients who are being treated for injuries at the Katutura State Hospital. The researcher was also interested in the treatment and nursing interventions of the patients.

Struwig & Stead (2004, p. 7) further explain that a *contextual study* is used when a phenomenon is studied because of its intrinsic and immediate contextual significance. This study focussed only on a sub-group of respondents, namely patients treated for injuries at the Katutura State Hospital.

3.3 Population

The population comprised of all patients treated for injuries at the Katutura State Hospital's emergency department for the period January 2006 until December 2006 (twelve months).

53

Based on statistics of 2003 and 2004, an accessible population of between 10,000 and 12,000 was estimated for the period of study (January 2006 – December 2006). The prospective study was undertaken during 2006, thus the population size was based on the estimated statistics of 2003 and 2004.

3.4 Sample and sampling

Brink (2006, p. 124) defines a sample as a part or a fraction of a whole or a subset of a larger set, selected by the researcher to participate in a research study, while sampling is a process of selecting a sample from the study population in order to obtain information regarding a phenomenon in a way that represent the population of interest.

There are many methods of sampling, for instance, non- probability, probability sampling, interval or systematic sampling to mention but a few.

Probability sampling for this study was done. A sample of 400 patients was randomly obtained over 4 months. This was based on obtaining a 95 % confidence interval. The 4 months, when patients were interviewed, were randomly selected out of the 12 months, and were July, August, September and October. The type of random sampling utilised was by means of the lottery process which entailed the collection of all the names of the months in the container, and then randomly drawing four months.

54

Every fourth patient who entered the emergency department on the day of data collection was interviewed by using the checklist instrument. These patients' data were collected on the days when the researcher was off- duty and researcher assistant was on-duty. A total of 100 patients were interviewed and assessed during each month of data collection. The interview process ended once the total of 100 was obtained for the month.

3.5 The development of the research instrument

The research instrument is a device used to collect data and is compiled to assess all

aspects that had been included in the checklist/ questionnaire and to guide the researcher in analysing data (Struwig & Stead, 2004, p. 21).

A checklist/questionnaire was developed based on literature as discussed in the literature review. The literature was arranged and focussed around a specifically developed framework. (See figure 2.1 as illustrated on page 14.). A checklist is a two dimensional arrangement in which a series of questions is listed along one dimension (Polit & Beck, 2008, p. 417). The checklist provided various attributes that the respondent was required to rate in terms of given criteria (Struwig & Stead, 2004, p. 93). The checklist suited the study best as many activities are legally and logically required to be performed and it was then necessary to indicate same on the checklist. In this study the researcher combined a checklist and a questionnaire. Specific data of the first part of the instrument, namely sections A and B was collected with the

55
questionnaire through interviews where data pertaining to the respondents' response was accommodated in the checklist. These questions reflect the epidemiological aspects of respondents and also demonstrate that they were linked to the framework of the study. The checklist was used to collect information in the patients' passport. The instrument also included close-ended questions that had to be answered by the respondents themselves. Close-ended questions are questions where respondents are asked to select an answer from among a list of answers already provided by the researcher, while open-ended questions allow a respondent to answer the questions freely (Babbie & Mouton, 2005, p. 232).

Strydom et al. (2004, p. 72) defines a questionnaire as a set of questions on a form which is completed by the respondent in respect of a research project.

Also in this study, some confirmation about history, time lapses and treatment received was needed. This was obtained through direct close-ended questions. Thus the instrument could be regarded as a combination of a checklist and questionnaire. The development of the instrument checklist/questionnaire was done with the framework of the study as guideline. See figure 3.1

56

Figure 3.1 Correlation of items in the instrument with the framework of the study

After the instrument had been developed, it was tested, as described in 3.6

3.6 Testing of the instrument

Testing of an instrument entails the determination of the fundamental concepts and principles of the instrument.

Injury surveillance
on the extent and
quality of
intervention
provided
Health promotion
and injury
prevention
aspects
Epidemio –logical
Person
Environment
Time
Quality
improvement

Questions:

Section A: 1, 2, 3 a & b

Section B: 1,

Section D: I,

Questions

Section B

2, 3 a, 4.1 – 4.7,

5.1 – 5.5,

Section H: a & b

1 (i – v)

Questions

Section C: a-d, i-viii, 5a (i-iii),

Section D: ii, iii, iv

Section E: i-vii, v

Section F: 1 – 3; ii-v

Section H: a & b, e; 1

57

In this study three activities were incorporated in the testing of the instrument, namely:

Validity;

Reliability; and

A pilot study.

Validity

Strydom et al. (2004, p. 166) refers to validity as the degree to which an instrument measures what it is supposed to be measuring. The questionnaires were specifically tested for content validity.

Strydom et al. (2004, p. 167) argues that content validity is concerned with the adequacy of the content areas being measured. Content validity in this study was ensured through a thorough literature review and the utilisation of opinions of three medical practitioners and five nurses. The instrument was also constructed within the framework of the study as indicated in figure 3.1

Reliability

Struwig & Stead (2004, p. 130) refer to reliability as “the degree of consistency or accuracy with which an instrument measures the attributes it is designed to measure”.

A specific measure under reliability is stability. They also state that stability is the extent to which the same results are obtained on repeated administrations of the instrument. For this study, the stability was ensured by means of equivalence.

58

Struwig & Stead (2004, p. 132) again explain that the equivalence approach is used when different observers use an instrument to measure the same phenomena. This activity was implemented in the study, and will be highlighted again under the pilot study, as this activity was conducted as a part of the pilot study.

Pilot study

A pilot study was carried out to test the feasibility, smooth out problems and test for certain aspects of reliability.

A pilot study was conducted a month before the real study commenced to determine whether the checklist would capture all information needed to meet the study’s objectives and to ensure reliability of the research instrument. The pilot study was conducted over a period of one week to assess the following:

relevance, appropriateness and adequacy;

comprehensiveness and usability of the instrument;

suggestive and subjective undertones of the instrument;

ease of completion distribution and collection of data; and

elimination of the freedom for bias as far as possible.

Twenty patients were interviewed for the pilot study. The results were analysed with the assistance of the supervisors.

59

Certain aspects of reliability, as discussed under the heading “reliability”, were determined during the pilot study. The measure of equivalence was tested in which 20 patients were interviewed with the checklist/ questionnaire by the researcher. Equivalence determines the consistency of the instrument by different observers. In this study equivalence was ensured during the pilot study, where the respondent was interviewed twice on the same day. A research assistant was utilised in this regard to interview the same patients interviewed by the researcher and the results were compared with those of the researcher (see discussion on the research assistant under point 3.7). Through this pilot study, the researcher made some changes and corrections where necessary in the checklist by reframing and rewording the questions. For example, during the pilot study, the possibility of alcohol use was asked, but elicited angry responses from the respondents.

3.7 Data collection

Data collection concerns the gathering of information to address the research questions (Polit & Beck, 2008, p. 414).

A research assistant was utilised to assist with the collection of data. The assistant underwent a period of training by the researcher. The training consisted of simultaneously gathering data with the principal researcher over a period of 3 days. The efficacy of the research assistant was evident during the pilot study when equivalence was obtained (see point 3.6, the section on the pilot study).

60

It was indicated that every fourth patient who entered the emergency department with injuries was interviewed using the checklist/questionnaire. The patients could answer freely to questions, because their confidentiality was ensured. In case a respondent could not speak, the family member or a friend who accompanied such a patient was interviewed. The information provided was treated confidentially. The researcher, together with one assistant, collected the data in a total of 400 checklist/questionnaires. However, two were incomplete and thus excluded from the study.

3.8 Data analysis

Data analysis is a process of systematic organisation and synthesis research data (Polit & Beck, 2008, p. 751). This involves gathering, modelling and transforming research data with the goal of highlighting the useful information, suggesting conclusions and supporting decision making.

Descriptive statistics were used in an attempt to provide a complete and accurate description of the situation, namely the profile of patients with injuries treated at the Katutura State Hospital. Descriptive statistical studies allow the researcher to describe, organise and summarise the raw data to estimate how reliably they can generalise their findings (Schneider, Elliot, LoBiondo-Wood & Haber, 2002, p. 350).

It is further mentioned that descriptive statistics allows for the organisation of data into figures, for example, histograms or tables. This allows for the trends and differences to be noted, and the calculation of simple statistics such as frequency,

61

counts and percentages. This was also done in this study (Schneider et al, 2002, p. 351).

The second reason for using descriptive statistics is to condense or reduce large quantities of information into meaningful units. This reason was also employed by the researcher as the data was condensed to provide a meaningful description (Strydom et al., 2004, p. 228).

3.9 Ethical considerations

Ethical measures were adhered to for the duration of the study. In compliance with the principle of human dignity, especially the principle of self-determination, patients had the right to participate in the study or to refuse to do so (Polit & Hungler, 2001, p. 153). All patients who were approached gave oral consent and were willing to participate because they believed the findings would contribute to future injury prevention activities.

A full explanation on the purpose of the research was given to the patients. Informed verbal consent was obtained from the patients. Individual right to confidentiality was guaranteed to all patients; hence no names and personal addresses were required. Parents who accompanied children gave oral consent for their children to be interviewed.

62

3.10 Permission to conduct the research

Permission to conduct the study in the hospital was obtained from the Ministry of Health and Social Services (MoHSS) and its research committee and from the medical superintendent of the Katutura State Hospital including the head of the emergency department and the registered nurse in charge of the emergency department. All the people were assured that the names of the patients would not appear in the checklist/questionnaires as well as the names of the doctors/ nurses who treated patients. Their anonymity and their privacy would be respected. All information was treated confidentially (see Annexure A).

3.11 Summary

This chapter has outlined some of the fundamental methodological issues as to how the research was conducted. Attention was given to the research design, population and sampling, the methods of data collection and data analysis, some ethical considerations, validity and reliability of the instrument used to collect data. Ethical measures were also described.

The next chapter will deal with analysis of the data.

63

CHAPTER 4

DATA ANALYSIS

4.1 Introduction

In this chapter, the results of the study are presented, discussed and interpreted. The results of this study are interpreted in order to draw conclusions about the morbidity profile of injured patients admitted to the emergency department in the hospital under study, as well as the type and quality of care provided, during pre-hospital and hospital phases of care delivery. The data analysis involved the use of descriptive statistics. The assistance of a statistician from the University of Namibia was obtained. The results are presented in graphs and tables, followed by a discussion and interpretation thereof.

4.2 Personal and demographic data

The first component of the instrument dealt with the personal and demographic data of the respondents. These data were used to identify possible vulnerable groups as well as situations or environments more closely associated with emergencies or injuries.

64

4.2.1 The age distribution of the sample group

With variations in age, it is possible to observe different motor skills, developmental

lifestyle patterns or behavioural patterns, all of which may influence a person's susceptibility to injury and trauma. Age groups were grouped according to a range of five years, and the end of the scale was determined by the literature to determine the most vulnerable group.

In table 4.1 an outline of the age of the sample group is presented

Table 4.1: The age distribution of the sample group (N=398)

Distribution Frequency Percentage

6 months - 5 years	13	3.3
6 years - 10 years	15	4.0
11 years - 15 years	19	4.8
16 years - 20 years	58	14.5
21 years - 25 years	82	20.6
26 years - 30 years	75	18.8
31 years - 35 years	65	16.3
36 years and above	71	17.7

Total 398 100

From table 4.1 it emerged that the majority of the sample group was in the age category 16 - 25 years (20.6%, n= 83) followed by the age categories 26 - 30, and 36 and above. As the age category 36 and above has an unlimited outer border, the age category 31 - 35 will be regarded as the next import age category. Thus, in this study, the new combined majority were in the age categories 16 - 35 years. This is also the

65 group quoted in the literature as being more involved in injuries, as this trend is reported internationally. In the United States of America it is reported that the highest injury rate occurs in persons between the ages of 15 and 24 (USACDC, 2003, p. 5). Although the source is dated, it still holds true as Annan (2002, p. 5) reported that in the year 2000 alone, an estimated 199,000 youths between the ages 15 - 35 died due to injury related injuries. These numbers indicate a rate of 9.2 per 100,000 of the population.

The above statement is further supported from data that was published in South Africa by Matzopoulos et al. (2004, p. 4). The authors reported that most of unnatural injury-related deaths totalling up to 37% were in the age group of 15 - 29 years. These young people tend to be more exposed to high-risk activities (USACDC, 2003, p. 7).

Just as age is recognised in the literature to be a variable when it comes to injuries, gender is also regarded as a variable.

4.2.2 The gender distribution

In table 4.2 the outline of the gender distribution is indicated

Table 4.2: Gender distribution of the injured patients (N= 398)

Gender Frequency Percentage

Males	295	74.1
Females	103	25.9

Total 398 100

66

In this study, the vast majority of injured patients were males. This finding is similar to those reported in international studies. As early as 1994 Cardona et al (1994, p. 92) wrote that the risk for injuries in males is 2.5 times than that for females, possibly due to male involvement in hazardous activities. Some of these hazardous activities are speeding and reckless driving. This statistics is supported by the report

of USACDC (2003, p. 7) and by Matzopoulos (2008, p. 4) who stated that males are more injured than females in South Africa.

According to the Department of Transport, Energy and Infrastructure from South Australia (Rann, 2007, p. 1), it is reported that historically, more men have always died in road traffic accidents/crashes. The report also indicated that men as drivers are three times more likely than women to die in road traffic accidents, and as pedestrians men are twice more likely to die than women

Although the citation refers to road traffic accidents (RTI) only, it still contains valid insights, as a high percentage of admittance to accident and emergency departments is due to road traffic accidents. In this study, the incidence was 12.1 %.(see table 4.10, p. 72).

4.2.3 Type of injuries females sustained

In table 4.3 the outline of injuries the females sustained

67

Table 4.3: the type of injuries females sustained

Injuries frequency Percentage

General injuries 78 75.7

Domestic violence 25 24.3

Total 103 100

Table 4.3 shows that domestic violence is still a problem in Namibia, as 24.3 percent of females sustained domestic, violence related injuries. This means that every fourth female patient admitted with injuries during the study was assaulted by a relative.

4.2.4 Area of residence

The item on the area of residence was included to identify the area that is mostly served by the hospital in the study.

In table 4.4 an outline is provided on the area of residence of the sample group.

Table 4.4: Area of residence (N= 398)

Area Frequency Percentage

Katutura 307 77.1

Khomasdal 62 15.6

Other residential areas¹ 29 7.3

Total 398 100

The Katutura State Hospital is situated in the Katutura residential area. Historically, the Katutura residential area was proclaimed or established on racial backgrounds
¹ Eros, Klein Windhoek, Windhoek West, Suiderhof, Hochlandpark, Pionierspark, Cimbabasia and Klein Kuppe.

68

and, although no longer applicable, it remains the residential area for mainly black people as well as for persons in lower socioeconomic income groups.

Thus, based on the information depicted in table 4.3, the hospital caters for these residents and the results indicated that these residents are the main users of the emergency department in this study.

4.2.5 Employment status

The item on the employment status was necessary to determine the vulnerable sections of the population.

In table 4.5, an outline is provided of the employment status of the injured people in this study.

Table 4.5: Employment status (N= 398)

Employment status Frequency Percentage

Employed 167 42.0
 Unemployed 185 46.4
 Not applicable 46 11.6

Total 398 100

According to table 4.5 a total of 184 patients indicated that they were unemployed. Reed, Smith, Helmer, Lancaster & Carman (2003, p. 1) noted that there is a correlation between unemployment and penetrating trauma as unemployed people are more likely to engage in violent activities and it has a significant and rising effect on the homicide rate.

69

4.2.6 The type of employment

The type of employment was necessary to determine which employed people were more prone to get injured.

In table 4.6, an outline of the type of employment is provided of injured patients treated at the emergency department.

Table 4.6: The type of employment of injured patients (N=167)

Type of employment Frequency Percentage

Self 26 15.6
 Formal 89 53.3
 Others 2 52 31.1

Total 167 100

Table 4.6 illustrates that the majority of injured employed patients had formal employment followed by casual workers and self-employed patients.

4.2.7 Days of injury

Information obtained from this item could assist in optimum planning and resource allocation in injury prevention.

In table 4.6 the outline is provided of the days of injury occurrence.

²Casual workers who were victims of injuries

70

Table 4.7: Days of injury occurrence

Days of injuries Frequency Percentage

Weekdays 138 34.7
 Weekends 260 65.3

Total 398 100

Table 4.7 illustrates that most of the injuries occur on weekends. This concurred with what Matzopoulos (2008, p. 1) had established in South Africa that common days of injuries and deaths occur on Saturdays and Sundays.

4.2.8 Time of injury occurrence

As in the previous item (4.2.7) the information here could also assist in the optimum planning and resource allocation in injury prevention

In table 4.8 outline of time of injury occurrence is provided

Table 4.8: Time of injury occurrence

Time of injury

occurrence

Frequency Percentage

Day 111 72.1
 Night 287 27.9

Total 398 100

Table 4.8 has shown that many people got injured in the night. This concurred with

what Brown stated that many injuries occur at night especially road traffic accidents when people drive while under the influence of alcohol (Brown, 2007, p. 1).

71

4.2.9 Place of injury

The item “place of injury” was included to determine where possible critical areas were located. In table 4.8 an outline is provided of the place of injury occurrence.

Table 4.9: The place of injury occurrence (N= 398)

Place Frequency Percentage

Rehoboth Road 1 0.3

Gobabis Road 8 2.0

Katutura 270 67.8

Khomasdal 50 12.6

Town 58 14.6

Other Places 11 2.8

Total 398 100

From table 4.9 it is evident that majority of the injuries occurred in Katutura and its surrounding suburbs. The Katutura State Hospital is located strategically between two main suburbs, namely Khomasdal and Katutura and is therefore used by the patients in those suburbs to receive medical attention once injured.

The inclusion of the other areas or places of possible injury occurrence is due to the fact that some of them are known to be areas where severe traffic accidents occur, for example, the Rehoboth Road.

72

4.2.10 The cause of injury

By identifying the cause, it is possible to design possible intervention strategies, and if applicable, injury prevention strategies.

In table 4.10 an outline of the cause of injuries is indicated.

Table 4.10: Outline of the cause of injury (N= 398)

Cause of injury Frequency Percentage

Road Traffic accident 48 12.1

Fall over two meters 5 1.3

Fall under two meters 5 1.3

Assaults(Stab wounds) 133 33.4

Assaults (Other than stab wounds) * 69 17.3

Other injuries (non-violent injuries) ** 135 33.9

Sport injuries 3 0.8

Total 398 100

** Assaults (other than stab wounds) included among others: gunshots, assaults with blunt objects, thrown with stones or kicked.*

***Other injuries (non-violent injuries) are regarded as minor injuries which normally require the medical practitioner or nurse to focus on a specific problem and usually on a specific part of the body; these include all unintentional injuries; like a cut by corrugated iron, twisted ankles, burns, etc.*

In this study both types of assaults (stab wounds and injuries other than stab wounds) therefore represent 50.7% of all admissions. Matzopoulos (2008, p. 3) reported that stabbings were the second cause of homicides following firearms in South Africa.

73

In addition, in table 4.10 it can also be seen that 12.1% of admissions were due to road traffic accidents. In the next item, more details will be provided on the position of injured patients in the vehicle or their role in the accident.

4.2.11 Position and involvement in road traffic accidents

Road traffic accidents in this item not only involve the driver or passenger but also other bystanders that were affected, like pedestrians and cyclists.

In table 4.10 an outline is provided of the positions of injured patients within the vehicles as well as their involvement in the road traffic accidents.

Table 4.11: Position, involvement and outcome of road traffic accidents (N=48)

Position Frequency Percent

Driver 7 15.0

Front rear passenger 7 15.0

Rear seat passenger 11 23.0

Pedestrians 22 45.0

Cyclist 1 2.0

Total 48 100

The drivers and passengers represent 50 % (n= 24) of the total number of people involved in road traffic accidents/crashes.

The involvement of the pedestrians in road traffic accidents is significant in this study. If the one cyclist is added to the pedestrians, then 46% of the victims of the 74

road traffic accidents/crashes were not from occupants of the motor vehicles during the time of accident but were pedestrians.

This finding is similar to a study done in South Africa. According to Sukhai & Van Niekerk (b) (2004, p. 82), pedestrians are the group of road users most frequently injured (44.0%), followed by passengers of vehicles (38%), drivers (12.0%) and cyclists (2.0%). The position within the vehicle during the road traffic accident, as well as a specific involvement, namely pedestrians or cyclists, will to a certain extent influence the mechanism of injury.

4.2.12 The mechanism on how the road traffic injuries occurred during road traffic accidents

The mechanisms of injuries are related to the types of injuries, force and subsequent tissue responses. This can explain the type of or predict the eventual outcome and identify common combinations (Fujita & Shibata, 2006, p. 2).

In table 4.12 an outline is provided on the mechanism of injuries sustained during road traffic accidents.

Table 4.12: Mechanism involved during injuries sustained in road traffic accidents (N= 48)

Details of RTA: Frequency Percentage

Intrusion/entrapment 7 14.6

Thrown out 18 37.5

Bumped by a car 16 33.3

Run over by a car 5 10.4

Hit and run 1 2.1

Total 48 100

75

In table 4.12 three sub-items relate to pedestrians namely the item “bumped by a car”, “run over by a car” and “hit and run”. These three items accounted for 43.7% (N=21) of all injuries that were sustained in road traffic accidents. The second conclusion drawn from table 4.11 is that a substantial number of injuries were sustained by being thrown out of the vehicle, namely 37.5% (n=18).

In Namibia, the Road Traffic Act, (Act No. 22 of 1999) makes it a legal requirement

that seatbelts should be worn. A possible anecdotal observation is that most of the patients who were thrown out of the motor vehicles were not wearing seatbelts. A personal observation from the researcher is that there is a tendency of Namibians to assist roadside travellers by providing riding opportunities on the rear of their pick-up vehicles. No objective data is however available to conform this observation. The mechanisms of injuries sustained in road traffic accidents are influenced to a certain extent by the use of protective devices during these accidents.

4.2.13 Protective devices

In table 4.12 an outline is provided of the protective devices used during road traffic accidents. This table excludes the pedestrians.

76

Table 4.13: Protective devices (n=27)

Protective Device Frequency Percentage

Helmet 1 3.7

Seatbelt 10 37.0

Airbag 6 22.2

Child restraint 0 0

Not documented 10 37.0

Total 27 100

The Ministry of Works, Transport and Telecommunication (MWTTC) introduced The Namibian Road and Traffic Act (Act No. 22 of 1999) that requires passengers to use protective devices at all times. A clear analysis of this item is difficult as 38.5% (n=10) of the patients' devices were not documented. An anecdotal observation from the researcher is that this lack of data may be due to the number of patients who are transported on the back of pick-up trucks.

During road traffic accidents, the pre-hospital emergency services are activated.

4.2.14 The recording of response times during pre-hospital activities

Response time is defined as the time between the call received at the ambulance station or hospital, and the time that the ambulance arrives at the scene of the accident (Navarro & Redlinghys, 2006, p. 23).

The military experience has demonstrated that more lives can be saved by decreasing the time from injury to definitive care. This is based on evidence obtained that deaths

77

as a result of trauma occur in a trimodal distribution. The first peak includes victims who die before medical attention can be provided. The second peak occurs within a period which is also referred to as the golden hour. It is therefore imperative to attend to these patients within the first 60 minutes (Urden, Stacey & Lough, 2006, p. 970).

In table 4.13 an outline is provided on the frequency of different time periods being recorded. In this study a total of only 86 pre-hospital calls were found to have occurred, during which pre-hospital emergency care services were delivered.

Table 4.14: Illustration of time recordings during pre hospital activities (N =86)

Recorded information Frequency Percentage

Time distress call was received 2 2.3

Time when dispatched to scene 5 5.8

Time when arrived at the scene 6 7.0

Time when departed from the scene 8 9.3

No recordings 65 75.6

Total 86 100

The outstanding finding of this item on the frequency of time recordings is that in

75.6% (n= 65) of the times, no recordings had been documented.

If table 4.13 is analysed, it appears that at most, in only two cases the elapsed time between the receipt of the call and the arrival at the scene could have been calculated. Thus, in this study, in only 2.3 % of the cases have it been possible to determine whether patients were attended to within the golden hour.

78

Apart from the golden hour, during situations of cardiac arrests, the ideal response time should be less than 5 minutes and for the initiation of advanced life support (ALS) the internationally accepted norm is less than 10 minutes (Navarro & Redlinghys, 2006, p. 24).

The composition of the pre-hospital emergency care workers may differ in types of professions and scope of training. The next item is the category of emergency care workers that attended to the injured at the scene of an emergency.

4.2.15: The category of emergency care workers on the scene of the emergency (pre-hospital)

The emergency care workers at the scene of an emergency are always emergency medical technicians but it could also be a medical practitioner or nurse (all categories). The emergency medical technicians are trained at three levels, namely, basic, intermediate and advanced level. It is only those who completed the advanced training that are called “paramedics”.

Table 4.15 illustrates the categories of emergency personnel at the scene of emergency.

79

Table 4.15: The category of emergency personnel at the scene of an emergency (N=86)

Personnel at the scene Frequency Percentage

EMT (basic/intermediates)* 75 87.2

Fully qualified paramedics 11 12.8

Medical practitioner/nurse nil 0

Total **86 100**

* the term “ EMT” means emergency medical technician

The findings as depicted in table 4.14 indicate that most of the time, namely 87.2 % (n=75), the emergency care practitioners who attended to the injured were basic and intermediate emergency technicians. The interpretation here is two-fold:

The extent of the emergency was rated as not requiring advanced trained emergency technicians (paramedics). This rating is either done by the initial basic and intermediate emergency technicians on the scene, or by a response car that is sent out first at the time of the distress call; and

The second interpretation is that there are not enough pre-hospital emergency care technicians qualified as “paramedics” in the country.

With regard to the second interpretation, the training of pre-hospital emergency care practitioners is extensive and could be regarded a luxury in a developing country like Namibia which is also regarded as a developing and low-income country. In this

80

regard, Breen (2004, p. 94) states that many low income countries lack formal prehospital emergency care training.

Once on the scene, the healthcare provider and in this case the emergency medical care technician should perform certain baseline observations. A crucial baseline observation is to assess the neurological status of an injured patient. In item 4.2.15,

the finding with regard to neurological assessments, also called neurological observations, is discussed.

4.2.16: The performing of neurological observations by pre-hospital emergency care practitioners

Immediately following attention to the airway, breathing and circulation of an injured patient, the neurological status should be assessed. This is so critical that it is regarded “as part of the primary survey” (Mabry & Bluff, 2003, p. 21).

In figure 4.1 an indication is provided of the frequency of neurological observations being performed by pre-hospital emergency care practitioners.

81

Figure 4.1 Performing of neurological observations on the scene of an emergency by pre-hospital emergency care practitioners (N=86)

As can be seen in figure 4.1, in 95% (n=86) of the times, neurological observations have not been done.

Performing of neurological observations by pre-hospital emergency practitioners

95%
5%
0%
20%
40%
60%
80%
100%

Observations done No observations

Percentages

The type of neurological observations available to the pre-hospital emergency practitioner is a complete Glasgow Coma Scale (GCS), or an abbreviated AVPU approach, where the “A” represents alert, the “V” represents react to verbal stimuli, the “P” represents a response to pain, and the “U” represents an unresponsive state (Field, 2006, p. 13).

Another component of neurological observations is an assessment of pupil size and its reactivity. Any rise in intracranial pressure will produce a dilated pupil on the site of the lesion (Reilly & Bullock, 2005, p. 36). From the results, it is evident in this

82

study that any possible intracranial lesion, for example, haemorrhage, would not have been detected.

4.2.17 Vital signs done at the scene of emergency

Immediately after the neurological observations are performed, vital signs are also done to determine the hemodynamic status of the patient.

Figure 4.2 Vital signs at the scene of emergency

Vital signs at the scene of emergency/accident

66.30%
33.70%
Done
Not done

Figure 4.2 showed that only 66.3% of vital signs were done at the scene of emergency. According to Wikipedia (b), (2009) vital signs are done as a part of primary survey to determine the circulation of injured patient and to commence with intravenous therapy if it is necessary.

83

4.2.18 Mode of arrival at the emergency department

In table 4.16 an outline is provided on the mode of arrival at the Katutura State

Hospital emergency department

Table 4.16: Mode of arrival at the emergency department (N= 398)

Mode of arrival Frequency Percentage

Ambulance 86 21.6

Helicopter 0 0

Private car 198 49.8

Walking 114 28.6

Total 398 100

From table 4.16 it is evident that the majority of injured patients were transported by private cars, while the second group were those who walked to the hospital. Seay & Downing (2004, p. 95) mention that evacuation and transport of injured people to hospital are more often carried out by bystanders, relatives, commercial vehicles or police (Seay & Downing, 2004, p. 94).

Once they have arrived at the emergency department, patients needed to be triaged and due to legal requirements, be assessed by a medical practitioner

84

4.2.19 Procedures performed on the scene of emergency

Immediately after the primary survey is done on the scene of the emergency medical technicians (EMTs) initiate procedures to save patient' life. Table 4.15 illustrates the procedures performed on the scene.

Table 4.17 Procedures performed on the scene of injury (n=86)

Procedure performed Frequency Percentage

Oxygen 31 36.0

Intubation 6 6.9

Ventilation nil 0

Cardiopulmonary resuscitation 4 4.7

Cervical splint 12 13.9

Spinal board 24 27.9

Peripheral line 20 23.2

Table 4.15 illustrated that 36.0% of patients who were attended by pre-hospital care emergency practitioners needed oxygen, 6.9% of them were serious injured and intubated while 4.7% required cardiopulmonary resuscitation. In addition, 13.9% needed cervical immobilization 27.9% peripheral lines were commenced on the scene.

After the patient had been stabilised at the scene of the injury (emergency), patients were then transported to the emergency care department at the Katutura State Hospital.

85

. 4.2.20 The assessment of patients by a medical officer

All patients during admittance at the emergency department are initially triaged with the goal of distinguishing between minor and major injuries. This is a legal and quality assurance component. This forms part of a continuation of the primary and secondary survey. A medical officer as a leader of emergency team is responsible for assessing injured patients, assimilating and listing the investigations and treatment in order of priority (Mabry et al., 2003, p. 20). The focus on the presence of a medical officer is that a forensic documentation can only be completed by the medical practitioner (Briggs, 2007, p. 1).

Table 4.18: An outline of patients being assessed by a medical practitioner (N=398)

Specialty Frequency Percentage

Medical officer 380 95.5

Consultant 18 4.5

Total 398 100

From table 4.18 it can be seen that all patients have been assessed by a medical practitioner. Physical examination was done on each patient to determine the extent of injury. A small portion of patients 4.5% (n=18) were assessed by a consultant. These were possibly patients with injuries who were referred to other departments.

86

Apart from the assessment by the medical practitioner, it is also important that the time is recorded. Both actions have legal and treatment implications.

4.2.21. Recording of the time of admittance

The aspect of documentation of the time had been referred to in table 4.13 (the recording of the response time during pre-hospital activities). The importance of being aware of the time that elapsed since the injury continues in the emergency care department.

Statistics demonstrate that deaths as a result of injury occur in the trimodal distribution. The first peak was described as happening before medical attention can be provided. The second peak occurs within few hours after the injury. During this peak, the patient may die from subdural or epidural haematoma, haemapneumothorax or a ruptured spleen, to mention but a few. It is a nursing challenge to influence the quality of care the injured patient receives in an attempt to beat the trimodal distribution or trauma deaths (Urden et al., 2006, p. 970).

In figure 4.2 an illustration is provided on the recording of time in patients' records.

87

Figure 4.3 Recording of time of admission at the emergency department (N=398)

Recording of time of admission

54%

46%

0%

10%

20%

30%

40%

50%

60%

Recording No recording

Percentages

As can be seen from figure 4.2, in only 54% of cases the recording of time of admittance was indicated. The implication of this is that it could not have been possible to implement certain treatments or execute certain policies.

In the Katutura State Hospital emergency department, it is protocol that a patient with a possible head injury or possible alcohol intoxication should only be allowed to stay in the emergency department for six hours, after which they should be admitted for observation.

In addition to the recording of the time of admittance, the recordings of vital signs are also a legal responsibility of any nurse and it is clearly stipulated in the scope of practice of nurses as indicated in Government Notice No. 13 of 1999 as a part of the Nursing Act (Act No. 8 of 2004).

88

4.2.22: The recording of vital signs

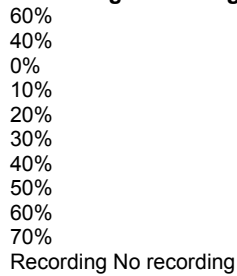
A legal assumption with regard to documentation exists, namely "if it is not

recorded, it has not been done” (Dimond, 2005, p. 1). The same legal assumption applies with regard to the obtaining of vital signs of patients.

In figure 4.3 it is evident that this activity has only been executed 60% of the time. This is deducted from the absence of any recording in 40% of patients recorded.

Figure 4.4: The recording of vital signs (N= 398)

Recording of vital signs



Percentages

The process used by nurses entails assessment, diagnosis, intervention planning and documentation of all interventions. Nurses in the emergency department are required to perform a focused assessment, more specifically called a primary and secondary survey, and to document their findings (Mabry & Bluff., 2003, p. 19).

89

After the initial primary survey, it may be necessary to institute basic or advanced cardiac life support. This intervention depends on the identification of certain signs and symptoms (Nicol & Steyn, 2004, p. 25).

The next item deals with abnormal signs, in addition to absent pulses or absent breathing patterns.

4.2.23. Detection and recording of abnormal signs

When performing a primary survey, certain abnormal signs are looked for that may indicate the need for possible initiation of advanced life support measures. These assessments are done by either medical practitioners or by registered nurses. The recordings indicated that this function was performed mainly by the registered nurses.

Table 4.19: Outline of abnormal signs detected and recorded (N = 53)

Abnormal signs Frequency Percentage

Sweating	47	88.7
Restlessness	53	100.0
Central cyanosis	11	20.7

In majority of these 53 patients, more than one of these symptoms were detected

90

From the records, it was evident that fifty three (53) patients needed skilful observations. As can be seen in table 4.18 fifty three patients manifested with restlessness, while 47 were also sweating and a further 11 of patients showed central cyanosis. These 53 patients represent 13.3 % of the total patients in this study.

Patients with abnormal signs, for instance, sweating, restlessness and central cyanosis needed more skilful medical practitioners and nursing staff who have knowledge and experience in recognising conditions and resuscitating patients according to advanced trauma life support protocol.

Advanced trauma life support (ALTS) necessitates specifically skilled medical doctors and nurses as it might be necessary to intubate and ventilate a patient. Skills with regard to rhythm recognition are also necessary as these patients may develop life threatening arrhythmias (Field, 2006, p. 14).

After the primary and secondary survey, more detailed interventions are initiated.

4.2.24 Treatment, interventions and procedures initiated after the secondary survey

The procedures and interventions performed at the emergency department are quite often “high skilled and high risk” activities.

In table 4.19 an outline of these procedures and interventions is provided.

91

Table 4.20: Outline of emergency procedures performed in the emergency department (n=398)

Procedure Frequency Percentage

Oxygen administration 67 16.8

Intubations 6 1.5

Mechanical ventilation initiated 2 0.5

Chest drain inserted 14 3.5

Bladder catheter inserted 14 3.5

Gastric tube placed 5 1.3

Cervical splint applied 10 2.5

Limb splint 25 6.3

Central line inserted 3 .8

Peripheral line inserted 124 31.2

Sutures 294 73.9

Dressing only without sutures 69 17.3

In analysing table 4.20, three procedures were performed more often, namely suturing, 73.9% (n=294), placement of peripheral lines 31.2% (n=124) and oxygen administration 16.8% (n=67).

With the exception perhaps of the administering of oxygen, the remainder of procedures (interventions in the table 4.20) could be regarded as high skilled and high risk in nature.

It should be noted that the initiation of the intravenous lines as well as the suturing of wounds, is mainly the responsibility of the registered nurse (MoHSS, 1999, p. 64).

92

Apart from the procedures being performed, certain “injury care specific treatments” are provided to patients.

4.2.25 “Injury care specific” treatment provided to patients

Based on the primary and secondary survey and the completion of certain procedures, certain treatments were also given to patients. In table 4.20 an outline is provided of this treatment.

Table 4.21: Outline of “injury care specific” treatment given in emergency department (N=398)

Treatment Frequency Percentage

Analgesics 306 76.9

Sedatives 22 5.5

Tetanus 360 90.5

Antibiotics 194 48.7

Wound care 358 90.0

Ointment 349 87.7

Local anaesthetics 294 73.9

Table 4.21 reveals that 76.9% (n=306) of patients treated were given analgesics, 5.5% (n=22) were sedated, and tetanus was given to 90.5% (n=360) of the patients

while antibiotics were given to 48.7% (n=194) of patients. Wound care and ointment applied represent 90% (n= 358) and 87.7% (n= 349) respectively while local anaesthetics contributes to 73.9% (n= 294). Local anaesthetics were given to those patients who were sutured. It could be the registered nurse's responsibility to suture

93 patients' wounds as stipulated in the scope of practice of nurses as indicated in Government Notice No. 13 of 1999 as a part of the Nursing Act (Act No. 8 of 2004), but this might not be a universal international practice. In Great Britain, for example, nurses are not allowed to suture wounds but may prepare sterile packs for the doctor to do the procedure (Driscoll & Skinner, 2000, p. 3). Before the patient is discharged, health education is given according to injury sustained.

4.2.26 Health education provided

Health education seeks to persuade people to adopt healthy lifestyles by providing them with information and understanding of prevention issues so that they can make their own well-informed decisions and act on them, assuming responsibilities for their own health. Health education aims to raise awareness and increase knowledge in order for people to change their attitudes and risk behaviour (WHO, 2004, p. 9).

Table 4.22 outlines the frequency of health education provided to patients.

Table 4.22: An outline of health education provided (N= 398)

Health education given Frequency Percentage

Yes 311 78.1

No 85 21.4

Not applicable 2 0.5

Total 398 100

Table 4.22 reveals that 78.1% (n= 311) of patients admitted at emergency departments were given health education. Health education is given during the

94 provision of the treatment. It was very difficult to evaluate the quality of health education as it was not indicated in the patients' records whether they had received health education and if they understood the information correctly.

It is after this initial provision of treatment and health education that some patients may be discharged or transferred to the general wards.

4.2.27: Discharge and transfers from the emergency department

In table 4.23 an outline of discharge's and transfers is provided. Although the Katutura State Hospital emergency department treats non-fatal injuries, some injuries needed surgical interventions that patients had to be admitted in the hospital.

Table 4.23: An outline of discharges and transfers from the emergency department (n=398)

Discharges / transfers from the emergency department

Frequency Percentage

To ward 85 21.4

Home 311 78,1

Death 2 0.50

Total 398 100

Table 4.23 shows that 78.1% of patients (n=311) were treated and sent home while 21.4% (n=85) of patients were admitted to the hospital and only 2 patients were reported dead due to injury which represented 0.5%.

95

The transfer to wards represents a group of patients who first had to undergo certain corrective surgical procedures for example, patients with underwater drainages inserted at the emergency department, patients who required operations after injuries or patients who required overnight observations after successful resuscitation. The number of surgical corrective procedures for each month is indicated in the next heading.

4.2.28 Number of surgical procedures performed

Although mainly non-fatal injuries were admitted, some of these injuries needed admissions for further management like surgery after abdominal injuries and fractures.

In table 4.24 an outline is provided of the number of surgical procedures performed.

Table 4.24: Number of surgical procedure performed each month (n=13)

Month Frequency Percentage

July 2006 2 15.4
 August 2006 3 23.1
 Sept 2006 3 23.1
 October 2006 5 38.5

Total 13 100

96

In this study, only 3.3% (N=13) of a possible 398 patients needed surgery. This finding is in line with the discussion in the previous item on discharges and transfers. The impression is that few patients are admitted with life threatening conditions that require surgery.

4.2.29 Assessment of the documentation performed by the medical officer (n=398)

It is of paramount importance that doctors document the cause and examination of injury, as well as the treatment of the patient. The information is vital for all those involved in providing care to patients and for any subsequent new care providers to the patients who assume responsibility. The same document may be used in a court of law as evidence.

Table 4.25: Assessment of the quality of documentation by the medical officer (n=398)

Record keeping Frequency Percentage

Excellent 42 10.5
 Good 193 48.5
 Not good 163 41.0

Total 398 100

The abovementioned assessment is based on a scale (see the instrument, Annexure C).

Excellent records means all five criteria were met;

Good when record had met only four criteria; and

97

Not good means the instrument met three criteria only.

Table 4.25 shows how record keeping is neglected as a vital tool of communication. Out of 398 patients, only 10.5% had excellent record keeping, 48.5% record keeping was good and 41% was not good. Again, it was difficult to evaluate quality of care patients received as no proper documentation was done.

4.3 Summary

In this chapter the profiles of the patients in the study were described and analysed.

In addition, the extent of injuries and the quality of care received were described. In essence this could also be regarded as a description of the injury/trauma care indicators. Findings of the study were discussed and presented in graphs and tables. The next chapter, chapter 5, contains a summary of the research findings, conclusions, recommendations, limitations and further research

98

CHAPTER 5

SUMMARY OF THE RESEARCH FINDINGS, CONCLUSIONS, RECOMMENDATIONS AND LIMITATIONS OF THE STUDY

5.1 Introduction

In this chapter the research findings are summarised and conclusions are drawn accordingly. Based on the conclusions, recommendations are presented within the recognised limitations that exist in this study.

The discussion of the chapter will be based on the order of the purpose and of the objectives of the study.

5.2 The purpose of the study

The purpose of this study was to explore and describe the demographic profile of patients admitted with injuries to the Katutura State Hospital during 2006 as well as the type and quality of health care provided to these patients by health care professionals.

The purpose of the study sensitised the researcher to a linkage between epidemiological concepts as well as quality improvement concepts. These linkages

99
were then operationalised as the framework of the study. These “linkages” were then further refined by the compilation of the objectives which will be stated again.

5.3 The objectives

Each objective will be discussed separately, and based on the conclusions drawn; the recommendations will then also be presented.

5.3.1 Objective 1

The first objective reads as follows:

To describe the demographic profile of injured patients treated at the emergency department during the 2006 at the Katutura State Hospital

This objective includes epidemiological factors such as age, gender, and place of residence (see figure 3.1).

5.3.1.1 The summary of the findings and conclusion

A central story line emerged that summarised the findings of this specific objective: “*The vast majority of patients who were treated at the emergency department of the Katutura State Hospital during 2006 were males, mostly between the ages of 16-35,*

100 and namely residents of the suburb where the hospital is situated” (see chapter 4, tables 4.1, 4.2 and 4.3).

The literature has abundant similar findings with regard to the profiles of injured patients, specifically in respect of gender and age.

In this regard a report by USACDC (2003, p. 3) indicated that in over 86% of homicides, males are involved which prompted the admittance to emergency care departments. Furthermore, the male gender is more involved in road traffic/ crashes and other injuries causing possible admissions at emergency departments.

5.3.1.2 Recommendations

As this objective dealt with the demographic profile, the specific recommendations

are:

Emergency care nurses and medical practitioners should be conversant with the developmental stage of the majority of their patients. The age group 16-35, which represents the majority of the patients, as well as being male, presents certain distinct developmental stage characteristics. Two main developmental stages are involved here, namely: adolescence and early adulthood. Adolescence is characterised, for instance, by risk-taking behaviour (Swartz, De la Rey & Duncan, 2006, p. 80). Keeping this knowledge about adolescence in mind might help to better approach the patient and to provide better health education and prevention strategies.

101

During early adulthood, the tendency towards violence and fast driving increases (Swartz et al., 2006, p. 88). Again, being sensitised to these developmental characteristics in many of the patients may help to obtain, for instance, relevant history, without the patient being unnecessarily defensive. It may help the emergency care nurses and medical practitioners from appearing or acting judgementally. In-service training should be initiated on regular basis whereby health care workers are briefed about developmental changes in human being especially males. As males mature (age), they are more prone to risk-taking behaviour.

The next discussion point is with regard to objective no 2.

5.3.2 Objective 2

The objective 2 reads as follows:

To describe their morbidity profile (types of injuries being admitted for)

These findings as indicated in table 4.9, showed that violence related injuries had exceeded other injuries, followed by non-violent injuries and road traffic accidents respectively.

102

5.3.2.1 Conclusion

As has been referred to when discussing objective no 1, a central tendency, (storyline) emerged. The first part of the central tendency emerged as part of the conclusion of objective no 1, namely “male” and being between the “ages 16-35 years”.

With regard to objective no 2, these men, mostly between the ages 16-35 years were mainly involved in stabbings (knife-inflicted wounds) namely 50.7% (n=202). The second highest cause for admittance was non-violence related injuries, a total of 33.9% (n=135), followed by road traffic accidents/ crashes at 12.1% (n=48), either as occupants of the motor vehicles or as pedestrians. See table 4.9

The central tendency (storyline) thus hinted at *violence* as being integrated in the cause and mechanism of injuries. This conclusion from the researcher is based on “direct violence” as well as the road traffic accidents/ road crashes. If the principle is accepted that a significant percentage of road traffic accidents/crashes are due to the violation of traffic rules, then the viewpoints of Swartz et al. (2006, p. 303) could be accommodated. The mentioned authors stated as follows: “When harm arises as a result of society laws, regulations and norms of due care being ignored, an act of violence has taken place, even when harm was not intended.”

103

Based on the above, the final conclusion for the objective no 2 is that violence in its broad definition could be regarded as the cause and mechanism for more than 50% of

all injuries.

5.3.2.2 Recommendations

The recommendations for objective no 2 will be based on the following headings:

Violence prevention;

Legal related aspects; and

Curriculum review/recommendations.

The first recommendation will address the aspect of violence prevention.

Violence prevention

The researcher departed from within epidemiological and health promotion framework, (plus a perspective on quality improvement). The issue of violence prevention as a prerequisite to decrease injuries is therefore of cardinal importance.

The approach that could be followed is illustrated in table 5.1

Table 5.1: A violence prevention approach

Type Injuries	Level of approach	Outcome expected
Injuries due to violence	Individual	An empowered
	Individual group,	
	Small group	
	104	
	Community	community and
	society	
	Society	

(Adapted from Swartz, de la Rey & Duncan, 2006, p. 308)

The researcher will present a discussion at all four levels; although it is acknowledged that this study will need to focus only up to the community level.

Individual level interventions

Adolescents and young adults should be taught how to resolve conflicts in a nonviolent manner (empowering) from an early age. Children can be referred to psychologists and social workers for counselling. This might be idealistic and in certain conditions unrealistic, seeing that many variables are involved, such as unemployment, to mention but one. However, the emergency care medical practitioners and registered nurses should have the possibility of being able to refer patients to skilful professionals like psychiatrists, psychologists, social workers and pastors of local churches.

This aspect will again be referred to when addressing the curriculum review recommendations. This recommendation also links up with those ones stated for objective No. 1, namely that nurses and emergency care medical practitioners must be conversant with the different developmental stages of patients.

105

Small group level interventions

This intervention requires the assistance of professionals outside the health field. In this regard schools in the suburbs where the target hospital is located should be approached and teachers should be encouraged to become involved in the compilation of intervention programmes. Teachers could be trained to identify adolescents at risk and refer or intervene if necessary. This recommendation entails inter-ministerial collaboration, and if not possible, community level intervention (WHO, 2007, p. 33)

Community level intervention

The initiation or planning of local awareness and public information campaigns should be implemented through media and wherever many people gather together

like in churches. Meetings with local leaders have a positive effect on changing people's behaviour as these people (local leaders) have greater influence on members of their communities (Swartz et al., 2006, p. 308). This process could be regarded as acting in an "advocacy" role.

Advocacy can be defined as raising awareness of an issue for the purpose of affecting the policy, programmes and resources devoted to it (Krug, Dahlberg, Mercy, Zwi & Lozano, 2007, p. 31). In this regard the Ministry of Health and Social Services could play a leading role in advocating for the prevention of injuries;

106 because it can easily generate data on injuries as it oversees the treatment of victims of injury.

Campaigns on the prevention of any kind of injuries could be co-ordinated with the co-operation of and liaison with legal experts to submit possible legal documentation. The campaigns can be carried out in collaboration with nongovernmental organisations, civil societies and other stakeholders in the fight against injuries. The aspect of legislation will be referred to later. Celebrities may be requested to become involved in the fight against injuries (WHO, 2007, p. 29). Part of community level involvement includes capacity building of human resources. This activity could involve non-governmental organisations.

Another approach to community level involvement is to assist with the development of support groups for victims of violence or survivors and family member of survivors of road traffic accidents/crashes. These support groups could enhance the campaigns against violence or road traffic accidents/crashes.

The community could be requested to act as "watch dog" for the monitoring of firearms related injuries, as many of these occurrences are not always reported to the police. Part of community involvement could include the promotion of primary prevention responses. These responses include the following activities:

107

The improvement of urban infrastructure both physical and socioeconomic – by identifying locations where violence frequently occurs, analysing factors that make a given place dangerous and modifying or removing those factors.

Co-operation with the police in the reporting of any criminal activities to the community police-volunteers.

The Namibian Defence Force (NDF) may be requested to assist the police in patrolling the streets, specifically in high risk areas. However, the presence of uniformed personnel may impose a threat to the community, if the community is not informed about their presence beforehand (Krug, Dahlberg, Mercy, Zwi & Lozano., 2007, p. 29).

The next level of intervention is described as being on a societal intervention

Societal-level intervention

It is at this level that anger management programmes are planned and organised (Swartz et al., 2006, p. 308). This level of intervention will require liaison with applicable health professionals, like social workers, clinical psychologists and pastoral counsellors. This intervention is regarded as not immediately attainable, and within the framework of this study, should be regarded as a goal to strive towards.

In acknowledging the high incidences of violence related injuries, it would be necessary to take note of the legal ramifications.

108

Legal related aspects

The legal related aspects have more bearing on road traffic accidents, as a substantial number of road traffic accidents may be due to legal violations.

Within the context of this study, the recommendations might be difficult to promote or present to the appropriate people. It is therefore recommended that these results be analysed by the relevant hospital management, and if possible be forwarded to the Ministry of Health and Social Services. The Ministry of Health and Social Services could, through its ministerial authority, enhance the following recommendations: The restriction on road utilisation of trucks on national roads only between 05h00 and 20h00, because driving trucks in the night contributes significantly to road traffic accidents.

Frequent or more regular control of the speed limits within built-up areas, together with the testing of alcohol levels in the blood of suspected drivers.

As it is not only road traffic accidents that were found to be significant in this study, attention should also be brought to the highest cause of injuries, namely injuries related to violence. Recommendations in this regard are again limited as these recommendations are made within the context of a contextual study. Nevertheless, recommendations here are similar to those submitted for the previously mentioned ones, they could be forwarded by the hospital management to the Ministry of Health and Social Services.

109

The recommendation is as follows:

The Namibian government should consider the enactment of a law that prohibits the carrying of knives on streets. This will enable the police to search people on the streets for knives and other dangerous weapons randomly. This recommendation has specific relevance in this study as most of the injuries were related to stab wounds.

The next discussion point addresses recommendations with regard to the training of emergency care workers, namely the registered nurses. As the training of medical practitioners is not being done in Namibia, no recommendations towards this profession will be made.

Recommendations on curriculum aspects for emergency care nurses

The findings of this study could be regarded as the first phase of a total curriculum review process. The first phase usually entails a situational analysis. In short, what becomes evident during this situational analysis is embedded in the central storyline (central tendency): namely:

□□

“Males, between the ages 16 - 35 years were mainly admitted with violence related injuries (assaults) for which they normally received analgesia and antibiotics, followed by possible suturing and tetanus prophylaxis. They were seldom admitted and were usually discharged a couple of hours after the

110

treatment. There was however a lack of communication available on the treatment received or the reaction to the treatment.”

Based on the “storyline” the specific recommendations are that a curriculum in emergency care for nurses should address at least the following:

Competencies in basic and advanced cardiac life support;

Emphasis on thoracic injuries;

Imaging-specific chest x-ray interpretation;

They should also acquire knowledge and skills with regard to suturing of deep

wounds, but only when specific protocol is in place to provide legal protection;

A sound knowledge of pharmacodynamics and pharmacokinetics of opiates (opioids) is also required as some patients would normally receive these categories of analgesics;

The theory involved in immunity should be mastered to make the administration of tetanus prophylaxis more meaningful; and

The correct method of documentation should be taught to emergency care nursing practitioners.

It is important that nursing training programmes be adjusted as the need arises. Basic Life Support should be incorporated in the basic nursing training so that every nurse will be able to manage any emergency situation.

111

Every nursing staff member allocated to emergency departments should go for advanced trauma and cardiac life support. This is done to ensure that nurses become skilled and function with confidence

Recommendations for the pre-hospital emergency care practitioners

The following recommendations regarding the curriculum of the pre-hospital emergency care practitioners should be submitted to the Allied Health Professional Council.

The time the call is received and dispatch time should be recorded all times. The pre-hospital emergency care practitioners should put more emphasis on the scene assessment and recording of the findings on the scene as well as the vital signs during the transport of the injured patient the hospital.

5.3.3 Objective 3

The third objective reads as follows:

To explore and describe the type and quality of care provided to injured patients by health care professionals during the pre-hospital and hospital phases

112

5.3.3.1 Conclusion

In this study, it was impossible to calculate simple and complex outcome measures (trauma scores) due to a lack of recorded data. This would have allowed the effectiveness of interventions to be monitored (Reilly & Bullock, 2005, p. 33). Thus, the quality of the care provided to patients was analysed descriptively. The point of departure was to identify situations where due care was not delivered to patients. The conclusion was that in the following situations of care or interventions the quality of care could not be considered optimal:

The delivery of a comprehensive all-encompassing pre-hospital emergency care as part of the outreach of the emergency department. A lack of documentation of vital signs was found;

During the hospital phase in the emergency department record keeping was not optimal. In this regard the recording of vital signs was often omitted with no recordings on the findings of the primary and secondary surveys; and

Based on the previous conclusion, it must be deducted that proper triage could not have been implemented. The omission of proper record keeping alone made it impossible to utilise injury severity scales and to calculate objective ratings to serve as a term of reference on the quality of care delivered.

113

5.3.3.2 Recommendations

It is recommended that in-service education be given for the following:

Mass casualty management and triage

These approaches focus on the training of health care professionals in the emergency department, namely medical practitioners and registered nurses to implement four phases. These phases are the mitigation, the preparedness, and the response and recovery phases (Newberry & Criddle, 2006, p. 44).

Knowledge and skills with these approaches will automatically strengthen documentation and triage as well, due to the interrelatedness between all the components.

Emergency care is a highly litigious area of patients. Health care professionals are accountable to the public for their judgements and consequences of these judgements (Newberry & Criddle, 2006, p. 21). It is necessary that the healthcare workers in the emergency department, with emphasis on the registered nurses, be on time and again sensitised about legal aspects.

5.4 Limitations of the study

A methodological limitation was encountered in the sense that a more specific type of quality assessment could not have been done, namely the calculation of injury

severity scores. These scores could have provided data to predict outcomes for comparison with actual outcomes. This limitation was due to a lack of applicable data.

5.5 Further research

The results from this research indicated a lack of due care being delivered. A different study could therefore focus on the perceptions of the patients, or on how they experienced the emergency care the patients had received.

5.6 Final summary

This chapter presented the final summary of the study. This summary is again presented as the central storyline. The majority of patients being treated for injuries at the emergency department were men, aged between 16 – 35 years, unemployed, and they were mainly involved in stabbings. Their injuries were not that severe as they were mostly discharged with only two patients who died and only twelve patients who needed surgery. However, it was found that fundamental basic care like obtaining vital signs and documentation had not been done.

115

6. LIST OF REFERENCES

- Afukaar, F. (2004). Speed bumps in Ghana: A low-cost road safety intervention. World report on road traffic injury prevention. Geneva: WHO.
- Annan, K. (2001). *Violence and Health*. Proceedings of a World Health Organization Symposium. 12 - 15 October. Kobe: WHO.
- Babbie, E & Mouton, J. (2005). *The practice of social research*. Oxford : Oxford University Press
- Beebe, R & Funck, D. (2005). *Fundamentals to basic emergency care*. New York: Thomson and Delmar Learning.
- Benegal, V., Nayak, M. Murthy, P., Chandra, P. & Gururay, G. (2005). Women and alcohol in India. Alcohol, Gender and Drinking Problems. A perspective from low and middle income countries. Geneva: WHO.
- Breen, J. (2004). Risk factors in road traffic accidents. World report on road traffic accidents. Geneva: WHO.
- Brink, H. (2006). *Fundamentals of Research Methodology for Health Care Professionals*. 2nd edition. Juta: Cape Town.

116

- Briggs, L. (2007). *A report on recordkeeping in the APS*. Australian Public Service Commission.
- Brown, H. (2007). *Rwanda' road safety transformation*. Bulletin of the World Health Organization. The International Journal of Public health. Vol. 85. No. 6
- Brundtland, G. H. (2002). *World health reports*. Kobe: WHO.
- Butchart, A., Phinney- Harvey, A., Mian, M. & Furness, T. (2006). *Preventing child maltreatment: A guide to taking action and generating evidence*. Geneva: WHO.
- Cardona, V. D., Hurn, P. D., Mason, P. J. B., Scanlon, A. M & Veise-Berry, S. W. (1994). *Trauma Nursing. From Resuscitation through rehabilitation*. 2nd edition. Philadelphia: W. B. Saunders Company.
- Chapdeclaine, A. & Maurice, P. (1996). *Firearms injury prevention and gun control in Canada*. Canadian Medical Association Journal, Vol. 155 No. 9.
- Clarke, L. (2004). *South African suicide rate high and growing*. 1st edition. Sunday Tribune. May 30.
- College of Physicians and Surgeons of Manitora (CPSM). (2003). *Guideline No. 1621-Emergency Medical Services: Recommended Hospital and Physician requirements*. Retrieved on June 13, 2009, from <http://www.cpsmsecure.com/guidelines/1621.php>
- Culder, W. (2009). *Firearm-related injury continues to significantly impact Canada' health care system*. Canada Association of Emergency Physicians.
- Dimond, B. (2005). *Exploring common deficiencies that occur in record keeping*. British Journal of nursing. Vol. 14 No. 10.
- Driscoll, P. & Skinner, D. (2000). *Trauma Care*. Beyond the resuscitation room. BMJ: London.
- Epidemiology. (2009). Retrieved on May 10, 2009, from <http://en.wikipedia.org/wiki/Epidemiology>.
- Falbo, G. H., Buzzetti, R & Cattaneo, A. (2001). *Homicides in children and adolescents: A case-control study in Recife, Brazil*. Bulletin of the World Health Organization. The international Journal of Public Health. Vol. 79 No. 1.
- Fearnside, M. & Simpson, D. A. (2005). *Epidemiology*. Head injury. Pathophysiology and management. 2nd edition. Arnold: Virginia.
- 118
- The International Federation of Human Rights Leagues (FIDH) (2007). *Domestic Violence in Europe*. A plague which spares no country, no circumstances, no social class. FIDH: Amsterdam. Retrieved on February 12, 2008, from <http://www.fidl.imaged/fr/>.
- Field, J. M. (2006). *Advanced Cardiovascular Life Support*. American Heart Association: Texas.
- Fujita, Y. & Shibata, A. (2006). *Relationship between traffic fatalities and drunk driving*. Department of Public Health : Kurume.
- Garcia-Moreno, C. (2005). *Initial results on prevalence, health outcome and women response*. WHO multi-country study on women' health and domestic violence against women. Geneva: WHO.
- Gordon, B., Mackay, R. & Rehfuess, E. (2004). *Inheriting the world*. The atlas of children health and environment. Geneva: WHO.
- Harris, C. & Van Niekerk, A. (2004). *Homicide in South Africa: A profile of fatal injuries in South Africa*. MRC-UNISA: Tygerberg.

- Health Care Professionals. (2009). Retrieved on May 9, 2009, from <http://www.datadictionaryadmin.scot.nhs.uk>.
119
- Health promotion. (2009). Retrieved on May 16, 2009, from http://en.wikipedia.org/wiki/Health_promotion.
- Holder, Y., Peden, M., Krug, E. G., Lund, J., Gururay, G. & Kobusingye, O. (2001). *Injuries Surveillance Guidelines*. Geneva: WHO.
- Hutchinson, C. & Sharples, C. (2006). Information governance: Practical implication for record-keeping. *Nursing standard*. 20 (36): 59 - 64.
- Intermediate Care.(2006).JIT Scotland. Retrieved on May 10, 2009 from <http://www.jitScotland.org.uk/action-areas/intermediate-care/>
- Joner, T. (2005). *Why people die by suicide*. Harward University Press: Cambridge
- Jordan, S. (2002). *Adolescence violence in cities: Determinants, surveillance and prevention*. Kobe: WHO.
- Kozier, B., Erb, G., Berman, A. & Snyder. (2004). *Fundamentals of Nursing*. Concepts, Process and Practice. 7th edition. New York: Prentice Hall.
- Krug, E. (2002). *Injury and violence prevention*. Geneva: WHO.
- Krug, E. (2004). *Guidelines for essential trauma care*. Geneva: WHO.
120
- Krug, E. (2005). *Injuries and violence prevention*. Geneva: WHO.
- Krug, E. (2007). *Preventing injuries and violence*. A guide for ministries in Health. Geneva: WHO.
- Krug, E. G., Dahlberg, L. L., Mercy, J. A., Zwi, A. B. & Lozano, R. (2007). *World Report on violence and health*. Geneva: WHO.
- Last, J., Spasaff, R. & Harris, S. A. (2000). *A dictionary of epidemiology*. Oxford University Press: New York.
- Mabry, C. D. & Bluff, A. P. (2003). Trauma services: Coding for optimal practice management. Vol. 88, No. 9. *Bulletin of American College of Surgeons*.
- Mangus, R. S., Simons, C. J., Jacobson, L. E., Streib, E. W. & Gomez, G. A. (2004). *Current helmet and protective equipment usage among previously injured ATV and motorcycle riders*. BMJ Publishing Group: Indianapolis.
- Markowitz, S. (2000). *The price of alcohol, wife abuse and husband abuse*.*Southern Economic Journal* 2000, 67 (2): 279-303.
- Matzopoulos, R., Seedat, M., Marais, S. & Van Niekerk, A. (2004). *A profile of fatal injuries in South Africa: A platform for safety promotion*. Tygerberg. MRC-UNISA: 121
- Matzopoulos, R. (2008). *Crime, Violence and Injury Lead Programme*. MRCUNISA:
- Menges, W. (2008, June 12). *Woman raped in the riverbed*. *The Namibian*, 5. Windhoek: Free Press Printers.
- Mercy, J. A., Butchart, Farrington, D & Cerda, M. (2002). *Youth Violence*. World health report on violence and health. Geneva: WHO.
- Meyer, C. 2010. *Physiological and psychological effects of domestic violence*. Retrieved on February 2. 2010 from http://divorcesupport.about.com/od/abusiverelationships/p/effects_abusive.htm.
- Middlet. P. (2008). Trauma Triage Tool - Major Trauma Criteria. Ambulance Services of New South Wales: Retrieved on June 24 2009, from <https://www.medscheme.co.za>.
- Ministry of Health and Social Services (MoHSS). (1995). *Integrated health care deliveries: The challenge of implementation*. A situational analysis and practical

- implementation guide. Windhoek: Namib Printers.
- Ministry of Health and Social Services. (1999). *The Government Notice No. 13 of 1999*. Windhoek: Namib Printers.
- 122
- Ministry of Health and Social Services. (2004 (a)). *An assessment of the nature and consequences of intimate male- partner violence in Windhoek*. Windhoek: Namib Printers.
- Ministry of Health and Social Services. (2004 (b)). *Nursing Act (Act No. 4 of 2004)*. Windhoek: Namib Printers.
- Ministry of Health and Social Services. (2005). *Health Information Systems*. Windhoek: Namib Printers.
- Ministry of Health and Social Services. (2007). *Health Information Systems (HIS)*. Windhoek: Namib Printers.
- Ministry of Works, Transport and Telecommunication (MWTC). (1999). *Road and Traffic Act (Act No. 22 of 1999)*. Windhoek: Namib Printers.
- National Planning Commission (NPC). (2003). *Population and Housing Census*. National Report. Basic Analysis with Highlights. Windhoek: Namib Printers.
- National Road Safety Council (NRSC). (2007). *Death toll on Namibian road during festive season*. Windhoek: Print Tech.
- 123
- Murray, M., Davies, M. & Boushon, B. (2007). *Panel size: How many patients can one doctor manage?* American Academy of family physicians: Washington.
- Navarro, V. R. & Redlinghys, C. S. (2006). *The South African Journal of critical care*. Vol. 22 No. 1.
- Newberry, L. & Criddle, L. M. (2006). *Sheehy' Manual of Emergency care*. 6th edition. St Louis: Elsevier Mosby.
- Nicol, A. & Steyn, E. (2004). *Handbook of trauma for Southern Africa*. Oxford University Press: New York.
- Orozco, J. B. (2005). *Alcohol, Gender and Drinking Problems*. A study in the greater metropolitan area of Costa Rica. Geneva: WHO.
- Ozaki, S., Wada, K. S. & Katsuno, S. (2005). *Current status of drug use among Japanese youth: Substance use among young people in urban environment*. Kobe: WHO.
- Panday, S., Reddy, S. P, Ruiters, R. A. C., Bergstrom, E. & De Vries, H. (2007). *Determinants of smoking among adolescents in the Southern Cape - Karoo region, South Africa*. Health promotion International 2007 22 (3): 207 - 217). Geneva: WHO.
- 124
- Pandey, S. (2008). *India tackles domestic violence*. BBC News. May 27.
- Peden, M., Scurfield, R., Sleet, D., Hyder, A. A., Jarawan, E. & Mathers, C. (2004). *World report on road traffic injuries prevention*. Geneva: WHO.
- Peden, M., Scurfield, R., Sleet, D., Mohan, D., Hyder, A.A., Jarawan, E & Mathers, C. (2005). *World report on road traffic injury prevention*. Geneva: WHO.
- Peden, M., Oyegbite, K., Ozanne - Smith, J., Hyder, A. A., Branche, C., Rahman, A. K. M. F., Rivara, F. & Bartolomeos, K. (2008). *World report on child injury prevention*. Geneva: WHO.
- Pinheiro, P. S. (2006). *World report on violence against children*. Geneva: WHO.
- Polit, D. F. & Hungler, P. (2001). *Nursing Research: Principles and Methods*. 4th edition. Philadelphia: Lippincot-Raven.

- Polit, D. F. & Beck, C. T. (2008). *Nursing Research*. Generating and Assessing evidence for Nursing Practice. 8th edition. Lippincott, Williams & Wilkins.
- Quality improvement organizations.(2008) Retrieved on May 10, 2009, from http://en.wikipedia.org/wiki/Quality_improvement_organizations
- 125
- Qureshi, A. F., Rabbini, F & Rizvi, N. (2002). *Domestic violence in Pakistan*. Alcohol in developing societies. A Public Health Approach. Geneva: WHO.
- Reilly, P. L. & Bullock, R. (2005). *Head injury*. Pathophysiology and management. 2nd edition. Virginia: Hodder Arnold.
- Ran, M. (2007). *Transport Network in South Australia*. Department for Transport, Energy and Infrastructure: Government of South Australia. Retrieved on May 10 2007 from <http://www.transport.sa.gov.au/>
- Reed, J. A., Smith, S., Helmer, S. D., Lancaster, B. A. & Carman, C. G. (2003). *Rates of unemployment and penetrating trauma are correlated*. University of Kansas: Wichita.
- Schneider, Z., Elliot, D., LoBiondo-Wood & Haber, J. (2002). *Nursing research*. Methods, critical appraisal and utilization. 2nd edition. Mosby.
- Seay, A. & Downing, A. (2004). *The global impact of road traffic injury*. World report on road traffic injury prevention. Geneva: WHO.
- Sleet, D. (2004). *Bicycles and bicycles injuries*. World report on road traffic injury prevention. Geneva: WHO.
- 126
- Smith, D. L., Elting, L. S., Learn, P. A., Raut, C. P. & Mansfield, F. P. (2007). *Factors influencing the volume-outcome relationship in gastrectomies*: A population based study. Society of surgical oncology: Texas.
- Soraya, M., Petrella, L. & Andersson, C. (2002). *Guide to UN resources and activities for the prevention of interpersonal violence*. New York: UN-Habitat.
- Sukhai, A & Van Niekerk, (a) (2004). (a) *Alcohol-related road traffic accidents in South Africa*. World report on road traffic accidents. Geneva: WHO.
- Sukhai, A. & Van Niekerk, A. (2004). (b) *Transport-related deaths*: A profile of fatal injuries in South Africa. MRC-UNISA: Tygerberg.
- Struwig, F. W. & Stead, G. B. (2004). *Planning, designing and reporting research*. 3rd edition. Cape Town: Pearson.
- Strydom, H., Fouché, C. B. & Delpont, C. S. L. (2004). *Research at grass roots*. For the social sciences and human services professionals. 2nd edition. Pretoria: Van Schaik.
- Surjadi, C. (2002). *Violence prevention and health development*. Experience from Indonesian cities: urban violence and health. Kobe: WHO.
- 127
- Swartz, L., De la Rey, C. & Duncan, N. (2006). *Psychology*. An introduction. 2nd edition. Cape Town: Oxford University Press.
- Tallon, J. M. & Murray, D. (2005). *EHS Novo Scotia Trauma Program*. Trauma registry on injury. Provincial report 2003 - 2004 <http://www.gov.hs.ca/health/ehs>
- Taylor, B. C., Handajani, Y. Z., Jordan, S., Kohler, G., Korff, R., Laaser, U., Qureshi, A. F., Rizvi, N. & Surjadi, C. (2002). *Urbanization, Violence and Health*. General and Theoretical Overview. Kobe: WHO.
- Tragedy in Myanmar (2008). The tragedy in Myanmar worsens. (2008, 23 May). The Namibian, p 13. Windhoek: Free Press Printers.
- Urden, L. D., Stacey, K. M & Lough, M. E. (2006). *Thelan's critical care nursing*.

Diagnosis and management. Mosby: St Louis.

United States of America Centre for Diseases Control (USACDC). (2003). *Youth violence*. Fact Sheet.

Van der Merwe, A. & Dawes, A. (2007). *Monitoring child unintentional and violence-related morbidity and mortality*. Child survival and health domain. MRC - UNISA: Tygerberg.
128

Verdiami, A. & Fazzino, E. (2002). *Guide to UN resources and activities for the prevention of interpersonal violence*. New York: UNESCO.

Whittaker, S. (2006, 13 June). *Suicide in Namibia*. The Namibian, p. 1. Windhoek: Free Press Printers.

WHO. (2003). *Guidelines for essential trauma care: Injuries and Violence Prevention Department; International Association for Trauma and Surgical Intensive Care*. Geneva: WHO.

WHO. (2004). *Guidelines on the prevention of toxic exposures: Education and public awareness activities*. International program of chemical safety. Geneva.

WHO. (2005). *World report on health and injury prevention*. Geneva : WHO.

WHO. (2007). *The health of the people*. The African regional report of WHO. Geneva: WHO.

Wikipedia(b). 2009. *Domestic violence*. Retrieved on May 5, 2009 from http://en.wikipedia.org/wiki/Domestic_violence.

Wikipedia (a). 2010. *Suicide*. Retrieved on February 7, 2010 from <http://en.wikipedia.org/wiki/suicide>.

129

ANNEXURE A: A LETTER TO THE MEDICAL SUPERINTENDENT

Mrs. L. Nghitukwa

P.O. Box 4197

Windhoek

01 March 2006

The Medical Superintendent

Katutura State Hospital

Private Bag 13198

Windhoek

Re: Injury Surveillance at an Intermediate - Katutura State Hospital, Windhoek –Namibia

Dear Sir/Madam

I am Lusia Nghitukwa, a Masters Degree Programme student at the University of Namibia (Unam). As part of the requirements for completing this degree successfully, I intend to conduct injury surveillance at the Casualty Department, Katutura State Hospital in Windhoek.

The research intends to obtain demographic data of injured patients, types of injuries and the causes of injuries sustained by patients. The information obtained in this exercise will enable the staff member of any emergency unit to tackle those problems and assist the researcher to have insight on those problems. The researcher intends to come up with constructive recommendations, which will assist relevant stakeholders to strategise their plans and preventive measures in order to minimise these injuries in the society.

130

I am hereby referring to the letter from the Permanent Secretary that has granted me

permission to conduct research on the above-mentioned topic at the Katutura State Hospital (see attached letter dated 21 February 2006). The approval has been granted subject to the conditions as stated in the letter.

The envisaged pilot study aims to commence this month, while the actual study will start in April 2006. I am kindly requesting your good office to inform the relevant staff members, in particular, at the Casualty Department to give their utmost cooperation, preferably during the research period.

I am looking forward to your reply.

Yours faithfully

MRS. L. NGHITUKWA

131

ANNEXURE B: PERMISSION FROM THE MINISTRY OF HEALTH AND SOCIAL SERVICES

132

ANNEXURE C: DATA COLLECTION INSTRUMENT

Questions

Biographical information:

(A) General information

(1) Age (in years)

(2) Gender: Male female Other females

(3) Area of residence Katutura

Khomasdal

Other residential

areas

(4). (a) Employment status: Employed

Unemployed

(b) Type of employment Self

Formal

Others ...

133

B. (1) Injury related information

1.1 Days of injury:

1.2. Time of injury:

1.3 Place of occurrence:

(2). Cause of injury:

2.1 Road traffic accident

2.2 Fall over 2 meters

2.3 Fall under 2 meters

2.4 Stabbing

2.5 Other assaults

2.6 Sport

2.7 Other injuries.....

If the cause is road traffic accident, is the following information also available?

3. (a) Position in road traffic accident

3.1 Driver YES NO N/A

3.2 Front seat passenger YES NO N/A

3.3 Rear seat passenger YES NO N/A

3.4 Pedestrian YES NO N/A

- 3.5 Cyclist YES NO N/A
- 3.6 Outcome (Deaths) YES NO N/A

Details of road traffic accident

Driver / passenger

134

- 4.1 Intrusion/entrapment YES NO N/A
- 4.2 Thrown out YES NO N/A
- 4.3 Deaths YES NO N/A

Details of pedestrian /cyclist

- 4.5 Bumped by a car YES NO N/A
- 4.6 Run over by a car YES NO N/A
- 4.7 Hit and run by a car YES NO N/A

5. Protective devices

Not documented

- 5.1 None YES NO
- 5.2 Helmet YES NO
- 5.3 Seatbelt YES NO
- 5.4 Airbag YES NO
- 5.5 Child restraint YES NO

(C) At scene of the accident relates to pre-hospital activities

- (a) Time distress call received..... YES NO N/A
- (b) Time dispatched to the scene..... YES NO N/A
- (c) Time arrival at the scene..... YES NO N/A
- (d) Time departure from the scene YES NO N/A

135

Select the person (s) involved at the scene/ transport of patients

- I. EMT (Basic) YES NO N/A
- II. EMT (Intermediate) YES NO N/A
- III. EMT (Paramedic) YES NO N/A
- IV. Doctor YES NO N/A
- V. Registered nurse YES NO N/A
- VI. Enrolled nurse YES NO N/A
- VII. Assistant nurse YES NO N/A

(b) At the scene was level of consciousness (LOC) determined? YES NO

If yes, what was GCS SCORE?

- I. Eye opening.....
- II. Verbal.....
- III. Motor.....

Were vital signs done YES NO N/A

- IV. Pulse YES NO N/A
- V BP YES NO N/A
- VI Sat YES NO N/A

(c) On arrival to casualty department

136

(1) Mode of arrival

- Ambulance
- Helicopter
- Car
- Other (specify).....

(d) Type of emergency procedures/ interventions performed at the scene?

- i) Oxygen YES NO N/A
- (ii) Intubations YES NO N/A
- (iii) Ventilate YES NO N/A
- (iv) CPR YES NO N/A
- (v) Cervical splint YES NO N/A
- (vi) Spinal board YES NO N/A
- (vii) Peripheral line YES NO N/A
- (viii) Seen by

Dr Time recorded..... Yes No

Specialty: e.g. Medical Officer

Consultant

(ix) Were vital signs done? YES NO N/A

If yes, what were the following vital signs?

Sat

Pulse

137

BP

GCS

Capillary refill Normal Poor

Were any of these signs observed?

Signs of sweating YES NO N/A

Signs of restlessness YES NO N/A

Central cyanosis YES NO N/A

(x) Were the following emergency procedures done?

Select all that applicable:

Oxygen YES NO N/A

Intubations YES NO N/A

Ventilation YES NO N/A

Chest drain YES NO N/A

Bladder catheter YES NO N/A

Gastric tube YES NO N/A

Cervical splint YES NO N/A

Limb splint YES NO N/A

Central line YES NO N/A

Peripheral line YES NO N/A

Sutures YES NO N/A

138

(E) Did the patient receive any of the following?

(i) Analgesics YES NO N/A

(ii) Sedatives YES NO N/A

(iii) Tetanus YES NO N/A

(iv) Antibiotics YES NO N/A

(v) Wound care YES NO N/A

(vi) Ointment YES NO N/A

(vii) Local anaesthetics YES NO N/A

(V) Discharge from casualty

To ward

To go home

(H) Health education

(a) Did the patient receive any health education YES NO N/A

(b) Did the family receive any health education YES NO N/A

(I) Record keeping:

Yes No

(i) Excellent

(ii) Good

(iii) Not good

139

(vi) Date and time

(v) Signed

