



**CENTRE FOR CONFLICT MANAGEMENT MA IN PEACE STUDIES AND CONFLICT
TRANSFORMATION**

**ROAD SAFETY OPERATIONS AND DRINK DRIVING
REDUCTION IN THE CITY OF KIGALI**

A dissertation Submitted to University of Rwanda, in partial fulfilment of the requirements for the award of Master's Degree of Arts in Peace Studies and Conflict Transformation (MA PSCT)

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Musanze, June 2021



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DEDICATION

This thesis is dedicated to Almighty God, my lovely wife UWIMBABAZI Nadine and to my children: GANZA Pierre Sage and CYEMEZU Aimé Landry.

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LIST OF ABBREVIATIONS AND ACRONYMS

RNP: Rwanda National Police

TRS: Traffic and Road Safety

BAC: Blood Alcohol Concentration

BAT: Breath Alcohol Test

DWI: Driving while intoxicated

DUI: Driving Under Influence

RIB: Rwanda Investigation Bureau

RBT: Random Breath Test

WHO: World Health Organization

NHTSA: National Highway Traffic Safety Administration

NISR: National Institute of Statistics of Rwanda

DUI: Driving Under Influence

RTA: Road Traffic Accident

UNECA: United Nations Economic Commission for Africa

RTC: Road Traffic Crash

USA: United States of America

UN: United Nations

IHME: Institute for Health Metrics Evaluation

RBC: Rwanda Biomedical Centre

CBT: Compulsory Breath Testing

SDG: Sustainable Development Goals

DUID: Driving Under Influence of Drug (s)

CoK : City of Kigali

ABSTRACT

This study explores the effectiveness road safety operations and the reduction of drink driving in Kigali city; it focuses on the effectiveness check points, patrol activities, education and campaigns in the deterrence of drunk driving. On one hand, deterrence theory led to the study of checkpoints and patrol activities and explored their effectiveness to deter drink driving behavior in City of Kigali, while on the other hand social learning theory helped to understand what makes people drink and drive despite the efforts invested by Police in the fight against this behavior. To achieve the objectives of this research, qualitative approach was applied and used interview guide to gather information from key informant among traffic police and Rwanda Investigation Bureau (RIB) officers and used focus groups interview to interact with different groups of drivers. A total of 32 participants were interviewed and shared their experience and expertise in regard with drink driving issues in the City of Kigali. The results of data collected revealed that checkpoints and Traffic police patrol activities are effective in reducing drink driving, while found a need to tailor education and campaigns towards improvement of driver's knowledge of safe driving including drink driving issues.

Generally, the findings revealed that the increase the numbers of drink driving cases, lies on the effectiveness of police detections and exposure of drivers to police. However, a big number of drivers who participated in this study reported lack of understanding of the alcohol content of drinks, the impact of different drinks and drinking patterns on Blood alcohol Concentration (BAC), and basic information on managing alcohol consumption to remain within the law.

The study also found a gap in the law punishing drink driving, which is a challenge to the overall deterrence process.

Finally, some recommendations relevant to identified challenges research were proposed to the government of Rwanda, Rwanda National Police and the general public.

Key words: Road safety, operations, drinks driving, deterrence, enforcement, Blood alcohol concentration (BAC).

CHAPTER ONE

GENERAL INTRODUCTION

1.0. Introduction of the Chapter

This study is about the assessment of road safety operations in reduction of Road Traffic Injuries, it aims at assessing the effectiveness of check points, traffic patrol activities, education and campaigns in the deterrence of drink driving. This chapter focuses on the background of the study. It further set out the statement of the problem that gave rise to the study as well as outline the objectives and research questions of the study. Furthermore, it also probed the significance as well as the scope and delimitation of study.

1.1. Background of the Study

The act of operating a motor vehicle or any other machine that involves transportation of passengers or oneself under the influence of alcohol or any other substances that causes mental impairment can be termed as drunk driving. According to the world Health Organization (WHO) under the SAFER Interventions, driving under the influence of alcohol, or drink-driving, is a key risk factor for 27% of all road injuries. It affects not only the drunk driver, but also in many cases, innocent victims such as passengers and pedestrians. World Health Organization confirms that drink driving increases the chance of road traffic Crashes (WHO, 2018). Road Traffic Crashes (RTCs) cause unnecessary deaths and injuries with other social economic and health burdens that hamper sustainable development (ECA, 2018).

According to Global Status Report on Road Safety, 2015, road traffic deaths attributable to drink driving indicate that 58% cases are in South Africa, 34% in Canada, 31% in United States of America, 30 % in Australia, 16% in United Kingdom and 9 % in Germany. Most of African countries have not provided the data of death attributed drink driving related crashes (Nails, 2016, p.2) while the traffic police department's data reveal that the accident caused by drunkenness are 25 % of total accidents.

Road injuries are predicted by World Health Organization (WHO,2018) to rise from ninth in 2004 to fifth in 2030 on the ranking of top ten causes of the death amongst: Ischemic heart disease, Cerebrovascular disease, Lower respiratory infections, Chronic obstructive pulmonary disease, Diarrheal diseases, HIV/AIDS, Tuberculosis, and Trachea, bronchus, lung cancers.

According to the World Health Organization (WHO), countries in the African region have the highest per capita rate of road deaths in the world despite having a small fraction of the world's vehicles (WHO, 2018, Wang et.al, 2020).

In light to this, the Economic Commission for Africa's (ECA,) warned that in 2019, the risk of death from Road traffic accidents (RTA) in Africa are 26.6/100,000, which is high compared to 17.0/100,000 in South-East Asia and 9.3/100,000 in Europe.

ECA (2019) highlighted some examples such as Uganda to have the highest level of death in road traffic crashes in East Africa counting 24/100.000 crashes and average of loss of 10 people per day in road traffic crashes. In addition to loss of lives, it is estimated that annual road crashes cost estimated \$1.2 billion which is 5% of Uganda GDP.

Another example was Cameroon which recorded 6,583 road accidents and 1,500 deaths on annually average with estimation of 26.7/100.000 people which makes it highest in West Africa (Yan, 2019, Dogbevi, 2019).

According to the latest WHO data published in 2018" Road Traffic accidents deaths in Rwanda reached 4,054 or 7.14% of total deaths. The age adjusted death Rate is 45.90 per 100,000 of population ranks Rwanda #7 in the world".

In 2015 Rwanda was classified by WHO to have the highest road traffic fatality rate at 22 %of death and burden of road traffic injuries (RTIs) at 1,173⁰/₀₀ (Institute for Health Metrics and Evaluation (IHME), 2015, cited in Wang, et.al, 2020, p.2).

Rwanda has been reported by the United Nations Economic Commission for Africa (UNECA) to have excessive alcohol consumption, being the second-highest alcohol consumer in East African Region (Karhanga, 2018). Furthermore, the latest WHO data published in 2018 alcohol deaths in Rwanda reached 156 or 0.27 % of total deaths. The age adjusted death rate is 2.37 per 100,000 of population ranks Rwanda number 61 in the world (WHO, 2018). Whereas, survey conducted by National Institute of Statistics of Rwanda (NISR) found that more than one person dies every day due to road accident (NISR 2019, p.183)

Furthermore, Rwanda Biomedical centre (RBC) estimated that 1.6% or 200,000 Rwandans, aged between 14-64 suffers from alcohol abuse while 7.6% of the people aged under 35 are either addicted to alcohol or suffer from alcohol abuse (Iliza, 2019).

The United Nations, WHO and related international organizations have expressed a commitment to dealing with road safety in low- and middle-income countries. In 2012, the United Nations General Assembly adopted resolution 64/225 which proclaimed a Decade of Action for Road Safety (2011-2020). With this goal, to stabilize and reducing the rising number of road traffic fatalities, to save lives of an estimated five million over the period (Ban, 2011).

In light with this resolution, Rwanda is committed to reduce road fatalities with focus on the three key causal factors that include, drink driving, reckless driving (control of use of cell phones while driving, seat belt and helmets) and speeding. Furthermore, Rwanda National Police demonstrated the recognition of these issues as significant threats to road safety in Rwanda (RNP,2014).

According to WHO “Enacting and enforcing strong drink-driving laws and low blood alcohol concentration limits via sobriety checkpoints and random breath testing helps to turn the tide”.

The introduction of random breath testing (RBT) appears to have been an effective measure to reduce fatalities and injuries in both United States and Australian populations and other developed countries (Peek-Asa, 1999; Hart, Watson, & Tay, 2003).

The concept of BAC is used in many countries but the legislated limit defers from one country to the other. For instance, 0.05% is the most legal BAC used in 53 countries including DR Congo, 0.08% in 44 countries including Rwanda; only Honduras has 0.01% contrary to Palau which has 0.10%. Twenty countries do not have drink driving regulations including Burundi, while 16 countries have zero tolerance policy to drink and drive and lastly 7 countries like.... alcohol is illegal and not allowed in any case (WHO,2014).

According to Global health observatory (GHO), (2021) the risk of crash increase significantly at a BAC of 0.04 g/100ml. People who have 0.05BAC are about 2 times more vulnerable to accident than those who have Zero BAC. While with 0.08 BAC the risk is approximately 4 times than one with zero BAC. Furthermore, one with 0.10 BAC is 6 times more, also with 0.15 BAC is nearly 12 times as likely to get involved in crash (Campton & Berning, 2015).

Legislation of BAC is the essential efforts to address drinking and driving, and needs to be combined with publicized high visibility police enforcement. The BAC limit of 0.05 g/dl for the general population and a BAC limit of 0.02 g/dl for young or novice driver are the best

practices for reducing drink driving as suggested by the world health organization (WHO, 2018, p.10).

Even though the specific deterrent effect of police is to reduce drink driving among the population, studies have revealed that the risk of arrest for driving with an BAC level of 0.08% or greater is only 1 in 1,016 trips (Zaloshnja, Miller, &Blincoc, cited in Elby,2017). This implies that enforcement should not rely on a single mechanism rather to adapt many others to maximize the arrest of offenders.

The enforcement of RBT is practiced differently but some countries like Australia, New Zealand and USA are considered to have best practices. A consistent issue in determining, the best practices in Australia is the Random Breath Testing enforcement (RBT).

“RBT enforcement is finding the appropriate balance between overt or highly visible stationary RBT seeking to maximize exposure to RBT and low-profile covert operations such as mobile RBT. The former has an effect of general deterrence while the latter essentially focuses on detection or specific deterrence” (Wundersitz & Woolley, 2008).

Intelligence led enforcement is also an approach that is used to improve the quality of drink driving operations and their outcomes by making use of information on crashes, traffic volumes, alcohol sales and previous enforcement activities when planning new RBT operations (Wundersitz & Woolley, 2008).

New Zealand approach is Compulsory Breath Testing (CBT) which is equivalent of RBT and includes intensive, moderate profile, CBT with an enhanced media campaign, an ‘aggressively’ visible booze buses and enhanced community campaign (Miller, Blewden & Zhang, cited in Wundersitz & Woolley, 2008).

In United States of America (USA), drink driving enforcement includes use of ignition locker which is a device when installed in car, can detect if the driver is drunk and once the driver is positive it locks the ignition system making the car not to start. Because this approach has not been effective due to its vulnerability to vandalism, people went further suggesting the reduction of alcohol breath percentage through (BAC) from 0.08% to 0.05% with imprisonment of not less than 36 months, discouraging the fines because it doesn’t have anything to do with those who have money to pay and later make the same offense.

Rwanda National Police (RNP) has been using various mechanisms to reduce accidents such as the intensive static police observation posts on the roads mainly on hotspots, Checkpoints, patrols (both saturation and routine) and education. During different operations police used breathalyzers to test BAC level, this has been used randomly or selectively (Mazimpaka, 2019). The detected drivers who drive after drinking are subject to a fine of 150,000 FRS and 5 days under police custody in addition to vehicle impoundment for one month (Kayonga,2020, p.25)

The public education has been delivered through "Gerayo Amahoro" (Arrive safely), a national campaign designed for road safety education, enforcement of road traffic rules and regulations to ensure safer roads for all (Shyaka, 2019).

It has been conducted country wide with multiple stakeholders including drivers' associations, brewery industries, administrative leaders, schools with radio and television shows, to make sure it reaches to as many as possible members of the public.

Another theme is "do not drink and drive "which has been publicized through different local media outlets, and also Police has a radio show at Radio Rwanda every day in which people are sensitized to abide with traffic rules particularly on drunk driving (Mazimpaka,2018).

According to Ross (1988), in a report that evaluated the results of legal instruments throughout the world designed to increase the perceived certainty and severity of punishment for drunk driving. They include measures directed at primarily at increasing the perceived certainty of punishment such as laws that define the offense, police enforcement and campaigns aimed at increasing the impaired likelihood of apprehension. Ross claims that there are limited reports concerning measures on the increase of driver's perception of severity of punishment without increasing its certainty (Ross, 1998). This is to say that perceived certainty of punishment is an important determination of efficacy of deterrence measures (Ross, 1988, p.30). Once certainty, severity and Swiftness interact, severity will be important if the threat of punishment is certain (Tittle,1980, cited in Ross,1984, p25-26).

In Rwanda the effectiveness of operations to prevent and deter drink driving is not widely explored and that is the gap this study is designed to cover.

1.2. Statement of Problem

The Sustainable Development Goal (SDG) target 3.6 aims to “halve the number of global deaths and injuries from road traffic accidents,” SDG target 11.2 aims to “provide access to safe, affordable, accessible and sustainable transport systems for all.” (WHO, 2018, p.2).

As part of this global commitment and deal with this threat to road users in Rwanda, Rwanda National Police is committed to minimize road accidents and reduce the deaths and injuries related to those accidents as stipulated in its Strategic plan 2013-2018 which says “*RNP will improve its traffic control and its ability to conduct vehicle inspections for roadworthiness*” (RNP Strategic plan 2013-2018, p.37), and the department of Traffic and Road Safety department performance contract 2018-2019 contracted to reduce fatalities per 100,000 people in road accident and improve road safety (TRS Performance Contract 2018-2019, p.1-P.8).

Moreover, it was set as among critical issues to be dealt by RNP through its department of Traffic and Road safety, people continue to defy traffic laws particularly drink driving law. Road accidents have been among priority areas of RNP with main focus on drink driving to reducing the risk of death or injury for people using the road networks.

As reported in the interview with police spokesperson CP JB Kabera by Taarifa newspaper (2019), drink driving related road accidents have been big security concern in Rwanda (Mazimpaka,2019). The example are the bases such as in 2018, 05 were killed by a drunk driver at the same time in Nyagatare, 2 killed by drunk driver at Kacyiru in Kigali, 02 killed at Nyarugenge in Kigali, another drunk driver destroyed a camera pole in Kigali while 11 others were killed in one month by drunk drivers (Mazimpaka, 2019).

This has instigated RNP intensive crackdown operations that include robust deployment of police officers at hot spots, checkpoints, police patrols, RBT, vehicles pull over impoundments, fines and apprehension.

Despite the intensive and robust operations conducted by RNP, we still observe the rise of cases of drink driving as expressed by the number of cases of people apprehended by Traffic Police whereby TRS department recorded 1,700 cases in 2018, 2,800 cases in 2019 and 2,348 cases in 2020 of people caught with an illegal BAC limit (TRS, 2020).

There are few previous literatures on the effectiveness of road safety operations on drink driving in the City of Kigali. Furthermore, there is a need to bridge the gap of public awareness because death and injuries resulting from road accidents related to drink driving are preventable. If nothing is done to curb down the rise of drink- driving behavior, the deaths and injuries caused by road traffic is likely to increase.

The findings of this study will assist the RNP to maximize the effectiveness of enforcement in reducing drink driving in the City of Kigali and educate the general drivers about BAC.

1.3. The research Objectives

1.3.1. Main Objectives

The main objective of the research is to evaluate the effectiveness of road safety operations on drink driving in the City of Kigali.

1.3.2. Specific Objectives

To assess the effectiveness of checkpoints in the deterrence of drink driving in the City of Kigali.

To explore the effectiveness of police patrol in the detection of drink driving in the City of Kigali.

To examine the effectiveness of education and awareness campaigns in the prevention drink driving in the City of Kigali.

1.4. Research Questions

To what extent road safety operations on drink driving are effective in the City of Kigali?

- a. How checkpoints are effective in the deterrence of drink driving in the City of Kigali
- b. What factors influence the effectiveness of police patrol in the detection of drink driving in the City of Kigali?
- c. How education and campaigns are effective towards the prevention of drink driving in the City of Kigali?

1.5. Significance of the Study

Inspired by the experience individually acquired and challenges observed in the field of police operations specifically the enforcement of drink driving, the researcher is eager to find out the

issues that may hinder the success of road safety operations in reducing drink driving. There are many substances that may cause impairment which include some medical drugs, narcotic drugs and alcoholic drinks.

This study will focus on alcoholic drinks consumption and driving (drunk driving) not because it is the only issue of unsafe driving but because it has been a rising menace to individual's lives and among main causes of road traffic accidents and legally enforceable as a traffic menace. While other drugs are enforceable under criminal law provisions. Therefore, the most important motivation of the researcher to conduct this study is to bring a contribution on the awareness of safe driving in Rwandan community and strategies to reduce drink driving behaviors.

Individually the researcher will benefit more skills in this field of study. Also, conducting this study in a country like Rwanda where there are no studies conducted in this area of study, it may contribute academically to increase literature on road safety in Rwanda. It will also provide the Police with information that may contribute to Policy and Strategy design aimed at fighting against drink driving. Finally, the results of this study will be educative to the general public on safe driving including awareness of blood alcohol concentration (BAC) tracking to mitigate risks of unsafe driving.

1.6. Scope of the Study

1.6.1. Domain

This study will limit itself to the road safety and will discuss the effectiveness of the operations on the reduction of drink driving as my area of study.

1.6.2. Location

The study was carried out in the City of Kigali. This limitation is associated with the fast-growing infrastructures and populated with modern drinking facilities that work day and night (bars and night clubs). The population density in Kigali is 2,535/km (NISR, 2017); Kigali also contains 70 % of the registered vehicles in Rwanda (RRA, 2021). A study on RTC hotspots in Kigali conducted by Wang et al. (2020) asserts that *“retrospective studies of hospital records in 2011 indicate that RTIs accounted for 73.4% of all injury cases and 61.2% of fatal injuries in Kigali”*.

1.6.3. Time

This study is limited for a period of 4 years from 2018 to 2021, because the empirical study used a qualitative approach that focused on respondent's perception and views. This is to say that respondents relied on the memory, so 4 years were reasonable for respondents to remember the events and phenomenon. Another reason is that within 4 years the City of Kigali had experienced a huge change in terms of infrastructure, policies, the increase of vehicles and the number of law enforcers which are the major variables of the road safety operations on drink driving.

1.7. Organization of the study

The study is composed of five chapters. The first chapter focuses on historical background, problem statement, objectives, research questions, and the scope of the study, contribution of the study and organization of the study. Chapter two consists of literature review related to the study. Chapter three is about methodology which gives details about research design, population and composition of sample size, how the data was collected, coded, analyzed and processed. Chapter four comprises the analysis and interpretation of the outcomes from the collected data and the last chapter is based on major findings, conclusion and recommendations deduced from the analysis of the research findings.

CHAPTER TWO

LITERATURE REVIEW

2.0. Introduction

This chapter is about the literature review, which according to Abdallah (2010, p. 9); "refers to the effort made by researchers to recognize works conducted by other researchers and scholars on the same topic or similar ones". This chapter will define the key concepts related to the topic under research, will provide the empirical literature and theories related to the topic of research. All definitions, theories and explanations in this chapter have been extracted from various sources like, books, journal articles, magazines, study reports, news papers and from different relevant websites.

2.1. Definition of key concepts

This section is all about the definitions of various concepts used in this study

2.1.1. Road

The Law N°55/2011 of 14/12/2011 governing roads in Rwanda, specifically in its article 2, defines “public roads” as all roads, streets, public places, parking stations, footpaths, bridges and ferries. As a whole, all ways opened to public traffic by land or “roadway” meaning the part of the road for automobile traffic. In this research, road will mean “public road” as defined above.

2.1.2. Road safety

Road safety refers to reduce the risk of a person in accident (Younuss, et.al, 2019). Safety management programs consist of various initiatives, such as road improvement program, vehicle maintenance testing programs, campaigns to stop drinking and driving, speed enforcement programs, the development of road or vehicle safety standards, road safety research program, or other various road safety programs. Road safety can be managed by Education, Enforcement, Engineering, Environment and Emergency Service in road safety (Younuss, et.al, 2019). Enforcement of laws on detection of drunken driving reduces the road accidents.

The USA Committee on Alcohol, Other Drugs, and Transportation stipulates that the system of laws, enforcement, prosecution, and sanctions directed at impaired drivers exists both to catch

impaired drivers and, more important, to deter impaired driving: to convince people not to drive while impaired because they will suffer consequences if they do so (Alan & Hedlund,1998).

Citing the “Road Safety Manual for Decision-Makers and Practitioners” Kequin (2014) says that a country which is considered to be successful in reducing road crashes involving drinking and driving has six general success pillars which include : *“Strong political commitment to prevent drink-driving, Legislation that clearly defines illegal for driving levels of BAC and penalties for drinking and driving offences, Implementing good practice, Strong and well-publicized enforcement campaigns, Public education to change attitudes to drinking and driving and Strict and swiftly enforced penalties for those caught breaking the law ”*(Global road partnership ,cited in Kequin ,2014,p.48-49)

In the context of this thesis, road safety operations entail the Police enforcement strategies aimed at the reduction of drink driving behaviors.

2.1.3. Road Traffic Accident

Road traffic accident (RTA) is defined as any vehicle accident occurring on a public highway that is, originating on, terminating on, or involving a vehicle partially on the highway. It is also defined as an unplanned occurrence of auto crash that may result in injuries, loss of lives and properties (Fanuel, 2006, Agbeboh & Osabuohien, 2013, cited in Genru, 2017, p.5).

“Every day thousands of people are killed and injured on our roads. Men, women or children walking, biking or riding to school or work, playing in the streets or setting out on long trips, will never return home, leaving behind shattered families and communities. Millions of people each year will spend long weeks in hospital after severe crashes and many will never be able to live, work or play as they used to do”
(WHO, 2004)

According to Global Status Report on Road Safety, 2015, road traffic deaths attributable to drink driving are 58% in South Africa, 34% in Canada, 31 in United States of America, 30 % in Australia, 16% in United Kingdom and 9 % in Germany. Most of African countries including Rwanda have not provided the data of death attributed to drink driving related crashes (Nails, 2016).

2.1.4. Some causes of road accidents

Road traffic accidents are main cause of death and serious injuries worldwide (Decker et al., 1988). There are various factors that contribute to the high number of road traffic accidents and they are grouped into three main categories which include: road environment factors, vehicle factors, and human factors stated by (AFDB,2013). Likewise, it indicates that human factors rank highest in contribution of road accidents. For that reason, in this current research, the focus will be on human factors rather than other factors in our traffic safety programs though the other factors will not be ignored.

2.1.5. Alcohol

According to British Medical Association (BMA), alcoholic drink refers to whatever beverage containing ethanol (BMA, 2008). Then again, alcohol is a colorless volatile flammable liquid which is the intoxicating constituent of wine, beer, spirits, etc. It is also any organic composite containing a hydroxyl group. For Smith (2004), alcohol refers also to a drink containing alcohol. For the purpose of simplicity and suitability, in this research alcohol will mean any beverage containing ethanol. Because alcohol impairs the driver's ability to operate a motor vehicle, Drunk driving has a high probability to lead to serious traffic road accidents. However, the WHO (2018) suggests intensive enforcement for an effective deterrence of drink-driving and reducing rate of alcohol-related casualties (Ross, 1984; Anderson, Chisholm & Fuhr, 2009, cited in WHO,2018). The WHO reiterates that *"The relatively high rate of alcohol-related traffic casualties in many countries is strong evidence that enforcement of the laws is often weak"* (WHO,2018, p. 12). Therefore, to detect and arrest those drivers who drink and drive at a high risk to causing road accidents, road safety operations are vital which is purpose of this research to explore the effectiveness police countermeasures to reduce drink driving City of Kigali.

2.1.6. Blood Alcohol Concentration

Blood alcohol concentration (BAC) is the concentration of alcohol in blood. It is measured either as a percentage by mass, by mass per volume, or a combination (British Medical Association, 2008). Furthermore, as described by Mother Against Drunk Driving (MADD) (2014), BAC is the amount of alcohol in the blood. For example, if a person's BAC is 0.02% that means they have 20 milligrams of alcohol in 100 milliliters of blood. Each drink you have within a certain time frame increases your BAC. In this regard, many countries have been put in

place various measures to halt drivers who drive after drinking including publicity and education, tough drunk driving laws by establishing the maximum limits of BAC, use of breath alcohol test to detect drunkards. For many countries adopted their legal limits for BAC and they vary between 0.01% and 0.08% in order to reduce traffic road accidents that resulted from drink and drive. For instance, limit is 0.02% in Sweden; 0.05% in Israel, Korea, and Australia; and 0.08% in Canada, England, Mexico, and the United States. In China, driving with a BAC higher than 0.02% is defined as drink-driving and the driver will be penalized (Jones, 1990). Additionally, driving with a BAC higher than 0.08% is considered drunken-driving and it belongs to unlawful act (Xiao Hua et al. 2014, p.1), For the case of Rwanda, BAC is 0.08, to mean 0.08mg of alcohol, per 100ml of blood.

2.1.7. The concept of a standard drink

Alcohol is a direct cause of impairment and can result in charges of drink driving if a driver's BAC exceeds the legislated limit. The consumption of alcohol by drivers, even in fairly small amounts, increases the risk of being involved in a crash (The Global Road Safety Partnership, 2007).

There is little research and few reports about drivers' perceptions of BAC in Rwanda. In addition, there is no concept of a 'standard drink (SD) in Rwanda, which can make it difficult for people to keep track of their blood alcohol concentration (BAC). A "Standard Drink" is the amount of a beverage which contains 10 grams of ethanol, measured at 200C.

"The formula for the calculation is: container volume (litres) x % alcohol/volume (ml/ml) x 0.789 (specific gravity of ethanol = the number of standard drinks, to be shown to one decimal point (Wine Australia Corporation, 2011). For example, a 375 ml bottle which is 3.5% alcohol/volume would be calculated as $0.375 \times 3.5 \times 0.789 = 1.035$, to be rounded to one decimal place = 1.0 standard drink".

The use of standard drinks can help people to monitor their alcohol consumption and exercise control over the amount they drink. In Australia for example, to keep under the BAC limit, it is recommended by government that males can drink no more than 2 standard drinks in the first hour (10g of alcohol in each) followed by 1 standard drink every hour after that. However, it is recommended that females can drink no more than 1 standard drink every hour (10g of alcohol in each).

2.2. Road safety Operations

The prevention and deterrence of drink driving require a legislation to be implemented, a highly visible enforcement; strict and definite penalties; sustained and consistent levels of enforcement; extensive raising of public awareness, reinforcing the fear of apprehension; punishments reported to the public via mass media campaigns; and evaluation (The Global Road Safety Partnership, 2007).

Impaired driving detection begins with police observing a driver and observing a reason to stop him or her. The reason can be a traffic infraction, an action that is not in itself an infraction but is associated with impaired driving (such as driving unreasonably slowly), or a crash (Ross,1988). The impact of road safety enforcement is dependent on the type and frequency of enforcement and public perception of enforcement agents (Zaal, 1994).

The World health organization “Safer initiative” focusses on five key alcohol policy interventions namely : 1- Strengthen, a strategy aimed at the restrictions on alcohol availability, 2-Advance which is concerned with enforcement of drink driving countermeasures, 3- Facilitate aiming at the screening, brief intervention and treatment, 4- Enforce bans or comprehensive restrictions on alcohol advertising, sponsorship and promotion, 5- Raise prices on alcohol through excise taxes and other pricing policies (WHO,19,p.1).

In light with this initiative, WHO and partners suggested the following measures for governments who want to take concrete actions to counter drink-driving : *“blood-alcohol concentration (BAC) limits to be established and restricted (with lower limits for novice and professional drivers); sobriety checkpoints, random breath-testing, administrative suspension of licenses, graduated driving licenses for novice drivers and ignition interlocks”* and are effective in reducing alcohol-impaired driving; and other complementary measures such as *“driver education, provision of alternative transportation, counselling and, as appropriate, treatment programs for repeat offenders and carefully planned, high-intensity and well-executed mass media campaigns”* (WHO,2019,p.10).

The following non legal measures are implemented in the several states of USA states : *“citizen reporting systems, elimination of plea-bargaining for DUI offenses, computerized criminal and driving record retrieval systems for police cars, reduction of the blood-alcohol content standard from 0.1% to 0.08%, implied consent from all licensed drivers for blood-*

alcohol testing, immediate license suspensions for offenders, higher minimum fines, mandatory jail sentences, sobriety checkpoints for random stops, server liability laws, and a nationwide minimum drinking age of 21” . Another notable strategy is the use of a Victim Impact Panel (VIP) who’s the objective is to expose DUI offenders to the pain and suffering caused by drunk driving without necessarily condemning the DUI offender, also the second strategy in USA includes increasing public awareness of the DUI issue through the use of public forums such as media outlets, (Reinarman, 1988, Dean, et al, 2003, Holder &Voas,1997, cited in Fall, 2012).

For the purpose of this research, road safety operations will mean Police countermeasures against drink driving in Kigali. They include patrol, RBT, on road breath testing, vehicle impoundment, fines and arrests among others

2.2.1. Alcohol breath testing

According to Kequin (2014), the introduction of random breath testing (RBT) appears to have been an effective measure to reduce fatalities and injuries in both United States, Australian populations and other developed countries (Peek-Asa, 1999; Hart, Watson, & Tay, 2003, Watson& Freeman, 2007 cited in Kequin,2014). The best practices of RBT need to be unpredictable, unavoidable and ubiquitous, so as to maximize the deterrent effect. In Rwanda the first legal limit for blood alcohol concentration was introduced in 2018 (Kayonga,2020).

The practical use of breath testing in Rwanda is similar to China and Australia’ RBT in both cases traffic police officers are empowered to test any drivers’ BAC on the roadside anywhere and anytime. In Rwanda, reports revealed that Rwanda National Police conducted a nationwide crackdown on drinking and driving especially in the City of Kigali from2018 and during the end of year festivals and in some other special events.

2.2.2. Sobriety Checkpoints

Checkpoints at a sobriety checkpoint, police stop every vehicle (or every second or third vehicle) at a predetermined location to check whether the driver is impaired. Checkpoints can be an effective way of deterring impaired driving because they require all drivers to stop.

Enforcement using sobriety checkpoints is categorized in three main categories: the first is general checkpoint which is not specific to enforcement of drinking under influence (DUI) laws but covers also other road safety checks like driving license checks, speed, seat belt use, and helmet use.

Another type is Specific breath testing (SBT) which is a form of sobriety checkpoint where only drivers suspected of drunk driving by police officers are tested.

Sobriety checkpoints, in Rwanda, China, Thailand and other countries, are mostly short-term operations held during the night (10.00 pm to 12.00 am or 01.00-04.00 am) in high-risk areas such as nighttime entertainment zones. The practice in Rwanda differs from that in Australia where RBT is used or in Thailand and the United States of America where SBT is used because in Rwanda one same sobriety check mixes the two.

The third and most practiced in Rwanda is the special event sobriety checkpoint, which is implemented on special occasions such as major public holidays.

2.2.3. Police Patrol

Patrol includes routine traffic patrol, special impaired driving enforcement such as “blanket” or “saturation” patrols, and other Drugs special event traffic control. In some of these activities, police are looking specifically for impaired drivers; in others, they are not. Clearly, Alan & Helund (1998), the more time police are on the road, the greater are their chances of observing impaired drivers. Thus, the first method to improve impaired driving detection is to increase police patrol time.

Furthermore, to improve impaired driving detection is to help police use their patrol time more efficiently, by providing information on where patrol officers should look (Alan & Helund, 1998). Some patrol activity for instance is to targeted locations and hours favored by impaired drivers (e.g., near bars on weekend nights)

2.3. Drink driving

According to the United States department of transport, drink driving is the act of operating a motor vehicle or any other machine that involves transportation of passengers or oneself under the influence of alcohol or any other drug that causes mental impairment (WHO, 2018).

The term drink driving is used interchangeably with “alcohol-impaired-driving” (AID) driving under influence” (DUI) or “driving while impaired” (DWI) in America all to mean operating a motor vehicle after consuming alcohol with illegal limit (NTHSA¹, 2020, p.9). Drink driving is

¹National Highway Traffic Safety Administration

used in China to mean driving after consuming a drink containing $0.02\text{g}/100\text{ml} < \text{BAC} < 0.08\text{g}/100\text{ml}$) or drunk driving to mean driving after consuming a drink containing $\text{BAC} > 0.08\text{g}/100\text{ml}$ (Keqin, 2014, p.85).

This assertion draws a demarcation between driving after drinking and driving while drunk and both cases in China are punished while in Rwanda and other countries like America, Australia, UK, France among others the two terms “drink driving” and drunk driving are used interchangeably and punished in the same way as drunk driving. For the sake of clarity of this thesis Drink driving will mean driving after consumption of drinks with blood alcohol content (BAC) beyond legal limit depending on legislation, specifically 0.8% in Rwanda.

The concept of BAC is used in many countries, but the legislated limit defers from one country to another. For instance, 0.05% is the most legal BAC used in 53 countries including DR Congo, 0.08% in 44 countries including Rwanda; only Honduras has 0.01% contrary to Palau which has 0.10%. 20 countries don't have drink driving regulations including Burundi while 16 countries have zero tolerance policy to drink and drive and lastly 7 countries alcohol is illegal, saying that alcohol is not allowed in any case (WHO,2014).

The WHO warns that driving under the influence of alcohol seriously affects a person's judgment, coordination and other motor functions. Alcohol-impaired driving is a significant public health problem that affects both the drinker and, in many cases, innocent parties (WHO, 2018). According to the world Health Organization (WHO) under the FAFER initiative, driving under the influence of alcohol, or drink-driving, is a key risk factor for 27% of all road injuries. It affects not only the drunk driver, but also in many cases, innocent victims such as passengers and pedestrians. The WHO confirms that drink driving increases the chance of a road traffic crash (RTC), (WHO, 2018). Road Traffic Crashes (RTCs) cause unnecessary deaths and injuries with other social economic and health burdens that hamper sustainable development (ECA, 2018).

2.3.1. Effects of alcohol on the driving performance

Alcohol affects the driver's attitudes, judgment, vigilance, perception, reaction, and controlling due to the level of BAC (Xiaohua et al. cited in Kayonga, 2020, p.14). This is to say that the more BAC is higher, the more the driver fails to operate a motor vehicle which would result into traffic road accident. This study asserts that at a BAC of 0.035%, alcohol decreases hand

steadiness and operating. While at BACs ranging from 0.05% to 0.10%. Alcohol impairs the capacity and ability to control the steering and brake. This implies some other conducts associated to drink driving. The research conducted by found that driving while impaired is associated with other conducts According to Allan, et al., (2000, p.10), a study conducted by NTHS. This found that people who drive with alcohol concentration of 0.10 % or more are likely to exhibit the twenty driving conducts associated to drink driving that are

“Turning with wide radius, Straddling center of lane marker, Appearing to be drunk, Almost striking object or vehicle, Weaving, Driving on other than designated roadway, Swerving, Speed more than or below speed limit, Stopping without cause in traffic lane, Following too closely, Drifting, Tires on center or lane marker, Braking erratically, Driving into opposing or crossing traffic, Signaling inconsistent with driving actions, Slow response to traffic signals, Stopping inappropriately (other than in lane), Turning abruptly or illegally, Accelerating or decelerating rapidly; and Headlights off”

Table 1: Table illustrating BAC and potential effects on human body

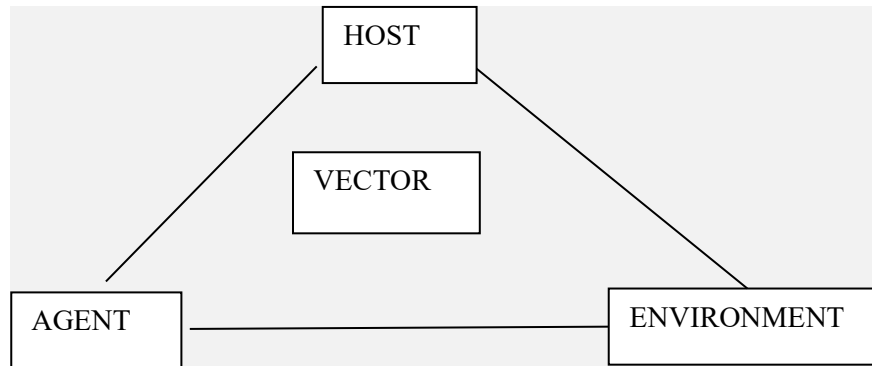
BAC (g/100ml)	Effects on the body
0.01-0.05	Increase in heart and respiration rates; Decrease in various brain Centre functions; Inconsistent effects on behavioral task performances; Decrease in judgment and inhibitions; Mild sense of relaxation and pleasure
0.06-0.09	Physiological sedation of nearly all systems; Decreased attention and alertness, slowed reactions, impaired coordination, and reduced muscle strength; Reduced ability to make rational decisions or exercise good judgment; Increase in anxiety and depression; decrease in patience
0.10-0.15	Dramatic slowing of reactions; Impairment of balance and movement; Impairment of some visual functions; Slurred speech; Vomiting, especially if this BAC is reached rapidly
0.16-0.29	Severe sensory impairment, including reduced awareness of external stimulation; Severe motor impairment, e.g., frequently staggering or falling
0.30-0.39	Non-responsive stupor; Loss of consciousness; Anesthesia comparable to that for surgery; Death (for many)
0.4&greater	Unconsciousness; Cessation of breathing; Death, usually due to respiratory failure

Source: The Global Road Safety Partnership, (2007)

2.3.2. Drink driving model

Kequin (2004, p.17) suggests that the Triad model used for the study of infectious diseases causation can be used in relation to drink driving due to their similar components. The triad for infectious disease causation consists of an external agent, a susceptible host, and an environment that brings the host and agent together (CDC, 2011, p. 52).

Figure 1: The epidemiologic triad of a disease



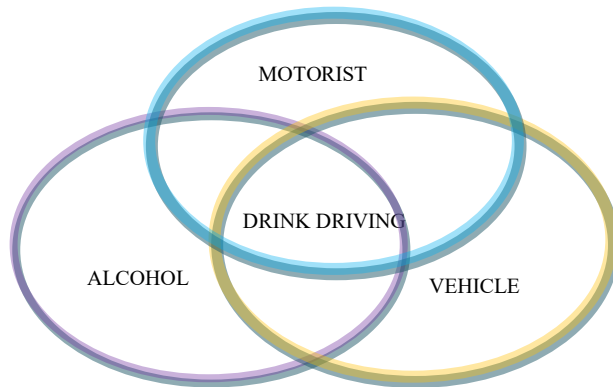
Source: CDC, 2011

According to this model an agent or pathogen can be a virus, bacterium, parasite, or other microbe which is to present for disease to occur; however, its presence alone is not always sufficient to cause disease rather the exposure of that agent to an organism will result in disease, including the organism's pathogenicity (ability to cause disease) and dose. Whereas, Host refers to the human who can get the disease. While Environment refers to factors that affect the agent and the opportunity for exposure (CDC², 2011).

When considering an episode of drink/drunk driving, the episode includes driver, motor vehicle and the presence of alcohol.

² Centre of disease control, department of health, USA

Figure 2: The epidemiologic triad model adapted to describe a drink driving occurrence



Source: Adapted by the researcher

Applying the epidemiologic triad of a disease triad of a disease to the study of drinking driving, the model of drinking and driving can include three components: alcoholic drink, the motorist who consumes and a vehicle. In this case, the presence of alcoholic beverage is not enough to cause drink driving, like any other agent of infectious disease; there is need to the agent (alcohol) to be served to the host (driver) who is also susceptible of driving after drinking. For a host being drunk is not enough to be exposed to drink driving, rather it is imperative to operate a motor vehicle for drink/ drunk driving to occur.

Considering the above adaptation of the triad of infectious disease to drink driving, it can be seen that there are three components that lead to a drink driving episode, and that drink driving could not happen if any one of the three components were absent. It is evident that among the three, the motorist is the key component because only the motorist can combine the three components together.

Different Scholars found that the most effective way to reduce drinking and driving is to combine laws and enhanced enforcement with a public education campaign (Sweedler, Biecheler, Laure, Kroj, Lerner, &Mathijssen, 2004, Cited in Kequin,2004) rather than putting focus on only one of these components individually.

2.3.3. Alcohol taxation and pricing policies

Alcohol being one of the components of drink driving triad, some scholars argues that it is important to control it through taxation and the World Health Organization (WHO) to include taxation and pricing control measures among the recommended policies in its Global Strategy to Reduce the Harmful Use of Alcohol. Taxes affect alcohol price and thus alcohol availability, which directly influences consumption levels and subsequently problem levels. Therefore,

taxation policies and other measures affecting alcohol availability are key public health tools to reduce alcohol-related mortality and other problem rates (Babor et al., 2010)

Alcohol taxation and pricing policies are among the most effective and cost-effective alcohol control measures (Bundit et al., 2017).

Taxation in part determines the price of alcoholic beverages (Babor et al., 2010). Two indicators that are used to describe the effectiveness of taxation and pricing policies are price elasticity and tax elasticity. Price elasticity is determined by the percentage change in an outcome of interest that results from a 1% increase in price (Bundt, 2017).

“For example, a price elasticity in the demand for beer of -0.4 means an increase of 10% in the price of beer is associated with a 4% reduction in beer consumption; a price elasticity in traffic fatalities of -0.2 means a 10% increase in the alcohol price is associated with a 2% reduction in traffic fatalities. Similarly, tax elasticity is determined by the percentage change in an outcome resulting from a 1% increase in taxation. For example, a tax elasticity of demand for beer of -0.2 means an increase of 10% in beer tax is associated with a 2% reduction in beer consumption; a tax elasticity of traffic fatalities of -0.1 means a reduction in traffic fatalities of 1% results from a 10% increase in alcohol taxation” (Wagenaar et al., 2009b; Wagenaar et al., 2010, cited in Bundt, 2017).

2.3.4. Punishments of drunk drivers

Surely, if a person drinks alcohol or drug, and exceeds BAC limit of 0.08 g/dl he/she loses the ability to focus and function properly. This is unsafe especially to those people when operating a vehicle. So, driving under the influence of alcohol enlarges the possibilities of road coincidences together with the decrease and harm that might happen to road users (Agbonkhese et al., 2013). All over the world, a driver is said to be driving while intoxicated (DWI) or driving under the influence of alcohol (DUI) if he/she has BAC 0.08 or above (Elvik et al., 2009 as cited in Assum et al., 2005).

However, each and every country has its legal BAC limits as discussed earlier. Even there are legal BAC limits for each country to restrict people from drunk driving but some people continue driving while intoxicated putting not only their lives but also lives of other people in danger.

For that reason, those drivers who violate BAC legal limits are punished for an offence of driving under influence of alcohol as determined by the law of every country. As stated by Agnew and Cullen (2011), if an individual is punished for her/his wrongdoings, the punishment received constitutes a specific deterrence for him/her to not repeat the same bad behavior. It means that this particular discouragement indicates the consequences that a penalty has on the particular offender. In other words, specific deterrence has the deterrent effect of direct experience with punishment and punishment avoidance. For instance, if a driver is punished once for driving under influence of alcohol, they may determine that drink and drive is not value to be penalized once more, so he/she would stop to drink and driving next time. Thus, punishment is a vital element in reducing road accidents; and they are different in various countries.

In United States for drivers suspected the punishment are 180 days and/or \$1,000- and 6-months license revocation and imprisonment of 10 days (Metropolitan Police Department report, 2016). This punishment is too heavy for the reason of fearing the drinking and driving as many factors of traffic roads accidents.'

In Indian, if a driver shows alcohol level above the permissible limit in the test, the offenders are liable to pay Rs 2000 fine and/or could be imprisoned for six months. For the second incident (within three years), the fine amount increases to 3,000 and one could face jail term for two years (Delhi Auto report, 2018).

Furthermore, other countries apply strong and harsh punishments to deter drivers from drink and drive cases. According to WHO (2015) indicates that in Missouri: a driver that convicted at the first time for driving under the influence of drugs (DUID) results in a 90-day suspension, and he/she is restricted for driving. If a driver is charged again the same offence within a five-year period, she/he gets a 5-year license denial; for the third sentence is a 10 years license denial.

Also, in France, drinking and driving is punishable by the equivalent of a \$1,000 fine, imprisonment for one year, and loss of license for three years. Finland and Sweden automatically sentence drunk drivers to one-year jail sentences including hard labor. Norway, a drunk driver is jailed for three weeks with hard labor and the offender loses their license for a year. If they, do it again, they lose their license forever. In Russia,

drunk drivers simply lose their license for life. Singapore law says that even first-time drunk drivers face fine of up to \$5,000 or six months behind bars. For repeat offenders, the fines and jail time can be increased by up to 500 percent.

South Africa, drinking and driving results in a ten-year prison sentence or the equivalent of a \$10,000 fine and, in some cases, both.

For the case of Rwanda, there two alternatives to punish them which are fines equivalent to 20,000frw or imprisonment of 6 months to 2 years stipulated in article 157 of Rwanda penal code, though this punishment is not frequently used except if the accident resulted into death. However, the current punishment for drunk driving is a fine equal to 150,000 frw and five days imprisonment (Traffic and Road Safety report, 2019). Looking at those punishments for drunkards, it indicates how some countries take severe measures to handle the issue of drink and drive in order to reduce road accidents but Rwanda has lenient punishment compared to other countries; and this may have less deterrence to drunk drivers.

2.4. Theories related to the study

To understand why people, resist driving after drinking alcohol despite Police enforcement efforts, this study will adopt a multi-disciplinary approach to theory, drawing on perspectives from psychology, sociology and criminology. The deterrence theory and social learning theory will be examined to find out how they are applied to drink driving enforcement. The two perspectives have some similarities but differ from their areas of focus (Barry, 2004, p.4).

On one hand, Gibbs (1977) explains that deterrence theory is a criminological perspective grounded in sociology which is concerned on the legal sanctions influence on criminal behavior. While on the other hand, Akers (1990) asserts that social learning theory is a psychologically-based perspective concerned with the overall social setting in which behavior occur and the way in which they are rewarded and punished.

2.4.1. Deterrence theory

Deterrence theory has been used to explore the relationship between individual fear of perceived consequences of the act and whether or not they will avoid offending behaviors (Homel, Carseldine, & Kearns, 1988). Punishing drunk drivers is an avenge to the victims,

friends and relatives; not through vengeance but deterrence. This deterrence imposed to those who defy drink driving laws must be Swift, certain, and severe punishment to persuade others refrain from drink driving in future (Ross, 1984).

This assertion is similar to Homel, et al., (1988) and Vingilis (1990) who stipulate the “fear is determined by a combination of the perceived risk of being apprehended and the perceived certainty, severity, and swiftness of punishment associated with apprehension”. The above scholars’ assertions make believing that any countermeasure that aims to bring a strong deterrent effect on drink driving should inflict fear to people by making them perceive a swift, certain and severe punishment, and supported by the USA Committee on Alcohol, Other Drugs, and Transportation which reiterates that “deterrence theory says that to be effective, these consequences must be swift, certain, and severe (and research strongly suggests that swiftness and certainty are more important than severity)” (Alan & Hedlund, 1998).

Kiptoo & Brown (2014) claim that road safety countermeasures could be used to influence drivers to perceive a certain detection for drink driving through the “*unpredictable, unavoidable and ubiquitous*” manner it was undertaken (Homel 1993 cited in Kiptoo & Brown, 2014, p.2). Consistent to the above assertions, Homel (1988) claims that “*drivers who are aware of RBT enforcement are less likely to engage in drinking driving behavior, as they will perceive drink driving as a potentially costly and illegal act*”.

There are two types of deterrence road safety perspective namely specific and general deterrence. Specific deterrence concerns an individual who has experienced punishment for a criminal offence and refrains from further offence. Whereas general deterrence means an individual has not experienced any punishment but refrains from committing an offence because of the fear of apprehension because of observation of the criminal punishment on others or media publicity or through relevant campaigns (Homel, 1988; Watson, 1998).

In this research, these two types of deterrence are used to explore the deterrence effects brought by law enforcement countermeasures on drink driving behaviors in Kigali City. Considering Homel (1993), Homel (1988), Ross (1994) and Watson (1998), One can believe that consistent with Kiptoo & Brown (2014), Law enforcers to make drivers perceive to be punished should resort to different strategies like robust and publicized check points, patrols and RBT that could

send message reflect swift, certain and severe punishment for drink driving such as incarceration, fines, vehicle impoundment and so forth.

In light to this, Homel (2004) asserts that some studies suggest that threatening to shame people is a powerful tool for inducing compliance with the law, creating the circumstances in which people cease to be shamed for not committing an offence can be an equally powerful strategy for promoting law abiding behavior. This assertion explains clearly on how the incarceration of offenders induces the sense of shame and humiliation that could result in desisting from drink driving and consequently, others could have learned from them.

However, we expect that the target population (drivers who drink) have become aware of traffic regulations in regards with drink driving through *Gerayo Amahoro* campaign and have been exposed to RBT operation in some ways; and so that as a result they may have increased their perceptions of the chances of apprehension or drinking and driving; and that as rational actors they will have changed their drink driving or practices to avoid committing the offence, or at least to avoid arrest.

2.4.2. Social learning theory and alcohol-related behavior

Social learning theories can be broadly understood as a social behavioral approach that emphasizes the “reciprocal interaction between cognitive, behavioral and environmental determinants” of human behavior (Bandura, 1977, p.vii). Winfree et al. (2007, p. 330), claims that individuals interact with persons (family and peers, for example) who may engage in either deviant or nondeviant conduct. Such associations expose individuals to a variety of definitions or attitudes that may be approving or disapproving of deviant acts, including drunk driving.

According to social learning theory, alcohol users should be distinguishable from abstainers not simply in terms of their alcohol-using behaviors (e.g., drunk driving), but also in that alcohol users have more alcohol-using associations, profess adherence to and belief in pro alcohol definitions and orientations, and have been exposed to more pro alcohol role models (Akers, 1985).

The empirical studies in Rwanda suggest that social drinkers are mostly young people and contact areas for Rwandans are mainly bars and hotels. Linking social learning theory to drink driving one may be right to associate the social drinking to drink driving from the fact that most of alcohol users who own vehicles attendant evening social events in bars with their vehicle.

From a social learning perspective, these social events that deviant and criminal conduct like drink driving is learned and sustained via associations with family and peer networks. Recognizing that such associations are the source of deviant and criminal behaviors, then they could be changed “*to the extent that one is able to manipulate those same processes or the environmental contingencies that impinge on them*” (Akers and Sellers, 2004, p.101, cited in Bundt, 2007)

Relevant to the drink driving triad these policies should not only focus on the drunk drivers and vehicles but also to their environment which includes the alcohol supply and drinking culture. They should focus on strategies that provide positive experiences and role models for young people serves to expose them to conventional norms and values that might diminish future delinquent or criminal acts (Pundt, 2007).

CHAPTER THREE

RESEARCH METHODOLOGY

3.0. Introduction

This chapter shows the research design, population of the study, sample size, sampling techniques and the methods used by the researcher to collect data, analysis and interpretation.

The major sources of information namely primary and secondary data have been used. The study adopted qualitative approach for the data collection and analysis. The qualitative approach enabled the researcher to understand, observe and offer meaning to constructed social reality.

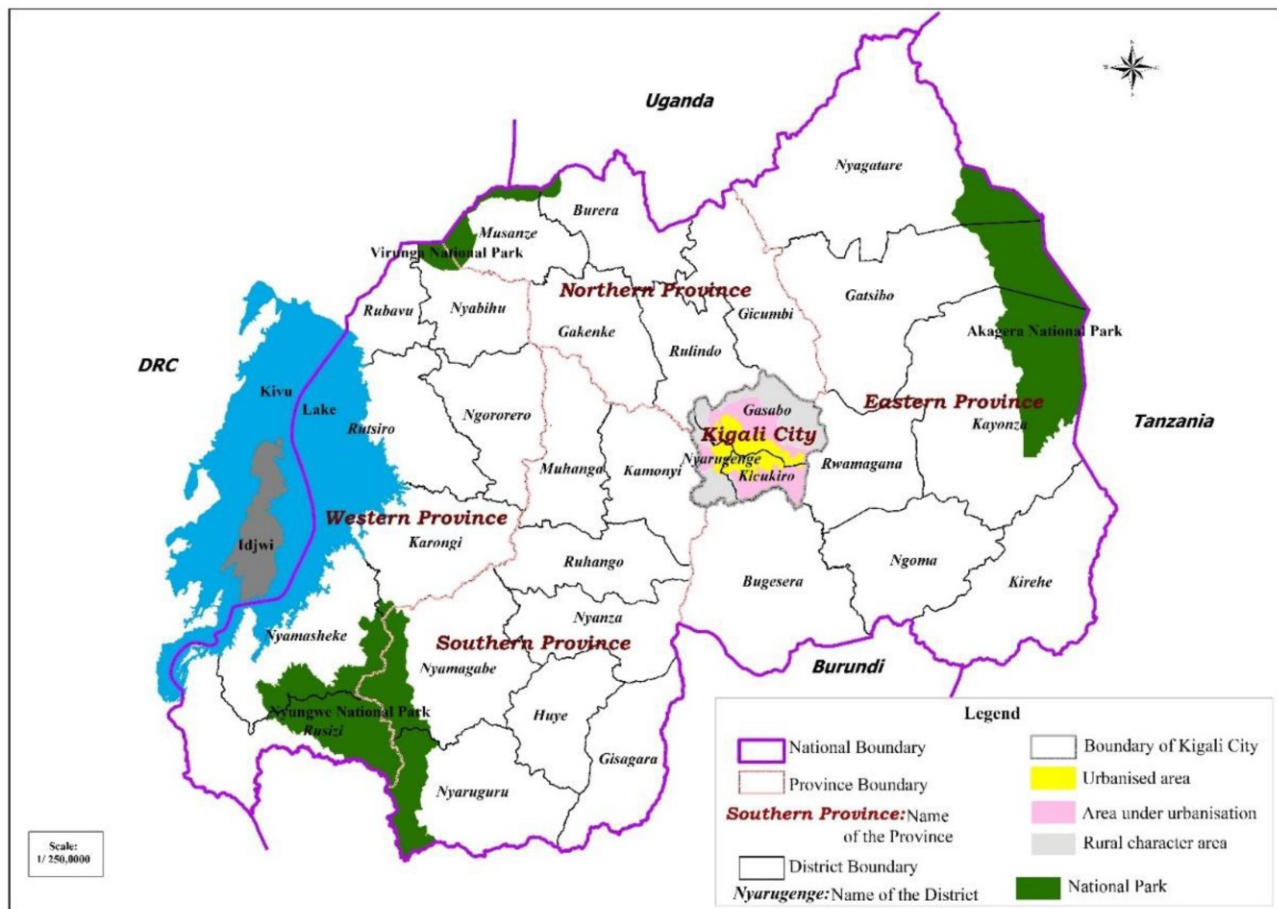
3.1. Research design

The research design is “the conceptual structure within which research is conducted; it constitutes the blueprint for the collection, measurement and analysis of data” (Kothari, 2004, p.31). Concerning the research at hand, the researcher used quasi-experimental research approach. Qualitative approach was used to interpret theoretically underlying reasons, opinions, and motivations present in data collected from interview, focus group and reports.

3.2. Area of the study

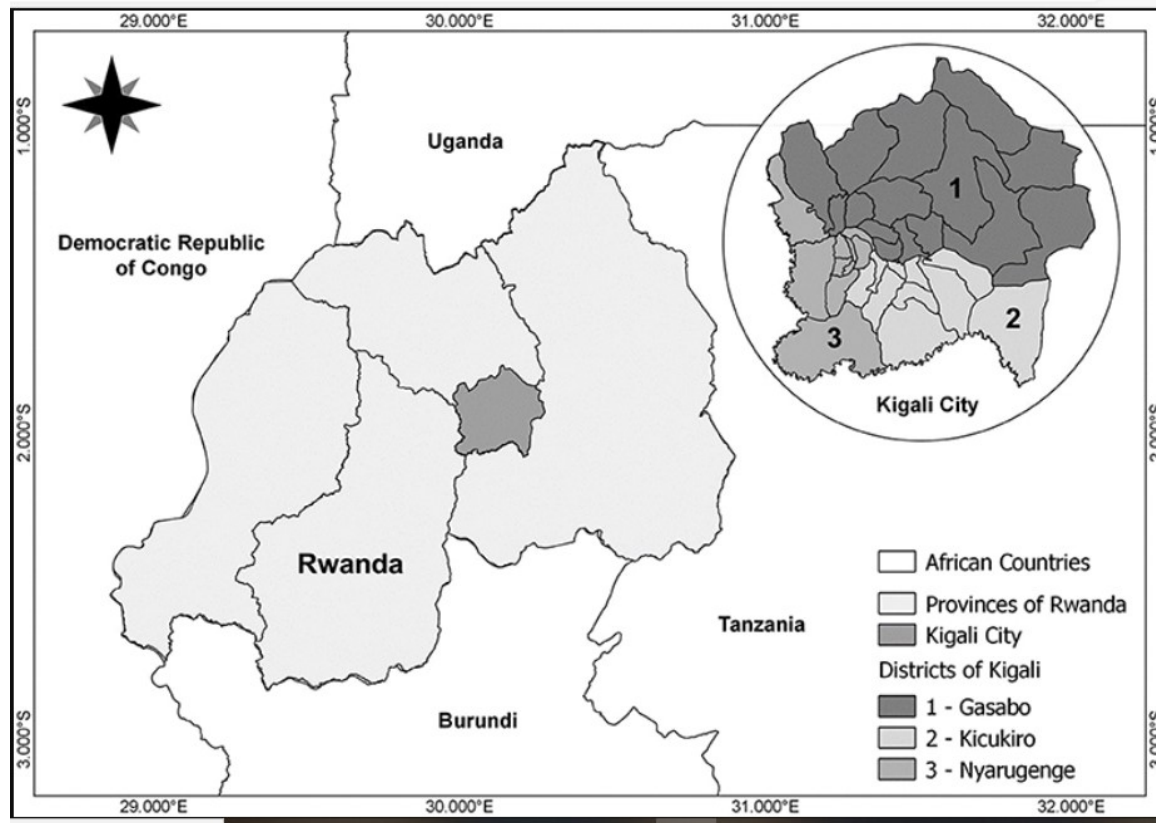
The current study, explored the effectiveness of road safety operations and drink driving issues, it has been conducted in City of Kigali where police operations against drink driving were intensively conducted and as a pivotal business area in the country, bars and pub work overnight and attract people to drive while they are drunk. The City of Kigali (CoK) is the capital city of Rwanda, it is divided into three districts: Gasabo, Kicukiro, and Nyarugenge. Reference to 2012 Rwandan Census, the population of Kigali was 1,132,686 of which 859,332 were urban residents. The population density was 1,552 inhabitants per square kilometer. CoK was chosen by research because of its nature of the fast-growing city with modern drinking facilities that work day and night (bars and night clubs). The population density in Kigali is 2,535/km (NISR, 2017); Kigali also contains 70 % of the registered vehicles in Rwanda (RRA, 2021). Previous study on RTC hotspots in Kigali conducted by Wang et al. (2020) asserts that “retrospective studies of hospital records in 2011 indicate that RTIs accounted for 73.4% of all injury cases and 61.2% of fatal injuries in Kigali “.

Figure 3. Location of Rwanda and City of Kigali



Source: Uwayezu, E, 2019

Figure 4. Location of the province of City of Kigali



Source: Wang et.al,2020

3.3. Population

A population is a summation of all the organisms of the same group or species, which exist in same geographical area. It is a group of people or items that share one or more characteristics or from which data can be collected and analyzed (Strydom, 2005). Therefore, from this group of people some of them are more targeted by the research and this is where the sample was chosen. This study focuses on four categories namely Traffic Police officers, drivers and RIB officers. The Total population was 400 traffic police officers, 50 RIB officers and 2000 drivers, who were assumed to have information about road safety operation and drink driving reduction in the City of Kigali.

3.4. Sampling and Sample Size

According to Kombo and Tramp (2006), sampling is about targeting a group of people believed to be reliable for the study, this group is considered as representative of population of the study in order to get and make analysis of data corrected as for all population (David, 2005). This study uses non-probability sampling where each individual does not have the same chance of being selected.

Sampling is used to select representative cases of the population, not with the purpose of generalizing results but just wanting to look at certain research questions within certain cases which we assume represent the population (Abdalla 2010, p. 13-14).

The sample of this study targeted population representatives who are directly involved and who have been in relation with drink driving issues, because they are able to provide necessary information to the researcher.

Table 2: Table of Sample Size

Category	Police	Investigators	Drivers
Number	10	6	25

3.4.2 Sampling technique

The purposive sampling focuses on participants who have required status and capable to provide the information the researcher seeks where a researcher uses him or her own judgment to select units from the target group. (Lopez & Whitehead, 2013, and Amin, 2003). The size of the selected participants depends on the study, it should be large or small (Russell 2001).

Due to the nature of the study, it used the intensify Sampling Method where the researcher selected purposively the sample of individuals whom he/she judges to be thoughtful, informative and experienced in drink driving issues. However, because drink driving enforcement is suspected and assumed to be wrongly perceived by some people, it has been included in the samples some people who were punished for this offense.

3.5. Data collection methods

For the purpose of completing this research, primary data and secondary data will be necessary. Primary data is that data that will be collected by the researcher at the first time while secondary

data is that data collected by another person (Kothari, 1990). For this research, the following collection methods were used:

3.5.1 Interview

According to Mathers (2007, p.8), an interview is an interaction in which oral questions are set by the interviewer to elicit oral response from the interviewee. To successfully apply this method, the researcher created a report with a view to increasing the receptiveness of the respondents by making them believe that their opinions were very useful to the study and were going to be a pleasure rather than an ordeal.

The method of data collection used in this study was majorly interview. Semi-structured interviews were conducted with open-ended questions and offered the best avenue for gaining information and encouraged in-depth responses of traffic police officers, RIB officers and drivers selected for the research based on their experiences on the matter under study

Due to Covid 19 restrictions, semi structured interview questions were given to respondents using Google forms and WhatsApp video calls as alternative to face-to-face interviews where it was not possible.

Three categories of population were considered. First, 02 focus groups of taxi drivers composed of 4 and 6 participants each, participated voluntarily in the semi structured interview. Using semi structured interviews 8 professional drivers were interviewed. Eight traffic police officers with a variety of experience and expertise and positions of rank. There were 8 police officers of the rank from Caporal to Senior Superintendent and one Assistant Commissioner of Police. There were and 4 out of 6 RIB officers. The same method has been used to interview 02 representatives of private transport companies.

In both groups of respondents, the semi structured interview was supplemented with WhatsApp chats and video calls to clarify some view shared through google forms. This shows that at least 98% of participants were interviewed and shared their opinions about police operations and drink driving behaviors to gain an in-depth understanding of the existing problems.

The researcher is confident to say that the information obtained is representative and dependable enough to be used to answer the research questions and produce reasonable conclusion and recommendations in this study.

3.5.2. Focused Group Discussions (FGDs)

The focus group discussion (FGD) is a rapid assessment, semi structured data gathering method in which a purposively selected set of participants gather to discuss issues and concerns based on a list of key themes drawn up by the researcher/facilitator (Kumar 1987, p. 1-2).

The FGD has become extremely popular because it provides a fast way to learn from the target audience. It is also a cost-effective technique for eliciting views and opinions of the target group and it has been also used to obtain insights into target audience's perceptions for certain practices (Debus 1988; US Department of Health and Human Services 1980).

In the case of drunk driving, FGD was composed of 4 people from the target populations were purposively selected from 2 categories. The FGD has helped in comprehending and fine-tuning the data collected from interview and reports

3.5.2.Documents Reviews

This method used to collect secondary data. Minding that, secondary data is the information that is collected basically for a purpose different from your current research but has some relevance and utility for your research (Matthews and Rose 2010, p.285).

Secondary data on the other was collected by others and documented by institutions or organizations. E.g., police accidents records, reports, law regulating drive drinking, and Road Safety Regulations. Under secondary data, the researcher has collected scholars' materials such as books and journals, social media webs like twitter and Facebook, video and audio documentaries.

3.6. Interview management

Data collected using google forms were recorded and coded, Code P was used to police respondents, D to drivers, R to RIB officers and A to transport service providers. Interviews were conducted in Kinyarwanda and translated in English by the researcher.

3.7. Data Analysis and Interpretation

This section is about the methods used while analyzing the collected data. According to Hesse-Biber (year not indicated), the main goal of analyzing data is to analytically reduce the data by producing summaries, abstracts, coding, and memos; finding ways to your display data (matrices, frequency counts and others), drawing conclusions and test their validity.

The interview data have been analyzed using codes and categories. Here, we talk of data analysis as data reduction where the large amount of data is made manageable.

In this specific study, data collected through interviews, and focus group discussion was analyzed searching for commonalities, which lead to categories and these categories were given codes in which were broken down to have themes and the data were analyzed in accordance with those identified themes.

According to Hesse-Biber for better understanding of what a code is, it is defined as "symbol applied to a section of text in order to easily categorize it in relation to the research questions".

According to literatures, while analysis deals with what the data says; the interpretation focuses on what the data collected means. Interpretation refers to the task of drawing inferences from the collected facts after an analytical and or experimental study. In fact, it is a search for broader meaning of research findings. During the interpretation of the data in this study, the following questions were considered:

- a. What is important in the data in relation to the study?
- b. Why is it important?
- c. What can be learned from it?

All in all, interpretation is as a basic component of research process because of various reasons including but not limited to helping the research in grasping the meaning of the data collected, which is essential for the usefulness and utility of research findings to arriving at an informed conclusion.

3.6. Ethical Consideration

The researcher sent request letters to the Inspector General of Police requesting permission to conduct my research in the department of Traffic and Road Safety (TRS) and permission was granted. A formal message was sent to traffic police and all the districts under in Kigali City of my presence in the City.

All necessary preparation were made to address possible ethical issues that can arise during interview with drivers and police officers particularly NCOs. Participants were briefed about the purpose of the study before the interview guides were administered and consent was

explicitly sought. The researcher introduced himself as student at the University of Rwanda to avoid any influence of police authority. All participants were asked to choose a convenient venue for group discussions but all of them left me with freedom decide. Ubumwe Hotel was a convenient place for three reasons, firstly it is in the Centre of Kigali city which makes easier drivers from different district of Kigali city to reach there a lower cost. Secondary it is not far from Traffic Police head quarters to make it accessible to traffic police officers who don't have their own vehicles. Lastly the hotel has an upper roof space that provide security and privacy to participants.

On the issues of Anonymity, all respondents were told that any information that could have revealed their identity will automatically be destroyed, also the designed interview guides didn't provide any other identity except anonymous demographic information. No information revealing the identity of any individual has considered in the final study.

In regard with consent, the respondents were asked to be free to respond however they want and also informed their rights to withdrawal from the interview and even withdrawal the information given.

3.7. Limitations and strategies

Challenges and/or risks that had been expected before and during data collection included unethical behavior as far as conducting a research is concerned, loss or lack of time. Other challenges that were expected before the research started were like the unavailability of participants where some of them like the drivers and police officers could not easily be reachable, confidentiality and privacy issues, to name but a few. The current study was subject of four major limitations; Thirst is COVID 19, the study was conducted in different episodes of Covid 19, where total and partial lock downs were imposed by the government. This has impacted the field work because the research has been disallowed to move from Musanze which is the area of residence to Kigali the area of study. Also due to COVID 19 guidelines the research minimized the number of participants in a focus group interview, where maximum of participants could not exceed four. Also, due to movement restriction in evening hours, some respondents who could be willing to share their experience have not been reached due to these restrictions.

To overcome this challenge, the research created google forms with all open-ended questions of interviews guides and send to them through WhatsApp. It has been a successful and reliable solution as it provided a room to participants to express their views in free way without bias or influence.

The second limitation was an issue of literature on Road safety operations and drink driving in Rwanda. This resulted on the study relying on old western literature. Rwandan literature would have enhanced the analysis by providing domestic perspectives. As this, is missing in the current study, on a positive note, it can be said that this research is potential to a starting point for reference of future research in the Country.

The third limitation was about language. All data were gathered in Kinyarwanda, the Rwandan national language, which my first language and the chosen language of all respondents as were all Rwandans. It has been great during field work and data analysis. However, it posed a challenge of translation. Translating passes from Kinyarwanda, my first language to English, my third language was not really a clear cut. To overcome this challenge, many efforts were made. For example, I used to google translator and Kinyanda-English dictionary. After this process, I read through the translation and compare with Kinyarwanda version to check if the meaning remains the same and recruited an editor to confirm if the translation version matches the original Kinyarwanda statements.

Challenges related to documentation, were expected as Mann et al. (2005, p.322) asserts that police reports on factors involved in collisions (including alcohol) have modest levels of sensitivity, they have excellent levels of specificity and they are adequate for assessing trends over time, in the other hand Barry (2004, p.113), suggest that the use of official statics is associated with other constraints that may affect the quality of data.

Firstly, only official data police are those collected from Police for both drink driving arrests and crashes. Drivers are discouraged to report non-fatal crashes which favor negotiation between drivers. Consequently, some crashes go unreported especially where the crash is minor in nature and/or where no other road users involved.

Secondly, police data does not show first offenders and recidivists, which could help in the analysis of cases and develop strategies that fit circumstances in which drink driving incidents occurred.

Thirdly, information relating to contributing factors to crash (drink driving, fatigue, recklessness, speeding etc.) and the attribution of fault is based to judgment of the attending police officer. For example, it is possible that police may find a drunk driver responsible to a crash and attribute this to other factors like recklessness.

The current study found that police keep records of accidents caused by drink driving but there is no available data on victims of drink driving accidents.

3.8. Conclusion

This chapter has tried to explain in detail the methodology used and the rationale behind its use so as to get reliable and valid data, which also helps me to reach fruitful findings. To recall, data collection methods and rationale behind being selected have explained. Additionally, data analysis and interpretation methods have also been clarified all with a view to helping readers of this study to fully understand the reliability and validity of findings.

CHAPTER FOUR

FINDINGS OF THE STUDY

4.0. Introduction

This chapter is about the results of the research, interpretation of the results and the analysis of the information obtained from research respondents. It is an important part that responds to the research questions with an aim to achieve the overall objective of the study. Consequently, it helps to assess effectiveness of road safety operations in the reduction of drink driving in City of Kigali.

4.1. Characteristics of the respondents

This was a purposive research that focused to participant whom the researcher chose depending on their access to the information and the experience they have to road safety operation and drink driving issues. Others were also chosen due to the perceived exposure they have on drink driving enforcement. In this regard 4 “taxi voiture” drivers, 6 general drivers, 02 transport companies’ employees, 8 police officers and 4 RIB officers were interviewed as members of the target groups.

4.2.1. Information on gender

Gender differences help in data interpretation to postulate the different perceptions that may impact the research.

Table 2: Gender respondent

Please provide info on your sex	Frequency	Percentage
Male	32	89%
Female	04	11%
Total	36	100%

Source: Primary data, dated, April 2021

The above table of respondent reveals that respondents were 36 from whom male were 32 which is 89% and 4 female respondents constituting 11% of all respondents. It shows how much the number of female participants in this study is small compared to that of male. The cause of this big difference can be found from the fact that the number of female police officers in traffic police and in driving services is highly small compared to their colleagues male; this has no big impact in

analysis of data because their views and opinions are relevant as they are to male and relatively reliable due to their experience with exposure.

4.2.2. Identification of respondent based on age group

Age is a critical element in regards of a research concerning drink driving like. Respondents required having an assured age for them to be considered mature enough to provide reliable information to the study. In this regard, researcher selected those who were aged from 19 to 60 years. This range of age was chosen because the Rwandan law prohibits people below 18 years to drink alcoholic beverage and also 60years old is a retirement. The assumption was that respondent above 60 years and less of 18 years could not be reliable informants

Table 3: respondent based on age group

What is your age group?	Frequency		Percentage	
	Male	Female	Male	Female
19-29 years	6	3	18.75%	9.375%
30-40 years	12	1	37.5%	3.125%
41-50 years	8		25%	
51-60 years	2		6.25%	
Total	28	4	87.5%	12.5%

Source: Fieldwork research, 2021

The table above shows that respondents age ranges from 19 years to 60 years old for both male and female, the big number is in the range of 30 to 40 for male and 19 to 29 for female. This reflects how much all respondents are mature enough shows the reliability and validity of information on the subject under study.

4.2.3. Identification of respondent based on their educational level

Participants in this study have different levels of education which afford a significant meaning to this research as education plays a big role on how people contextualize phenomenon's and influence their perceptions. This means that level of education influences one's opinions and this will enrich this research with a diversity of information.

For the purpose of this study these respondent's levels of education are categorized as shown in the table below

Table 4: Respondent based on their educational level

What is your level of education?	Frequency		Percentage	
	Male	Female	Male	Female
Primary				
Secondary School	8	2	25%	6.25%
Bachelor's degree	18	2	56.25%	6.25%
Master's degree	2		6.25%	
PhD				
Total	32	4	87.5	12.5

Source: Fieldwork research, 2021

The above table shows the majority of participants fall in the range of Bachelor's degree occupying 56, 25% of the total number of participants followed by the category of those who studied secondary school 25% while masters holders are 6.25% and no one studied primary school only. The fact of having all respondents who completed their secondary school and above, it is evident that they are intellectually mature and able to understand the issue under study and give their opinions and views reasonably. Therefore, they provide dependable information that makes the findings of this study to be reliable.

4.2.4. Information on working experience of respondents

It has been noted that skills and experience play a big role in performing a certain job or duty. In this context, traffic police officers necessitate the skills in various fields such as being knowledgeable on road safety regulations as well as having experienced in identifying and detecting those drivers who drink and drive.

Furthermore, drivers are more experienced and aware of traffic rules and regulations and dangers that may result from the violation of those rules. In this study, the researcher selected those respondents who had a minimum working experience at least of three years

Table 5: working experience of respondents

How long have you been in service	Frequency		Percentage	
	Male	Female	Male	Female
2-5 years	4		12.5%	
6-10 years	11	3	34.375%	9.375%
Above 10 years	13	1	40.625%	3.125%
Total	28	4	87.5%	12.5%

Source: Fieldwork research, 2021

The results contained in the above table shows that 40.62% of respondents have experience of more than 10 years of service, 34.37 have the experience of ranging between 6 and 10 years while 12.5 % have experience ranging from 2 to 5 years. This is an important indicator of the reliability of the information collected from these respondents and their contribution to this study deemed to be significant since it is based to their experience and expertise in road safety matters.

4.2. Presentation of findings related to the research Questions

Under this section, the researcher presents the research findings related to the specific research questions of the study which are How effective checkpoints are in the deterrence of drink driving in the City of Kigali? What factors influence the effectiveness of police patrol in the detection of drink driving in the City of Kigali? and how effective education and campaigns are in the prevention drink driving in the City of Kigali? and finally relate findings to the theories used in this research.

This section analyzes the findings obtained from both primary data which are obtained from interviews with drivers, Traffic police officers and Rwanda Investigation Bureau (RIB) officers and secondary data obtained from road and safety department reports and Rwanda Investigation Bureau reports.

Table 6: Accidents causes in Kigali

S/N	Year	2017	2018	2019	2020	2021	TOTAL
1	Over speed	N/A	296	325	627	296	1544
2	Drunkenness	108	115	78	443	144	1,032
3	Reckless Drive	1189	867	395	300	84	1974
4	Wrong maneuvers	1033	972	861	337	465	3368
5	Violation of Right of Way	558	539	397	241	191	1962
6	wrong overtaking	331	313	148	225	124	941
7	Failure To respect safe distance	235	254	138	96	276	1998
8	Lost Control	125	50	25	19	0	219
9	Pedestrian behaviors	10	1	0	10	4	25
10	Mechanical failure	19	5	3	N/A	0	27
11	Road Cond.	1	0	0	N/A	0	01
12	Weather Condit.	0	0	0	N/A	0	00
13	Road Signs status	0	0	0	N/A	0	00
14	Other	0	1	1	N/A	N/A	02
	TOTAL	3827	3413	2371	2298	1584	12,139

Source: RTS, May 2021

This table illustrates how much road accidents are a threat to lives in City of Kigali and most of them are attributable to the drivers, among them drink driving and over speeding are the main causes of fatal and deadly accidents while others like wrong maneuvers, reckless driving, violation of right of way and failure to respect safe distance are main in causing accident with lesser bodily injuries.

Table 7: Road accidents deaths and bodily injuries

S/N	Year	2017	2018	2019	2020	2021	TOTAL
1	Deaths	169	128	170	254	50	771
2	Serious Injuries	311	356	396	274	156	1493
3	Minor Injuries	1534	1423	966	801	688	5412
4	Total	2014	1907	1532	1329	894	7987
5	Property damaged	N/A	1843	1220	1209	851	

Source: TRS, May 2021

The table shows the impacts of RTAs and how it is really a threat to lives and property. The year 2017 recorded more fatalities with 2014 people injured in RTAs, despite this big number in 2017, more deaths was recorded in 2020 and serious injuries in 2019 while more property damages were recorded in 2018.

Table 8: Drink driving related road accidents

Year	January	February	March	April	May	June	July	August	Sept	Oct	Nov	Dec	TOTAL
2017	5	4	7	7	2	4	8	9	25	18	10	9	108
2018	5	14	8	13	12	8	3	14	8	14	3	13	115
2019	11	5	8	7	8	3	15	1	7	8	4	1	78
2020	5	62	26	19	26	28	24	15	49	59	60	70	443
2021	19	33	47	45	144								288
TOTAL													1,032

Source: TRS data, May 2021

The table above shows how road accidents have been increasing from 108 accidents in 2017 to 115 in 2018 and reduced to 78 in 2019. They year 2020 had 443 accident which with an n increase of 365 accidents and 2021 having 288 accidents in only four month and a half. The information contained in this table shows how much alcohol related accidents keep growing in the city of Kigali despite Covid 19 related that restrict bars and pub from working that started with Covid 19 outbreak in March 2019.

Responding on the question about why people keep drinking and drive despite the existing Covid 19 regulations that restrict people from socializing in bars, pub and other places around beers and other alcoholic drinks as it used to be before Covid Outbreak, one respondent said as follows:

“Nubwo Covid yabujije utubari gukora ntabwo yabujije Bralirwa na Skol cyangwa n’izindi nganda zose zenga inzoga, ikindi nuko abakozi ba leta n’abigenga nibo bafite amafaranga kandi iyo bari mkazi ntibabaona umwanya wi kuyanywera, urumva rero niba Covid 19 yaratumye batajya mukazi bakoraga kandi inzoga zihari aho kujya mutubari kuko aritwo tubujijwe banywera mumago, mumodoka no muri za ghetto ndetse bakanisanzura kuko bafite umwanya batikanga abakoresha babo”³.

Here the respondent said that public and private employees are the ones who have money to buy beers, and the rules and regulations regarding Covid 19 have not restrict the beers production industries like Bralirwa and Skol and in addition to this, with the Covid 19 regulations people are allowed to work from their homes with limited supervision of their employers, then they drink from their homes, ghetto, and even in their vehicles.

Table 9 : Drink driving cases by number of police apprehension

Year	Number of people arrested
2017	38
2018	1761
2019	2788
2020	2936
2021	1372
Total	11,883

Source: TRS, May 2021

The table above contains the number of cases of drink driving cases recorded by traffic police from 2017 to mid-2021. The above recorded data don’t include cases of recidivism because it was difficult to identify them, possibly due to the way the recording system was conceived. However, these records illustrate how drink driving behavior in Rwanda community especially in City of Kigali is a growing practice. According to this table cases have increased drastically from in 2018

³ Translated in English by the researcher himself

where the number of apprehensions was 1761 from 38 in 2017. According to one respondent *“Iyi mibare izamurwa n’uko abantu basigaye bafatwa naho mbere ntabwo bafatwaga cyane kuko hafatwaga abakoze accident. Ibi bikaba biterwa n’uko police yahagurukiye gukaza ingamba zo kubafata kugeza n’ubwo imodoka ziba zinyuranyuramo mubice bizwiho gucuruza inzoga cyane. Hagaragazwa imibare y’abafashwe,ariko ntibisobanuye kwiyongera kw’abantu batwara banyoye ahubwo n’ukwiyongera kw’akazi police ikora mukubafata (P4).* He literally said that this drastic change is the result of crackdown operations conducted by police after and this should not be seen as the increase of drink driving cases but the increase of apprehension. Another police noted that *“Uku kuzamuka kw’imibare kugaragaza uko polisi ikora akazi kayo ko gufata abasinzi , ntabwo ari ikimenyetso cy’uko abatwara banyoye biyongereye , nuko mbere ya 2018 nta operations zo gufata abasinzi zabagaho naho ubu zikorwa kubwinshi , bityo ubyumvise akibaza ko abanywi ari biyongereye ariko muby’ukuri sibyo ahubwo ni operations ziyongereye (P9).* Literally, it means that this is to be appreciated because the number of apprehensions reflects the effort invested by police in the fight against the drink driving behavior, because before 2018 there was no such operations aiming to drink driving cases, but after the operations started, the apprehension cases increased drastically, therefore, the drink driving has decreased due to increase of police operations.

4.3.1. The effectiveness of checkpoints in the deterrence of drink driving in the City of Kigali

This section is all about the presentation, analysis and interpretation of views of respondents in relation to the effectiveness of checkpoints in the deterring drunken drivers. To achieve maximum deterrent effects of checkpoints, police deploy as many as possible checkpoints in Kigali city mostly at the road junctions leading or coming from the alcohol hotspots or other alcohol consumption areas to increase the perception of certainty of punishment and test people before driving a long distance to prevent their risk of getting in accidents. One interview reported that *“Checkpoints tuzishyira kumihanda minini no kumahuriro y’imihanda iva cyangwa ijya muduce tuzwi kuba turimo za bars n’utubari twinshi nka Remera,Nyamirambo ,Kicukiro na Gikondo hagamijwe gupima abantu bataragenda ahantu hari hare bityo tugakumira impanuka bari kugira bakinda, ikindi kuko checkpoint iba igaragara, abari mutubali bituma bareka gutwara bagashaka ababatwara cyangwa bagatega taxi. Nanone iyo abantu bamaze kumenya ko ayo mayira police ihashyira checkpoint bahitamo kutanywa ngo batware cyangwa bagasiga imodoka, (P5)”*,

Literally this means that check points are mounted in the high ways and in junctions of roads going or coming from hotspots classified to be alcohol consumption hubs in areas like Remera, Kicukiro, Nyamirambo and Gikondo with an aim to test people before they drive a long distance and prevent risks accidents. Also, because checkpoints are highly visible it deters others from driving while drunk and opt to pay a driver or a taxi.

Four taxi drivers asked about their perception of the chance being apprehended by police for drink driving, reported that it is highly likely to be caught by police if you drive while drunk. One driver noted that *“Ntibirambaho ariko numva bibaho kunshiti zanjye”* a second said *“Iyo mu Rwanda ntiwapfa kuyicika, amahirwe yo gufatwa ni 75% ”* , a third said 60 % and fourth said 50% (D1, D7, D4 & D8). The first said that he has never been apprehended but his friends have that experience, the second said the chance for Rwanda police to catch you is at 75% because it is not easy to escape them, others said 60% and 50 %.

Seeking to know the frequency and swiftness of checkpoints, the researcher asked times and duration of checkpoints and One police interviewee said that in weekends and during special events the traffic police get supported by additional force to increase the number of shifts and extent of deployment of check points. Therefore, the checkpoints work from 1900hrs to 0800hrs in four shifts. Another Police officer interviewee noted that before Covid outbreak they were normally testing driver's BAC during night hours, but now due to the experience learned from the increase of accidents involving some drunk drivers during day hours, checkpoints started to test BAC any time even during day hours.

Responding to the question on the effectiveness of checkpoints in deterring drink driving, respondent D8 and P6, noted that *“ntaburyo bwo gukwepa rwose abapolisi bageze mumuihanda ntaho wabacikira, ibyo nabyo biteza ikibazo cy'uko abantu bagerageza kwiruka bayikwepa bakaba barenga umuhanda cyangwa bagakora accident ”* (D8&P6) checkpoint has a higher deterring effect because people believe that there is no way to dodge the punishment, but the problem is that when people meet a checkpoint surprisingly attempt to run through other roads at the risk of getting in an accident. Another police officer told the interviewer that some drivers violate the check point.

4.3.2. The effectiveness of police patrol in the detection of drink driving in the City of Kigali

The community's expectation from law enforcers is social order including road safety among others. In this regard, the respondents were asked about traffic police patrol in the prevention and deterrence of drink driving in city of Kigali. Drivers responded that they are aware of traffic vehicles and motorcycles deployed at highways having power to stop any vehicle and test any driver who appears to be drunk or upon a report from citizens or call center or their supervisors. Three police officers who worked at check points declared that patrols are core in the war against drink driving because most of people tend to deviate their change their route if they get information of where the check point is or others dodge the check points; obviously the patrol car or motorcycle will immediately follow them and conduct breath test for BAC checking. The respondent P5 said *“Umugi uciyemo sectors, buri sector commander aba afite imodoka irimo ibikoresho byose , aba afite patrol car nayo irimo ibikoresho byose hamwe na moto iriho abapolisi babili bafite alcoholest. Abo bese akazi kabor ni ukuzenguruka bareba uko imodoka zikoresha umuhanda niba ntawugaragara ko atwaye ya nyoye ikindi banyura muduce twose turimo utubari bashyizeho amatara bigatuma n'abari kunywa bamenya ko police iri hafi , bityo bigatuma batinya gutwara banyoye bagashaka abashoferi bishyura.” (P5)*

4.3.3. Road safety and drink driving awareness and education

The issues of road safety education have been among the priorities of Traffic and Road Safety department as stipulated in their performance contract 2018-2019 in which carrying a 52-week road safety campaigns and sensitization of the road users on road safety through media were among the activities planned to deliver their target of reducing the number of road traffic injuries per 100,000 (TRS Performance contract,2018-2019).

Most of interviewees noted that Police has launched awareness campaigns and educational programs , and they yield is remarkable through some changes in behaviors by the members of public, numerous calls of public informing police about people who drive while drunk, commitment of some bars and pubs owners in preventing their clients from drink driving, creation of an association of drivers on standby at hotels, bars and pubs ready to drive home an individual who felt drunk and needs a driver.

One police officer respondent asserted that *“Police ifatanyije n'izindi nzego ikora ubukangurambaga k'umutekano wo muhanda biciye munama zitandukanye igirana*

n'amashyirahamwe y'aba motari, amashyirahamwe y'anashoferi batwara abantu , ahahurira abantu benshi nko muri Gare, ndetse ubu hari n'abapolisi bagenda muri za bisi bakagenda bahugura abagenzi. Ariko babigisha amakosa yo mumuhanda muri rusange harimo no gutwara banyoye inzoga (P1) “. Literally in English it means that in partnership with stakeholders, road safety Campaigns have been conducted through meetings with motorcycles associations, public transporters associations, in public gatherings like taxi parks, churches, passengers in buses along their journeys, and regular daily morning radio show at Radio Rwanda and other shows to private radios (Translate by the researcher). Even though these campaigns are conducted by police in partnership with other stakeholders, they are limited in frequency because they are active only during the period of police month events while the latter being a month-long event that happens once a year with drink driving among different themes of police month. It is criticized to be police centered program and no sound involvement of other government and private sector actors; also, such campaigns like “Gerayo amahoro” are much generic in scope because its focus is road safety in general without a specific program dedicated to drink driving.

For instance, one interviewee noted that *“Kuri ubu ngubu inyigisho zose n'ibiganiro birebana no gutwara imodoka twasinze bikorwa na police kuma radiyo , kumbuga nkoranyambaga , pibulisite kuri televiziyo n'ibyapa kumamodoka . Ntamasomo yabyo yihariye mumashuri ndetse no muri za auto ecole kandi ariho byakabaye bihera” (D1).* This means literally that at present drunk driving related knowledge, and education is mainly conducted by police through local radios, social media and publicity on TV and posters, but there is training program in schools and even in driving schools (Researcher's translation).

When asked about the indicators of the success of these campaigns and education programs in the prevention of drink driving behaviors, two important opinions were stated by traffic police officers and transport company representatives in the interviews. Firstly, they all acknowledged that the awareness on drink driving has increased since starting of awareness campaigns and this led to many people take notice of the publicity which has encouraged people not to mix the two activities: if drive do not drink, if drink do not drive. Secondly, the media is playing an important role to publicize police crackdown of drunk drivers. Especially in online newspapers and social media and this expands the fear of punishment to many people.

Other two police officers reported that the public is now aware that driving while drunk is deadly and harshly punished and now started to report to traffic police if they see an individual who appears to be drunk while driving or any suspicious driving activity such as a vehicle diving the road lines, One police officer responded as follows: *“Ubukangurambaga buragenda butanga umusaruro kuko hari abantu bamwe n’ubwo ari bake bafashe icyemezo cyo kureka gutwara imodoka banyoye, cyane cyane abantu bakuze n’aba intellectuals, bamwe rwose ndanabazi. Batega taxi imodoka zabo bakaziraza k’utubali. Ikindi, bigaragarira kumakuru tugenda twakira kuri telephone no kumbuga nkoranyambaga. Urugero: Hari umuntu waje akurikiranye n’undi baze baje gusaba serivise kuri kubiro bya Traffic bahageze ahita asaba ko police ibanza igapima uwo baze bakurikiranya ngo kuko yagendaga mumuhanda nabi nk’uwasinze. Bamupimye basanga afite 3.9%, (P2)”. In English, the interviewee supported his views of the effectiveness of awareness campaigns with the example of some people he knows who decided to never drive after drinking, mostly elderly people and intellectuals even though they are few. Another example is a man who asked police officers at police HQ to first test a fellow whom he suspected of being drunk due to the bad driving activities he observed to him while en route coming to traffic together. Traffic officers tested him and found that he had 3.9 % BAC.*

Another driver hails the Gerayo Amahoro campaign to have yielded a lot because before Covid - 19 outbreak in 2019 in most of bars around Kigali the bars owners had arrangements with a number of drivers on standby wearing uniform vests with indication “Gerayo Amahoro “meaning arrive safe. These drivers were mandated to drive a client’s vehicle who appears drunk and take him or home. He said *“Ubundi hari hasigaye hariho abachauffeur ku tubalui bambaye utujulet twanditseho “Gerayo amahoro”, Uwanyoye yishyuraga 5,000 Rwf – 10,000 Rwf. Byari bitunze abantu benshi, aba bachauffeur byagenze neza babonaga hagati ya 40,000 rwf na 50,000 Rwf kuva kuwa kane kugeza kucyumweru” (D2), literally in English He confirmed that it had been a source of income because the clients paid between 5,000 and 10,000 frws and a driver could earn between 40,000 and 50,000 frws from Thursday to Sunday. He also added that it has been an opportunity to have contact with many people who use to call them at any time and ask drive them to avoid drink driving.*

Responding the question about what can be done to improve public education and awareness campaign, one police respondent proposed that *“Kwigisha hakoreshejwe social media,*

amateraniro y'abantu, nabandi hose ubutumwa bugera kubantu benshi bakerekwa ingaruka mbi ziterwa no gutwara ibinyabiziga banyoye ibisindisha

Urugero: *impanuka zihitana ubuzima bwabantu, imitungo ikahangirikira, ubuzima bubi busigaranwa nimwe mumiryango yababuze ababo ,(P5)*”meaning to sensitize through social media public gatherings and through any other channel the message can reach as many people as possible and teach them the bad consequences of driving under influence . For example: accidents take people’s lives, property destructions and the mediocre lives of people who lost their relatives.

4. 4. Challenges faced by police when conducting BAT

Breath testing challenges can be grouped into three categories, some related to drivers’ behaviors, some related to traffic police officers and others to the law. Police officers responded that one issue that they identified is some drivers who flee when they encountered police BAT check point. One interviewee said *“Ikibazo gikomeye cyo gupima abasinzi nuko hari ababona bariyeri bakenda kuyigonga, abandi bazicaga hejuru tutarazana imitego y’amenyo, ubundi iyo umuhanda ari mugari hari abaca kuruhande bakiruka”* (P2) he said that one of the problems they face is drunk drivers who ran, others used to hit road block and others divert and ran away. Another respondent said that *“hari abandi bafatwa basinzi bakiruka bagasiga imodoka mumuhanda,kugira ngo nitunamufatanyuma tuzasange zamuvuyemo bityo alcoholtest ifate ubusa”* (P4) this means that some people caught driving while drunk run away and leave their vehicles in the road, for them to wait for police tracing them and once caught the BAT will find nothing which means that they will not be punished for drunk driving (P4). *Ikindi kibazo n’iki jyanye no guhangana n’amabwiriza polisi yashyizeho yo gupima umuntu wese ugize uruhare muri accident, abashoferi basigaye biruka bagahunganga ahabereye impanuka kugira bitagaragara ko bari nyoye bityo bakitwa ba nyirabayazana b’impanuka* (P6). Another issue is pursuant to the police decision of testing every driver involved in an accident, now drivers are becoming smarter by fleeing the scene of accident to avoid any responsibility (P6). Police officers also raised an issue of drivers who fail to cooperate when officers ask them to test them (BAT). One interviewee said *“byibuze 10% by’abantu bafatwa batwaye basinze batera amahane,rimwe narimwe hakabo kuvugana nabi abandi bikaba ngombwa ko hakoreshwa imbarara* “that at least 10 % of drunk drivers are not cooperative and sometime harsh arguments and use of force happen (P7). Urugero : *“Hari umushoferi wasinze asinzirira kuri Volant, police ihageze ava kuntebe y’umushoferi ajya*

kwicara kuntebe y'iruhande yagenewe umugenzi,aryamisha intebe arasinzira, nyuma twafunguye umuryango tumusohora mumodoka ,tumubwiye guhuhamo arabyanga ngo ntashobora gupimwa kuko atariwe warutwaye,tumubajije umushoferi aravuga ngo nta nshingano afite zo kumushaka ngo tujye kumwishakira, icyiza nuko twari twamufotoye yicaye kuri Volant yanayisinziririyeho (P7). Literally, The interviewee narrated an example of a driver who was caught sleeping on steering at the road, when police arrived, he left the driver's seat and went to passengers seat and slept, when police removed him in the vehicle and asked him to conduct BAT, he refused and said that he cannot because he is was not driving, and he had not responsibility to find where the driver is. But fortunately, police had taken photos when we were seating on driver's seat and sleeping on the steering. One interviewee (P3) described the experience of drivers who refuse to conduct BAT pretending that they don't know how to blow in the breathalyzers and others say that they don't trust their safety of breathalyzers, so for their health safety reasons they cannot blow in the breathalyzers. At the other hand One former drink driving offender interviewed (D5) said that he has never doubted the safety of breathalyzers because police give a new tube that is used once, but the problem is in the time of Covid 19 even though they have sanitizers, it is not safe enough. Generally, there were not many quarrels between police officers and drunk drivers, but a lack of cooperation by drivers was described as prevalent.

Issues related to police include insufficient manpower and breathalyzers to increase the check points and shifts, also to deploy patrols in different areas and in many shifts. Most of interviewees reported a small number of police officers. Furthermore, traffic police reported the need to conduct BAT at night and their normal duties the following day. "Our work time is from 19 00 hrs to 0800 hrs in routine work, when it is in case of special events like end of year festivals, we get reinforcement from other police units our times change for 1900hrs to 2300 hrs and 0500hrs to 1200hrs and 0100hrs to 1900hrs (P8 & P4).

A number of respondents reported insufficiency of breathalyzers. *Poste imwe ya check point iba iriho alcotest imwe noneho bigatuma imodoka zimwe zihatinda cyangwa tukare zimwe zigacaho kugira ngo tudateza umuvundo"* (P10) at one check point we have only one set of breathalyzer and it causes a long cue which obliges us to decide to leave some vehicles to drivers to pass untested (P10) .

The issue of legislation has been reported to be older. The legal basis of police operations on drink driving is the law n° 34/1987 of 17/9/1987 relating to traffic and road traffic policies, it provides vehicle impoundment, isolation of drunk drivers and fine. Its article 10 para 1 provides that drink driving offenders will be punished by an imprisonment of 6 to 7 months imprisonment and 20,000 frws or one them but the fine can be increased up to 9 times. It is the basis of IGP instructions that provides the fines of 150,000 frws and a vehicle impoundment of one month. Many of police interviewees said that the current situation is far from the philosophy of legislator in 1987 because vehicles were few, the population alongside roads were few and the density of vehicles in Rwanda roads were very small comparing to current situation, and suggested that this law should be amended. Drivers' interviewees don't know these provisions to the extent one respondent for example responding the question on how he perceives the punishment said that they are harsh and emanate from the will of police instead of emanating from the will of legislator.

4.5. Respondents Views on punishment of Drink driving

This section is all about the presentation, analysis and interpretation of views of respondents in relation to the effectiveness of punishments of drunk drivers in order to reduce road accidents in the city of Kigali. As discussed earlier, a driver is said to be driving under the influence of alcohol if he/she has BAC of 0.08 or above. Therefore, if an individual is punished for her/his wrongdoings, the punishment received constitutes a specific deterrence for him/her to not repeat the same bad behavior and or a general deterrence if his/her peers and friends decide to never drive while drunk as a result of a lesson learnt from them.

The interviewed driver offenders revealed that the existing punishment have a greater deterring effect because people abstain from driving while drunk due to a fear of punishment. Respondents noted that imprisonment has a higher deterring effect. As one respondent said *“muri 2017, bamfashe nanyoye barampima basanga mfite 3.4, bankuye mu modoka baranyandikira (180,000) harimo na breakdown ku gishushu, imodoka barayijyana nka saa 04:00 za mu gitondo, kuri nyewe iki gihano kiraremereye cyane kuko nk’umu chauffeur wa taxi byarangoye kubona aya mafaranga, kuburyo kuva icyo gihe sindongerwa gutwara nanyoye” (D1)*. Literally, in 2017 he was given a ticket of 180,000frs including breakdown fees, he was caught driving with 3.4% BAC. He confessed and decided to never repeat because it is difficult for a taxi driver to find this amount of

money. Another driver said *“amande ni cyo gihano gikomeye kuri twebwe aba chauffeur ba taxi kuko bigoye kubona ariya mafaranga, naho kurundi ruhande, igifungo nicyo gikaze kubantu batwara imodoka zabo n’abakoze ba leta kubera ko bitera ikimwaro, bamwe batinya kwirukanwa kukazi cyangwa ibindi bihano batangwa n’akazi kabo ”* (D5), literally translated as: fine is the harsher punishment for taxi drivers on one hand because it is difficult for them to find that money while imprisonment is the most harsh punishment for private, public and civil servant drivers because it induces shame to them, risk of being sacked from their work or other disciplinary punishment.

Responding on the question about their beliefs regarding the level of punishment for drink driving because there has been some debate among drivers if penalties should differ depending on circumstances of the driving incident. For instance, a person caught drunk driving but is not involved in a crash; the penalty should be different if the same person were to be involved in a crash that injured/killed others. Most of police respondents support to punish any drink driving regardless whether involved in an incident or not, while drivers and RIB officers suggested that penalties should be proportional to the drink driving circumstance.

Respondent D4 and D2, said that vehicle impoundment is the harshest because you have to explain at home where it is and why, if it is your own, it will expose to you to children who could be taken at school or your partner which increases the shame. If it is owned by your institution, it shameful to you because your leaders and subordinate will consider you as drunkard. In the other hand no one will know if you have paid fine, and sometimes they cannot know if you have been under arrest.

A group of respondents in one focus group said that the order of fearful punishment is imprisonment, vehicle impoundment and fines.

Table 10 : Cases of arrests in 2019 and 2021 by District

Year	Number of people arrested
Gasabo	130
Kicukiro	220
Nyarugenge	174
TOTAL	524

Source: RIB, May 2021

The above table covers the number of referred to RIB by police for public drunkenness. According to the above reports, offenders vary from 0,8% of BAC to HOT, the alcohol concentration ranging from 1% to 3,14% have been tested in more offenders than any other percentage. The reports revealed that 14 people were detected with alcohol concentration exceed the capacity of Breathalyzers and marked “Hot”. Some issues raised in the reports are concerned with the conviction for drink driving where some arrested people were confusion if they were arrested for drunk driving or drink driving. Investigators revealed that some responses in interviews show how much drivers have a little knowledge about the illegal alcohol (BAC), because they think that what is prohibited is driving while in state of drunkards, in some cases they agree to have consumed few bottles of beer but were not drunk, one said “nanyoye uducupa tubili twa skol gusa, none bavuze ko narengeje igipimo” (R3), another said “nanyoye uducupa tune gusa twa petit mutziig none baravuga ngo nasinze” (R3). Another example is one police respondent who dealt with a case of one man who complained that the breathalyzers are not accurate because he met a case where he called his wife to come to drive him home because he felt drunk, when his wife arrived took only one glass of red wine and drove, the police tested her and convicted her for exceeding the legal BAC and arrested her. “Hari umugabo n’umugore bavugaga ko umugore bamufungiye ubusinzi kubera ko umugabo yahamagaye umugore ngo aze kumutwara kuko atinya ko police iribumufate kuko yanyoye ahageze anyway akarahuri kamwe ka vin rouge, traffic yarabafashe ifunga umugore imurega gusinda, bakavuga ko barenganyijwe (P9)”.

The reports revealed that the operations do not aim to people who drive after drinking but even people reported to be drunk while intending to drive, they pointed out an example of one motor cycle rider who got arrested for drunk driving because he appeared drunk while having no one to ride and got apprehended by police, finally transferred to RIB (R1).

4.5. Views on the reasons for drink driving

Interviewees suggested three reasons for people to drink and drive

1. Believing in chance of not being caught by police or getting involved in an accident
2. The culture of socializing or dealing an affair around a drink mostly bars, pub or hotel
3. Insufficient public awareness about the consequences of alcohol-related driving.

One police officer for example noted that: “hari abantu bitwaza imyanya barimo cyangwa ubukungu bwabo, kuko ni gake umupolisi ahagarika umuyobozi cyangwa imodoka nka V8 ngo amupime , keretse abonye agenda nabi mu muhanda (D1) “some people especially rich or people with power are not tested because it is rare to a police officer stop a leader or for example a V8 jeep for BAT (D1). He also shared his belief that some that people who drive expensive vehicles or those who have connection to people with authority was driving after drinking expecting that they will not be punished.

Respondent D2 and D4 explained their drink driving experience as a risk-taking activity that they took in hope that they will arrive safe, while D8 and D6 noted that when socializing around a beer peers could not believe that they can be involved in an accident. “*Abantu beshi cyane cyane urubwiruko ntirushobora kumva ko gutwara wanyoye bitera impanuka, ahubwo usanga bashishikarizanya gutwara banyoye bahamagarana mutubari dutandukanye kuko barara baduhinduranya* “(D6), some people mostly youth don’t perceive that driving while drunk may cause accident, and some encourages others to drive while drunk by persuading them to keep changing bars overnight (D6).

Another issue raised by drivers is that they don’t know how breathalyzers work because it doesn’t have a number of glasses or bottles that should be considered as limit instead of saying alcohol limit as long as drivers don’t have any means to measure that amount of alcohol. One driver when responding the questions about why driving after consuming alcohol, said “*Hari amahirwe yo kudahanwa; ikibazo nuko itegeko rihana gutwara wanyoye. Iyaba ryahanaga gutwara wasinze. Naho Alcohol-Test ifata kuva ku birahuri bibiri; ubundi umuntu wanyoye amacupa abiri cyangwa atatu aba ari muzima ariko uhuhamo ikenda guturika* “(D1). Literally, he said that there is chance of passing undetected, he further said that the problem is that the law punishes people who drive after consuming alcohol instead of punishing people who drive under influence of alcohol. Continued saying that regarding breathalyzers, may catch a subject who consumed 2 glasses as drunk, while normally a person who consumes 2 or 3 bottles of beer is sober when you blow in the breathalyzer it becomes like about to blast (D1)

Despite the increase of public awareness efforts some people still persuade others to drink more others are resistant to stop driving after drinking in pretext that they are sober. One respondent said that for thousands of years drinking has been a culture in Rwanda, where every event being

good or bad is celebrated with alcoholic beers for example the marriage, burial, graduation, birth days, baptism etc..., and the value of the event is evaluated from the quantity and quality of beers given. At this point, respondent A1 said *“Umuntu ntiyajya mu kabari asize imodoka kuko atabona uko ataha. Keretse afite umuchauffeur kandi bisaba kumuhemba, uzarebe imodoka ziri muri Kigali n’utubari turimo, ntawunywa hasi y’amacupa 2 kandi nta accidents zihaba. Nonese ko abanyarwanda bo hambere banywaga inzoga bakarwana bagafata amahanga n’amahanga kandi inzoga ziri mubyo bitwazaga (A1)* literally, you can go in a bar leaving your vehicle at home, and it needs to pay a driver, See the vehicles in Kigali and the bars we have, no one takes less than 2 bottles and there is no accident. Also, our ancestors used to drink when going to fight, and beers are among their provisions that they used to carry; despite, they won great battles.

4.6. Views on respondent’s knowledge of Legal limit

When asked to explain the lowest Blood Alcohol Concentration (BAC) or legal BAC, more than a half of driver’s interviewees don’t know the BAC limit, however they claimed that there is a certain amount of alcohol that police measures but they don’t know it. Other respondents said that they know that it is between 0.6 and 0.8 but they don’t know where this number comes from. For example, respondent D2 said that he has been punished for drink driving when he was caught with 3.4% BAC. Asked about BAC, he said *“Ibipima alcohol iri mu mubiri wawe, iyo birenze 0.5 ntabwo uba ukihavuye” (D2)*, literally, when the amount of alcohol in body exceeds 0,5 you can survive the apprehension.

Another participant, responding to what he knows about BAC, said *“Ntacyo mbiziho, sinzi ngo bafatira kuri kangahe. icyo nzi nuko gutwara wanyoye bibujijwe. Sinzi ikigero cyemewe, kuko nari nzi ko na ka petit mutziig kamwe nahanwa” (D7)*. To say that he doesn’t know nothing about BAC that what he knows is that driving after consuming alcoholic beverage is prohibited and thought that even driving after consuming one small bottle of mutziig is punishable.

4.7. Linking Theories and Findings

This study has been guided by the stated research question and grounded in deterrence and social learning theories. This section discusses the research finds in relation with the two theories. As suggested by Gibbs (1977) deterrence theory is a criminological perspective grounded in sociology which is concerned on the legal sanctions influence on criminal behavior. The focus of this study in relation with deterrence theory, the findings reveal that checkpoints have both

general and specific deterrent effect on drink driving behaviors as witnessed by most of former offenders who confessed and said they will never repeat driving after drinking. Some said that the bad experience of being punished for drink driving has been a lesson to them. For others who have their friends who were punished said that this fine of 150,000frs plus 30,000frws of break down fees is very high for them and once cached by police twice the risk to lose their jobs.

As the deterrence theory suggests that drink driving deterrence to be more effective needs to be swift, certain and impose severe punishments; the findings of this study revealed that check points and patrols have the aspect of swiftness and certainty but the punishment is not severe, which brought to participants to suggest amendment of the law 34/1987 relating to road and traffic policies.

While on the other hand, Akers (1990) asserts that social learning theory is a psychologically-based perspective concerned with the overall social setting in which behavior occur and the way in which they are rewarded and punished. It has been also pointed out that these social events that deviant and criminal conduct like dink driving is learned and sustained via associations with family and peer networks. In this regard, the current study was based on this theory to understander why people continue drink and drive despite the intensive operations and the subsequent punishments. The main causes revealed by most of participants is that *“they cannot drink their beers or other alcoholic drink alone at home rather in a social place where they will be associated with others”*. In addition to this, the study found that due to Rwandan culture of sharing, evening drink sharing is done through social association and imitation their role models mostly for unexperienced social drinkers as revealed by one respondent who said that *“there is no way to go in a bar with others who park their vehicles and you come in a taxi”*.

4.8. Conclusion

This chapter discussed the information obtain from three categories of respondents and secondary data obtained from TRS and RIB reports. Furthermore, the analysis and assessment of the obtained information using thematic analysis approach was made to find. This chapter has demonstrated the effectiveness of checkpoints, patrol activities, public education and campaigns grounded by the deterrence and social learning theories. Finally, some concepts related to these theories such as public perception of penalties of drink driving, reasons for drink driving were also analyzed and views on the minimum legal BAC or legal limit were also discussed.

CHAPTER FIVE

SUMMARY OF FINDINGS AND RECOMMENDATIONS

5.0. Introduction

The research was conducted with overall objective to assess effectiveness of road safety operations in the reduction drink driving in the city of Kigali with a view to suggest necessary strategies that can bring greater deterrent effects on the identified problems. This chapter summarizes the findings, presents recommendations and suggestions. The study examined the general drivers' knowledge and behaviors regarding alcohol-related driving in Kigali. Finally, it focused on driving after consuming alcohol and their exposure to BAT operations.

5.1. Discussion

The main objective of this study was to evaluate the effectiveness of road safety operations in the reduction of drink driving in City of Kigali. The study was guided by the deterrence theory which helped to understand how police operations make the general drivers fear to drive while drunk. In addition to this, the study also based on the social learning theory to comprehend why people drink and drive while Police efforts to curb this conduct are tough and consistent. It was also concerned to determine the driver's knowledge about the conduct under study (drink driving) and the subsequent penalties.

Specific research objectives:

- a. To assess the effectiveness of checkpoints in the deterrence of drink driving in the City of Kigali
- b. To explore the effectiveness of police patrol in the detection of drink driving in the City of Kigali
- c. To examine the effectiveness of education and awareness campaigns in the prevention drink driving in the City of Kigali

Findings of study associated to research questions which were developed to examine the research objectives are presented and discussed in the following sections.

5.1.1. Effective of checkpoints in the deterrence of drink driving in the City of Kigali

In that study, police reported that from their experience, most drunk drivers were private enterprise owners, individual business owners, and were less likely to be public servants and public institute staff.

The secondary data obtained from TRS department revealed that during the period under study which is 2017-2021, 7987 people were victimized by RTAs and only 374 out of 12,139 are attributable to road and weather conditions while others are attributable to drivers. Really those RTAs attributable to drivers could be avoided. All interviewees accepted to be conscient that drink driving is associated with other traffic offenses such as dangerous maneuvers, risky overtaking, unnecessary stops, driving in opposite lane etc., all of these driving malpractices associated to drink driving are among others causes of accident and are all avoidable. For instance, 1,032 were caused by drunkenness, 1544 caused by over speeding, 3368 by recklessness and 1974 by wrong maneuvers, all of them took lives of people and injured many more.

The results of interviews show that checkpoints are highly effective in the deterrence of drunk driving and over speeding in City of Kigali because, drivers who know that there is a check point pass message to others mostly with some signs showing that there is presence of a checkpoint, also for those who disregard the information and keep driving while drunk is stopped, and taken in an isolation place and vehicle impounded for 5 days.

Guided by the deterrence theory, check points to be effective to must be Swift, certain, and severe punishment should be imposed to those who defy drink driving laws to persuade others refrain from drink driving in future (Ross, 1984). To assess the effectiveness of checkpoints against this theory, the results suggest that Checkpoints have both general and specific deterrence in Kigali as most of respondents said that checkpoints are deployed in many places mostly at road junctions in locations designated as alcohol hotspots. This kind of deployment confirms the element of being swift, while other participants said that the chance of being stopped and punished is at 85%, checkpoints is effective in making people perceive that it is certain to encounter BAC operations. In addition to the long duration of checkpoints, breathalyzers used to detect BAC are available at each checkpoint. Most of former offender drivers witnessed that they stopped reoffending because of fear of being stopped again at a check points, and also persuaded

the bar owners to organize sober drivers who perform great job of driving drunk individuals in their own vehicles for pay.

Regarding severe punishment, it has been controversial among participants, police officers suggest that the law should be amended and criminalize drink driving because the current penalties look to be administrative and not severe at all, while general drivers say that vehicle impoundment is the most severe because it infringes shame but for taxi drivers' fines are too much because it is difficult to have 150,000frws plus 30,000frws for breakdown.

The above results led the researcher to conclude that checkpoints are effective to conduct BAC operations, however some challenges of personnel and other issues associated to breathalyzers are highly recommended to be addressed. In addition to those challenges, the research observed that there are no proper records of the results of BAC operations at check points, also there is no system in place that distinguishes recidivists from first offenders. Statistically the data obtained from TRS are general and could not show which cases handled by checkpoints or patrol. For example, the data of apprehension reveals that 11,338 persons have been stopped and put in an isolation place while 529 were transferred to RIB allegedly to have been drunk in public. All of them did not provide details regarding how they were apprehended which could give a starting point for predicting the effectiveness of each countermeasure.

5.1.2. Factors influencing the effectiveness of police patrol in the detection of drink driving in the City of Kigali

Perceived certainty of punishment is an important determination of efficacy of deterrence measures (Ross, 1988, p.30). The findings of this study confirm that police patrols are very important to make people perceive punishment certainty for three reasons

1. For people who dare dodge police check points fear to be followed by patrol cars or motorcycles as the respondents assured that Kigali is subdivided into sectors and have patrol cars and motorcycles moving around with focus in hotspots areas. In addition to follow police officers who participated in this research said that drivers who dodge checkpoints, patrols observe people who drive suspiciously and stop them, therefore drivers who drink and drive fear patrol because it is not static as checkpoint is, they good for covert operations, they added.

2. Another reason is that by moving in the hotspots, their presence send message to whoever think to drink and drive the probability of being caught. Subsequently, it has led bar owners to hire sober drivers who will be dropping the client's home for a certain amount of money; this has been successful in preventing people to drive while drunk and on the other hand created jobs as one participant revealed that he could earn between 100,000frws and 120,000frws a week, for just dropping home clients who fear to encounter police patrol.
3. Drivers who see traffic patrol car or motorcycle moving around send message to others that police are there and the later refrain from driving, at least a half of drivers who participated in the research commend the greater message sent by traffic patrols.

The facts obtained from this research as the above findings suggest, the more time police are patrolling, the greater are their chances to catch impaired drivers. The results of this research found that patrol is more efficient in the detection of impaired drivers as revealed by interviewed patrol officers have chance to cover a big area, moving behind a vehicle increase chance to identify whether the driver is impaired, patrol is also flexible in changing locations. All these characteristics of patrol make it more efficient and omni present. Linking patrol activities to deterrence theory it is evident that it increases a feeling that police apprehension is certain from everywhere and at any time. However, the insufficient police personnel has been reported to be a challenge to extend patrol activities in all secondary roads because bar are in all streets. Therefore, it is important to improve impaired driving detection by increase police patrol time and extend patrol activities in all streets.

5.1.3. Effectiveness of education and campaigns in the prevention of drink driving in the City of Kigali

According to world health organization “*driver education, provision of alternative transportation, counselling and, as appropriate, treatment programs for repeat offenders and carefully planned, high-intensity and well-executed mass media campaigns* “are to be implemented as complementary counter measures for a successful government in the combat against drink driving (WHO,2019, p.10). According to Alan &Heutland (2000, p.24) “*continued attention by legislatures, government agencies, citizen groups and the media can increase general deterrence of DWI activity. Public and peer pressure may also increase specific deterrence of DWI activity of those who are irresponsible enough to assume a right to drive while impaired, and of those who*

are unimpressed by the risk and the consequences of apprehension". Awareness of general drivers for drink driving and BAC enforcement has been the focus of this study. The results are that police uses media, mass meetings, education in schools, peer to peer role playing, like dramas, TV shows and advertisement, celebrities and other activities like police week, Gerayo amahoro campaign among others. Despite all these efforts the findings confirm that about 98% of drivers interviewed do not know what minimum Blood Alcohol Concentration is, while police officers know that the alcohol limit is 0.8%. Generally, all interviewees know that driving after drinking alcohol is bad and there is alcohol limit that police measures using breathalyzers. However, they all reported that making estimates of whether the alcohol consumed is below, equal or above to 0.8% remains a challenge for alcoholic drink consumers.

The study found that there is no system in place used to spot repeat offenders, police also sensitized people to resort to other means of transport like taxis, or find a sober driver, some respondents confirms that this strategy works and, in some areas, alternative drivers worn jackets with " Gerayo amahoro" (arrive safe) which the theme of police campaign against drink driving and other traffic malpractices.

Most of respondents argued that campaign alone without strong punishment cannot work while others appeared to be unhappy with some police officers who immediately apply all the punishments before teaching, and criticize such police behavior because this result in fund collection instead of yielding the ultimate goal of crime prevention. Additionally, they concluded saying that this is one of causes of recidivism because some think that police became harsh for drunk drivers just to reprimand them instead of protecting them and once you are sure to find the fine fees you cannot fear to drink and drive. The inference from the results about education and campaigns on drink driving is that campaigns have been successful to communicate that drink driving is risky and punishable, however there is no clear message on how people should behave while drinking alcoholic beverage when they tend to drive after drinking. Additionally

5.1.4. Penalties

While WHO urges governments to take concrete actions to counter drink-driving that include blood-alcohol concentration (BAC) limits to be established sobriety checkpoints, random breath-testing, administrative and suspension of licenses, graduated driving licenses for novice drivers and ignition interlocks (WHO,2018,P.10), the deterrence theory suggest that to be effective ,

these actions should be swift, certain and severe punishment to make the general driving community perceive imminent consequences of driving while drunk.

This section focuses on how punishment for drink driving in Rwanda are perceived by both police officers and drivers as well the investigation officers. Traffic police officers know well that legal basis of police operations on drink driving is the law n° 34/1987 of 17/9/1987 relating to traffic and road traffic policies which provides vehicle impoundment, isolation of drunk drivers and fine. However, many drivers do not know that this law exist and believe that police enact regulations depending on the circumstances but this has been denied by other police respondents and quoted the article 10 para 1 of that law which provides that drink driving offenders will be punished by an imprisonment of 7 days to 6 months of imprisonment and 20,000 frws or one them with option to be increased up to 9 times.

The findings confirmed that this article serves as the basis of IGP instructions that provides the fines of 150,000 frws and a vehicle impoundment of one 5 days which is also criticized to be much administrative rather than being criminal.

Furthermore, the findings revealed that fines coupled with imprisonment could be more efficient as reported by many participants, however current legal system has not provided imprisonment for drink driving except in case of an accident that caused death. The results found that in case of a such fatal accident the offender is prosecuted for unintentional murder not for drink driving that caused death. Some criticized this law to be much soft and suggested that killing people in an accident caused by impaired driving could be classified as a serious crime and considered as intentional one because any reasonable driver knows that drink and drive may results in a crash that can kill people including one self.

To conclude this section, the research found that the law punishing drink driving has some element of deterrence because it provides fines and vehicle impoundment, but its deterrent effects are not severe as suggest the deterrence theory. Therefore, if the penalties look to be soft people tend to defy the law and become a big burden to law enforcement, regardless of the efforts invested in.

5.2. Conclusion

All over the world road traffic accidents have become a serious threat to lives, with the modernization and globalization people socialize using alcoholic beverages of different types. In Rwanda the individual rights coupled with availability of different types of alcoholic beverage contributed much in cases of drink driving, consequently 1,032 lost their lives in Road traffic accident related to impaired drink driving.

To curb the trend of drink drinking behaviors Rwanda National Police opted for strategies to reduce road fatalities per 10,000 by carrying out road safety campaigns, sensitizing road users through media channels, increasing traffic patrols in highways and increasing traffic control posts on highways. To deal with accident caused by drink driving Rwanda National police conducted crackdown operations aimed to checking driver's sobriety using Random Breath Test (RBT) at check points and patrols. According to data obtained from TRS department during the period of 2017-2021, 11,338 persons have been stopped and put in an isolation place while 529 were transferred to RIB for public drunkenness.

The purpose of conducting this study was to explore the effectiveness of road safety operations in the reduction of drink driving, purposely the effectiveness of checkpoints, patrols, education and campaigns. To collect data, the researcher has used semi structure interview guides through google forms and focus groups for primary data and traffic and RIB reports for secondary data. The data collected were analyzed using thematic analysis approach.

Most of police respondents confirmed that road accident related to drink driving and other drink driving incidents have decreased despite the increase of numbers statistically. They related the increase of apprehension and arrest numbers to the detection success by police and the result of campaigns because people now are aware that it is their rights to report who ever drives while impaired.

Furthermore, the findings indicated that Check points are much relevant in the deterrence of drink driving because they play the role of prevention and repression. Also, patrols have greater deterrent effects because they are covert and unpredictable. Additionally, education and campaign have made people aware of the risks surrounding drink driving behaviors but still need to be deepen so the concepts of Blood Alcohol Concentration become familiar to road users and

understand how to track their BAC. Also issues of challenges in RBT, were raised and the gap observed in the law punishing drink driving were discussed.

Persuading the community to reject drink and driving and raising perceptions of the likelihood of deterrence are effective means to change drivers risk driving minds.

5.3. Strengths and Limitations

5.3.1. Strengths

The main strength of this study was a comprehensive process of investigation of knowledge and practices from three categories of participants with experience and expertise. The semi-structured interview and focus groups were used to understanding of how traffic police work conducting checkpoints and patrols which helped also to detect existing challenges in the conduct of Breath Alcohol tests (BAT). In addition, RIB officers raised a loophole in legal systems that can affect law enforcement and leave some offenders escape the law.

The other strength is the thematic analysis of both TRS, RIB reports and participants interviews revealed that drink driving remains a threat to lives and efforts to educate the general public is required at all levels of governance.

5.3.2. Limitations

Due to Covid 19, limited time, resources, the research used convenience samples for all respondents instead of random sampling. Also, the researcher used internet for video conference and interviews through google forms and 32 interviews were concluded while secondary data from TRS and RIB were not complete. Based on these data, it is not possible to confidently draw conclusions that this study is hundred percent perfect.

5.4. Recommendations

Checkpoints and traffic patrols in secondary roads mostly in areas designated as hotspots have been reported to be more effective in the deterrence of drink driving since they make people refrain from drink driving behavior. To improve their effectiveness will achieve a greater reduction of injuries resulted from impaired drivers involved in road traffic accidents. The following recommendations drawn from field research findings and best practices found in literature review will be useful to government of Rwanda, Rwanda National Police and the community in general.

5.4.1. The Government of Rwanda

Ultimate goal of road safety operations including police check points and police patrols in the reduction of drink driving is to stop and deter drunk drivers from the starting point. The reason is to prevent their risk driving those results in deaths and bodily injuries. For them to achieve a greater impact they need tough laws and strong policies; therefore, some recommendations were proposed to the Government of Rwanda:

1. Drink driving should be criminalized: As suggested by many respondents the law n° 34/1987 of 17/9/1987 relating to traffic and road traffic policies should be revised and criminalize drink driving behaviors.
2. The law should also distinguish the circumstance in which drink driving incidents are committed, for example distinguish penalties for drunkenness from the mere consumption of alcoholic beverage and drive
3. Impaired drivers responsible for deaths or injuries of people in a crash should be investigated as premeditated killer and a fixed term imprisonment sentence imposed to them if convicted.
4. In literature review the researcher found that driving episode involves drivers, alcohol and vehicles. To counter them some countries and WHO suggest countermeasures should aim the three elements. This may include policies regulating the production, distribution and consumption of alcohol, such as taxation policies.
5. To provide additional resources aiming at supporting police through its traffic and road safety department in reducing road traffic injuries caused by drink driving
6. Policy-makers including Police planners should focus on developing and implementing preventive and rehabilitative programs that use social learning variables to change behavior in a positive direction.

5.4.2. The Rwanda National Police

Rwanda National police as the lead organ in the fight against road traffic injuries, in general and drink driving related injuries in particular, the following recommendations can contribute to their success:

1. Recognizing that as long as police are in the road, a greater chance to deter accident is, for the reason Police should increase the number of personnel in Road safety and traffic department so that they cover a big area and able to sustain for a long-time check points and patrol.
2. To be more effective in reducing drink driving others counter measures such as immediate driving license suspension and confiscation for re-offenders, car ignition locker.
3. Train enough police officers the professional use of breathalyzers include how alcohol works in a human body so that they understand well the concept of Blood Alcohol concentration (BAC), this will help them to well collaborate with drivers and preserve evidences.
4. Increase patrol and police visibility especially in locations appearing to be hotspots
5. System to distinguishing first offenders from recidivists can be useful in future to categorizing offenders this will help to identify strategies that can prevent first offenders become recidivists. Repeat drunk drivers, known as the “hard core” drunk drivers, caused up to 65 per 215 cent of serious alcohol-related traffic crashes in America (Simpson, 2002, cited in Kequin 2014).
6. Victim Impact Panel should be used (VIP) among the method used to persuade potential impaired drivers to avoid needless risks of death, injury, and property damage for themselves and others. The objective of this strategy is to expose offenders to the pain and suffering caused by their drunk driving behavior without necessarily condemning them. It has been successful in USA, and it is flexible to be replicated in any other country’s context.
6. To conduct a thorough study, on the concept of Standard Drink, which helps drivers to manage their drinking episodes and keep track of their BAC and remain in the legal limit
7. To partner with private driving schools to develop a program for safe driving including sessions on drink driving, impacts and subsequent penalties.

5.4.3. The general Public

The low levels of knowledge of the amount of the quantity of drinks that can infringe the legal limit is the major problem that impact enforcement of drink driving. The big number of drivers who participated reported lack of understanding of the alcohol content of drinks, the impact of different drinks and drinking patterns on BAC, and basic information on managing alcohol consumption to remain within the law.

The general public should know the legal limit and how to keep below the BAC levels if they plan to drive. Furthermore, the public especially drivers should follow police radio and Tv shows or any other strategies used in awareness campaigns to allow and know how to plan for their safe driving.

The findings of this study, indicate that driving schools do not teach safe driving, including planning ahead for drink driving and keeping track of their alcohol consumption. The general public is recommended to read some materials like Australia Drug Foundation 'Drink Driver Education Manual' (Australian Drug Foundation, 2002), it can help to address this problem.

5.3. Suggested further studies

Due to limited time and resources, the scope of this research was restricted to the effectiveness of check points, patrols, education and campaigns in the deterrence of drink driving out of other road safety operations. This study leaves a room to other researchers to conduct future researches on the road safety operations and the reduction of drink driving. This study suggests further research on the effectiveness of the current legal system in the prevention of drink driving. Furthermore, some drink driving enforcement spotted in literature review to have been effective in other countries, there need to carry out a research and find out if they are applicable in Rwanda context.

This study strongly suggest a deep research on the Rwandan culture and alcoholic drinks as some information obtained by this research tried to link drinking behavior and Rwandan culture.

REFERENCES

1. Abdalla (2010). Principles and Steps in Research
2. Alan, FW&Hedlund, JH ,1998, Issues and Methods in the Detection of Alcohol and Other Drugs. Transportation Research ISSN 0097-8515 Number E-C020, September 2000
3. APAE News,2019,652 people arrested for drunken drivingin Rwanda, retrieved from <http://apa news.net/en/news/> on 18 September 2020
4. AKERS et al., 1979, Social Learning and deviant behavior: “A specific test of a general theory*”, University of Iowa American Sociological Review 1979, Vol. 44 (August), 636-655
5. Barry Watson, 2004, the psychological characteristics and on-road behavior of unlicensed drivers, center for accident and road safety, Brisbane
6. Bundit S et al., 2017, Resource tool on alcohol taxation and pricing policies, Thailand
7. Buningwire.W, 2019 New Year Mood: Don’t Drink and Drive, Call ‘Abasare’, retrieved at <https://www.ktpress.rw/2019/12/> on 18 September 2020
8. Brymann. A,2012, Social Research Methods, 4ed., Oxford University inc., Network
9. CDC, 2011, Principles of Epidemiology in Public Health Practice, accessed at <http://www.cdc.gov/chickenpox/> on 10 March 2021.
10. Debus, M. (1988). A handbook for excellence in focus group research. HEALTHCOM Project special Report Series. Washington, D.C.: Porter/Novelli.
11. Fall, RJC, 2012, Student perception of the legal and non-legal consequences of drinking and driving: a deterrence-based approach, California State University, Sacramento
12. Hesse-Biber (Year not indicated) Analyzing Qualitative Data: With and without Software. Department of Sociology, Boston College.
13. Homel, R. (2004, 1993). Drivers who drink and rational choice: Random breath testing and the process of deterrence. In R.V. Clarke & M. Felson (eds.), Routine activity and

- rational choice. *Advances in criminological theory*, Volume 5. New Brunswick, NJ: Transaction Publishers (pp. 59-84). Reprinted in paperback, 2004
14. IACP, 2014, Building Trust Between the Police and the Citizens They Serve, retrieved at <https://www.theiacp.org/resources/buildingtrustbetweenthepoliceandthecitizenstheyservice> on 18 September 2020
 15. Jennifer M, 2002, *Qualitative Researching*, Second Edition, SAGE Publications, New Delhi
 16. Karhanga ,J, 2018,Experts warn against excessive alcohol consumption in Rwanda, accessed online at [www.newtimes.co.rw/news/Experts warn against excessive alcohol consumption in Rwanda](http://www.newtimes.co.rw/news/Experts%20warn%20against%20excessive%20alcohol%20consumption%20in%20Rwanda) | The New Times | Rwanda on 15 November 2020
 17. Kayonga T, 2020. Effectiveness of Breath Alcohol Test on Road Accidents Reduction Case Study of The City of Kigali, University of Rwanda, Musanze
 18. Kiptoo,T and Rick,B.2014, Effective drink driving prevention and enforcement strategies: “Approaches to improving practice”,retrieved at <https://www.aic.gov.au/sites/default/files/2020-05/tandi472.pdf> on 18 September 2020
 19. Kofi OS,2014, *Police - Driver Interaction and Traffic Law Enforcement in Madina and Adenta-Ghana*, University of Ghana, Accra
 20. Keqin J,2015 an investigation of the knowledge and practices relating to drink driving among Chinese drivers, Queensland (CARRS-Q) Brisbane, Australia, 2015
 21. Kothari, C.R. (1990) *Research Methodology & Techniques* New Delhi New Age International (P) Limited Publishers.
 22. Kumar, K. (1987). *Conducting focus group interviews in developing countries*. A.I.D. Program Design and Evaluation Methodology Report No. 8. Washington, D.C.: U.S. Agency for International Development.
 23. Niall MC, 2017, the worst countries in the world for Drunk Driving, Driving (forbes.com)

24. Mazimpaka,M, 2019, Interview: *Rwanda Police Considering Criminalizing Drunk Driving*, Fatal Accidents on the increase. Published in Taarifa on 18 September 2019, retrieved online at <https://taarifa.rw/interview-rwanda-police-considering-criminalising-drunk-driving-fatal-accidents-on-the-increase/> on 20 September 2020
25. Younus M, et al, 2019, Road safety and Road Accidents: An Insight, International journal of information and computing science, Volume 6, Issue 4, April 2019, ISSN NO: 0972-1347
26. Wang D,et,al.,2020, Built Environment Analysis for Road Traffic Crash Hotspots in Kigali, Rwanda. Front. Sustain. Cities 2: 17.doi: 10.3389/frsc.2020.00017, retrieved online on 20 November 2020
27. WHO, BAC limit data by country, access edat <https://apps.who.int/gho/data/node.main?A1002> on 21 November 2021
28. Richard, P&Berning, A,2015, Drug and Alcohol Crash Risk, accessed at file:/// C:/Users/ NPC% 20 Library/Downloads/Drug and Alcohol Crash Risk Research Note DOTHS 812117 February 2015.pdf, on 20 December 2020
29. RNP Strategic Plan 2013-2018
30. RNP Strategic Plan 208-20123
31. Wundersitz, LN& Woolley JE, 2008, Best practice review of drink driving enforcement in South Australia,Centre for Automotive Safety Research available retrieved at<http://casr.adelaide.edu.au/publications/researchreports>
32. Shyaka, A, 2019, R&B Star Meddy Arrested for Allegedly Drunk Driving accessed at <https://www.ktpress.rw> on 18 October 2020
33. Traffic Police Performance Contract 2020-2021
34. Uwayezu, E.; de Vries, W.T. Expropriation of Real Property in Kigali City: Scoping the Patterns of Spatial Justice. Land 2019, 8, 23.
35. WHO,2004, World report on road traffic injury prevention: summary, Geneva
36. WHO,2018, Global status report on alcohol and health, 2018
37. WHO, 2019, The SAFER technical package: Five areas of intervention at national and subnational levels, Geneva

ANNEXES

INTERVIEW GUIDE FOR FACE TO FACE AND VIDEO CALL INTERVIEWS

Topic: Road Safety Operations and reduction of drink driving in City of Kigali

Target Audience: 46

Principal Investigator: Justin RUKARA GAKAURU

Total Participant time required: 20 – 45 mins

1. INTRODUCTION (10 m)

Welcome the interviewee and researcher self introduction Explain the general purpose of the interview and why the participant was chosen, discuss the purpose and process of interview (interviewer & interviewee)

Outline general ground rules and discussion guidelines such as the importance of speaking up and being prepared for the interviewer to interrupt to assure the line of the study

Address the issue of confidentiality: Inform the participant that information discussed is going to be analyzed as a whole and that participants name will not be used in any analysis of the discussion.

2. DISCUSSION GUIDELINES:

The researcher would like the interview to be informal, so there is no need to wait for the researcher to call on you to respond. The researcher would like to encourage you to respond directly to the asked question. If you don't understand a question, please let the researcher know. Hopefully you'll feel free to speak openly and honestly.

No one else will have access to these tapes and they will be destroyed after our report is written.

SEMI-STRUCTURED INTERVIEW QUESTIONS USED IN GOOGLE FORMS AS ALTERNATIVE TO FACE TO FACE INTERVIEW

The initial interview queried information on

1. Basic demographics

- a. Gender
- b. Age group
- c. Education level
- d. Work experience

NO	IKIBAZO	HITAMO IGISUBIZO KIRI CYO
1	Igitsina	Gabo ☐
		Gore ☐
2	Icyiciro cy'imyaka	Hagati y'imyaka 19 na 29 ☐
		Hagati y'imyaka 30 na 40 ☐
		Hagati y'imyaka 41 na 50 ☐
		Hagati y'imyaka 51 na 60
3	Irangamimerere	Arubatse ☐
		Ingaragu ☐
		Umupfakazi ☐
		Baratanye ☐
4	Amashuri	Abanza ☐
		Ayisumbuye ☐
		Imyuga ☐
		Kaminuza ☐
		Amashuri y'ubumenyi ngiro ☐
		Ayandi

		(Sobanura.....)
5	Uburambe mu kazi	Hasiy'imyaka 3 ☐
		Imyaka 3-6 ☐
		Imyaka 6-9 ☐
		Hejuru y'imyaka 9 ☐

GENERAL DRIVERS

2. Experience on driving under influence apprehension:

- In the past 4 years how, many times did you drive a motor vehicle when you thought you might be over the legal blood alcohol limit for drunken driving (Mugihe cy'imyaka ine ishize ni nk'inshuro zingahe wibaza ko watwaye ikinyabiziga wanyoye inzoga?)
- How can you explain your drink and drive experience? (Ni ikihe kintu wumva mu mateka yawe utazibagirwa kubijyanye no gutwara imodoka wanyoye?)
- Can you describe how it was the first time you were stopped by Police for breath alcohol test? (Ushobora kudasobanurira uburyo wumvise ubaye kunshuro yambere watwaye imodoka wanyoye hanyuma Police ikaguhagarika kugirango igupime?)
- What are other traffic offenses associated with drunk driving? (Ubona ari ayahe makosa yo mu muhanda agendanye no gutwarawanyoye?)

3. Knowledge of driving under influence laws

- What do you know about drink driving as a traffic offense? (Ni iki uzi kubijyanye no gutwara ikinyabiziga wanyoye?)
- What do you know about the legal limit of alcohol? (Ni ibihe bisobanuro uzi kubijyanye na alcohol ntarengwa kumuntu utwaye imidoka yanyoye?)
- At which extent driving schools to teach BAC and drink driving laws? (Amashuri yigisha gutwara ibinyabiziga, yaba yigisha kukigero kingana gute ibijyanye na alcohol itemewe kurenza igihe utwaye ikinyabiziga, hamwe n'amategeko ahana abatwaye banyoye?)

d. How does police assess candidates of driving license about BAC and drink driving laws before passing for provisional driving license? (Mugihe cyo gukore sha ibizamini by'impushya zo gutwara z'agateganyo polisi isuzuma ite ko usaba urwo ruhushya yasobanukiwe ibijyanye n'amategeko ahana gutwara wanyoye hamwe na alcool ibijujijwe?)

4. Drink driving consequences and Penalties

- a. What punishment do you think is severe and effective to deter drink driving than others? (Ubona ibihano bitangwa ari ikihe kirusha ibindi ubukana bwo gukumira umuco wo gutwara ikinyabiziga umuntu yanyoye?)
- b. What do you know about the punishment for drunk driving? (Ni iki uzi kubihano bihabwa abantu batwara banyoye?)
- c. If you have been punished for drink driving, what lesson did you learn from the punishment? (Niba warigeze guhanwa kubera gutwara wanyoye, ni irihe somo byagusigiye?)

5. Consequences of arrests for driving under influence:

- a. If you were arrested for driving under influence, what are the likely consequences would happen to you and your family? (Uramutse ufashwe ugafungwa kubera gutwara wasinze, ni izihengaruka wibaza ko zakubaho cyangwa kumuryango wawe kuburyo utakwifuza kuzongera gutwara wanyoye?)
- b. Uramutse uhawe ububasha bwo kugira inama abashyiraho amategeko niyihe watanga mukunozza uburyo bwo guhana abatwara banyoye no guca burundu uwo muco?
- c. Imagine you were intoxicated and pulled over by police, what are your opinions about the consequences (Ibaze uramutse wasinze, imodoka police ikayiterura, usobanura ute ingaruka bikugiraho?)

7. Drink driving related guilt:

- a. Have you ever felt guilty or shameful because of drinking and drive? (Waba warigize wumva inkomanga kumutima cyangwa ikimwaro kuberagutwara wanyoye?)
- b. In your opinion, if you were arrested for driving under influence, how likely would it be that your friends or colleagues would think of you? (Wibaza ute uko inshuti zawe

cyangwa abo mukorana zagufata zumvise ko wafunzwe kubera gutwara wanyoye/wasinze ?)

8. Perception of enforcement of driving under influence:

a. How do you often perceive to be stopped by police for drink driving according to their current practices? (Ni kurwego rungana iki uba wikanga gufatwa na police kubera gutwara wanyoye ugereranyije nibikorwa bakora ubu byo kurwanya abantu batwara banyoye?)

b. If it happened to you to come across Police check points, can you explain how many times and how you behaved on police enquiries? (Niba byarashyitse ko uhura na bariyeri ya police, waduso banurira inshuro byakubayeho n'uko wabyitwayemo?)

c. If you were driving drunk but appeared sober how likely you are be arrested for driving under influence? (Uramutse utwaye imodoka wanyoye ariko wiyumvamo ko utasinze, wibaza ute uko byagenda uramutse ufashwe na police?)

d. With the experience you have about drink driving, which Police action that made you fear repeating drunk driving or that can be a lesson to your friends or others? (Ushingiye kubyo wabonye mubijyanye no gutwara imodoka wanyoye, ni ikihe gikorwa cya Police cyagukanze kuburyo utasubira gutwara wanyoye cyangwa ubona cyaba nk'isomo kunshuti zawe cyangwa abandi?)

e. According to your experience in driving, what do you know about the mechanism used by Police to fight against drink driving that is likely to reduce the drink driving behavior? (Ushingiye k'uburambe ufite mu bushoferi, ubona ari ubuhe buryo Police ikoresha mu kurwanya umuco wo gutwara wanyoye butanga icyizere cyo guca iyo ngeso?)

f. How often do you expect to encounter Police action against drunk driving? (Iyo uri ahantu unywera inzoga kandi ufite imodoka, gufatwa na police kubera gutwara wanyoye ubiha amahirwe angina iki?)

g. Based on your experience or what you heard from your colleagues, what are negative or positive aspects of Alcohol-test? (Ushingiye kubyo uzi cyangwa kubyo

ubwirwa na bagenzi bawe, ni iki ushima cyangwa ukemanga imikoreshereze ya Alcohol-test?)

d.Reasons for drink driving (Why driving while drunk?)

a. What reasons you or your colleagues give to drink driving behavior or repeating drunk driving after being punished? (Ari wowe cyangwa bagenzi bawe ni izihe mpamvu mubona zitera abantu gutwara banyoye cyangwa bongera gutwara banyoye nyuma yo kubihanirwa?)

b. After learning that drunk driving is punishable by law, what do you do when you have a drink with your friends? (Nyuma yo kumenya ko gutwara imodoka wanyoye bihanwa n'amategeko, ubigenza ute iyo urikumwe n'inshuti zawe musangira inzoga?)

POLICE OFFICERS

1. Ubona ari izihe mpamvu zituma abantu batwara ibinyabiziga banyoye ibisindisha ?
2. Ese ugereranyije n'imbaraga police ishyira mukurwanya umuco wo gutwara banyoye ibisindisha ubona abantu babyumva bakirinda gutwara banyoye?
3. Nizihe ngamba ubona zikoreshwa mugucunga umutekano wo mumuhanda byumwihariko muguhashya abatwara banyoye ibisindisha?
4. Wowe ubona guhana no kwigisha ari ikihe gitanga umusaruro ufatika mukurwanya umuco wo gutwara ibinyabiziga banyoye?
5. Ubona ute ibihano bitangwa kubafatwa banyoye?
6. Ni izihe nenge cyangwa inyungu ubona mu iteko rikoreshwa muguhana batwaye banyoye mu Rwanda?
7. Operations zikorwa na police mukurwanya ubusinzi, harimo checkpoints na patrols ubona ute imbogamizi muri buri kimwe hamwe nbyiza byacyo?
8. Ugereranyije nuburyo polisi yigisha abanyu kwirinda gutwara banyoye, usanga abashoferi babyumva kuburyo byababuza gutwara banyoye cyangwa usanga hari ubuundi buryo bwakongerwamo kugira ngo birusheho gucengera mubantu?
9. Ubwawe wumva ute alcohol ntarengwa ya 0.08%, uramutse usabwe kubytwararika kandi uri mubirori bigusaba kunywa inzoga, ni izihe ngamba wafata cyangwa inama waha mugenzi wawe ?

10. Mubihano bitangwa harimo gufungwa iminsi itanu, gufunga imodoka n'amande ya 150,000frs, mubona ari ikihe gitinyika kuburyo gitanga umusaruro mwinshi mugukumira ingeso yo gutwara banyoye?
11. Ubwawe wumva ute igitekerezo kivuga ko hakwiye gutandukanywa ibihano kumuntu ufata yanyoye gusa, uwanyoye akagenda nabi mumuhanda n'uwanyoye akica cyabgwa agakomeretsa abantu ndetse n'igihano kubantu bagira insubiracyaha?
12. Ni izihe mbogamizi (challenges) ubona muri Operations zo kurwanya ubusinzi kuburyo zatuma umusaruro ukenewe utagerwaho ijana ku ijana?
13. Ni izihe mbogamizi abapolisi bakoresha alcohol test bahura nazo mugupima absinzi?
14. Ese ni izihe complaints (ibirego) mukunda kubona kubaturage binubira izo operations cyangwa kubihano bahabwa na alcohol test by'umwihariko?
15. Uramutse uhawe ububasha bwo kugira inama abashyiraho amategeko n'iyihe watanga mukunozza uburyo bwo guhana abatwara banyoye no guca burundu uwo muco?
16. Ushingiye kugihe umaze uhura namadosiye y'ubusinzi ubona insubiracyaha zingana zite ?
17. Ese mubisobanura ubona cyangwa kubushishozi bwawe ubona impamvu zitera abantu gukomeza gutwara banyoye kandi bazi ko bihanwa ari izihe?

RIB OFFICERS

1. Muri operations za police ikora zo kubahiriza umutekano wo mumuhanda ifata abantu batwaye ibinyabiziga banyoye, wadusobanurira ute uko mukorana na police mukubakurikirana imbere y'amategeko?
2. Ku bwawe ubona ute uruhare rw'Itegeko numero 34/1987 ryo kuwa 17/9/1987 ryerekeye imihanda n'uburyo bwo kuyigendamo riteganywa ibihano muguhashya umuco wo gutwara wanyoye ibisindisha?
3. Ese haba hari izihe mbogamizi muhura nazo mugukora dosiye z'abantu bakurikiranwaho gutwara banyoye?
4. Ushingiye kugihe umaze uhura namadosiye y'ubusinzi ubona insubiracyaha zingana zite?
5. Ese mubisobanura ubona cyangwa kubushishozi bwawe ubona impamvu zitera abantu gukomeza gutwara banyoye kandi bazi ko bihanwa ari izihe?

6. Uramutse uhawe ububasha bwo kugira inama abashyiraho amategeko n'iyihe watanga mukunoza uburyo bwo guhana abatwara banyoye no guca burundu uwo muco?

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06 May 2021

The Inspector General of Police
Rwanda National Police
PO Box ... Kigali
E-mail: igpoffice@police.gov.rw

REQUEST FOR PERMISSION TO CONDUCT A RESEARCH

Sir,

1. I am SSP Justin Gakuru RUKARA and a student of University of Rwanda (UR) in Peace Studies and conflict transformation at Rwanda National Police College (NPC).
2. The topic of the research I wish to conduct for my Master's dissertation is "*Road Safety operations and reduction of drink driving in the City of Kigali*". This research will be under supervision of Dr Jon Peter MUGUME (UR).
3. I am hereby requesting your permission to have access to information resources in Traffic and Road Safety department and the office of the director of Legal, for the quality and reliability of my research project.
4. In addition to that, I will also need to conduct interview with some traffic police officers as participants in the process of the collection of primary data.
5. I here attach the approval letter from the National Police College (NPC) Commandant.

6. Respectfully

SSP Justin G RUKARA
Student of PSCSC at NPC



ROAD SAFETY OPERATIONS AND DRINK DRIVING

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