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**HUMAN BEHAVIOUR TOWARDS ROAD SAFETY:
PERCEPTIONS AND PRACTICES OF UNIVERSITY OF JOHANNESBURG
STUDENTS IN 2018**

A research report submitted to the Faculty of Health Sciences, University of
Johannesburg, in partial fulfilment of the requirements for the degree of Master of
Public Health

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by

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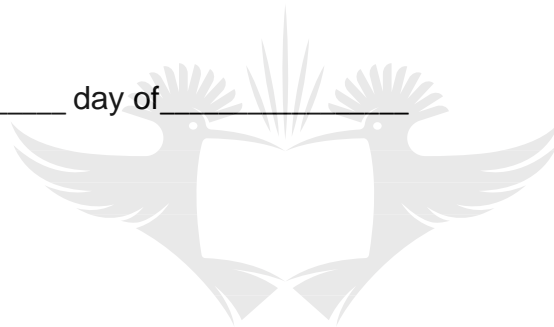
Johannesburg, 2019

DECLARATION

I declare that **Human Behaviour towards road safety: Perceptions and practices of University of Johannesburg students towards road safety in 2018** is my own, unaided work. It is being submitted for the degree of Master of Science in Public Health at the University of Johannesburg, Johannesburg. It has not been submitted before for any degree or examination in any other University.

Signature of Candidate

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ABSTRACT

This study used the phenomenological approach to explore the perceptions and practices of road safety among students registered at the University of Johannesburg in 2018. The study further makes recommendations based on the perceptions and practices identified by the participants.

Primary qualitative data was gathered using an interview guide with open-ended questions that was administered during face-to-face individual interviews. The interview guide consisted of two questions that addressed concepts that are critical to road safety. Based on the characteristics of the population identified, a purposive, non-probability sampling method was used to select participants from the University of Johannesburg Doornfontein campus, targeting male and female students aged 18 years and above. Participants were selected until saturation was reached. A total of 15 participants were interviewed. Data was analysed using a qualitative thematic approach.

The findings of this study indicate that students generally have positive perceptions towards road safety. It was also found that students at the University of Johannesburg are aware of road safety issues. Students identified unsafe road user practices and how these behaviours affect the public at large. The student's perceptions were that attitudinal, perceptual, societal and experiential are amongst the reasons behind the unsafe road user behaviour. This study recommends behaviour change programmes that will focus on road users, with emphasis on drivers and pedestrians. Law enforcement should also improve regulations to ensure that there is compliance to road safety laws.

DEDICATION

I dedicate my research report to my family. Special gratitude goes to my loving parents, Beauty and Mxolisi Ndima, whose encouragement, sacrifice and words of wisdom served as a constant source of support to me. I would also like to thank my husband, Viwe Gqwetha, and my children, Wakhile and Xhanti, who have been the pillars of my strength throughout this process. Thank you as well to my siblings, who have cheerfully embraced every milestone I have achieved and enthusiastically encouraged me to achieve more.



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My colleagues for proofreading my work and for their assistance in developing my computer skills.



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LIST OF ABBREVIATIONS

| | |
|--------|---|
| BAC | Blood Alcohol Content |
| CDC | Centres for Disease Control and prevention |
| DFC | Doornfontein campus |
| DOT | Department of Transport |
| EC | European Commission |
| ENatis | National Traffic Information Systems |
| GRSF | Global Road Safety Facility |
| GSRRS | Global Status Report on Road Safety |
| NDP | National Development Plan |
| NRSS | National Road Safety Strategy |
| NRTA | National Road Traffic Act |
| OECD | Organisation of Economic Co-operation and Development |
| RABS | Road Accident Benefit Scheme |
| RAF | Road Accident Fund |
| RTMC | Road Traffic Management Corporation |
| SANRAL | South African National Roads Agency |
| SDG | Sustainable Development Goals |
| UJ | University of Johannesburg |
| UN | United Nations |
| UNECE | United Nations Economic Commission for Europe |
| WHO | World Health Organisation |

LIST OF DEFINITIONS (as applied in the South African Context)

Road Fatality: Any person killed during or immediately after a crash, or death directly attributable to a crash within 30 days of such a crash.

Seriously injured: Any person sustaining injuries to an extent that hospitalisation, surgical treatment or confinement in bed is required.

Slightly injured: Any person sustaining minor cuts and bruises or shock which may be treated on the scene of accident or at home

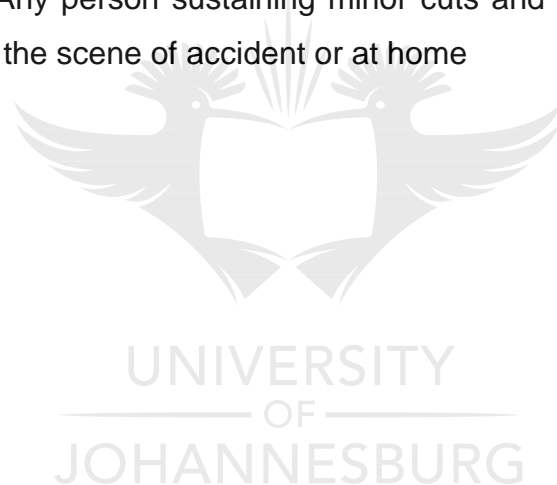


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1 CHAPTER ONE - INTRODUCTION

1.1 Introduction

In this introductory chapter, the basis for the study is discussed. The chapter begins by describing the road safety context both at an international and national level. It then proceeds to describe the South African road transport network, as well as the South African road safety strategy and campaigns. The chapter concludes by giving a brief description of the area under study and outlining the objectives of this research.

1.2 International context of road safety

Road traffic safety refers to measures and methods used to prevent road users from being killed or seriously injured on the road. According to the World Health Organisation (2018), these measures include legislation, a safe driving environment, safe vehicle and road design, safer road users and preparedness for a post-crash response.

The World Health Organisation (2018) further states that globally, 1.35 million people perish every year as a result of road traffic accidents. This makes road traffic injuries the eighth leading cause of death for people of all ages, while it is the number one cause of death for children and young adults (World Health Organisation, 2018). In addition, pedestrians, cyclists and motor drivers are often referred to as vulnerable road users - constituting more than 50% of global road fatalities (WHO, 2018).

According to the World Health Organisation (2018), the global economic costs of road traffic accidents amount to more than 500 billion US dollars, while the cost in low and middle-income countries is around 65 billion US dollars. The economic costs for low and middle-income countries is reported to exceed the total amount received in development aid (WHO, 2018). The World Health Organisation also estimates the GDP loss from road traffic accidents to be 1% - 1, 5% in low and middle-income countries, and about 2% in high-income countries (WHO, 2018).

Out of concern for the high number of road fatalities in low and middle-income countries, the World Bank (2019) established the Global Road Safety Facility (GRSF) to champion the fight against the road carnage in low and middle-income countries by providing finance, awareness

and technical support to help developing countries create safer roads. The GRSF was also instrumental in adding road safety targets to the list of Sustainable Development Goals (World Bank 2019).

According to the United Nations (2019) the road safety targets include (target 3.6) halving the number of global road deaths and injuries from road traffic accidents by 2020 and (target 11.2) providing access to safe, affordable, accessible and sustainable transport systems for all, as well as improving road safety by expanding public transport and paying attention to vulnerable road users by 2030 (United Nations, 2019).

The United Nations General Assembly also declared 2011-2020 as a decade of action for road safety. The United Nations' global plan to improve road safety is organised around five pillars, which are as follows: i) Building road safety management capacity, ii) improving road safety infrastructure, iii) developing the safety of vehicles, iv) enhancing the behaviour of road users, and v) improving post-crash response (WHO and United Nations, 2011).

The European Commission also has a vision for road safety beyond 2020 and therefore have a long-term goal of moving close to zero fatalities and serious injuries in road transport by 2050 (European Commission, 2011).

1.3 National context of road safety

In South Africa, road safety is regulated by the National Road Traffic Act Number 93 of 1996 and managed by the Department of Transport (Department of Transport, 2014). Other legislation pertaining to road safety in the country include the National Road Safety Act Number 9 of 1972; the National Roads Act Number 7 of 1998; the Road Traffic Management Corporation Act (RTMC) Number 20 of 1999; and the Road Accident Fund Act Number 56 of 1996 (Department of Transport, 2014).

The South African Constitution mandates different spheres of government to be responsible for legislative duties relating to roads, airports, traffic management and public transport (Republic of South Africa, 1996). At a national level, transport functions are delivered through public entities with specific delivery mandates, ultimately reporting to the Department of Transport. According to the National Transport Policy White Paper (1996), the mission of the entities responsible for road traffic is to safeguard and guarantee road safety on South African urban and rural networks" (South African Government, 1996).

The Global Status Report on Road Safety (2018) states that South Africa's road crash fatality rate is 25.9 per 100 000 population, which is higher than the global road crash fatality rate and that of low and middle-income countries (WHO, 2018). Furthermore, the Road Traffic Management Corporation (2017) reports that in South Africa, 91% of road crashes are attributed to human factors (Road Traffic Management Corporation, 2017). This is in line with research findings from other countries, where research evidence suggests that the manner in which individual road users interact with the road environment is among the most common contributors to road traffic accidents.

South Africa is a participant in the United Nations Decade of Action for Road Safety 2011-2020 and therefore aligns itself with the sustainable developmental goal of reducing road deaths and injuries by 50%. As a result, South Africa has committed to halve road fatalities from a 2010 baseline of 13,967 fatalities to 6983, 50 fatalities by year 2020. However, at a national level, the Road Traffic Management Corporation (2017) report showed that fatalities from road crashes are increasing in the country (Road Traffic Management Corporation, 2017).

1.3.1 South African Road Transport Network

According to the National Department of Transport (2019), South Africa's road network stretches 750 000 kilometres and is regarded as the longest road network in Africa, but only the tenth longest in the world. About 150 124 kilometres of the South African road transport network is made up of paved roads. Approximately 21 403 kilometres of the paved network is operated by the South African National Roads Agency Limited (SANRAL), while the rest of the network belongs to provinces, metros and municipalities. In terms of transportation, taxis, bus services and private vehicles constitute the South African road transport network (Department of Transport, 2019).

According to Statistics South Africa (2015), 51% of households in South Africa use public transportation, and taxis are the most commonly used mode of transport. About 76,7% of households that use public transportation depend on taxis, 18% use buses and 7% use trains (Statistics South Africa, 2015).

Statistics South Africa's General Household Survey (2017) further reported that in terms of transportation for school-going learners, 64,8% of learners walked to school, 9.5% travelled by

private vehicles, 6.6% travelled to school using taxis and about 3.3% use bus services (Statistics South Africa, 2017).

1.4 Overview of road safety strategies in South Africa

The South African government has previously embarked on a number of road safety strategies and campaigns since 1996. Though previous strategies recorded some successes, certain delivery failures such as poor execution, poor monitoring and evaluation of initiatives and partial or delayed implementation were also reported (South African Government, 2016).

The Road Traffic Management Strategy (1996-2000) focused on improving the quality of road, safety of road users and road traffic environments. This strategy resulted in the successful implementation of educational campaigns, as well as the introduction of the Road Traffic Management Corporation Act and the Administrative Adjudication of Road Traffic Offenders (South African Government, 2016).

The Road to Safety Strategy (2001-2005) focused on driver fitness, pedestrian safety and road user behaviour campaigns. The success of this strategy saw the establishment of Road Traffic Management Corporation operations and vehicle testing centres (National Road Safety Strategy, 2016).

The current strategy in place is the National Road Safety Strategy (2006-onwards). In designing this, the Department of Transport (2016) took into consideration lessons learnt from previous road safety strategies and acknowledged that people are at the core of road safety. This strategy is based on the view that road safety is an individual as well as a collective responsibility (Department of Transport, 2016).

The Vision of the National Road Safety Strategy is “*Safe and Secure Roads*”. In essence, this means that South Africa should reach a stage where people’s safety and security is not compromised by simply using roads (Department of Transport, 2016).

The mission of the National Road Safety Strategy is to reduce the number of fatal and serious crashes in South Africa by 50% from the 2010 baseline, i.e. from 13967 to 7017 by 2030 (South African Government, 2016). In addition, the current strategy aims to ensure safety on our roads, promote responsible road usage, save lives, and ensure an acceptable level of quality in road traffic management both in rural and urban networks (Department of Transport, 2016).

The strategic goal of the National Road Safety Strategy is to minimise the incidences and severity of road accidents, as well as the level of fatalities and injuries in an effective, integrated and coordinated manner.

South Africa's National Strategy for Road Safety (2016-2030) is also consistent with the Sustainable Development Goal (SDG) on road safety to halve the number of global fatalities and injuries from road traffic accidents by 2020. Additionally, the strategy is in line with the National Development Plan (NDP) of 2030. South Africa's NDP is further linked to the SDG target 11 to provide access to safe, affordable, accessible and sustainable transport systems for all and improve road safety (South African Government, 2016). The National Development Plan (2010) also classified road safety as a health issue and therefore aims to reduce injury, accidents and violence by 50% from 2010 levels (National Planning Commission, 2010).

1.5 Road Safety Campaigns

The Arrive Alive Campaign was one of the most popular road safety campaigns. It was a temporary road safety awareness initiative introduced by the government to decrease fatalities and injuries from motor vehicle accidents. After benchmarking with Australia - which was regarded as having the "World's Best Practice" on road safety - the South African government introduced the Arrive Alive Campaign in the Kwa-Zulu Natal Province in 1996 (Arrive Alive, 2019).

The Kwa-Zulu Natal campaign reported a 31% reduction in road accidents between 1996 and 1997 (Arrive Alive, 2019). As a result, the campaign was rolled out to other provinces a year later. The campaign focused on addressing driver fatigue and pedestrian safety. The success of the campaign was attributed to the increase in visible policing. The campaign involved adding 250 000 man-hours on the roads, in courts, at roadblocks and on patrols (Arrive Alive, 2019).

There is no reliable information available on the actual reduction of fatalities and accidents in all provinces during the implementation of the campaign. However, it is reported that as a result of visible enforcement, about 50 000 vehicles were impounded and 230 public transport drivers were arrested (Bengu, 2011).

Another campaign started in 2006, adopting October as the transport month. The campaign focused on improving public transportation, maintaining road infrastructure and improving national traffic information systems (eNatis) (Department of Transport, 2016).

In response to the UN Decade of Action towards Road Safety and the UN White Paper for Safer Roads in 2050; the Ministry of Transport in collaboration with the Road Traffic Management Corporation launched a third campaign - the 365 Days of Road Safety Programme. The focus of this campaign was to look at road user groups such as pedestrians, passengers, learners and drivers. The campaign will look into intensifying scholar patrol, encouraging safety belt use among passengers, as well as monitoring average speed and distracted driver behaviour (Department of Transport, 2019).

In spite of all these road safety campaigns, 1 676 people died on South African roads during the 2017/2018 festive season (Department of Transport, 2018). Even though this figure was 10% lower than that of the previous year (i.e. a recorded 1 875 deaths), it remains excessively high (Automobile Association of South Africa, 2018). This means that a high number of people still die on South African roads in spite of all the road safety strategies and campaigns that are put in place.

1.6 University of Johannesburg

The University of Johannesburg (UJ) is one of 26 state-owned universities in South Africa. The university is situated in Johannesburg, in the Gauteng Province of South Africa. The University of Johannesburg is predominantly a contact university that was established in 2005 after the merging of Rand Afrikaans University, Technikon Witwatersrand and Vista University. It offers both undergraduate and postgraduate degrees, and is a diverse university that continues to transform. It currently has a student population of over 50 000 students, 3 000 of whom are international students from 80 different countries (University of Johannesburg, 2018).

The City of Johannesburg is regarded as the economic centre and the most progressive commercial city in Africa. It is also considered the centre of both the South African and regional economy. The City of Johannesburg's infrastructure for transport is universally competitive. However, the city is characterised by constant growth as people migrate from other provinces in South Africa and from other countries in pursuit of better opportunities, resulting in population density. Overall, South Africa is considered the most unequal country in the world - characterised by both extremely wealthy and desperately poor citizens (Gauteng Provincial Government, 2019).

Johannesburg is a culturally diverse metropolitan area, with the Doornfontein area comprising of residents from various racial backgrounds, including 97.2% Africans, 1.2% Whites, 1.1%

Coloureds, 0.4% Indian and 0.1% of other races. According to the General Household Survey (2011), 31% of the population speaks Zulu, followed by English (18.7%), Northern Sotho (8.5%) and Ndebele (6.7%), while 32% of residents speak other languages (Statistics South Africa, 2011). Brand South Africa describes Johannesburg as a globally competitive city with a road transport system consisting of minibus taxis, metered taxis and bus services (Brand South Africa, 2015).

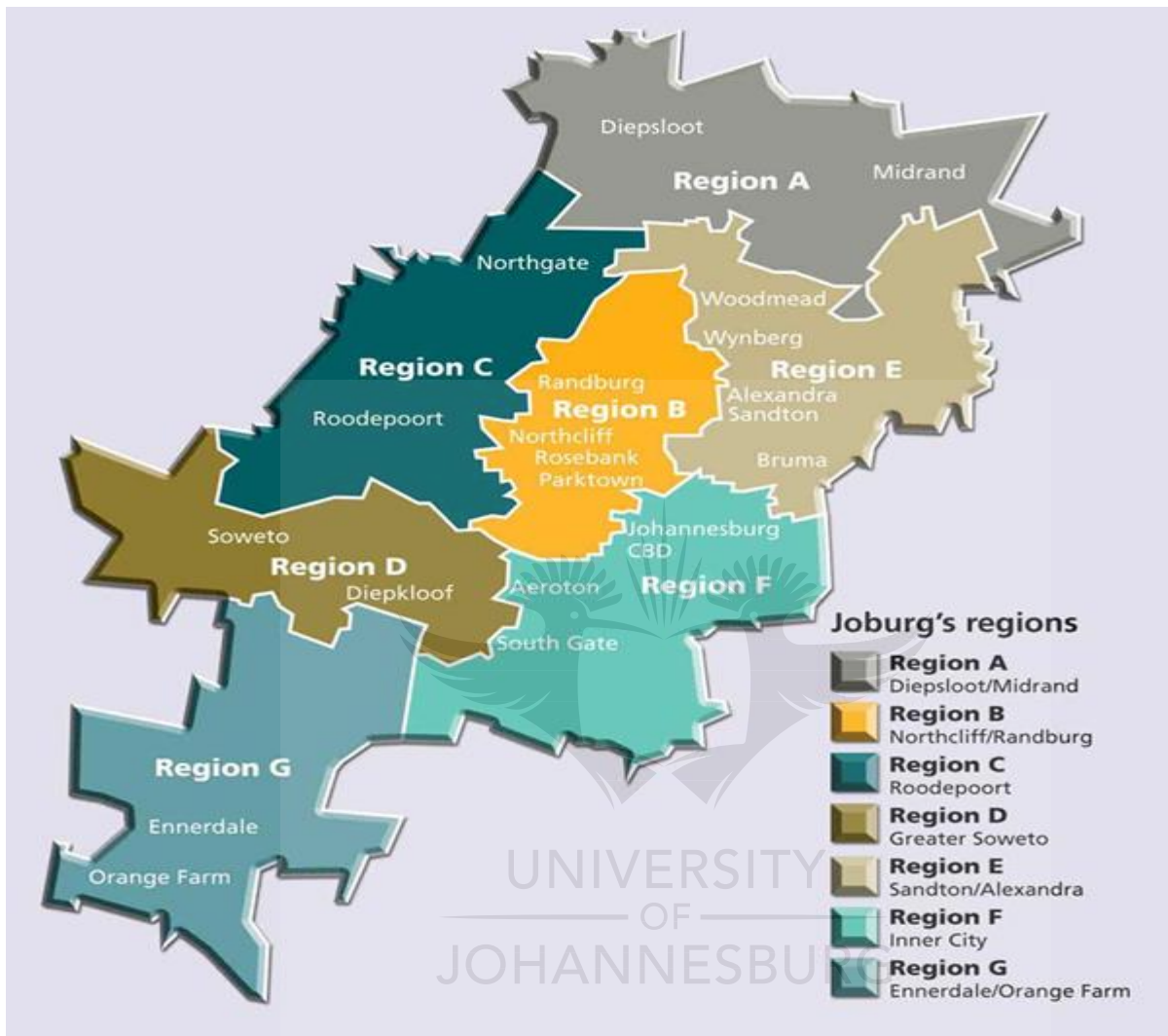
This study was conducted at the Doornfontein campus (DFC), which is one of the four campuses that constitute the University of Johannesburg. DFC is home to the Faculty of Health Sciences, as well as the sub-faculties of Engineering and Built environment and the Faculty of Science. DFC offers several private but affordable health services to the public (University of Johannesburg, 2018).

The DFC campus is located in Doornfontein, which is one of the suburbs in the inner city of Johannesburg. Doornfontein is situated on the East of the city centre, Region F, near Ellis Park and the Johannesburg Athletic Stadium. The area covers 0,46 square kilometres, has a population of 4,484 million people and a density of 25 000 per square meter (Stats SA, 2011).

In 2015, when the World Resource Institute listed cities in the world where one is likely to die in a road accident, Johannesburg was the only city in South Africa that made it onto this list. Johannesburg was also ranked among the most dangerous cities in Africa after Nairobi (Business Tech, 2015).

A map of the City of Johannesburg depicting Region F, among others, is shown in Figure 1 below (Courtesy of South-Africa-tours-and-travel.com):

Figure 1: Map of the City of Johannesburg



1.3 Problem statement

This study took place in the Johannesburg Metropolitan area (Region F) of the Gauteng Province, inside the Doornfontein campus of the University of Johannesburg. The City of Johannesburg is among the most densely populated cities in the country. Its roads have high traffic volumes, which are usually a source of frustration to road users. Given the traffic congestion, it is easy for road users to become impatient and reckless, leading to an increase in traffic accidents. Furthermore, car crashes often lead to severe injuries or death.

According to the National Road Safety Strategy (2016), road safety is both an individual and collective responsibility. South African road users need to be aware of this responsibility in order for them to keep safe on the roads. A growing body of evidence from quantitative studies shows that the continued rise in road fatalities is primarily due to human factors, despite road safety interventions. There is therefore a need to explore the perceptions of road users about human behaviour on the road. This study will attempt to explore these behaviours and to investigate the possible reasons behind certain road behaviours.

Young people are regarded as high risk when it comes to road safety, both within South Africa and globally. Therefore, conducting this research within a university context is crucial in order to gain insight into human behaviours associated with road accidents.

1.3 Aim of the study

This study seeks to get an in-depth understanding of the perceptions and practices of University of Johannesburg students towards road safety. A number of quantitative studies done in different countries show human behaviour as the highest contributing factor to road accidents. However, not much is known about the reasons behind the human behaviours on the road, as there are a limited number of qualitative studies that provide an in-depth look into these human factors. This study aims to explore these road behaviours and to investigate the possible reasons behind them.

1.7 Research Question

- *What are the perceptions and practices of UJ students towards road safety?*

1.8 Objectives of the study

1. To explore and describe the perceptions of students towards exceeding speed limits, drunk driving, safety, unsafe overtaking, use of safety belts and distracted driving.
2. To explore and describe the practices of students when it comes to exceeding speed limits, drunk driving, unsafe overtaking, use of safety belts and distracted driving.

3. To produce policy recommendations that will improve human behaviour towards road safety based on the findings of this study.

1.9 Significance of the study

This study aims to gain a better understanding of the perceptions and practices of University of Johannesburg students in the Doornfontein campus towards road safety. Serious health and economic losses due to road traffic crashes make road safety to be of utmost public health concern, hence the inclusion of road safety targets in the sustainable development goals. In view of this, the study also hopes to assist by contributing qualitative knowledge towards the implementation of the National Road Safety Strategy (2016-2030). In addition, the study also contributes to the body of literature on human behaviour towards road safety. The Johannesburg area is the best location to give valuable lessons on road safety as it is declared as the most unsafe city in South Africa. The university setting, being dominated by the youth will enable the study to get the young people's point of view.



2 CHAPTER TWO – LITERATURE REVIEW

2.1 Introduction

The purpose of this chapter is to gain an understanding of human behaviour towards road safety from what has already been published in other countries by presenting an overview of literature relevant to this study. Perceptions and practices towards road safety are explored by specifically focusing on common behaviours that affect road safety. Furthermore, international best practices for road safety, relevant legislation and compliance to existing legislation within the South African context are discussed.

2.2 Road safety

Road safety means avoidance of danger on the road (Collins English Dictionary, 2019). Road safety is an all-encompassing term that describes systems, means and actions that are used to prevent road users from being killed or seriously injured on the road. According to the KZN Department of Transport (2018), these systems ensure good coordination of all road safety elements, including the driving environment, vehicles and road users. This coordination would not be possible without legislation and its enforcement (Kwa-Zulu Natal Department of Transport, 2019).

Each of the road safety measures are important in ensuring that there is law, order and safety on public roads. Non-adherence to legislation and poor monitoring, as well as non-implementation of these measures therefore leads to motor vehicle accidents; which in turn result in serious injuries or death. Road traffic authorities play an important role in ensuring that law and order is maintained.

Vranes et al (2018) describes road safety as a definite public health issue, since safe and secure transportation assists in the economic and social development of society. According to Vranes (2018), traffic crashes happen too frequently and they result in death and serious injury to pedestrians, motorists and cyclists.

2.3 Road safety legislation internationally

There is no international legislation for road safety. However, globally, countries use international guidelines as a benchmark for evidence-based practice when developing their road safety legislation. The World Health Organisation (2015) views legislation as a significant element of a road safety strategy to help countries decrease road carnage and injuries. Aiming to reduce road traffic accidents, the World Health Organisation shared best practices for high-risk road behaviours with member states, including reducing speed and avoiding drinking and driving (WHO, 2015).

The United Nations Convention on Road Safety of 1949 identified global emerging road safety challenges and encouraged the adoption of uniform traffic rules by member countries (UNECE, 2019). Subsequently, the Convention on Traffic and Road Signs and Signals of 1968 published resolutions that guide countries on how to ensure visibility and legibility of road signs, as safe infrastructure contributes to safer mobility (UNECE, 2019).

The United Nations Economic Commission for Europe (UNECE) published another set of recommendations on road safety in 2010. These included guidelines on safe speed, drinking and driving, seat belt use and mobile phone use while driving (UNECE, 2019).

WHO's World Report on road traffic injury prevention recommended that countries enact and enforce legislation that requires the use of safety belts and helmets, as well as child restraints and avoiding drunk-driving.

UNECE (2019) also recommended that countries adopt the Safe Systems Approach to reduce the number of deaths and serious injuries on the road. A number of high-income countries have adopted the safe systems approach to road safety, which is regarded as the best practice in road safety by the World Health Organisation (WHO) and the Organisation of Economic Co-operation and Development (OECD).

Australia is among the countries that have adopted the safe systems approach. In their National Road Safety Strategy, they describe the safe system as comprising of safer roads, safer speeds, safer vehicles and safer road use. Unlike the traditional approach to road safety, which is considered reactive, the safe systems approach emphasises that road systems must take into

account that humans are vulnerable and therefore road systems should be designed to avoid death or serious injury on the road (Australian Government, 2018).

2.4 Overview of South African Road Traffic Legislation

According to the Constitution of the Republic of South Africa (1996), the state is expected to ensure an acceptable level of road quality and road safety in rural and urban road networks (South African Government, 1996). Regulation and coordination of transportation on South African national roads is the responsibility of the Ministry of Transport (South African Government, 1996).

At a national level, South Africa has three main legislations that are central to road safety: the National Road Traffic Act 93 of 1996 (NRTA), the South African National Roads Agency Limited (SANRAL) and National Roads Act 7 of 1998 and the Road Traffic Management Corporation Act 20 of 1999 (RTMC). Each of these Acts contain regulations and legal requirements. However, for the purposes of this literature review, an in-depth discussion of the regulations and legalities detailed in each Act will not be provided - the review will focus only on giving an overview of each of the Acts.

The National Road Traffic Act 93 of 1996 (NRTA) covers a number of road traffic matters such as driver and vehicle licencing, vehicle roadworthiness, prohibition of drunken driving and negligent or reckless driving. The Act ensures that vehicles and drivers that operate on the road are safe and competent. According to the NRTA (1996), the driver of a motor vehicle should have a valid driving licence and while driving, obey the traffic signs, adhere to speed limits, refrain from reckless and negligent driving and is prohibited from using a communication device whilst driving. According to Section 52 of the NRTA (1996), the Minister of Transport has the responsibility to give guidance about road safety matters and promote road safety (DOT, 2014).

Another Act that is road safety related is the South African National Roads Agency Limited and National Roads Act 7 of 1998. The SANRAL Act (1998) gave rise to the agency, known as the South African National Roads Agency Limited (SANRAL), which is a public entity that falls under the authority of the Ministry of Transport. The SANRAL Act (1998) details the development, maintenance and rehabilitation of national roads as guided by the National Roads Policy. Section 54 of the Act prescribes that SANRAL may work in collaboration with other arms of government

to ensure that there are no contraventions to road traffic laws, and that road safety laws are obeyed (SANRAL, 2018).

The entities of the Department of Transport are responsible for implementing the legislations described above in addition to their core mandate, which is to oversee other aspects of road safety such as infrastructure development and maintenance, law enforcement and public education on road safety.

The other legislation that is relevant to road safety in South Africa is the Road Traffic Management Corporation Act No 20 of 1999. The RTMC (1999) was designed as a partnership between the national, provincial and local spheres of government with the purpose of improving the general quality of road traffic services and ensuring that roads are secure, safe and orderly. The key functions of the RTMC include law enforcement, the promotion of road safety, infrastructure safety audits, training of traffic personnel and managing information on road traffic and accident investigations (RTMC, 2017).

Finally, another legislation that is crucial to road safety is the Road Accident Fund Act No 56 of 1996), which was amended to the Road Accident Fund Amendment Act (Act No 19 of 2005) because it applies when all of the above Acts have failed. The Road Accident Fund Act (1996) provides for compensation or cover for death or bodily injuries caused by the negligent driving of motor vehicles within the borders of South Africa. This cover is in the form of indemnity insurance to persons who caused the accident, as well as personal injury and death insurance to victims of motor vehicle accidents and their families (Road Accident Fund, 2018).

The Road Accident Fund governs all claims arising from motor vehicle accidents in accordance with the Road Accident Fund Act No 56 of 1996. The main source of funding for the Road Accident Fund is the fuel levy, which is decided by the National Treasury on a yearly basis. The amount of fuel levy received is influenced by the amount of fuel sold, which is directly dependant on the number of vehicles on the road. The money paid out for claims depends on the volume of accidents, especially those resulting in death or serious injuries (Road Accident Fund, 2018).

The Road Accident Fund (2018) annual report shows that the amount of money paid towards the settlement of motor vehicle claims is increasing every year. A total amount of R34.6 billion was paid during the 2017/18 financial year - this figure is 15% more compared to the R29.8 billion that was paid during the 2016/17 financial year (Road Accident Fund, 2018).

In addition to settlement of claims, the Road Accident Fund becomes liable for a lifetime payment of medical and rehabilitation costs of seriously injured claimants. In the period between April 2017 and March 2018, the RAF paid R3.5 billion, which is 40% more than R2, 5 billion it paid the previous year during the same period the previous financial year towards these costs. Among other factors, the reason for the escalating cost of claims is the high level of newly reported claims (RAF, 2017). A total of 91 101 claims were registered in the 2017/18 financial year, which was 25% more than the 73 860 registered in the 2015/16 financial year (Road Accident Fund, 2018).

The current view about the Road Accident Fund Act is that the Fund is unsustainable due to the large amounts payable for compensation, the mounting medical costs and the additional legal fees paid to attorneys. Hence, there is a proposal for a different legislation, the Road Accident Benefit Scheme, which will be non-fault based and unlike the Road Accident Fund, will focus on the rehabilitation of road accident victims and do away with legal costs (Road Accident Fund, 2016).

2.5 Human Behaviour

Human behaviour is the capacity of mental, physical, emotional and social activities experienced during the five stages of a human life (Business Dictionary, 2019). Simply put, human behaviour refers to the way humans conduct themselves. A number of societal factors such as culture, attitudes, feelings and beliefs influence human behaviour.

In the context of road safety, the term 'human behaviour' refers to how people interact and react to the road environment. The use of the term is not exclusive to road users, as it also takes into account that human beings design, engineer and construct the road. Humans are also responsible for ensuring that road safety legislation is effectively applied and enforced. However, for the purposes of this research, we will focus solely on road users.

According to the United States Department of Transportation (2017), human behaviour is either deliberate or unconscious. Deliberate behaviour means humans make decisions based on available information or they are guided by circumstances. Unconscious behaviour happens suddenly without any prolonged decision-making thought process (US Department of Transportation, 2017).

Even though attitudes and personality traits are known to influence behaviour, the environment is thought to be more influential. Both deliberate and unconscious behavioural systems can result in mistakes. For example, deliberate actions can lead to mistakes if not all relevant information is considered, while the intuitive process can involve taking quick decisions based on instincts, without any available information (US Department of Transportation, 2017).

In the context of road safety, there are behaviours that reduce driving capability on a long-term basis, including inexperience or aging. There are also behaviours that reduce capability on a short-term basis (for instance drowsiness, fatigue, use of alcohol and drugs) and those that promote risk-taking behaviour with long-term implications. Habitual speeding, masculine attitudes, habitual disregard for traffic regulations and non-use of a safety belt or helmet among others are regarded as risk-taking behaviours (US Department of Transportation, 2017).

According to Salmon et al. (2019), drinking and driving, speeding, distracted driving, fatigue and failure to wear a seat belt are referred to as the “fatal-five” driving behaviours and are a major cause of trauma and fatalities on the road. These behaviours are thought to be driver-centric because some of them are due to certain aspects of a driver’s personality, knowledge, experience and psychological state (Salmon et al, 2019). The next section considers literature on younger drivers and associated driving behaviours.

2.5.1 Younger driver behaviour and road safety

There is no globally approved definition of the youth age group, however, the United Nations describes youth as those persons between 15 and 24 years of age (United Nations, 2019).

Research shows that South African young drivers display high-risk driving behaviours. These behaviours include aggression, speeding and poor driving. In a study examining the experiences and behaviours of South African and Swedish drivers by Sinclair (2013), both groups had to give information about their attitudes towards other drivers; exposure to injuries and their traffic offences. From the results of the study, it became clear that South African respondents’ driving standards are declining. Sinclair (2013) suggested that changing social values in the South African environment are responsible for this decline.

A study conducted by Bachoo et al (2013) shared similar sentiments about the behaviour of younger drivers, and concluded that it is drivers with anger issues, a lack of patience and sensation-seeking tendencies that are more likely to report unsafe driving habits (Bachoo et al,

2013). A study by Rolison et al (2018) found that alcohol, drugs and excessive speeding were associated with accidents caused by young drivers. According to Rolison et al (2019), the findings suggest that risk-taking is an important contributor to road accidents for younger drivers.

Bachoo et al's findings were collaborated by Huang et al (2018), who concluded that for young drivers, risky driving behaviour is associated with certain personality characteristics. According to Huang et al (2018), younger drivers with sensation-seeking behaviours and challenges with emotional control are prone to causing car crashes. This is due to the fact that drivers with sensation-seeking behaviours always demonstrate an exaggerated willingness to take physical and social risks. Therefore, driving provides an opportunity for excitement, danger, speed and competition (Huang et al, 2018).

Younger drivers are the age group at highest risk of causing motor vehicle accidents, and are responsible for the majority of motor vehicle accidents. An Australian study by Zicat et al (2018) examining the relationship between driving, attitudes, cognition and personality found driving attitudes and personality traits to be responsible for youth driving performance. In addition, young drivers who performed better in cognitive functioning engaged in less speeding behaviour (Zicat et al, 2018). A similar study by Kita and Luria (2018) tested the relationship between personality traits and young drivers' smartphone use while driving. This study found that young drivers who are addicted to smartphones tend to use them recklessly while driving.

Another study investigating the relationship between peer pressure susceptibility and young drivers by Weston and Hellier (2018) found that young drivers' decisions to commit traffic violations were influenced by peers, and they achieved social recognition in this way. However, Weston and Hellier (2018) found that peers also influence positive behaviour. It was therefore their recommendation that peer influence be used to influence positive driving behaviour (Weston and Hellier, 2018).

The World Health Organisation (2011) identified distracted driving caused by cell phone use as a critical and rising danger to safety on the road. Literature on cell phone use and road safety is presented in the next section.

2.5.2 Cell phone use and distracted driving

Distraction is understood as engaging in activities that take one's eyes off the road and one's hands off the wheel when driving. According to Centre for Disease Control and Prevention (2019),

distractions are either visual, manual or cognitive. Visual distractions cause you to take your eyes off the road, while manual distractions cause you to use your hands for something else rather than holding the steering wheel. Having a conversation, playing music or even experiencing emotional distress while driving may result in cognitive distraction (Centre for Disease Control and Prevention, 2019).

In their study, Nee and colleagues (2019) found that activities involving visual distraction were high risk, those involving manual distraction also increased risk to a certain extent, while verbal distractions were not associated with any driving risk. The study suggests that to reduce crash risk, the focus should be on activities that involve visual and manual distractions (Nee et al, 2019). Distractions and lack of attention pose a substantial risk to road safety, not only to drivers but also to vulnerable road users (Sundfor et al, 2019).

The World Health Organisation and Centre for Disease Control and Prevention identified cell phone use while driving as an emerging and crucial public health issue. While cell phone use is perceived as the most common form of distraction while driving on the road, there are other activities that result in a driver being distracted. According to Sundfor et al (2019), driver inattention contributes up to 29% of road crashes, while distraction by cell phone use contributes 2-4% of all road crashes. Crashes with pedestrians are the most common type of inattention-related road crashes, which happen when the driver notices a pedestrian too late (Sundfor et al, 2019).

Multi-tasking, such as the simultaneous use of a mobile phone while driving, is a substantial distraction that impairs driving performance and is the leading cause of motor vehicle accidents. There is evidence to support that younger drivers who are distracted by cell phones demonstrate risky car-following behaviour on the road. Findings from a study by Saifuzzaman and others (2015) found that distracted drivers drive with fluctuating speed, do not have enough spacing and have noisy acceleration (Saifuzzaman et al, 2015).

Driver distraction is the main contributing factor to road accidents. A study by Guo et al (2017) found that drivers younger than 30 and older than 65 are more negatively affected by secondary task engagement than middle-aged drivers are (Guo et al, 2017). Results from a study by Gliklich et al (2017) supported Guo et al's findings about younger drivers' risk of distracted driving. According to Gliklich et al (2017), visual and manual distractions affect all age groups, though cognitive distractions may largely affect younger drivers. Distraction is associated with higher

crash rates and occurs in all age groups, but it is more prevalent among young drivers (Gliklich et al, 2017).

Cell phone use while driving decreases driving awareness and delays reaction time to events happening on the road, and may lead to accidents (Choudhary and Velaga, 2017). Liu, Lu and Wang (2019) in a study analysing the effectiveness of cell phone bans while driving in California also confirmed that cell phone use while driving produces more serious crashes and confirmed that the cell phone ban was effective in improving traffic safety in California.

Zhu et al (2018) investigated behaviours and consequences associated with cell phone use while driving among young drivers. Texting was found to be the most important behavioural indicator of cell phone use while driving. Besides texting, young drivers indicated playing music while driving as another behavioural indicator. This activity is also deemed dangerous by the youth because it involves having to frequently change music, especially if there are people in the car (Zhu et al, 2018).

Research done to examine possible external and internal factors that cause driver distraction in Oman by Muhammad and Mustafa (2018) found that the use of cell phones, eating while driving and the presence of passengers inside the vehicle are the most distracting factors. External factors that result in distraction included sightseeing, looking at billboards and other drivers (Muhammad and Mustafa, 2018).

In a study investigating social norms and risk perception among teenagers, Carter, Bringham and Zakrajsek (2014) found that 92% of adolescents agreed that they regularly engage in distracted driving behaviour. Adolescents perceived that their parents and peers participated in distracted driving behaviour more frequently than they did. Public health recommendations by Carter et al (2014) include parental role modelling and parental monitoring of adolescent driving behaviour.

Drunk driving is identified as a high-risk behaviour that undermines road safety. The following section will examine available literature on drunk driving.

2.5.3 Drunk driving and motor vehicle accidents

Drunk driving refers to driving a motor vehicle while one's blood alcohol level is above the limit set by the national law (Legal dictionary, 2017).

Blood alcohol content (BAC) is a measure used for medical and legal reasons to show the level of drunkenness. Breath alcohol testing is used to measure BAC, and its unit of measure is either g/dl or mg/l and it can be expressed in percentages (Buddy, 2019). In South Africa, the maximum permitted limit for blood alcohol content (BAC) is 0.5g/l; however, there is a lower limit of 0.2g/l for trained drivers of public transport and heavy goods vehicles (Department of Transport, 2014).

Driving under the influence of alcohol increases the risk of road accident involvement. According to the Centre for Disease Control and Prevention (2019), when alcohol is absorbed into the bloodstream, it immediately affects cognitive functioning and the ability to do certain physical tasks. A BAC between 0.02% and 0.05% results in impaired vision, poor co-ordination, difficulty steering a vehicle and a delayed response to emergencies; while a higher BAC (0.08%-0.1%) can lead to loss of concentration, poor memory and poor ability to manoeuvre between road lanes (Centres for Disease Control and Prevention, 2019).

Alcohol also has a negative effect on an individual's driving skills. In their study, Weidman et al (2018) exposed drivers to different levels of blood alcohol concentrations, and found that high concentrations of alcohol increased the time needed to engage in tasks and led to poor vehicle control.

In a similar study, Nishitani (2019) evaluated the effects of alcohol on simple reactions and motor coordination, and found that drinking alcohol prolonged reaction times. This situation is worsened when participants engage in additional tasks. The study also found greater levels of impairment due to alcohol intake for novice drivers compared to experienced drivers (Nishitani, 2019). At certain levels of BAC, people present with poor muscle coordination, slower response time, incoherent speech, loss of visual acuity and impaired judgement (Buddy, 2019).

Driver intoxication impairs awareness of other stimuli in the environment while driving. Plawecki et al (2018) found this in a study that examined the effects of alcohol in a simulated environment. This study concluded that higher levels of breath alcohol concentration impairs environmental vigilance (Plawecki et al, 2018).

AL-Abdalat et al (2016) found a strong association between alcohol consumption and accident involvement. Results from a study by Holder et al (2018) support these findings and confirms the increasing evidence that there is a casual link between availability of alcohol and road traffic accidents. Holder et al's study concluded that alcohol intoxication also increases the risk of injury from motor vehicle accidents.

Road Traffic Management Corporation (2015) reports that in South Africa, 5.5% of road traffic fatalities involved a driver with alcohol levels above the legal limit (RTMC, 2015). However, in the United States, the National Transportation Safety Board recommended that a lower blood concentration limit of 0.05g/l be adopted following a comprehensive review of literature and subsequent strong evidence that even a BAC of 0.05g/l increases the chances of being involved in a car crash (Fell and Voas, 2013).

There is a strong association between alcohol and psychotropic drugs in accident involvement. In their study, AL-Abdalat et al (2016) found that the presence of alcohol and/or drugs are relatively highest amongst pedestrians, while youth was found to be more vulnerable to road traffic accident involvement while intoxicated (AL-Abdalat et al, 2016).

Alcohol consumption increases the risk of motor vehicle accidents for both drivers and non-drivers. Non-drivers include both passengers and pedestrians. According to Borges et al (2017), the inclusion of routine alcohol screenings in all health services could have a beneficial effect in reducing road traffic accidents (Borges et al, 2017). A study by Cheng (2019) evaluating the effects of driving factors (such as age and driving experience) on traffic crashes among intoxicated drivers supported these findings. According to this study, age, years of driving experience and blood alcohol concentration are associated with road crashes (Cheng, 2019).

In South Africa, Road Traffic Management Corporation (2017) identified speeding as the common human behaviour that result in fatal road crashes. According to RTMC (2017), out of 91% of accidents that are attributable to human behaviour, 14% are the result of driving at high speed. The next section will look at available literature on speeding and road traffic accidents.

2.5.4 Speeding and road traffic accidents

Speeding means driving a motor vehicle at a speed higher than the legal national limit (Collins English Dictionary). In terms of the National Road Traffic Act, 60km per hour is allowed on a public road within an urban area, 100km per hour is permitted on a public road outside an urban area and 120km per hour is allowed on national highways and main roads (NRTA, 1996).

According to Stephens et al (2017), speeding is a common driving behaviour that results in motor vehicle crashes, increasing the risk of fatalities and the severity of injuries. In their study, Stephens et al (2017) examined compliance and attitudes towards speeding and found that about 47% of participants reported exceeding the freeway limit.

Stephens et al (2017) also found that age and sex is related to non-compliance to speed limits. The study concluded that males and younger drivers are more likely to be non-compliant to speed limits. When compared to compliant drivers, non-compliant drivers perceived less risk of a serious accident and reported a greater possibility of speeding when they believed that they would not be caught. The non-compliant drivers also perceived driving at high speed to be socially acceptable (Stephens et al, 2017).

A similar study examining the reasons for speeding among Turkish drivers conducted by Bıçaksız et al (2019) also confirmed that gender and age are associated with a driver's self-reported speeding behaviour. The drivers who believed that speeding increases the risk of crashing showed a lower frequency of speeding, while other drivers believed that speeding tickets were a way of increasing the government's revenue (Bıçaksız, 2019).

However, a study done earlier by Chevalier and others (2016) argued that older drivers have an increased risk of injury due to fragility and slower reaction times, even though there was little evidence available about the older drivers' speeding behaviour. According to Chevalier et al (2016), younger drivers were likely to speed when driving on familiar roads.

A study by Laiou (2019) exploring the attitudes of road users towards speeding also found that gender and age were important factors in determining attitudes towards road safety. This study found that the majority of participants who drive over the speed limit do not believe that speed limits are set at appropriate levels.

Another factor related to speeding is the non-use of safety belts. The next section will look at available literature on safety belt use.

2.5.5 Safety belt use in South Africa

A safety belt or seat belt is a strap attached to the seat of a vehicle. It is strapped around the waist of car occupants to prevent them from being ejected out of a vehicle when an accident occurs.

South African law on the use of safety belts is aligned with international best practice for safety belts. Regulation 213 of the National Road Traffic Act deals with the issue of seatbelt use. According to this regulation, all vehicles operating on public roads should be fitted with safety belts. The regulation further stipulates that the driver operating the vehicle and passengers

should use safety belts when seated in a vehicle operating on public roads. The driver of a vehicle travelling on a public road should also ensure that children in the car are properly restrained.

There are penalties associated with the non-use of safety belts, with an estimated fine of R250 that has historically been argued to be low (DOT, 2017). According to Du Plessis et al (2019), 432 417 safety belt related offences were reported in South Africa between February 2015 and September 2016 (Du Plessis et al, 2019).

The use of seat belts decreases accident related death. A study by Kauffman (2019) that evaluated the effectiveness of community-supported campaigns to increase the use of safety belts found that there was a short-term increase in the use of safety belts following the campaign. Kauffmann also suggested that subsequent studies should formulate further effective measures that would ensure that the increase in safety belt use is sustained (Kauffmann, 2019).

Use of seat belts reduces serious outcomes in motor vehicle accidents among children. Park et al (2018) found this when investigating the effects of car safety belt use amongst infants and children involved in motor vehicle accidents. The patients using safety belts were found to be less likely to sustain brain injuries compared to those who were not using safety belts (Park et al, 2018).

In a separate study by Mbarga et al (2018), which investigated the relationship between safety belt use and serious injuries in belted car occupants versus non-belted occupants, it was found that seat belt use reduced facial, abdominal and spinal injuries. However, there was no statistical difference for injuries involving the head, lower limbs and upper limbs between belted and non-belted occupants (Mbarga et al, 2018).

However, there is a counter argument about safety belt use and its role in preventing serious injuries. Timonov et al (2018), in a case study, presented the case of an obese driver who sustained blunt abdominal trauma with back and vascular injuries. In this case, it was believed that the driver's disproportionate body shape combined with the straining effect of the safety belt resulted in the fatal outcome of the accident (Timonov et al, 2018).

As a result of the advent of airbag installation in motor vehicles, it is believed that there is no longer an association between seat belts and internal injuries. Glover and others (2017) tested this association among patients involved in motor vehicle accidents with airbag installation. They found that even though there is an association between the seat belt and cervico-thoracic injuries, there is no association with intra-abdominal and pelvic injuries (Glover et al, 2017).

In South Africa, unsafe overtaking is among the riskiest behaviours that lead to road fatalities. According to RTMC (2017), out of the 91% of road fatalities that are attributed to human factors, 6.8% of them are due to unsafe overtaking (RTMC, 2017). The next section will discuss available literature on unsafe overtaking.

2.5.6 Unsafe overtaking

Overtaking refers to a vehicle catching up and passing another vehicle that is driving in the same direction. When this happens on a two-way traffic lane, the overtaking driver occupies the lane that is reserved for cars driving in the opposite direction. Although there is sometimes a need to overtake, it is not always necessary or justified. A number of motor vehicle accidents occur because of inappropriate overtaking practices.

Overtaking accidents are among the most serious types of accidents, often resulting in serious injuries and fatalities. According to Muslim and Itoh (2019), drivers often misjudge the situation due to the condition of the road, speeding or poor weather conditions. They also found that overtaking accidents result in head-on collisions; rear-end collisions or side impacts.

In their study, Muslim and Itoh (2019) analysed the actual overtaking crashes that occurred in highways in Iraq between 2005 and 2016. They found that the driver age was a big factor in a number of overtaking accidents. In addition, Muslim and Itoh (2019) also found that the type of leading vehicles also influenced the tendency for other drivers to overtake. In instances where there were higher crash rates, there was a significant link between driver age and road capacity. A correlation between accident types, overtaking speed and road curvature was also found (Muslim and Itoh, 2019).

Mahmud et al (2018) note that there are three types of overtaking strategies, i.e. accelerative, flying and piggybacking. However, Kashani et al (2016) identified four categories of overtaking, which include normal overtaking, aborted overtaking, lane sharing and cutting in.

In a different study, Mahmud et al (2018) analysed overtaking manoeuvres by collecting data on a two-way highway and looking at the movement of the vehicles, overtaking time, etc. The results of the study showed that drivers had a poor understanding of the use of indicators. Only a few vehicles used the indicator when changing lanes, instead, some of the drivers used the hooter as a means of communicating with other drivers. The study also found that about 25% of the

drivers underestimated the distance between vehicles while overtaking. As a result, the driver in the opposite direction had to slow down in order to avoid a head-on collision. Additionally, drivers did not keep a safe gap before and after overtaking (Mahmmud et al, 2018).

De Jager (2019) also investigated dangerous overtaking manoeuvres and the effect of road design on the psychological state of road users. According to De Jager (2019), if drivers feel they are travelling at a speed lower than the speed limit, they will opt to use dangerous overtaking manoeuvres if there are slower cars in front of them. Secondly, if drivers feel that road sign prohibiting overtaking are poorly positioned, they will not adhere to these road signs and will end up disregarding other signs, especially if they know that there is no law enforcement. The third manoeuvre tends to be encouraged by other drivers in the vicinity - if the driver in front encourages one to pass and moves to the far left of the road, the other driver feels obliged to accept the courtesy and overtake (De Jager, 2019).

Additionally, unsafe overtaking is among behaviours that often result in road rage. In their study, Peng et al (2019) looked at 32 incidents in China that started with unsafe overtaking and led to road rage, which ultimately resulted in injuries or death. Some of the behaviours associated with unsafe overtaking include “cutting off” the other car; not using the indicator while overtaking; overtaking when there is a solid line on the road; and misjudging the distance of oncoming cars (De Jager, 2019).

According to Peng et al (2019), the majority of people that engage in road rage are male drivers and in some cases, women tend to be victims. The consequences of road rage can be fatal. Peng et al (2019) state that some of the drivers involved in road rage regretted it. As a result, this study recommended that law enforcement should educate drivers about the consequences of road rage (Peng et al, 2019).

According to the World Health Organisation (2018), more than 50% of all road traffic fatalities are vulnerable road users (WHO, 2018). The next section will discuss vulnerable road users.

2.5.7 Vulnerable road users and road safety

The European Commission (2018) describes non-motorised road users such as pedestrians, cyclists and motor cyclists as vulnerable road users. This classification is given because of their lack of protection. Children and elderly people are also vulnerable, considering their age and

limited capabilities. For example, children are inexperienced on the road and the elderly's capabilities are on a decline (European Commission, 2018).

Pedestrian, cyclists and motorcyclists are the worst affected in road crashes because of their lack of protection from the speed and the mass of the object they collide with. Their high vulnerability makes them a priority and a special interest group for policy makers (Torfs and Meesmann, 2019).

The European Commission's (2018) statistical report stated an average decrease of 21% in road death among its member states. The data show that fatality rates that have decreased are that of drivers and passengers. However, despite this improvement, there was still a general concern about the number of pedestrians that die on the road each year. According to the European Commission (2018), 21% of people killed on the road are pedestrians. During the period from 2010 to 2017, pedestrian deaths have decreased by a small percentage (15%) when compared to the general decrease in fatality rates (20%). Cyclist fatalities reduced by 2% during this period (European Commission, 2018)

In South Africa, statistics show that pedestrians are the most vulnerable road users. Statistics from the Road Traffic Management Corporation (2019) show that pedestrians in South Africa account for 38% of all road crash victims. Pedestrians tend to suffer the consequences of offences committed by other road users. In a recent incident reported by RTMC (2019), a taxi that skipped traffic lights hit a pedestrian (RTMC, 2019).

Findings from a study by Verzosa and Miles (2016) confirm the vulnerability of pedestrians as it reports that evening or late night collisions are likely to result in pedestrian death. These collisions occur near transit points with high vehicle and pedestrian traffic. Traffic violations by both pedestrians and drivers result in these pedestrian accidents (Verzosa and Miles, 2016).

Cyclists are exposed to a number of risks on the road. According to the European Commission (2018), cyclists are at risk of falling off from their bicycles and are vulnerable to crime, as well as being exposed to the risk of other road users (i.e. traffic). The proposal by the European Commission (2018) was for the different road users to be separate in order to reduce the potential conflict and minimise consequences when collisions happen. In the South African context, separation of road users is still a problem, as the available infrastructure does not allow a dedicated cycling lane. As a result, cyclists tend to be victims of collisions, which leaves them with serious injuries and may result in death (European Commission, 2018).

2.6 Perceptions

Perception is a process by which individuals arrange and understand sensory information in order to give meaning to their environment (Waheedan, 2018). A number of factors can influence perception, these include interests, needs or motives, attitudes, past experiences and expectations.

Interests: The focus of our attention tends to be influenced by our interest. Because individual interests differ, people tend to have different perspectives of a situation.

Needs or Motives: Unsatisfied needs or motives stimulate individuals and may cause a strong influence on their perceptions.

Attitude: A tendency to respond positively or negatively towards a certain idea, object, person, or situation. Attitude influences an individual's choice of action, and responses to challenges, incentives, and rewards.

Past experience and Expectations: Our perception is directed by our past experience and what we anticipate to see. Learning from past experience changes the electrical structure in our brains so that we can quickly categorise what we are seeing and make a decision or carry out appropriate actions (Snyder, 2015).

In a study by the Save Life Foundation (2017), which explored public perception of road safety in India, 86% of participants believed that the issue of road safety is very important, 82% felt unsafe while crossing the road and 63% do not wear seat belts whilst driving a car. About 91% of participants believed that a strong road safety law would assist to reduce road crashes, while 81% of respondents felt that stricter penalties will help improve road safety.

Distracted driving, urgency, excitement, aggression and careless attitude emerged as major reasons for road traffic injuries. This is according to a study by Tripathi et al (2019) which tried to understand perceptions of victims, their attendants and general public on road traffic injuries and safety. The study emphasized the need for parents, schools and media to focus on changing attitudes and behaviour of young people.

In a different study by Bates et al (2019), where participants were asked about their perception of the influence of driver education and training on psychological factors, results showed that psychological factors did influence driver perceptions. The study suggests that there is a need for driver educators to personalise programs to take into consideration the psychological

differences between individuals, this may have an impact on the way they respond to the education they receive.

2.7 Enforcement of road safety laws in South Africa

There is evidence to suggest that human factors are still largely responsible for casualties and fatalities on South African roads. Given the poor outcomes of road safety despite the legislation in place, it is arguable whether there is enough enforcement of existing legislation.

According to du Plessis et al (2019), South African road legislation is in line with international best practices for road safety. The law regarding safety belt and mobile phone use is very compliant with international best practice; however, South Africans continue to have high seat belt offences (du Plessis et al, 2019). RTMC (2017) reported 432 417 seat belt-related and 13 371 cell phone use offences between February 2016 and September 2017.

The RTMC (2017) report also shows that during the same period, only 11,7% of traffic offenses reported were related to human behaviour, while the majority of offenses were for overloading vehicles (49,8%), 15,3% for various faults, and 8,1% were related to issues with driving documents. Law enforcement officers recorded 27 143 arrests for drunk driving and 1 667 arrests for speeding; while 25 097 pedestrians were arrested, mostly for drunken walking. According to du Plessis et al (2019), the majority of offenses reported do not directly cause motor vehicle accidents; hence it remains questionable whether law enforcement efforts are directed towards the most important areas of road safety.

Rolison et al (2019) also investigated the reasons behind inadequate law enforcement and poor improvement of road safety outcomes in the United Kingdom. Their findings were that there was a possible underreporting of alcohol impairment by law enforcement officers because the previous law did not allow breath testing at accident scenes (Rolison et al, 2019). They therefore concluded that since policy makers depend on accurate statistics to make recommendations and drive new policy initiatives, they should be aware of potential underreporting on some of the driver centric factors.

3 CHAPTER THREE - RESEARCH METHODOLOGY

3.1 Introduction

The purpose of this study is to get an in-depth understanding of the perceptions and practices of University of Johannesburg students towards road safety. This chapter will first outline the research methodology used for this study - including the research approach, research area, study population, sample selection, inclusion and exclusion criteria, data collection method, trustworthiness of the data and the limitations of the study. The chapter will conclude by discussing the ethical issues considered for the study.

3.2 Research approach

This study used a qualitative research design. An interview guide with open-ended questions was used to collect data. The research approach used was exploratory, descriptive and contextual in nature with a phenomenological approach. This research design and approach was chosen to ensure that the information gathered addresses the research objectives, which were to explore and describe the perceptions and practices of UJ students towards speeding, drunk-driving, unsafe overtaking, non-use of safety belts and distracted driving.

3.3 Research area

The study was conducted on the Doornfontein campus at the University of Johannesburg, which is situated in Region F of the City of Johannesburg Metropolitan Municipality. The City of Johannesburg is situated in the Gauteng Province, has a population of about 4,4 million people and covers an area of 1 645km² (Stats SA, 2017).

The City of Johannesburg is one of the most densely populated and economically vibrant cities in South Africa. Its roads have high traffic volumes and consist of private cars, buses, taxis and trucks. The city's living areas are scattered because of the spatial development under the apartheid regime. As a result, people travel long distances to get to their places of employment. The location of the Doornfontein campus makes it an ideal place to conduct this study because students have first-hand experience on road issues as drivers, passengers and pedestrians.

3.4 Study population

The study population included male and female students registered for the 2018 academic year at the Doornfontein campus of the University of Johannesburg. Participants aged 18 years and above took part in the study. The study design ensured recruitment of participants from different racial backgrounds, including participants who identified as Black, White and Indian. Participants were registered to study either part time or full time towards either an undergraduate or a postgraduate degree.

The study regarded students as road users because they use different modes of transport to travel to campus - some are drivers, others are passengers and those who live close-by are pedestrians. The university also provides bus transportation for students who stay outside of the Doornfontein area. Therefore, each of these participants have an experience of road use and the safety precautions associated with this.

3.5 Sample selection

The goal of qualitative research is to provide an in-depth understanding on a particular subject (Crossman, 2019). Therefore, it targets a specific group with certain characteristics or a certain population of people. The objective of this research is to gain an in-depth understanding of road user behaviour. It would be impossible to collect data from everyone on campus; therefore, data was collected from a sample of the target population. The researcher chose purposive sampling to identify key participants for this study. The researcher chose this sampling method for convenience and to save time.

Students were chosen from the Doornfontein campus. It was easy to access participants because they were on the same campus as the researcher. The pre-determined sample size was 15 to 20 participants; however, this depended on data reaching a saturation point. The criteria for selecting participants was that they needed to be road users - it did not matter whether they were drivers, passengers or pedestrians. The accessible population is the final group of participants from which data was collected. This comprised of members from the target population who were available and willing to participate in the study during the research period. In total, 15 participants availed themselves for the interview.

3.6 Inclusion and exclusion criteria

Only students, 18 years and above, and registered during the 2018 academic year were included in the study. No criteria was prescribed for the level of study, thus all undergraduate and postgraduate students were welcome. Students were required to sign consent forms for inclusion and to also give permission for the interview to be recorded.

3.7 Data collection

3.7.1 Design of the questionnaire

An interview guide with open-ended questions was used to collect primary data (refer to Appendix C). Interviews were recorded using a cell phone device. Interview recordings were saved and numerically labelled according to the order of the interviews. Prior to the commencement of the interviews, the researcher noted the demographic information of participants, such as age, level of study enrolled for, gender and race. Participants were asked two main questions about human behaviour on the road, which were: (i) *“What do you think of human behaviour and road safety?”* and (ii) *“Is there anything else you would like to tell me? (Some people think that drunk driving, speeding, unsafe overtaking, non-use of safety belts and distracted driving affect road safety, what is your understanding?”*

The rationale for asking these questions was to explore what participants think of human behaviour and road safety. The participants' experiences were then compared and contrasted to the existing literature on the subject.

The layout of the questions was simple and easy to understand so that it would be easy for participants to elaborate on their responses.

3.7.2 Pilot study

Prior to the commencement of the research, a pilot study was conducted to test if participants would be able to understand the interview questions and to gauge whether the interview process could be completed in the allocated time of 30 minutes. The pilot study was conducted on other university students who were not registered at the University of Johannesburg.

Two males and one female were willing to participate in the pilot study. The participants were given consent forms and the interview guide was used by the researcher to ask questions. Though interview questions were easily understood, minor adjustments to the interview schedule had to be made to make sure that the researcher would be able to get relevant information from the interviews.

Once the pilot study was completed, all sample questionnaires were collected and stored in a secure location that is only accessible to the researcher.

3.7.3 Data collection phase

Students spend their time on campus either attending lectures or studying in the library. Lecture halls are situated in various departments within the different faculties. In-between lectures, some students take a break in the student centre, the garden or corridors within the different departments. Two methods were used to recruit students to participate in this study. One was through pamphlets with the details of the study that were posted on notice boards in different faculties, the student centre and the library. This was done so that students interested in participating could call the researcher. The second method used involved the researcher going to different departments, identifying students that had free time and asking if they were willing to participate.

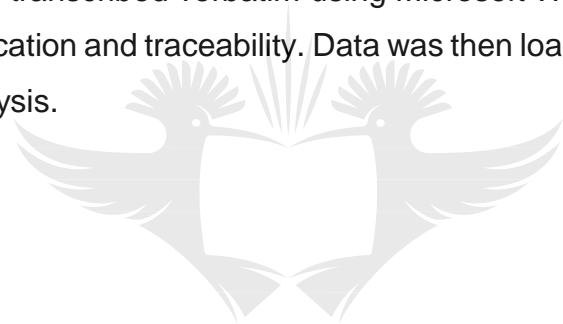
Students from various departments at the UJ Doornfontein campus were interviewed. Private interviews were conducted at the Department of Environmental Health, Occupational Health and the Safety Lab - permission was granted for each interview (refer to Appendix D). The interviews were audio-recorded and lasted approximately 20-30 minutes. Even though there was a venue allocated to conduct the interviews, at times the researcher had to consider what was convenient for the participants. The researcher arranged an appointment with each participant and interviews were conducted inside different quiet venues that were convenient for the participants.

A research study information letter (refer to Appendix E), together with a research consent form for participating and audio-recording, were given to each participant to read through and sign prior to participating in the study (refer to Appendix F and G). No personal details of the participants were captured on the signed information letter or consent form. The researcher labelled each research study information letter and consent form using numbers from 1 to 15. Participants were allocated time to read the information letter and to ask any questions they might

have. The researcher conducted all interviews in English. Interviews with open-ended questions were used to collect data. Open-ended questions assisted the researcher to better understand the scope of the research and the participant gives additional information freely. Interviews were recorded using a voice recording application on the researcher's cell phone. Thereafter the recordings were saved and labelled with numbers as per the consent forms.

The process of data collection was done over a period of 3 weeks because the researcher was restricted by the availability of the participants. At times, even though the appointments were pre-arranged, potential participants would either cancel or postpone interviews. The researcher analysed data throughout the process of data collection to look at emerging themes. Data collection was stopped after fifteen interviews as data saturation was reached, at this point the researcher noticed that there were no new themes that were emerging from the interviews.

The audio recordings were transcribed verbatim using Microsoft Word, then saved and labelled accordingly for easy identification and traceability. Data was then loaded onto the Atlas.ti software in preparation for data analysis.



3.8 Data management

Students who participated in the study did so voluntarily and were assured of the confidentiality of their information. They in turn agreed to provide honest answers during the interview. Data was not tempered with or changed during transcription. The information on the recordings and the subsequent transcripts is that of the participants. All participants were asked the same questions, and the researcher used only one version of the interview guide.

None of the students who volunteered were denied the opportunity to participate. Students who were willing to participate but had time constraints were given the opportunity to choose a time and place that was most convenient and suitable for them. The venues used for the interviews ensured privacy.

Data and recordings are anonymised, that is only a participant number was used, no names. To ensure confidentiality, research data will be stored in a secured computer with password at all times. Interview data and recordings will be kept safe for a period of five years as guided by the Records Management Policy (2017) after which they will be destroyed.

To ensure data security, interview recordings are stored in a lockable device which is only be accessed through identification by means of a PIN code and biometric identification. To manage the risk of loss or damage to the mobile device, duplicate recordings were transferred to a desk top machine for further safe storage. In addition, interview recordings were transcribed verbatim on to Microsoft word so that they can be accessed anytime. The practice of transcribing interview data verbatim minimises researcher bias by making sure that all data collected is considered so as not to skew interpretations.

3.9 Trustworthiness of data

To ensure credibility of the study, triangulation of sources was used during data collection. Though participants were all road users, the study ensured involvement of viewpoints from drivers, passengers and pedestrians. In addition, the participants had a good mix of public and private transport users. These road users have different experiences and possibly different viewpoints about road safety. The same questions about road safety were asked from all the participants.

To ensure confirmability of the results the researcher provided an audit trail by detailing a clear processes of data collection, data analysis and interpretation of the results. In addition, interview recordings were transcribed verbatim by the researcher with no alterations. Original recordings and interview transcriptions are safely kept as per the data management plan in case of the need for confirmability.

3.10 Ethical considerations

Before the research commenced, the study was approved by the Higher Degrees Committee (refer to Appendix H) and the Research Ethics Committee of the University of Johannesburg (refer to Appendix I). Permission to recruit students as participants was granted by the University of Johannesburg's Campus Director, as well as the UJ Head of Institutional Research and Planning (refer to Appendix A).

To maintain confidentiality and protect the privacy of participants, consent forms and information letters about the study were kept anonymous and only allocated numbers. Later, for ease of analysis, pseudo names were given to all participants. All recordings and transcripts were kept

in a password-protected device so that no one could access them except the researcher. Only the researcher and her supervisor had access to the information gathered during the research. Any other person who needs to use this information will be required to sign a confidentiality agreement before handling the data.

Participants were treated with respect by honouring their decision regarding whether to participate or not to participate. No participants were pressured into participating in the study. Furthermore, participants were always reminded about their right to withdraw from participation at any stage during the research period.

The benefits of participating in the study were clearly indicated in the information sheet, primarily the fact that taking part in this study would contribute towards improving road safety. The views and recommendations in this study may shape future road safety policies. Improvements in existing policies may result in better behaviour on the road and a number of lives may be saved.

3.11 Informed Consent

Before beginning the interviews, the purpose of the study, voluntary participation and confidentiality of the data were explained to participants using the information letter (refer to Appendix E). Written consent by participants agreeing to participate in the study and acknowledging the fact that interviews would be recorded were also obtained before the commencement of interviews (refer to Appendix F and G).

3.12 Assumptions

During the course of the study, the researcher made a number of assumptions. The researcher assumed that UJ students have experience as road users - as either drivers, passengers or pedestrians. The researcher also assumed that students are aware of the common bad behaviours displayed on the road and may even be committing some of these behaviours themselves.

The researcher assumed that participants might fear being judged if they voluntarily disclose their negative practices on the road, hence the researcher felt the need to emphasise the confidentiality of the study. During the interviews the researcher remained conscious of the need to maintain a neutral stance so as not to influence the participant's responses. Finally, the

researcher also assumed that the methodology selected was the most suitable for answering the research questions.

3.13 Limitations of the study

There were some limitations to the study that the researcher had no control over. Time was a limiting factor for the study as there was a stipulated period within which the research could be conducted and completed. The availability, as well as the interest of students to participate in the research were also limiting - not all students came forward and expressed their interest, thus the researcher had to identify some students and tell them about the study. Some students expressed interest, while others did not.

3.14 Data analysis

The researcher read the interview transcripts and familiarised herself with the interview transcripts. All transcribed interviews were loaded onto the Atlas.ti software. Codes were generated and a coding list was created on the Atlas.ti program. After all the textual information on the transcripts was allocated codes, various queries were run to identify patterns and themes.

The analysis first examined practices and then perceptions. Conceptually, it made sense to look at the practices or behaviours, and then explore perceptions towards these practices. Perceptions included their understanding of the behaviour and encompassed their interpretations, attitudes or even suggestions. There were bad practices that were identified by the participants, these were analysed as well.

Though the study was focused on UJ students, their experience of road safety extends beyond UJ - thus the actual discussions and opinions shared took a broader view on driving behaviour since participants are exposed to road safety issues mostly outside of the University of Johannesburg.

The results of the analysis and a discussion of the findings will be presented in the next chapter.

4 CHAPTER FOUR – RESULTS AND DISCUSSION

4.1 Introduction

This chapter analyses, interprets and discusses the research findings that were gathered through interviews and demographic information that was collected by the researcher. The data were gathered to fulfil the aim of the study, which was to establish students' perceptions and practices towards road safety. The socio-demographic information collected by the researcher included age, gender, race, driver category, driving experience and the academic level of the students. The transcribed interviews were loaded and analysed using Atlas.ti Version 8 software.

4.2 Socio-demographic characteristics of respondents

Table 1 illustrates the demographic information of students that took part in this study. Fifteen (15) University of Johannesburg students, 8 (53%) of whom were females and 7 (47%) males, took part in the research. Only one of the participants was below the age of 21 years. Just below half (47%) of the participants were in the 21–25 year age range, while the other 47% were aged 26 years or older. Most of the participants were Black (87%). In relation to the road user categories, 9 (60%) of the students were drivers and 6 (40%) were passengers and/or pedestrians. Just above half (53%) of the students owned vehicles. Among the drivers, the length of driving experience varied between 2 years or less to more than 10 years.

Table 1: Summary of socio-demographic profile

| Categories | Frequency | Percentage |
|--------------------|-----------|------------|
| Gender | | |
| Female | 8 | 53% |
| Male | 7 | 47% |
| Age (years) | | |
| <21 | 1 | 7% |
| 21-25 | 7 | 47% |
| 26-35 | 4 | 27% |
| >35 | 3 | 20% |
| Race | | |
| Black | 13 | 87% |
| White | 2 | 13% |

| | | |
|-----------------------------------|---|-----|
| Road user category | | |
| Driver | 9 | 60% |
| Passenger/Pedestrian | 6 | 40% |
| Car ownership | | |
| Yes | 8 | 53% |
| No | 7 | 47% |
| Driving experience (years) | | |
| 0-2 | 4 | 27% |
| 3-5 | 1 | 7% |
| 6-10 | 1 | 7% |
| >10 | 4 | 27% |
| Not applicable | 5 | 33% |
| Programme | | |
| Degree | 6 | 40% |
| Postgraduate | 9 | 60% |

4.2.1 Gender of participants

Out of 15 participants, 7 (47%) were male while 8 were female (53%). This suggests more or less an even distribution between both genders. The fact that women are slightly more than men in this study is in line with the current population ratio in South Africa, where women are slightly more than men are. Additionally, students who availed themselves are the ones who had interest in the topic.

4.2.2 Age of participants

Fifteen participants were interviewed. Demographic data shows that all age categories were represented. In this research study, one participant falls within the 20 years and below category. Seven participants fall within the 21-25 category. Four participants make up the 26-35 category and three participants fall into the 35 years and above category. The dominance of the 21-25 category could represent the normal age distribution on campus. This category falls more within the “youth” age group.

4.2.3 Race of participants

Out of 15 participants, 13 were Black and 2 were White. None of the participants identified as Coloured or Indian. The study initially intended to represent of all racial groups on campus, however, only Black and White students availed themselves to be interviewed. The representation of these 2 groups is in line with racial group distribution on campus. It is also important to remember that only students who showed interest in the study were interviewed.

4.2.4 Road user category

Out of the 15 participants that were interviewed, 8 were drivers, 6 were passengers/pedestrians and only 1 self-identified as being both a driver and a passenger/pedestrian. The representation for the road user category is more or less balanced, which will likely provide a balanced view of road user experiences.

4.2.5 Driving experience

Out of 15 participants, 6 (40%) did not have any driving experience - their experience on the road was as passengers or pedestrians. Three participants (20%) had 0-2 years' experience as drivers, 1 participant (6%) had 3-5 years' experience, 1 participant (7%) had 5-10 years' experience and 4 participants (27%) had more than 10 years of driving experience. The wide distribution of the driver experience category will generate broad views on the participants' experiences as drivers. These views are crucial to this study since some unsafe driving behaviours are attributed to a lack of driving experience (Bachoo et al, 2013).

4.2.6 Programme registered for

Out of 15 participants, 9 (60%) were registered for an undergraduate programme, while 6 (40%) were registered for a postgraduate programme. This is more or less the distribution between undergraduate and postgraduate students on campus.

4.3 Interview guide questions

The following open-ended questions were asked during the interview:

Question 1:

“What do you think of human behaviour and road safety?”

The researcher further explained this question and told the participants that by human behaviour, she means what people do on the road that affects road safety. The explanation was well understood by participants.

Question 2:

“Is there anything else you would like to tell me? (Some people think that drunk driving, speeding, unsafe overtaking, non-use of safety belts and distracted driving affect road safety, what is your understanding?)”

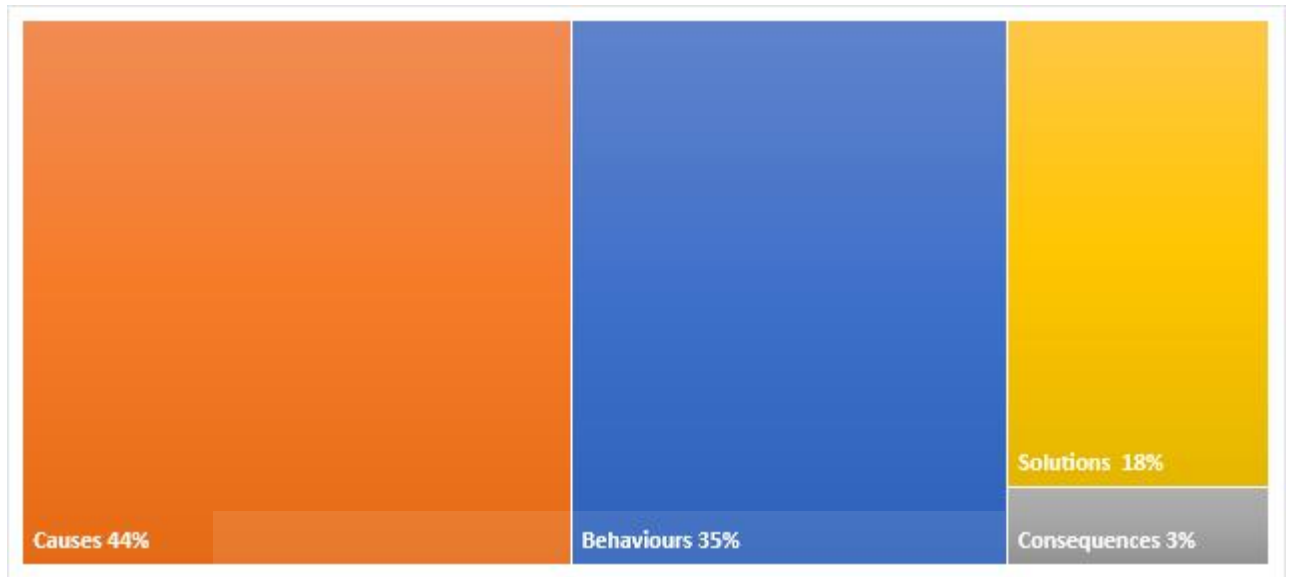
4.4 Study results

Themes and sub themes generated from the data analysis are summarised on Table 2 below:

Table 2 : List of Themes, sub themes and codes

| PRACTICES | | | PERCEPTIONS | | |
|------------|------------|-------------|---|--|---|
| BEHAVIOURS | | | CAUSES | CONSEQUENCIES | SOLUTIONS |
| Drivers | Passengers | Pedestrians | <ul style="list-style-type: none"> • Attitudinal • Emotional • Perceptual/Cognitive • Social • Experiential • Mechanical • Infrastructural • Environmental • Judicial/Legal • Other | <ul style="list-style-type: none"> • Personal • Societal | <ul style="list-style-type: none"> • Educational • Judicial • Technological • Infrastructural |

Table 3: Coding density by main themes



4.4.1 Driver behaviour

The interviews began with narratives and descriptions of various behaviours by road users that the students had observed on the road in general. The focus was primarily on bad behaviours and although most of these related to drivers, the respondents pointed out that bad road usage behaviour was not confined to drivers only but was also observed among pedestrians and passengers.

“What people do on the road, there is a lot. They break the laws...the drivers, passengers and pedestrians, they just break the laws”- Participant #5

There were some confessions, to varying degrees among participants that they too sometimes displayed some bad road usage practices as either drivers, pedestrians or passengers.

“I am also guilty for that one, especially if I am travelling long distances because I know where the cameras are on the N3. So, I will just go and when you get to this corner where there’s a camera, I need to be at 100 or 120 but, other than that...I will I be driving at like 180” – Participant #7

There was consensus among participants that speeding was one of the most dangerous driving behaviours.

“It’s quite reckless...it’s inconsiderate to the next person.... quite frankly very stupid and dangerous and not only puts me in danger but also you and the next person, because on the road it’s not only you, it’s quite a lot of people”- Participant #4

What some of the participants found even more troubling was that speeding was common with public transportation, with bus and taxi drivers being associated with this practice.

“The buses...they are too speedy, the bus guys, even if they see you coming, if you want to stop the bus and get in...it won't stop” – Participant #2

Another bad driving practice that participants identified and discussed extensively was drunken driving.

“I have been out so many times on a Saturday night and had drunk drivers in front of me, my brother actually got toddled off by a drunk driver, I have lost two uncles to drunk drivers” – Participant #3

“Drunk driving is the most annoying thing...You came here with your car and you want to get a drink, so who else should drive you?” – Participant #6

“Students do drink and especially on a Friday and you find that the whole squad is drinking and now they all going to drive or even the one that's driving is drinking” – Participant #4

“I have seen them, drivers drinking and driving, once you drink, they are stubborn. It's hard to convince that person that, listen, you are not in a right state to drive they insist to drive”- Participant #5

Some participants suggested that some drivers drove under the influence of drugs as well.

“Speeding would be the first... Driving under the influence of drugs or alcohol, anything in your system” – Participant #3

Unsafe overtaking was yet another common misdemeanour among drivers and, to some extent, was linked to speeding.

“It's completely unacceptable (unsafe overtaking) but always people will find a way to justify it, like being late, rushing somewhere, a crisis...but I don't think it's justifiable” – Participant #4

Examples of unsafe overtaking that the participants had observed or experienced included drivers who changed lanes without checking mirrors or overtaking on a blind curve, thereby transgressing road rules in the process.

*“I have seen people not checking their mirrors and then they would just overtake, sometimes they would just overtake on a curve while they can see the double barrier lines and they know that you’re not supposed to overtake”- **Participant #7***

Drivers squeezing into tight spaces as they are overtaking sometimes exacerbated unsafe overtaking.

*“I do see a lot of hectic speeding because I drive a lot on the highway from Pretoria to Joburg, you see people driving like at hectic speed...they are overtaking, it’s not proper overtaking right there, they don’t check behind or in front or whatever and there’s very small spaces between cars and they force themselves in”- **Participant #14***

It was also noted that poor lane selection on freeways results in drivers cutting across a number of lanes when they are about to off-ramp.

*“Another thing I have observed is that people would be going and taking a left or right off-ramp using the fast lane and only when the off-ramp is close they now change five lanes at the same time. If you know that you are taking an off ramp why don’t you change lanes sooner and keep on your left and avoid distracting people?” – **Participant #7***

Associated with unsafe overtaking was the practice of driving on the wrong side of the road, a practice that was thought to be more common with taxis.

*“You find a driver using a one-way, going that side while the cars are going that side...It’s not safe for the passengers. They do it because there is a lot of traffic and they are in a hurry”- **Participant #8***

Some taxi drivers and private motorists also drove on emergency lanes in order to pass vehicles in front of them.

*“If there’s too much traffic they drive on the yellow lane and push in front of other people”- **Participant #1***

The non-use of safety belts was thought to be quite widespread, primarily because most people just did not take the use of seat belts seriously.

*“I think safety belt use in South Africa is taken too lightly...most people look at it as an optional thing or that when they see the cops, they quickly strap themselves. But I don’t think many people realise that it is a very important feature of the car to prevent a lot of accidents and has a function...It is really overlooked very much”- **Participant #3***

Taxi and bus drivers were singled out as the biggest offenders in term of not using safety belts. However, the non-use of safety belts is not limited to public transport drivers only since private drivers fail to use seat belts as well.

*“I have seen like most of the taxi drivers, they only use the safety belt when they see traffic cop...even with bus drivers, they don’t put safety belts” – **Participant #2***

*“The only time people put on their safety belt is if they see cops. So, when you are in an accident the cops won’t be there. Why do you do this, as if you’re doing them (cops) a favour instead of doing the right thing” – **Participant #7***

The use of safety belts also depends on the area that a driver is driving in or the surrounding environment. For example, there was a tendency among some drivers not to wear safety belts when driving in the township because they did not want to stand out and potentially expose themselves to crime.

*“If I am going to the townships, I don’t put the safety belt because they can see that you don’t stay there, so you put yourself at a risk of being mugged...You need to be like them...they are driving without the safety belt” – **Participant #10***

The phenomenon of distracted driving was one of the most discussed topics during the interviews, largely because this practice was thought to take many different forms. Distractions were described as anything that had the potential of reducing a driver’s concentration on the road.

“Any form of distraction, cell phone, changing the radio station, talking to someone at the back seat, anywhere where your attention is diverted is problematic for the road”-

Participant #3

“I think the main reason they do it (using cell phones while driving) is that there are no consequences...everybody has their phone all the time and I think if someone has to get in the car and drive half an hour somewhere, they are not used to not looking at their phones for half an hour. So, I think it's the kind of behaviour that is habitual”-

Participant #9

“I think also the driving and texting has become a popular thing, everyone does it, especially the young guys, everyone does it, they will text while they drive”-

#2

“I feel like texting and driving is more dangerous than or as dangerous as drunken driving. Even if you are going at a slow pace or speed, it is still dangerous, one can just pull aside and text or whatever”-

Participant #12

Though the use of a GPS navigation system is a commonly accepted and lawful practice, it was also identified as potentially distracting to drivers. In some cases, GPS navigation devices could help prevent accidents from happening because these devices prevent people from making abrupt turns or changing lanes too quickly.

“In a way, the navigator is distracting to the driver, especially if you don't have that thing of putting it on, you lose focus. You still lose focus if you need to keep on checking how far you are. Sometimes you can't even measure (estimate) a kilometre and you keep on checking and while you are checking you can be distracted and not be focusing on the road and other cars around you” –

Participant #7

“People who are using the road but are not sure where they are going and are not using a navigator (are a hazard)...the next thing they decide that they were not supposed to take this off ramp, then they would be reversing on the highway, trying to get back to the road”-

Participant #7

Listening to music, which sometimes also entails changing radio stations while driving, was also listed as a distraction.

*“The radio and music...There is a day that I went through the red robot...during the festive season, the mood was high, I was listening to music and the next thing I just found myself in the intersection whilst the robot was red”- **Participant #13***

The common practice of **eating while driving** was another potentially dangerous distraction.

*“I was thinking and wondering why they (authorities) don’t say you can’t eat when you are driving because sometimes you would be eating and trying to check where your food is so that you can put it in your mouth and something happens” – **Participant #7***

Other activities that acted as distractions while driving included applying makeup and engaging in sexual activity behind the wheel.

*“Some people would be changing whilst driving...Maybe you are feeling hot while driving, some people would want to take the jacket off” – **Participant #10***

*“I’ve also seen inappropriate sexual stuff that happens in the car while the other person is driving; I’ve seen it a lot back home. I don’t know whether it’s because they are influenced by alcohol or what, but it’s a thing that I have seen, that really distracts and has caused accidents, especially at night” – **Participant #4***

The behaviour of passengers inside the car could also become a distraction for the driver.

*“I feel like, as a passenger I did things that affected the driver such as tapping on the door, feeling fidgety, making a bit too much noise or moving around too much, which affects the driver”- **Participant #15***

Having pets inside the car also had the potential of taking a driver’s attention away from the road.

*“Putting pets in the car and trying to control pets while driving is another thing. It’s the little stupid things that cause accidents that I have seen back home and here”- **Participant #4***

Other factors along the road also distract a driver’s attention. According to participants, this includes roadside vendors and even instances of male drivers staring at females.

“When they look around, there’s a beautiful chick and they lose concentration. Even these guys who are selling things and giving out pamphlets they can distract you”-

Participant #11

Ultimately, distractions did not come solely in the form of physical factors that a driver could see and hear, but also from being mentally preoccupied with deep thoughts while driving. Mental preoccupation did not always have to be negative thoughts but could include positive thoughts as well.

*“While you are driving you will find yourself thinking about your issues and end up being distracted...maybe you left a child at home who is sick...whilst you are busy thinking about that, anything could happen on the road”- **Participant #11***

*“It’s thinking whilst driving, about where you are going, the situation, maybe you are going to a meeting and you are planning ahead or you are going home, you are planning your day ahead while you are driving, so that distracts us” – **Participant #6***

Close following distance was another potentially dangerous behaviour because some vehicles may stop abruptly, even in middle lanes.

*“You know we are supposed to keep the safe following distance, so they don’t...others’ perception of distances may be longer than that of other people, or they just don’t understand that you need a car space in between or they are just thinking other things or they are just too busy distracted. Talking to their friend or a passenger to realise that they are going too close or they are trying to intimidate the person so that they can move to another lane, I have seen that happening a lot in the highways”- **Participant #1***

*“Another thing that I have observed about taxi drivers...they would just stop anywhere they want to stop and then if you are driving behind them. You will also be forced to stop, of which there could be a person following you, who maybe is not keeping a safe following distance. Sometimes people can just bump you for the reason of the taxi driver who just stops in front of you” – **Participant #7***

*“In addition to not having brake lights, some of the taxis don’t park on the side when they are offloading, they just stop and that causes a congestion out of nowhere...it happens abruptly, I have seen one in Diepkloof, it almost caused an accident”- **Participant #2***

Another practice that students noted was on the rise was that of driving through red traffic lights.

*“I think that when people are walking or driving on the road, sometimes they don’t think of what they are doing, especially the drivers, they would just cross a red robot because someone is rushing somewhere, they would just not think about other people” – **Participant #7***

4.4.2 Passenger behaviour

The array of road usage transgressions by passengers as identified by the participants was predictably less extensive compared to that of drivers. However, this also included behaviours that contributed to road accidents, injuries and even loss of life. One example of such bad behaviour was passengers **encouraging speeding** in drivers.

*““When I am late, I tell the driver to speed up. That is what we do...At some point as passengers, we become happy when the driver does that because you will get home early. They don’t think about what if another car comes speeding, what if they collide, they don’t think about that”- **Participant #8***

Passengers also often **distracted drivers** in various ways. This ranged from seemingly harmless behaviours like chatting to the driver, to being fidgety or outwardly rowdy while inside a moving vehicle.

*“Passengers can be very distracting in public transport, especially, most of the people get into quarrels with the driver, especially in taxis, and then you will see the driver turning back and talking, it’s a heated quarrel now, and the driver is not focusing on the road”- **Participant #4***

Passengers, especially those using taxis, also had the habit of asking the driver to stop at very short notice when they wanted to disembark. This led to drivers making **sudden stops** that often resulted in collisions.

“People in a taxi will stop the driver at short notice. Maybe the person was sleeping in the car and would wake up and say, ‘driver stop here!’ In response, the driver would slam the brakes without thinking of the car behind him” – Participant #10

Arguably, passengers were even bigger offenders than drivers were when it came to the non-use of safety belts. Although this was more prevalent when passengers occupied back seats, those in front seats failed to use a safety belt as well. Non-use of safety belts was said to be highest among passengers using public transport.

“I think where people don’t understand is, some people think that if you are in the backseat, the back seat is automatically a lot more safer than the front seat, which I think is a misconception because anything can go wrong in the back seat as well as the front seat”- Participant #15

“There’s a lot that passengers do that contribute to the level of road safety. Something as basic as putting on a seat belt. I think we overlook it. I think we trust the person that is driving”- Participant #12

4.4.3 Pedestrian behaviour

The foremost complaint about pedestrians pertained to unsafe crossing of the road. Pedestrians do not use designated crossings area, they just cross anywhere.

“I think in terms of pedestrians in South Africa , there is that culture of just walking across the road, any part of the road, whether it’s a stop street, whether they have the right of way or not, people just walk across the road, and I think people don’t realise that its very dangerous” – Participant #3

Some pedestrians had a habit of not checking if it was safe to cross the road.

“Pedestrians, not looking left or right, crossing the road anywhere, they cross the freeway” – Participant #3

Similarly, participants pointed out that some pedestrians had a habit of crossing the road leisurely and slowly. Pedestrians also assume that drivers can see them.

“Walking slow and crossing highways...that’s one thing concerning with the pedestrians” – Participant #6

“Pedestrians have this mentality of ‘the car can see me...the car should stop if it sees me crossing the road’ regardless of what speed it is going at” – Participant #12

Participants also mentioned the unsafe (and potentially fatal) practice of pedestrians wearing dark-coloured and non-reflective clothing when walking or jogging on the road at night.

“The other thing that these pedestrians do is that during the night, they will wear dark clothes and you won’t be able to see them” – Participant #11

The drunken driving equivalent for pedestrians was known as drunken walking.

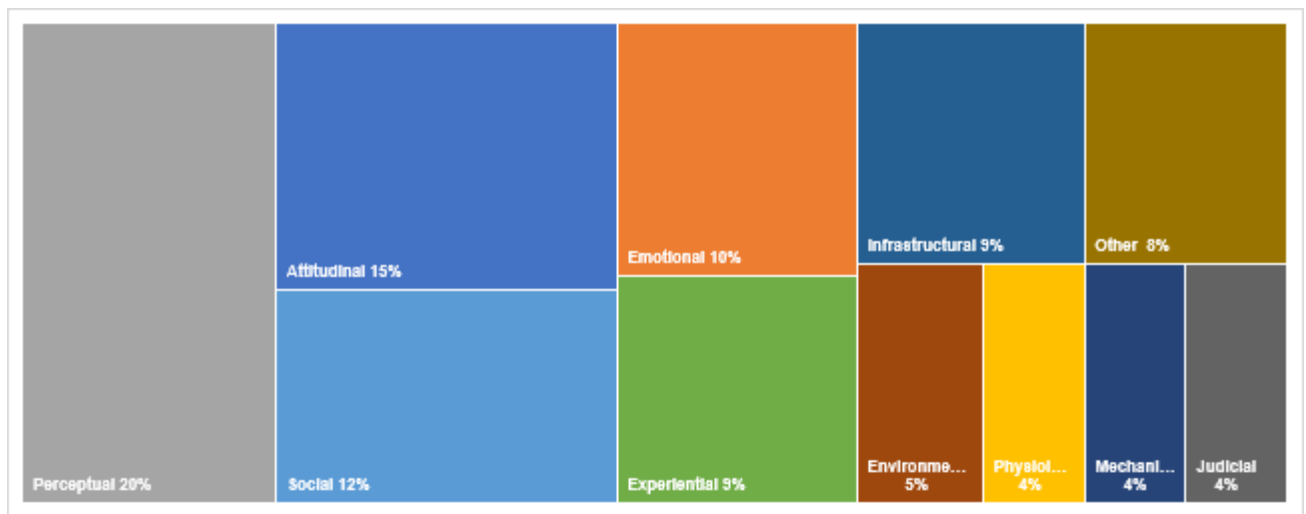
“There are also pedestrians who would be very drunk, they can’t even walk up straight, how would you see a robot that is green? They would cross and the car would be coming, and it would hit that person”- Participant #7

Additionally, just as there was distracted driving among drivers, there was distracted walking among pedestrians as well. Distracted walking was characterised by activities such as texting or talking on the phone while walking on or close to a road. Another distracting practice was listening to music while walking on or close to a road. This was made even worse by the use of earphones, which severely limited a pedestrian’s hearing capacity.

4.5 Causes

After having narrated and described the various road usage behaviours, the research participants proceeded to suggest possible influences of these behaviours. The factors that explained the observed bad practices among drivers, passengers and pedestrians could largely be classified under the 9 conceptual categories below.

Table 4: Classification of possible causes for driver behaviour



Many of the bad driving behaviours, such as speeding and unsafe overtaking, were attributed to irrationality on the part of the offending individuals.

“I don’t think there’s any driver who does not think about the consequences...so, yes we speed but we know that there can be an accident, so it’s not a matter of saying we are ignorant of the situation...it’s a matter of putting our personal issues in front of the matter at hand”-
Participant #6

The irrational driving behaviour was closely tied to, and was therefore seen as, a sign of selfishness - especially when it comes to taxi drivers.

“So I feel that a lot of what is happening on the road is people are not aware of other people, they are just too involved with themselves, with what they are going through that they don’t understand that what they are going through, that maybe someone behind them is going through something worse”- **Participant #1**

“I think the taxi drivers are very selfish in a way because they just focus on the people in the taxi so that they can get money from the passengers...they will just stop anywhere”-
Participant #7

“I think again it’s that thing of people know the repercussions (of drunken driving). But they think they don’t want to think of them because it’s going to kill the fun, but it’s also a bit of

selfish thinking. They are not thinking about anyone else on the road, they are just thinking of themselves in this little box and it's just them"- Participant #15

Outright recklessness in which drivers appeared not to think about the consequences of their actions was also mentioned.

"It's quite reckless...it's inconsiderate to the next person. Like, if now you are going to overtake me and I'm also in a hurry, that is inconsiderate to me, quite frankly very stupid and dangerous, and not only puts me in danger but also you and the next person, because on the road it's not only you, it's quite a lot of people. So, what I think is the most reckless is speeding"- Participant #4

There were elements of arrogance as well among some of the drivers who practiced bad driving conduct.

"Sometimes it's just the arrogance of the drivers because normally it could be seen by someone who has been driving for a while that they know what they are doing and assume that, okay, I can use my phone because I have done it before"- Participant #15

Altogether, poor attitudes characterised by irrationality, selfishness, recklessness and arrogance were all signs of a lack of empathy and/or respect for other road users.

A common sentiment among the research participants was that there was a lot of underlying anger among road users, and this anger often manifested in bad behaviour on the road.

"Some people left home angry, coming to drive and they are letting all their anger on the road and they are not driving properly and they don't see their mistakes, they're always blaming it on someone, they think they are doing the right thing. I've seen a lot of those people, who are just shouting early in the morning, they are just shouting"- Participant #5

Generally, high stress levels at the societal level were also put forward as a possible cause.

"We are stressed, we are a stressed nation, so I have to get to where I have to get to...I have to get there no matter what. Do I know that I'm going to be in an accident? There can be a possibility, yes I know but it's at the back of my mind"- Participant #6

Frustration and impatience among some drivers were another problem, and this was usually exhibited through unsafe overtaking.

*“I think it’s out of frustration because you could be driving behind the truck for many kilometres and you just want to get past...I think it’s out of frustration that people overtake. They definitely forget about the consequences or what the repercussions could be of overtaking”- **Participant #15***

Some level of fear existed among road users as well, and this sometimes affected the manner of driving.

*“There’s a lot of fear because the roads are not safe...people want to get off the road as quickly as possible, you know you keep on hearing on the news about smash and grabs, especially in busy areas, the smash and grabs happen quite often. There are people throwing rocks from bridges, so there’s a huge fear in terms of the crimes that happen and affect the drivers” - **Participant #14***

While there was a feeling that most road users were conscious of the dangers of being on the road but chose to ignore these out of recklessness and other factors, there was also an opposing sentiment that some of the road users were simply poor at perceiving the variety and enormity of risks associated with being a road user.

*“They do not think about consequences, they feel like if they have their phone in front of them they can still see in front, also if they have it on the ear, they feel like they are still aware of their surroundings, which I don’t agree with” – **Participant #1***

Even among those who did recognise the dangers, some tended to over-estimate their personal driving skills and thus took bigger risks.

*“There is a lot of people that think that accidents are beyond them, you know. They think that they are such good drivers and that they have been driving forever”- **Participant #14***

Related to the above was the inordinate belief among some drivers that they could still handle cars, or even drive better despite being intoxicated.

“People think that they can handle it, people think that ‘my body can take a certain amount’ and they over-estimate themselves” – Participant #12

Some of the speeding was explained by a belief that it kept the driver alert and prevented them from dosing off while driving.

“I like speeding as well...If I’m driving too slow, I feel like sleeping, I don’t concentrate, but if I’m speeding, I concentrate”- Participant #10

In some cases, drivers were said to speed because they did not realize they were doing so due to the power of modern vehicles.

“Sometimes driving in certain cars feels very slow, whereas in another car or in an older form of a car it feels like you are speeding. So, I guess some people probably don’t realise the hectic speed that they get to if they don’t check the speedometer”- Participant #14

The range of behaviours and situations that distracted a driver’s attention, as reported earlier, also fell under this class of perceptual or cognitive causes of road usage misdemeanours.

“It can be lots of things, a fight across the road, it can be an accident across the road, it can be something interesting that can capture the attention of the driver, and the driver gets distracted”- Participant #5

Persons who believed it would be easy to get away with flouting road rules were not as deterred from engaging in bad driving behaviour.

“I’ve been pulled over myself here. It’s not a real penalty, they usually want...It’s a small fine, you can pay it kind of at the site but it’s not a detriment, like a car being impounded or losing a licence and it’s not thousands of rands. So, there aren’t really repercussions against it”- Participant #9

The lack of negative outcomes from bad behaviour while driving was habit-forming and in turn served to reinforce bad behaviour.

“Once you do something, you will do it once today, and you see that it worked out, you will keep on doing it. You will now think its fine, its nots dangerous, I can do it, I can multi-task, I can drive and text, I think that’s why people do it” – Participant #8

Habit formation also occurred when drivers assumed road situations would be the same all the time, and therefore failed to take the necessary precautions.

“You never know what can come around the corner because every day is a different day. So, I think drivers get too familiar with certain roads and situations and they just think they can do as they please”- Participant #15

As reported before, drunkenness among both drivers and pedestrians was considered one of the most disturbing and dangerous practices on the road. By its nature, intoxication did not only affect the psychological but also the physiological state of road users.

Social influences included peer pressure to drink and drive.

“I know a lot of people who when they are part of a group, they feel it’s okay to drink and drive because nothing bad has ever happened to them and they feel, you know, it’s not going to happen to me” – Participant #1

Younger drivers also felt they had to speed because that was the norm among young drivers in the country.

“We, the young generation we buy cars and then we race, there’s competition on the road, we see people racing” – Participant #5

There was a sentiment that some of the bad driving behaviour, particularly speeding, was a sign of attention seeking behaviour.

“Other drivers, your BMW and VW, do that (speeding) to show off their speed that they can drive at 220, 200...And when they are driving sports cars to show that they can drive faster than anyone else” – Participant #7

Excitability among drivers was prevalent too, especially among younger drivers.

*“Everyone wants to have fun in whatever that they are doing, so if there happens to be alcohol the person drinks and they also want to have that level of fun that everyone is having. They don’t want to feel excluded and stuff like that”- **Participant #12***

Embracing behaviours thought to be “cool”, such as driving and texting or not wearing safety belts, also formed part of socially derived behaviours.

*“The only thing I can say about texting is that it’s a trend. It’s not safe at all because you are using one hand and on the other side for driving you are using one hand, so now you have to look where you are going, and you have to look at your phone, so anything can happen within a split second. People do it because it’s a trend. Everyone is doing it, they feel cool doing it”- **Participant #10***

Furthermore, the desire to fit in was said to be one of the reasons some drivers did not use safety belts.

*“When I was still young...to put a safety belt you felt like you don’t look cool, with these cars now with the technology what we used to do, we would put a safety belt behind you in order to look cool, especially if you get to a township” – **Participant #11***

A variety of factors pertaining to a lack of skill and experience were given as partly explaining bad road usage practices. Key among these were poor driving skills.

*“Driving is very difficult, but people think it’s easy. You can drive for 20 years but still you can’t drive (properly)...Remember driving is about anticipating the next person, what he is going to do. Sometimes you can be right, but the next person is wrong. So, when you drive you don’t only drive your car, you are driving the next car”- **Participant #10***

While even properly licenced drivers could be bad drivers, the majority of poor driving was blamed largely on unlicensed drivers.

“Most of the public transport drivers don’t have licences and no one is moderating that, so if you don’t have a licence, I don’t think you have a full scope of how to drive, it happens because of “miseducation” or inadequate education, because people don’t

have licences and they drive every day. I know a guy who collects school children from school and back home, he doesn't have a licence that guy, he has been doing that for more than five years now. So, if you get that guy on a freeway or highway, they will overtake unexpectedly and inappropriately” – Participant #2

On the other hand, many among the licenced drivers were thought to not have acquired their licences legitimately.

“A lot of people buy licences and they do not completely know how to drive, so they don't know the rules of the road well and they choose to ignore them, and they are uncomfortable driving in packed roads” – Participant #4

Another factor that was thought to contribute to bad road usage practices was that unroadworthy vehicles were allowed onto public roads.

“Unroadworthy cars, some cars are really not fit to be on the road, you find that some tyres are torn, and some don't have brakes”- Participant #13

During instances where some vehicles broke down on the road, some drivers did not put up the necessary warning signs - such as red triangles.

“Taxi drivers who do not use red triangles when they have a breakdown. Sometimes they just use the tyre and the other drivers won't necessarily understand the meaning of the tyre”- Participant #7

It was also common to find vehicles with non-functioning safety belts, especially in public transportation.

“If you are in a taxi, it (safety belt) doesn't click that you must put on a safety belt”- Participant #5

Several infrastructural deficiencies were highlighted, and among these was insufficient road capacity given the growing number of vehicles on the road.

“I think our roads are becoming smaller and smaller, one lane is not enough anymore, with the overcrowded road and everyone is in a hurry and angry” – Participant #5

The scarcity of walkways, which, as reported earlier forced pedestrians to walk on the road, was another challenge.

“You don’t have space here for pedestrians and on most of the roads you find that pedestrians don’t have the pathway where they can walk. I think that’s one thing again that causes unnecessary accidents”- Participant #11

The above and other deficiencies in the infrastructure of public roads, such as frequently faulty traffic lights, led to endemic traffic congestion.

“Our roads are overcrowded with the cars...not most of the roads have lanes for the buses...I think government should look at prioritising or having a budget for lanes for emergencies, because the roads are overcrowded, there’s accidents every day” – Participant #5

The congestion, in turn, triggered some of the bad road usage behaviours.

“Sometimes it’s the traffic that is causing these behaviours, maybe if there is congestion, some people are not that patient, they start driving on other roads that are meant for pedestrians”- Participant #2

For example, some drivers felt obliged to speed in order to avoid creating traffic bottlenecks.

“Speeding is caused by the way the traffic is flowing...we hurry so that it can open space further because the minute you are slower, you disturb the cars that are coming at the back”- Participant #6

Although not considered a major issue, occasional factors such as bad weather was identified as contributing to traffic mishaps. A more common occurrence relating to the physical environment in which road users often find themselves in was that of stationary vehicles. The number of slow-moving vehicles, especially trucks, was another concerning aspect in this regard.

“If there are trucks on the road...and the trucks are too slow...then you overtake because our roads are not that big”- Participant #10

A point was made that dark coloured vehicles posed a danger on the road.

“Sometimes what causes accidents is the colour of the cars, some colours are very dark, some are black, so it’s difficult to see those cars if you have an eyesight problem” – Participant #10

In addition, as already alluded to, negligence among pedestrians, including walking or jogging on driveways while wearing dark clothing at night, was similarly problematic.

The poor enforcement of road rules by law enforcement in the country was seen as a major impediment to road safety.

“These behaviours might be because there is not enough law enforcement or because there is law enforcement, but people know their way around to bend the rules to favour their circumstances”- Participant #5

Tied to this was the sentiment that those tasked with enforcing the rules of the road were easily corruptible.

“If the traffic police give them a ticket, they bribe them and there’s no real checking if the car is in a good standard” – Participant #5

A related opinion among participants was that even when traffic offenders are brought to book, the punishment was too lenient.

“I just don’t think that the law is strict enough with it, you hear all the time about people driving under the influence, but you don’t see the actual repercussion of it”- Participant #3

The participants attributed bad road usage behaviours to a variety of other factors, such as the sense of urgency arising from people who failed to manage their time.

“Sometimes people will speed because they want to get to point B. It might happen that it is due to the individual not being able to manage their time, then they resort to speeding”- Participant #12

In some cases, speeding is justified because there was an emergency. Similarly, there may also be other circumstances that make speeding the correct thing to do.

*“Maybe they rush to go to an emergency, maybe the wife is pregnant and is going to hospital”
– Participant #1*

“I am not saying speeding is correct but sometimes speeding is necessary, not just as having fun or games but sometimes speeding can get you out of a situation, as you need to speed up once you are on the freeway, you can't just be using a slow pace and that's why I think speeding is necessary”- Participant #15

Without necessarily implying this as a justification, participants also cited the rush to make as many trips as possible by taxi drivers, who are believed to be given daily revenue targets by their employers.

“It depends on the industry that you are in. If you are in a taxi industry, people think that you must speed in order to make money, if you don't speed, you are not going to make money and your boss won't be impressed”- Participant #11

4.6 Consequences

In the process of identifying and explaining the various behaviours displayed by drivers, passengers and pedestrians, the participants in the study also mentioned some of the overwhelming negative consequences that result from these practices. Broadly speaking, the outcomes of bad road usage behaviour could be classified under the personal and social level, often with a natural overlap between the two.

Damage to and loss of property, at both the personal and community levels, ranked as one of the most obvious negative outcomes.

“A lot of the taxis have this careless attitude where they will go through lanes and end up scratching other people’s cars. That is not considering other people’s belongings and not considering that other people may get injured in the process” – Participant #1

Potentially more disturbing outcomes were related to injuries and loss of life.

“I have heard a lot of stories of what happened on how people die or how people get injuries. It is something that can be avoided very easily if you have Bluetooth” – Participant #1

Injury and loss of life did not arise just from traffic accidents, but also from the violence accompanying incidents of road rage.

“I have seen crazy things, taxi drivers fighting each other, to a point where one had to go back to his taxi and get a clutch knife and then they started threatening one another...Also, with the private cars, I have seen people who try to fight the people who drive public transport” – Participant #2

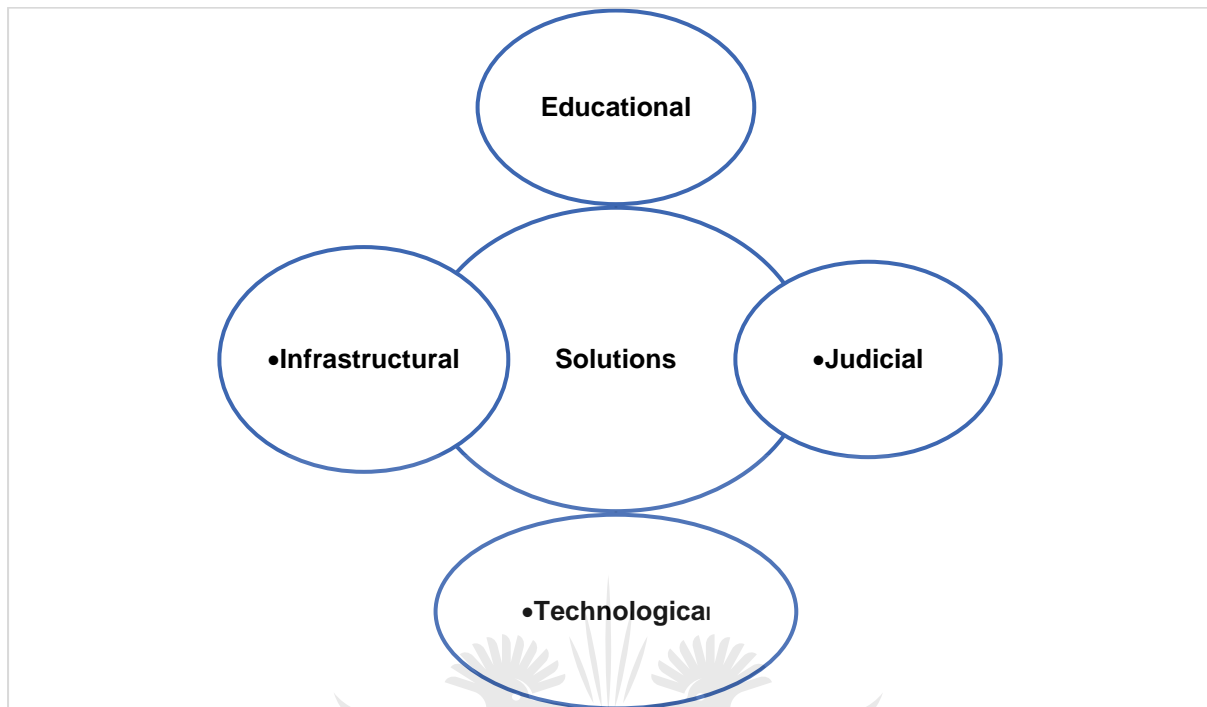
At a personal level, one’s reputation could be damaged as well because of the manner in which they behave on the road. The most serious damage that can be caused to one’s reputation is acquiring a criminal record.

“There are many consequences that you get involved in and you look at your reputation that is what will happen now, to your family, who is going to bail you out, now you are going to have a record, all those things. I don’t play with fire”- Participant #11

4.7 Solutions

Logically, many of the solutions to the bad road practices that the study participants suggested is a reduction in the identified practices. Consistent with the identification of poor driving skills as being a major factor, many of the recommendations centred on the implementation of relevant educational and training interventions. Indeed, some of the educational interventions could be in the form of behaviour change programmes.

Figure 2: Summary of suggested solutions



4.7.1 Educational

Among the training and education, related solutions suggested were the following (not listed in any order):

- road usage educational campaigns
- attitude and behaviour change programmes
- updating the driver training and testing system (i.e. the K53)
- including road traffic rules in school curriculums

“I think that even pedestrians should learn the basic rules of the road. Even the child riding the bicycle should know the basic rules of the road that you ride your bicycle on the left, not on the right, and pedestrians knowing that you always face oncoming cars. In addition, each of these people, be it passengers or drivers, must know where they fit into the system of road safety. So, in other words, people should educate themselves more before coming into the world of driving or of being a passenger or pedestrian”- Participant #15

4.7.2 Judicial

Some improvements on the law enforcement front were also suggested because “*people drive better when law enforcement is visible*”. Other solutions in this regard included the following:

- stricter law enforcement
- harsher fines and sentences
- more checks for drunk driving
- curbing corruption among road users and law enforcers

“People are aware that they are breaking the rules because there are no traffic police...the minute they know that in this road they can find traffic police, they will behave” – Participant #5

“I think there is more than enough traffic police, there’s enough numbers but I think the problem comes in when it comes to bribery and how traffic police could let you off easily because you can give just a bit of money or sweet talk them and they will be letting you off”- Participant #15

4.7.3 Technological

On the technological front, the following were also suggested as possible remedies to poor road usage practices.

- use of hand-free technologies
- limiting of vehicle speed capacity at a manufacturing level
- enabling the programming of speed limits by drivers
- adding safety belt beeping for all seats

“The modern cars, they sort of make beeps, so you will find the person having fastened the safety belt”- Participant #13

“Personally, I have a limit on my car...I usually put it up at 130, because you are allowed to go 10 up but I know it’s within the law, so I know that my limit is 130” – Participant #14

4.7.4 Infrastructural

In line with the earlier identified inadequacies in road infrastructure, the following were suggested:

- adding more lanes on the road
- creating more walkways for pedestrians
- building more pedestrian bridges
- erecting more speed humps

“I’ve noticed that on some roads they put the speed humps. I think they must look at those things. It’s fine to put them, (but) they must not be a lot. I have no idea why they would put a lot of them in one place, they must and put those things where they know it’s a high accident zone” – Participant #5

4.7.5 Other

An assortment of other suggestions put forward by participants as remedies included the following:

- planning trips and managing time
- parking in order to use the phone
- switching cell phones off when driving
- having designated non-drinking drivers when going out
- hiring metered or other taxis when drunk
- drivers need to insist that passengers wear safety belts

“A good driver is a patient driver, which is hard to find in South Africa. You should be patient, have time. If you know that the route you take to work always has traffic, you must leave home on time” – Participant #5

The data presented is a true reflection of how participants responded to the interview questions during the research. Four themes emerged and were very common among the participants. These themes are behaviours, causes, consequences and solutions. A discussion of these responses will follow in the next section.

4.8 Discussion and observations from the data

The themes identified include behaviour, causes, consequences and solutions.

4.8.1 Driver behaviour: perceptions and practices

The interviews focused on what the students thought about human behaviour and road safety. The students were asked to not only comment about other people's behaviours, but theirs as well. The interviews opened with narratives and descriptions of various behaviours by road users that the students had observed on the road in general. There was consensus among the participants that speeding was the most dangerous driving behaviour on the road, and that this is responsible for most road fatalities.

Six out of nine (67%) drivers in the study confessed to speeding, especially when driving long distances. However, sometimes there would be genuine reasons for speeding, like an emergency, mostly the attitudes of drivers - which participants explained as being irrational, selfish, reckless and arrogant - were cited as being responsible for the speeding behaviour of drivers. Though the passengers in this study shared sentiments of the dangers of speeding, some of them stated that sometimes as passengers, they are responsible for the driver's speeding behaviour. At the time, they would not be thinking about the consequences of speeding, but about their own needs, i.e. to get to their destination on time.

Existing literature also found speeding to be the most common driving behaviour that results in fatalities and severe injuries. The findings of this study are in line with research findings by Stephens et al (2017), who found speeding to be the most dangerous driving behaviour. Stephens et al (2017) also cited attitudinal reasons as the cause of speeding, i.e. that the drivers believed the chances of them being caught speeding were slim. A different study conducted by Bicaksiz and others (2019) investigated the driver's reasons for speeding in Turkey. They found that the perception of speeding as the cause of road crashes is associated with a lower incidence of speeding. In addition, the belief that speeding tickets are a way of increasing government revenue and believing that one can exceed the speed limit if driving "safely" is associated with a higher incidence of speeding (Bicaksiz et al, 2019).

All participants in this study identified drunken driving as another bad driving behaviour with serious consequences. Twelve out of fifteen (80%) participants reported witnessing drivers who drink and drive. In particular, one of the participants, who is a passenger, confessed to have knowingly got into a car driven by a drunk driver. Some of the participants have witnessed drivers continuing to drink when they knew very well that they would be driving. In addition, four out of nine (44%) driver participants in this study agreed to have been involved in the drunken driving

practice. According to the participants, drunken driving behaviour is common among young people - once they get into a partying mode, they forget that they will be driving. Apparently, some drunk drivers tend to be stubborn and insist on driving in a drunken state.

Existing literature associates peer pressure with high risky behaviour and high accident rates among young drivers. However, the mechanism by which the drivers are influenced by their peers is not very clear. A study investigating the relationship between peer pressure susceptibility and young drivers by Weston and Hellier (2018) found that young drivers' decisions to commit traffic violations were influenced by peers; in addition, they achieved social recognition in this way. However, the same study by Weston and Hellier (2018) found that peers do not only influence negative driving behaviour and that peer involvement resulted in safer attitudes towards road safety. Given these findings, it is believed that peer education tools would be useful in younger driver safety interventions (Weston and Hellier, 2018).

Thirteen out of fifteen (86%) participants in the study reported witnessing unsafe overtaking, while five out of nine (55%) drivers stated that they have done this before. One of the participants mentioned that unsafe overtaking is one of the most common violations among drivers. In the participant's own words... "It is completely unacceptable.....I don't think it's justifiable". According to participants, some of the activities that characterise unsafe overtaking behaviour include changing lanes without checking mirrors, overtaking on a blind rise, squeezing into tight spaces, cutting across several lanes, poor lane selection, driving on the wrong side of the road and driving on emergency lanes. Emotional reasons such as anger, frustration, impatience and stress were associated with unsafe overtaking behaviour.

Existing literature on unsafe overtaking supports the reasons articulated by participants and echoes the dire consequences associated with unsafe overtaking. In addition, previous research studies found that younger drivers demonstrate a lack of patience, anger and sensation-seeking tendencies on the road (Bachoo et al, 2013). Huang et al (2018), who stated that drivers with sensation seeking behaviour are always willing to take risks and that danger and competition excites them, also support the results of this study. In addition, research by Peng et al (2019) found that unsafe overtaking could result in road rage. In situations of road rage, one driver may feel that the driver "cutting" him has exposed him to danger. This may lead to anger, which in turn can result in a physical altercation.

Ten out of fifteen (66%) participants stated that they have witnessed other drivers not using seatbelts, while three out of fifteen participants confessed to not using a safety belt themselves.

Some participants felt that the non-use of safety belts was quite widespread because the public does not take it seriously. As much as it is prevalent among public transport users, private vehicle users are also guilty of the non-use of safety belts. The only time people use safety belts is when they see law enforcement officers. One participant mentioned that although they know that it is important to use safety belts, they deliberately do not use it when they are visiting certain areas because they do not want to be seen as the odd one out.

In South Africa, there is a general perception that penalties associated with safety belt use are very low (DOT, 2017). The researcher believes that this could be the reason for poor compliance to safety belt laws. Penalties for non-use of safety belts may not be issued to drivers only, but to passengers as well. It may prove futile to follow up on a fine that was issued to a passenger, as the focus tends to be on the drivers who are properly registered on the system. The fact that there is no agreement from existing research on the benefits of safety belt use does not motivate the public to take safety belts seriously. Some research studies reported an association between safety belt use and abdominal injuries (Timonov et al, 2018); while Glover et al (2017) disputed this and found an association between safety belt use and cervico-thoracic injuries.

Distracted driving was among the most discussed behaviours by participants, perhaps because it manifests in different forms. One participant said: "Any form of distraction, cell phone, changing a radio station, talking to someone at the back seat, anywhere where your attention is diverted is problematic for the road". Two behaviours associated with cell phone use were talking on the phone and texting. Participants ranked talking on the phone while driving the highest among these distractions and one participant particularly described the behaviour as habitual. In this study, eleven out of fifteen participants reported having seen drivers talking on a phone while driving. Linked to cell phone use was texting while driving - one participant felt that this is as dangerous as drunk driving. Five out of nine (55%) drivers confessed to texting while driving, while another participant said that he only texts at traffic lights and not while driving.

Numerous research studies (Zhu et al, 2018; Liu et al, 2019; Muhammad and Mustafa, 2018) support the findings of this research about cell phone use being the most distracting activity while driving. The World Health Organisation and the Centre for Disease Control and Prevention also declared cell phone use as an emerging public health issue. However, Zhu et al (2018) found texting while driving to be the most dangerous activity since the driver takes their eyes completely off the road.

There were different views regarding GPS navigation from participants. Some participants felt that though GPS use is a commonly accepted behaviour and regarded as lawful, is a potential distraction to drivers. On the other hand, there was also a view that drivers who do not know where they are going can be dangerous to other road users because they will want to change lanes or reverse when they are not supposed to. Some research studies have found GPS navigation technology to have a positive effect on road safety, whilst some accidents were caused by drivers fiddling with map systems (Arrive Alive, 2020).

Participants reported that they witnessed drivers not keeping following distance, especially on freeways. One of the participants thought this could be a perception issue, where the driver thinks the following distance is wide enough, or they are uncertain, or they do it to intimidate the driver in front of them so they can move to another lane. Participants agreed that there is danger associated with a close following distance because some drivers, especially taxi drivers, make sudden stops. This finding was also echoed in a study by Sinclair and Imaniranzi (2015), which explored taxi driver behaviour.

4.8.2 Passenger behaviour

Compared to driver behaviour, participants were less forthcoming when they spoke about passenger and pedestrian behaviour. Participants dwelled a lot on behaviours that contributed to accidents, injuries and loss of life. One of the behaviours passengers are guilty of is encouraging speeding by drivers. According to participants, when passengers are late, they tell the driver to speed up. While doing this, passengers become satisfied and they do not think about the possible consequences.

Passengers also distract drivers in many ways, something as simple as chatting or something as extreme as quarrelling or fighting inside the vehicle. These quarrels are worse inside public transportation. In taxis or buses, passengers tend to get into an argument with the driver and this has the effect of distracting the driver away from focusing on the road. Passengers are responsible for making drivers do sudden stops that normally result in vehicle pile-ups. When drivers have to execute a sudden stop, they think about slamming the brakes and do not consider the vehicles behind them.

Research done to examine possible external and internal factors that cause driver distraction in Oman by Muhammad and Mustafa (2018) support these findings and found that apart from use of cell phones, the presence of passengers inside the vehicle are the most distracting factors.

Passengers are the biggest offenders when it comes to the non-use of safety belts - though this is most prevalent among back seat passengers, front seat passengers are also to blame. One participant associated the non-use of safety belts with the level of trust that passengers have in the driver. A study by Han (2017) which looked at factors associated with non-use of safety belts among passengers found that compared to drivers, passengers had a significantly higher probability of seat belt non-use.

4.8.3 Pedestrian behaviour

Participants felt that pedestrians use non-designated crossing areas even though there are designated areas for pedestrian crossing. Associated with unsafe crossing, is the habit of not checking if the road is safe before crossing. Some pedestrians are said to walk slowly and leisurely when crossing the road. According to one participant, pedestrians assume that drivers can see them and thus would avoid hitting them.

Pedestrians wear dark coloured and non-reflective clothing when walking or jogging at night, and this makes it difficult for them to be seen by drivers. It was also reported that the drunken driving equivalent for pedestrians is drunken walking. Just as distracted driving was said to be among the most dangerous practises on the road, distracted walking is reported to be equally dangerous for pedestrians. Pedestrians have a tendency to text and walk without paying attention on the road. Listening to music and earphones was found to be equally dangerous, as it limits the pedestrian's hearing capacity.

The European Commission (2018) describes non-motorised road users such as pedestrians as vulnerable road users. Pedestrians are vulnerable because of their lack of protection from the high impact of the object they are colliding with. Research shows that in South Africa, pedestrians tend to be victims of offenses committed by other road users, in this case, drivers. A report from the Road Traffic Management Corporation (2019) showed that pedestrians in South Africa account for 30% of all road crash victims. Another study by Verzosa and Miles (2016) confirmed the likelihood of pedestrian death following evening or night crashes. This finding is in line with

this study's findings that pedestrians do not wear reflective clothing, which results in them not being seen by the driver who is travelling at a high speed. Verzosa and Miles (2016) also found that collisions with pedestrians happen near transit points where there is high traffic, thus any activity that takes the pedestrian's attention off the road becomes very dangerous and leaves pedestrians even more vulnerable (Verzosa and Miles (2016)).

4.8.4 Influencers for driving behaviours

Participants blamed poor driver attitudes for bad driving behaviours. Overall, participants described the attitudes of drivers as irrational, selfish, reckless and arrogant because they have no sympathy or consideration for other road users. In addition to bad driver attitudes, emotional factors were cited as the reason for bad driving behaviours. Some participants felt that road users, particularly drivers, had underlying anger issues which manifested in the way they drive. High stress levels, frustration and impatience were among the reasons provided for bad driving attitudes, especially unsafe overtaking and speeding. Unsafe driving behaviour was also attributed to the fear that exists among road users because there is a general feeling that the roads are not safe; therefore, people want to get off the road as soon as possible.

A research study by Laiou (2019) exploring the attitudes of drivers towards speeding found age and gender to be the most important determining factors for attitude towards road safety. Though gender did not feature in the results of this study, age came up a number of times as an influencer of attitudes. In his study, Laiou (2019) also found that most drivers who speed do not believe that speed limits are set at an appropriate level. Existing research associates age with both speeding and overtaking behaviours. Impatience among younger drivers is associated with dangerous overtaking manoeuvres and inexperience, which may result in misjudging the distance of oncoming cars (De Jager, 2019).

Some of the participants also cited perceptual and cognitive reasons. Participants were of the opinion that while some drivers were well aware of the dangers associated with risky driving behaviours; some drivers did not seem to understand the big responsibility that comes with driving. In addition, some drivers overestimated their driving skills, and in the process took bigger risks. Examples of these kinds of drivers include drivers who believe they can still drive despite having consumed alcohol or drivers who believe they remain alert if they drive at high speeds.

Some participants were of the opinion that risky driving behaviours could become habitual; especially if one knows that there is a low likelihood of negative outcomes.

Existing research suggests that age is an important contributing factor for road accidents due to inexperience, lack of skill and the risk-taking behaviours associated with younger people. On the other hand, visual, cognitive and mobility impairments are associated with older drivers. In line with this body of evidence, Rolison et al (2018) investigated factors that contribute to road accidents. Their study found that alcohol, drugs and excessive speeding were associated with collisions among younger drivers. According to Rolison et al (2019), this finding suggests that risk taking is an important contributor for the younger age group.

Participants think that some bad driving behaviours are due to social and peer pressure. According to participants, peer pressure is common among younger drivers. Younger drivers also tend to speed. Participants associate this with attention seeking behaviour and competitiveness. The need to fit in makes younger drivers embrace “cool” behaviours such as driving and texting or not wearing safety belts.

Participants also think that some of these risky behaviours continue due to the poor enforcement of road safety rules. According to participants, those tasked with law enforcement can be easily corruptible and when offenders are caught, the punishment tends to be too lenient. Some participants also quoted experiential reasons as being behind some of the road usage practices. Poor driving skills, drivers without driving licences and those drivers who acquired licences illegally were thought to play a role in the current state of road safety in South Africa.

Rolison et al (2019) also examined the reasons behind inadequate law enforcement and poor improvement of road safety outcomes in the United Kingdom. They found that there was a possibility of under-reporting of alcohol impairment by law enforcement officers since previous law did not allow breath testing at accident scenes. They therefore concluded that since policy makers depend on accurate statistics to make recommendations and drive new policy initiatives, they should be made aware of potential under-reporting on some of the driver centric factors.

4.8.5 Consequences of negative road behaviour

Participants in this study thought that the outcomes associated with negative road behaviour can be felt at both societal and personal levels. Overall, bad road behaviour leads to damage or loss

of property, serious injuries and worst of all, loss of life. The injuries and loss of life at times does not arise from the accident itself, but from the road rage that tends to accompany bad driving.

The World Health Organisation does not limit the consequences of road accidents only to health and material repercussions but also extends them to economic ones as well. The World Health Organisation estimates the global economic costs of road accidents to be more than 500 billion US dollars per year, while in low and middle-income countries it is estimated to be around 65 billion US dollars per year (WHO, 2018). The World Health Organisation also estimates the GDP loss from road traffic accidents is 1%-1.5% in low and middle-income countries and about 2% in high-income countries (WHO, 2018).

4.8.6 Solutions

As the participants were identifying bad driving behaviours, they also mentioned an array of solutions to the road safety problem. These solutions ranged from educational, infrastructural, judicial and technological. According to participants, educational campaigns should focus on attitude and behavioural change. The educational campaigns should not only focus on drivers but pedestrians as well, as they play a crucial role in road safety too.

South Africa has engaged in educational campaigns on road safety before, i.e. the Arrive Alive campaign, which focused on awareness raising and visible law enforcement. The Arrive Alive Campaign prioritised festive seasons, for instance Easter and Christmas holidays. Clear reporting of the successes of the Arrive Alive Campaign was limited to the Kwa-Zulu Natal province where it was piloted (Department of Transport, 2017). A study by Salmon et al (2019) found certain behaviours on the road to be driver-centric and related to driver personality, knowledge, experience or psychological state. Drinking and driving, speeding, non-use of safety belts, distracted driving and fatigue are described by Salmon et al (2019) as the “fatal five”. The results of this research study found all of these driver-centric behaviours, except for fatigue.

Improvements in law enforcement were mentioned as one of the possible solutions. Study participants were of the view that when law enforcement is visible, road users behave better on the road. Participants also suggested technological interventions. These include the use of hands-free technologies, vehicles with limited and programmable speed ranges, as well as safety belt reminders in all vehicles and seats.

The statistics from the Road Traffic Management Corporation (2017) identified only 11% of human behaviour related traffic offenses, despite reports that 91% of road crashes are attributable to human factors (RTMC, 2017).

As much as this study focused on human behaviour, it became evident that the environment influences some human behaviour. Hence, participants thought that some infrastructural changes could improve human behaviour and the state of road safety. These infrastructural changes include adding additional lanes, creating pathways for pedestrians, building more pedestrian bridges and erecting more speed bumps.

The Safe Systems Approach as recommended by United Nations Economic Commission for Europe describes a safe road system as comprised of safer roads; safer speeds, safer vehicles and safer road use (Australian Government, 2018). It is clear that these elements of the road safety system are intertwined; hence, all aspects of road safety need to be considered in order to solve the larger issue.

Participants also felt that a lot of behaviour change needs to happen at an individual level. Road users should plan ahead for trips and manage time effectively, switch off cell phones when driving, have designated non-drinking drivers, hire metered taxis if they have been drinking and insist on passengers putting on safety belts at all times.



5 CHAPTER 5: SUMMARY OF THE MAIN FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of emerging themes and main findings established from the study objectives. In addition, a conclusion, limitations of the study and recommendations are given to address some of the study findings. The study limitations are also presented and proposed recommendations for future studies are provided.

5.2 Emerging themes

The study found speeding to be the most common and dangerous behaviour that is responsible for serious injuries and fatalities on the road. This is the case for both private and public transportation. The study found driver attitudes to be responsible for speeding behaviour. Driver attitudes were linked to selfishness and a lack of concern for other road users. The National Road Safety Strategy aims to minimise the incidence and severity of road accidents, as well as the level of fatalities and injuries. Therefore, there is a need to conscientise the public about the dangers associated with speeding and authorities need to put measures in place to deal with speeding.

The study established drinking and driving as another risky behaviour that is responsible for fatalities and serious injuries on the road. There was a strong view among participants that drinking and driving behaviour is prevalent among the youth. This behaviour is associated with societal and peer pressure where there is a need to fit in with one's peers. Peer educational tools would be useful to correct youth behaviour. In addition, enhancements to law enforcement strategies need to be employed.

Unsafe overtaking is among the most dangerous driver behaviours with serious consequences. About 85% of participants in the study identified having witnessed unsafe overtaking, while 55% confessed to having done it. A number of actions that constitute unsafe overtaking were articulated in the study. Emotional factors such as anger, frustration, impatience and stress were related to unsafe overtaking. Participants, however, indicated that at times, slow vehicles are a source of impatience and frustration and therefore necessitate unsafe overtaking. Another factor that also emerged in the findings as a reason for unsafe overtaking is "compassionate

overtaking". In compassionate overtaking, slower vehicles tend to move to the side and signal for the driver behind them to overtake. While this is thought to be a nice gesture, it tends to put another driver under pressure to overtake even though this is not completely safe.

Among many distracting behaviours identified in the study, cell phone use while driving has been found to be the most distracting. Though talking and driving has always been thought of as the most dangerous practice, texting while driving is emerging as most common these days and is viewed as dangerous by participants because it involves both visual and manual distraction. The study found distraction by cell phone not to be limited only to drivers, but pedestrians engage in this as well. Pedestrian behaviour involves visual and cognitive distraction, and the study found this practice to be the most dangerous among pedestrians.

The study also established that the non-use of safety belts is widespread because the public does not take safety belt use seriously. Both front and back seat passengers were found to be non-compliant in terms of safety belt use. While most private transportation is fitted with both front and back seat safety belts, public transportation like taxis are not fitted with safety belts. Even though the law governing safety belt use is in place, not much is being done to ensure that it is enforced. The study proposes a policy that advocates for the installation of safety belts on all public transportation.

The youth has been found to be the age group predominantly engaging in risky behaviours that result in fatalities and serious accidents. Peer pressure, sensation-seeking behaviour and competitiveness is associated with speeding, drinking, driving, and unsafe overtaking. In addition, the youth are easily distracted, as they use cell phones a lot, especially for texting while driving. Inexperience, lack of skill and risk taking behaviours are linked to the high incidence of road accidents associated with younger drivers.

In addition to the distractive pedestrian behaviour already identified above, pedestrians use unsafe crossing areas and wear dark, non-reflecting clothing at night. These risky behaviours put pedestrians more at risk since the impact of a speeding vehicle is likely to result in fatalities or serious injuries.

5.3 Summary of the findings

Table 5: Objections of the study and summary of the main findings

| OBJECTIVES OF THE STUDY AND FINDINGS |
|---|
| <p>1. To explore and describe perceptions of students towards exceeding speed limits, drunk driving, safety, unsafe overtaking, use of safety belts and distracted driving.</p> |
| <p>University of Johannesburg students were of the view that speeding is among the most dangerous behaviours that drivers engage in. The students were well aware of the consequences of speeding. At times, speeding was because of an emergency, but most of the time driver attitudes were to blame. Students described driver attitudes as irrational, selfish, reckless and arrogant. Sometimes pressure from passengers contributed to the driver's speeding behaviour. Students thought that passengers never consider the consequences of speeding, but only their own needs at any given time.</p> <p>Students were of the opinion that a high-speed crash between vehicles results in serious injuries and fatalities. However, the consequences are fatal when there is a pedestrian involved. Pedestrians are more vulnerable because of their lack protection from the speed and the mass of the object they are colliding with.</p> <p>Students also thought that pedestrians have a tendency to wear dark and non-reflective clothing. This puts them at even more risk of high-speed drivers, as they are invisible until the speeding vehicle is too close.</p> <p>Emotional factors were found to be the reason for speeding. According to students, drivers have underlying anger issues that manifests in the way they drive. Students were also of the view that, at times, fear is the reason for high speed because roads are not safe and one would like to get off the road as soon as possible.</p> |
| <p>Students thought drunk driving is another bad behaviour with serious consequences. Similar to speeding, drivers do not think of the consequences of drunk driving. Students blamed poor awareness and other cognitive factors for drunk driving behaviour. Some drivers do not fully</p> |

understand the responsibility that comes with driving, while some overestimate their driving abilities by thinking that they drive well when drunk.

Some passengers knowingly get into a car driven by a drunk driver, and some drivers continue to drink when they know that they will be driving. Students were of the opinion that this behaviour is prevalent among the youth, and that societal and peer pressure are to blame for this. Younger drivers tend to do things that are perceived as “cool”, and ignore the dangers associated with these actions.

Students argued that another dangerous behaviour associated with alcohol consumption involves pedestrians. Students referred to this behaviour as “drinking and walking”, and thought that this is the most dangerous behaviour that pedestrians engage in.

The study found that unsafe overtaking is prevalent, especially among younger drivers. Students suggested that emotional factors such as anger, frustration, impatience and stress are responsible for unsafe overtaking behaviour. Mostly, slow moving vehicles are to blame for the driver’s unsafe overtaking behaviours.

It also emerged that sometimes, inexperienced drivers underestimate the distance between vehicles when overtaking. Unsafe overtaking, especially uphill, can result in a head-on collision with an oncoming vehicle. Other reckless actions include squeezing between other vehicles when there is an approaching car and putting other vehicles in danger.

Road rage emerged as another behaviour associated with unsafe overtaking. With road rage, drivers who were unsafely overtaken react with anger, which may lead to violent behaviour those results in injuries or death.

Compassionate overtaking also emerged as another dangerous behaviour. Slow moving vehicles, mostly trucks, move aside and give way to vehicles behind. The following vehicles then feel compelled to overtake, even though at times this is not safe.

Students shared that safety belt use is well communicated but not taken seriously by the public. It is also not enforceable, firstly because the penalty associated with it is almost non-existent; and secondly, not every public vehicle is fitted with safety belts.

In addition, young drivers do not regard using a safety belt as a “cool” behaviour as they deliberately do not put on a safety belt when they visit certain areas.

Students thought that passengers are the biggest offenders when it comes to non-use of safety belts, especially back seat passengers. Students associated the non-use of safety belts with the level of trust that passengers have on the driver.

Cell phone use while driving was identified as one of the distraction behaviours, and younger drivers were associated with this behaviour. Viewed as the most prevalent and highly risky of the cell phone habits were driving and talking on the phone, followed by texting and driving.

Students were of the view that texting and driving has emerged as the most dangerous behaviour on the road as it involves both visual and manual distraction.

There were different views about GPS navigation. Some students thought that GPS navigation, though legal, is also distracting because one takes their eyes off the road to look at the directions. On the other hand, some felt that it is a helpful direction tool.

Some other activities like changing radio stations; fidgety passengers; having pets in the car; eating while driving and applying makeup were identified by students as distracting and dangerous.

Students thought that ineffective law enforcement is to blame for most of the high-risk behaviours witnessed on the road. Drivers continue with high risk behaviours knowing very well that there will be minimal or no legal consequences. This is because there is often no visible traffic policing or if one is caught, they escape with very low fines.

2. To explore and describe practices of students towards exceeding speed limits, drunk driving, unsafe overtaking, use of safety belts and distracted driving.

The majority of drivers (66%) in this study confessed to speeding, especially if there is a low likelihood of being caught by traffic officers. They reportedly slowdown in areas where there is likely to be traffic officers.

About 44% of driver participants have been involved in drinking and driving. While they know the associated dangers, they tend to forget, probably due to peer and social pressure.

About 55% of students reported to have been involved in unsafe overtaking. They blamed slow moving vehicles in front of them for unsafe overtaking.

Most students confessed to not using safety belts at times, especially when there is no safety belt beeping reminder. They only use the safety belt when they see traffic officers.

Most participants (55% of drivers) confessed to texting and driving. They were of the opinion that texting and driving has become a habit - because everybody does it, they also do it. The other drivers said that they only text when they are stopping at a traffic light.

3. To make recommendations for policies that will improve human behaviour towards road safety based on the findings of the study.

The Department of Transport and its entities must embark on educational campaigns all the year round that focus on behaviour change. The youth have to be the focus of behaviour change campaigns, and these campaigns should make use of peer education programmes. Behaviour change programmes should also emphasize pedestrian safety and highlight the dangers faced by pedestrians on the road.

Traffic law enforcement must be intensified and improved visibility of traffic police in high accident zones should be prioritised.

Improvements should be made to accident reporting, and these should include mentions of high accident zones and the causes of the accidents.

Public transportation should be closely monitored for compliance to safety belt laws.

Breath alcohol testing should be routinely administered to all drivers. Lowering the BAC for novice drivers to less than 0.2g/dl should be considered to align it with internationally recommended best practices in road safety.

5.4 Limitations of the study

There were some limitations to this study. The study involved students from only one university in South Africa. There was limited access to participants as students could only avail themselves when they were free of academic commitments, and only during the day. Time was a limiting factor for the study as well, as there was a stipulated period within which the research could be conducted and completed. The availability, as well as the interest of the students to participate in the research were also limiting - not all students came forward and expressed their interest, so the researcher had to identify some students and tell them about the research. Some expressed interest in taking part in the study, others did not.

5.5 Recommendations of the study

The study recommends that the Department of Transport embark on educational campaigns to raise awareness about road safety. Unlike before, where campaigns focused on peak seasons like Easter, October Transport Month and December holidays; the campaigns should take place all year round. These educational campaigns should focus on behaviour change using the media such as radio, television, billboards and social networks.

The youth should be the focus of educational campaigns, with emphasis being placed on highlighting the dangers of speeding, unsafe overtaking, drinking and driving and distracted driving. Peer education programmes should be considered to inculcate road safety habits among the youth. Surviving victims of road accidents can also be approached to spread the message of road safety so that the public can see what the consequences are.

In addition to the youth-targeted campaigns, educational campaigns should also focus on pedestrians. Special attention should be given to spreading the message about pedestrian visibility at night, as well as the dangers of crossing freeways and using non-designated crossings.

South Africa should take advantage of the fact that its safety belt laws are already aligned with international best practices. Educational campaigns about safety belt use should be intensified and should include both drivers and passengers. Improvements in law enforcement must include random safety belt checks on local and national roads. There should be more emphasis on monitoring the compliance of public transportation with safety belt laws, and those who do not comply should be penalised.

Visibility of traffic police officers on the roads should improve, with specific focus on high accident zones.

There is a need to improve the reporting of different causes of accidents, including the areas where accidents occurred and the circumstances under which accidents occurred. Accurately reported accidents would assist policy makers in motivating for improved laws and policies.

The South African law on drinking and driving does not give special attention to novice drivers as recommended by international best practices. In view of the youth's involvement in risky behaviours, including drinking and driving, it may prove beneficial to lower the BAC limit for novice drivers to less than 0.2g/dl as this is recommended for best practice in road safety.

5.6 Recommendations for improving the study

Firstly, this research study can be improved by enrolling other universities in the Gauteng province to get a broader view of the perceptions and practices associated with road safety. Alternatively, this can also be achieved by expanding the study to include other universities in different provinces in South Africa.

Secondly, the study can be improved by engaging more role players, not just road users. Other role players in road safety could be traffic law enforcers. In addition to interviews, observational methods could also be used.

5.7 Summary and conclusion

The study found that the students of the University of Johannesburg are aware of issues of road safety and have identified and articulated unsafe practices on the road; as well, as how these behaviours affect them and the public at large. The students also articulated what they perceived to be the reasons behind these behaviours.

The students were quite aware of road safety laws, even though they attested to being involved in some unsafe road behaviours. They were also knowledgeable about the consequences of bad road behaviour. On the same vein, students suggested solutions that could help improve the road safety situation in South Africa.

The results of this study indicate that there is a lot of behaviour change that needs to happen among road users. The behaviour change is not limited to drivers only, but to pedestrians and passengers as well. Improvements in law enforcement also need to happen, as it has been shown that road users continue with risky behaviour if they know that the chances of being caught are minimal.



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APPENDICES

APPENDIX A: Permission Letter- Campus Interviews

10 September 2018

To: Head of Institutional Research and Planning Unit (Prof C.M. Fourie)
Division of Institutional Planning, Evaluation and Monitoring
University of Johannesburg

Re: REQUEST TO ENROL STUDENTS FOR RESEARCH ON DOORNFONTEIN CAMPUS

I am a student at University of Johannesburg, enrolled for **Masters in Public Health** under the guidance of Mrs Martha Chadyiwa. I hereby request permission for students at Doornfontein campus to participate and take part in the interview process for the study titled: **Human Behaviour Towards Road Safety: Perceptions and Practices of University of Johannesburg Students in 2018.**

The study will require 15-20 participants that will be interviewed individually for 20-30 minutes. The interviews will be done over a period of 3-4 weeks in September and October 2018. Posters will be put up in strategic places on campus, inviting students to participate. The aim of the study is to explore the perceptions and practices towards human factors of road safety amongst students enrolled at University of Johannesburg in 2018. I have applied for ethical clearance and the research will start once ethical clearance is granted. There will be no potential risk to the university and participants and the anonymity of the participants is guaranteed.

Student Name: Vatiswa Ndim-Gqwetha

Student Number: 217074818

Supervisor: Mrs Martha Chadyiwa

Contact Number: 011 559 6239 / 073 316 6180

Co-supervisor: Dr Blaise Bucyibaruta

Contact number: 073 916 0808

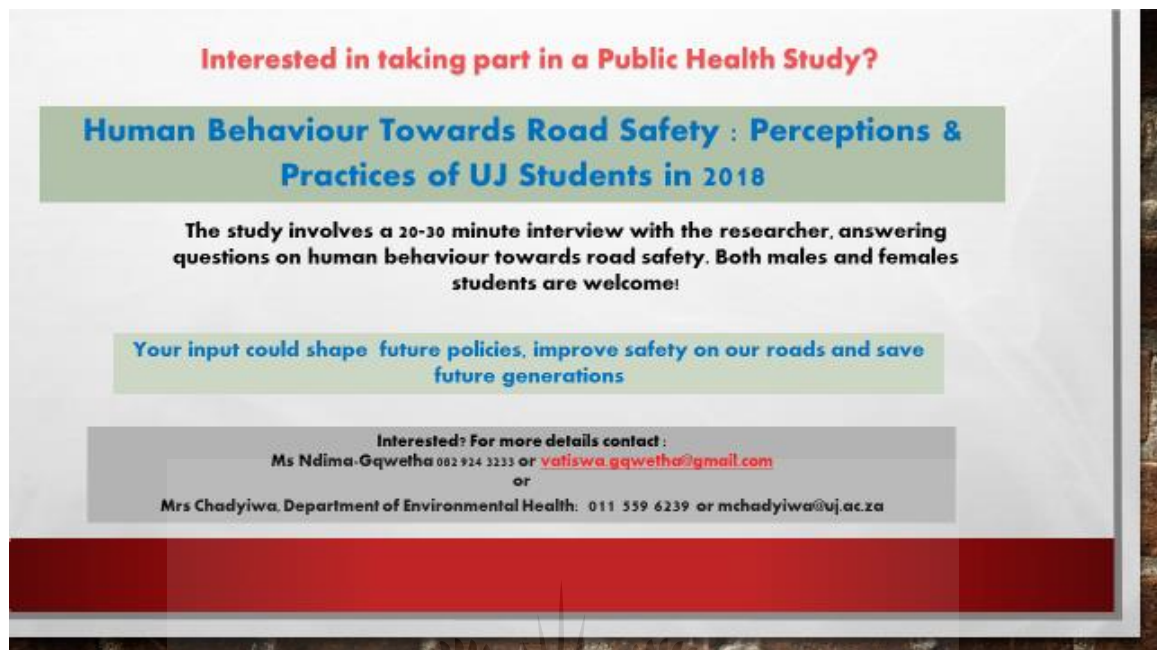
Approval granted:

Name Prof C.M. Fourie Signature C.M. Fourie Date 10 Sep 2018

OFFICIAL ADDRESS | Cnr Kingsway and University Road Auckland Park
PO Box 524 Auckland Park 2006 | Tel +27 11 559 4555 | www.uj.ac.za
Auckland Park Bunting Campus | Auckland Park Kingsway Campus
Doornfontein Campus | Soweto Campus



APPENDIX B: Pamphlet for Recruitment of Participants



APPENDIX C: Interview Guide

Interview Guide on Human Behaviour and Road Safety

1. The researcher greets the participant, introduces herself, takes the participant through the information sheet and consent forms for participation and recording (as per Appendix 5, 6 and 7)
2. The researcher will politely ask the participants demographic characteristics such as age, and highest qualification and note their gender and race.
3. After the consent forms have been signed, the researcher will ask the following questions:
 - 3.1. What do you think of human behaviour and road safety?
 - 3.2. Is there anything else you would like to tell me? (Some people think that drunken driving, speeding, unsafe overtaking, non-use of safety belt and distracted driving affect road safety, what is your understanding?)

APPENDIX D: Authorisation to use the venue for the interviews

Chadyiwa, Martha <mchadyiwa@uj.ac.za>

Jun 12

to me ,
Katekani

FYI

From: Enireta Makanza <eniretamakanza@gmail.com>

Sent: Tuesday, June 12, 2018 2:00 PM

To: Chadyiwa, Martha <mchadyiwa@uj.ac.za>

Cc: Mokoatle, Makhutsisa <charlottem@uj.ac.za>

Subject: Re: Request to use Occ Lab

Dear Martha

Thank you for your inquiry. We always want to take advantage of learning beyond our class content therefore, your students are welcome to work with us. We will be able to meet the 90 number if we combine the 3 classes that we have i.e pipeline, degree and 3rd year diploma students. We can use our class timetable. The time slots are as follows:

Monday: 10:30 - 12:10
Tuesday: 13:50 - 17:05
Wednesday: 12:10 - 13:50
Friday: 09:40 - 11:15

We can use this information in our next discussion.

Kind Regards,

Eni

On 11 June 2018 at 13:40, Chadyiwa, Martha <mchadyiwa@uj.ac.za> wrote:
My Dear

Kindly find attached letters of request.

Regards,

APPENDIX E: Information Letter

DEPARTMENT OF ENVIRONMENTAL HEALTH RESEARCH STUDY INFORMATION LETTER

04/08/2018

Good Day

My name is Vatiswa Ndim-Gqwetha **I WOULD LIKE TO INVITE YOU TO PARTICIPATE** in a research study on Human Behaviour towards Road Safety: Perceptions and Practices of University of Johannesburg students in 2018.

Before you decide on whether to participate, I would like to explain to you why the research is being done and what it will involve for you. **I will go through the information letter with you and answer any questions you have.** This should take about 10 to 20 minutes. The study is part of a research project being completed as a requirement for a Master's Degree in Public Health through the University of Johannesburg.

THE PURPOSE OF THIS STUDY is to establish the perceptions and practices towards road safety from University of Johannesburg students.

Below, I have compiled a set of questions and answers that I believe will assist you in understanding the relevant details of participation in this research study. Please read through these. If you have any further questions I will be happy to answer them for you.

DO I HAVE TO TAKE PART? No, you don't have to. It is up to you to decide to participate in the study. I will describe the study and go through this information sheet. If you agree to take part, I will then ask you to sign a consent form.

WHAT EXACTLY WILL I BE EXPECTED TO DO IF I AGREE TO PARTICIPATE? You can participate by answering the interview questions.

WHAT WILL HAPPEN IF I WANT TO WITHDRAW FROM THE STUDY? If you decide to participate, you are free to withdraw your consent at any time without giving a reason and without any consequences. If you wish to withdraw your consent, you should inform me as soon as possible.

Participant's initials.....

IF I CHOOSE TO PARTICIPATE, WILL THERE BE ANY EXPENSES FOR ME, OR PAYMENT DUE TO ME: You will not be paid to participate in this study and you will not bear any expenses.

RISKS INVOLVED IN PARTICIPATION: There are no risks involved in participation on this study.

BENEFITS INVOLVED IN PARTICIPATION: Addition to the knowledge which may assist in decision-making and policy-making.

WILL MY PARTICIPATION IN THIS STUDY BE KEPT CONFIDENTIAL? Yes. Names on the questionnaire/data sheet will be removed once analysis starts. All data and back-ups thereof will be kept in password protected folders and/or locked away as applicable. Only I or my research supervisor will be authorised to use and/or disclose your anonymised information in connection with this research study. Any other person wishing to work with you anonymised information as part of the research process (e.g. an independent data coder) will be required to sign a confidentiality agreement before being allowed to do so.

HOW LONG WILL I HAVE ACCESS TO DATA FOR? Interview data and recordings will be kept safely in a secured computer for a period of five years as guided by the Records Management Policy (2017) after which they will be destroyed.

HOW LONG WILL THE INTERVIEW BE? The interview will take about 20-30 minutes.

OR

WILL MY TAKING PART IN THIS STUDY BE ANONYMOUS? Yes. Anonymous means that your personal details will not be recorded anywhere by me. As a result, it will not be possible for me or anyone else to identify your responses once these have been submitted.

WHAT WILL HAPPEN TO THE RESULTS OF THE RESEARCH STUDY? The results will be written into a research report that will be assessed. In some cases, results may also be published in a scientific journal. In either case, you will not be identifiable in any documents, reports or publications. You will be given access to the study results if you would like to see them, by contacting me.

WHO IS ORGANISING AND FUNDING THE STUDY? The study is being organised by me, under the guidance of my research supervisor at the Department of Environmental Health in the University of Johannesburg. This study is not receiving any funding.

WHO HAS REVIEWED AND APPROVED THIS STUDY? Before this study was allowed to start, it was reviewed in order to protect your interests. This review was done first by the Department of Environmental Health, and then secondly by the Faculty of Health Sciences Research Ethics Committee at the University of Johannesburg. In both cases, the study was approved.

Participant's initials.....

WHAT IF THERE IS A PROBLEM? If you have any concerns or complaints about this research study, its procedures or risks and benefits, you should ask me. You should contact me at any time if you feel you have any concerns about being a part of this study. My contact details are:

Name: Vatiswa Ndim-Gqwetha

Number: 082 924 3233

E-mail: Vatiswa.gqwetha@gmail.com

You may also contact my research supervisor:

Name: Mrs Martha Chadyiwa

E-mail: mchadyiwa@uj.ac.za

If you feel that any questions or complaints regarding your participation in this study have not been dealt with adequately, you may contact the Chairperson of the Faculty of Health Sciences Research Ethics Committee at the University of Johannesburg:

Prof. Christopher Stein

Tel: 011 559-6564

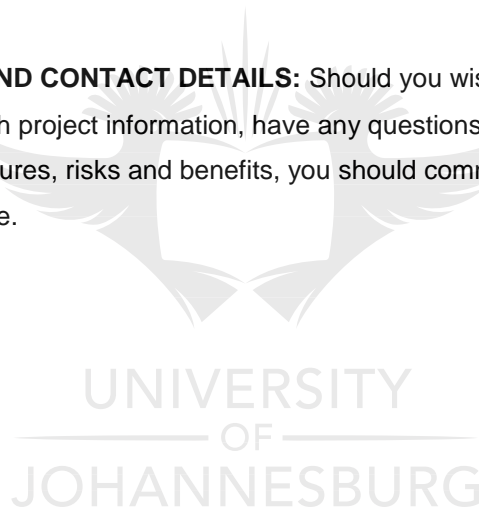
Email: cstein@uj.ac.za

FURTHER INFORMATION AND CONTACT DETAILS: Should you wish to have more specific information about this research project information, have any questions, concerns or complaints about this research study, its procedures, risks and benefits, you should communicate with me using any of the contact details given above.

Researcher:

Vatiswa Ndim-Gqwetha

<Signature>



Participant's initials....

APPENDIX F: Research Consent Form



DEPARTMENT OF ENVIRONMENTAL HEALTH RESEARCH CONSENT FORM

Human Behaviour Towards Road Safety: Perceptions and Practices of University of Johannesburg students in 2018

Please initial each box below:

I confirm that I have read and understand the information letter dated 04/08/2018 for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

I understand that my participation is voluntary and that I am free to withdraw from this study at any time without giving any reason and without any consequences to me.

I agree to take part in the above study.

Name of Participant

Signature of Participant

Date

Name of Researcher

Signature of Researcher

Date

APPENDIX G: Research Consent Form for Recording of the Interview



**DEPARTMENT OF ENVIRONMENTAL HEALTH
RESEARCH CONSENT FORM FOR PARTICIPATION AND RECORDING**

**Human Behaviour Towards Road Safety: Perceptions and Practices of University of
Johannesburg students in 2018**

Please initial the box below:

I agree that my interview can be recorded

Name of Participant

Signature of Participant

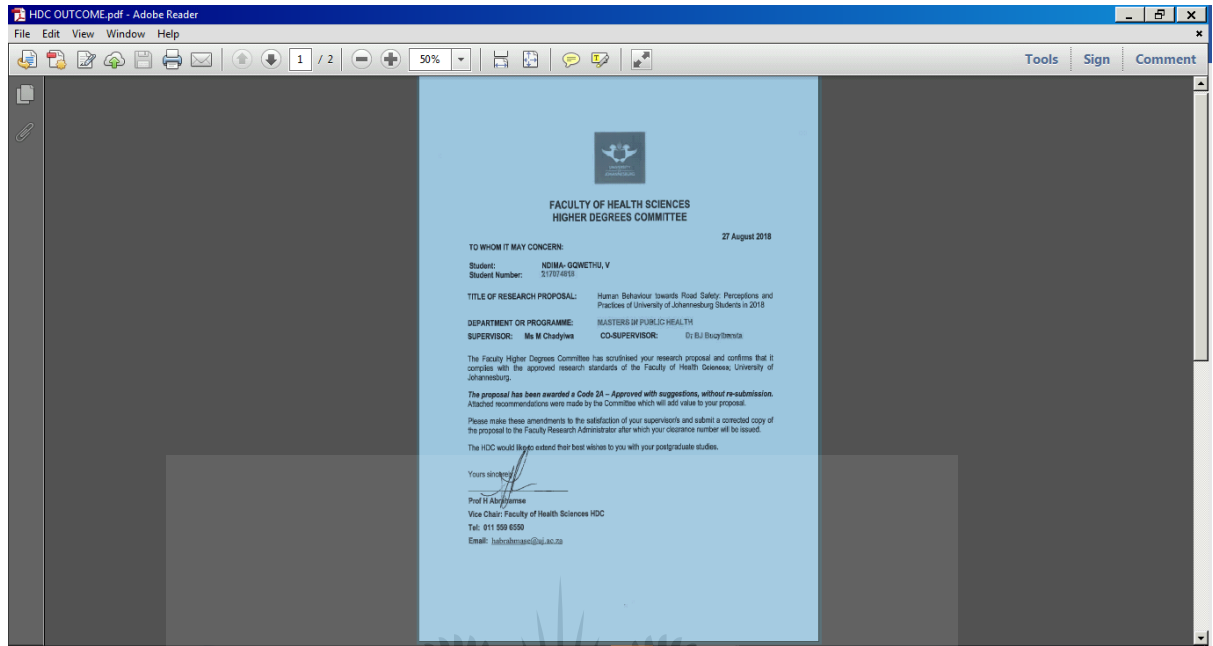
Date

Name of Researcher

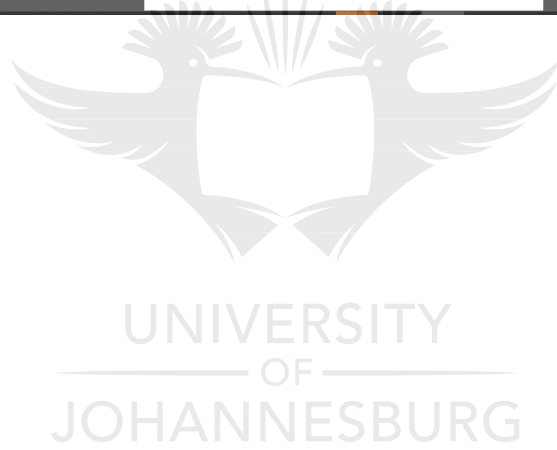
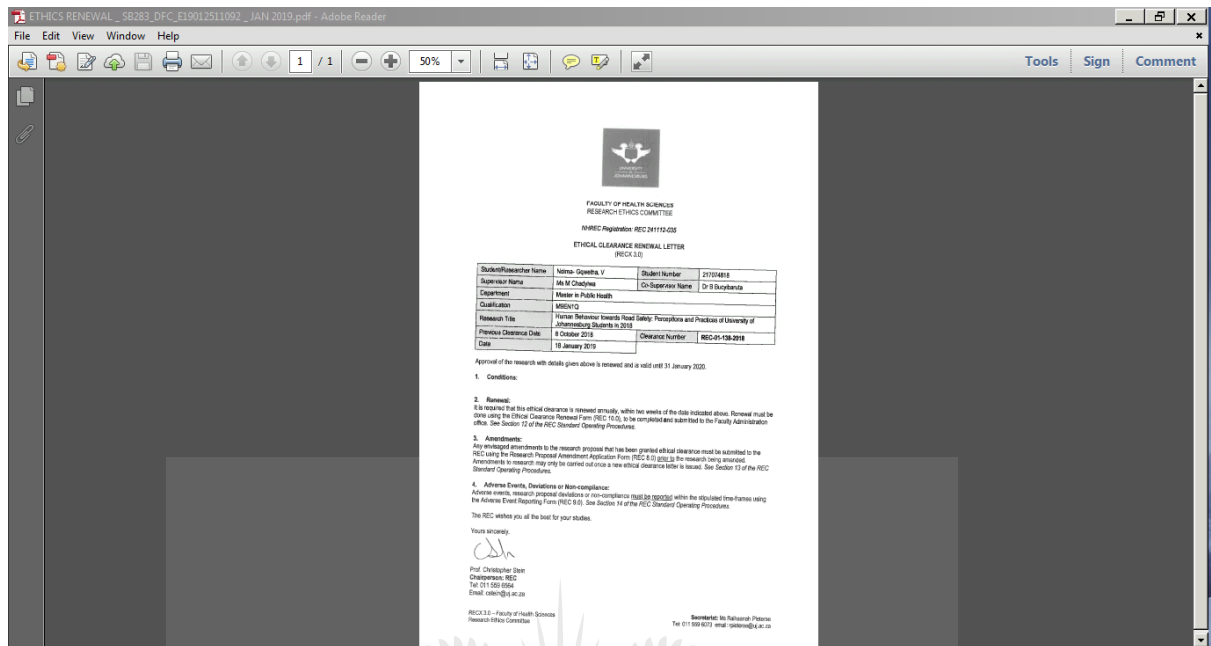
Signature of Researcher

Date

APPENDIX H: Approval by the Higher Degrees Committee



APPENDIX I: Approval by the Research Ethics Committee




APPENDIX J: Proof of Enrolment

ITS Web Interface - Windows Internet Explorer provided by Road Accident Fund

https://registration.uj.ac.za/pls/prod41/v999kg.m

ITS Web Interface uj.blackboard.com


University of Johannesburg Wednesday, 30th October 2019



Student Web

- Update Address/Contact Details
- Academic/Residence Application
- PRBU Registration
- SAICA Registration
- Registration
- Changes to Registration
- Residence Registration
- Proforma Statement
- Cheque and Credit Card Payment
- Refund
- AOD (Acknowledgment of Debt)
- Meal Assistance Applications

Logout



VATISWA SIZEKA, NDIMA

Student Nbr 217074818

Gender Female

Birthdate 19-Nov-1971

ID Nbr 711190387082

Marital Status Married

Home Lang XHOSA

Citizenship South Africa

Email Address
vatiswa.gqwetha@gmail.com

Cellphone
0829243233

Postal Address

Matriculation Information

Application Information

Registration Information

| Qualification | M9ENIQ | Master of Public Health (CW) | | | | | | |
|--------------------------|-----------------------------------|------------------------------|---------------|----------------------------------|-------------|-----|------|-----------|
| Registration Year | 2019 | Registration Dates | | 01-Jan-2019 to 31-Dec-2019 | | | | |
| Academic Block | 0 YEAR BLOCK | Faculty | | 15 HEALTH SCIENCES | | | | |
| Offering Type | 02 DFC PART-TIME | Department | | 1532 DEP OF ENVIRONMENTAL HEALTH | | | | |
| Period of Study | 2 SECOND YEAR | Has Bursary | | N | | | | |
| Subject Code | Description | Academic Block | Offering Type | Attendance | Cancel Date | Att | Proj | Exan Gran |
| EMD01X2 | MINI-DISSERTATION : PUBLIC HEALTH | YEAR BLOCK | DFC PART-TIME | NORMAL EXAM | | | | |



APPENDIX K: Turnitin Certificate

Turnitin Originality Report

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APPENDIX L: Letter from the Language Editor

