



UNIVERSITY of
RWANDA

COLLEGE OF ARTS AND SOCIAL SCIENCES (CASS)

CENTER FOR CONFLICT MANAGEMENT (CCM)

**TRAFFIC POLICE ROAD CHECKPOINTS AND REDUCTION
OF ROAD ACCIDENTS/CRASHES:
A CASE STUDY OF GASABO DISTRICT**

A Dissertation submitted to the University of Rwanda, in partial fulfillment of the requirements for the award of Master's degree of Arts in Peace Studies and Conflict Transformation (MA PSCT)

Presented by: John MULISA

Supervisor: Dr. Aggée Shyaka Mugabe

Musanze, June, 2022

DECLARATION

I declare that this thesis is the result of my own work and has not been submitted for any other degree at the University of Rwanda or any other institution.

Student: JOHN MULISA

REG N^o221031163

Signature: Date:

Supervisor

I certify that this work was done under my supervision, and I confirm that it is ready for examination.

Signature :

Date :

Dr. Aggée Shyaka Mugabe

DEDICATION

This dissertation is dedicated to Almighty GOD, my family members more social and specifically to my lovely wife Sarah Mutesi and my children: Ruganzu Mulisa Divin, Akamanzi Mulisa Delisha, Ndahiro Mulisa Elisha and Akeza Mulisa Leisha, Parents moreover my mummy for your dairy constant prayers and my supervisor.

ACKNOWLEDGEMENTS

I am appreciative to everybody who endeavored to me any support direct or indirect either morally or immensely to the completion of this thesis due to their absence it could hard to accomplish it. First of all, my thanks are addressed to Almighty GOD for His enormous love, guidance, protection and blessing towards me with strength while conducting this study. Secondly, my appreciation sincere is expressed to Dr. Aggée Shyaka Mugabe for his priceless input not alone expertise rendered as supervise but also the moment of time and effort dedicated for the whole of study. His inspiration, direction, ideas and beneficial criticisms that facilitated me during the whole process of this study. Really, I recognize Rwanda National Police as well as University of Rwanda and the Government of Rwanda for their vast support towards my studies. Finally, my deepest cheers to my lovely wife Sarah Mutesi, my lovely children, Ruganzu Mulisa Divin, Akamanzi Mulisa Delisha, Ndahiro Mulisa Elisha and Akeza Mulisa Lieshe for their interminable love and patience during absence for my studies, Almighty God may bless them abundantly. The support and inspiration by my fellow PSCSC 10/21-22 participants and the entire NPC staff.

Thank You and Almighty God Bless You All Abundantly!

TABLE OF CONTENTS

DECLARATION	ii
DEDICATION.....	iii
ACKNOWLEDGEMENTS.....	iv
TABLE OF CONTENTS	v
LIST OF FIGURES.....	ix
LIST OF ABBREVIATIONS/ ACRONYMS	x
ABSTRACT	xi
CHAPTER ONE: INTRODUCTION	1
1.1. Back ground of the study	1
1.2. Statement of the problem	4
1.3. The Research Objectives	5
1.3.1. Main objective	5
1.5. Significance of the study	5
1.6. Scope of the study	6
1.6.1. Domain.....	6
1.6.2. Location	6
1.6.3. Duration	6
1.8. Organization of study.....	7
CHAPTER TWO	7
LITERATURE REVIEW.....	7
2.1. Definition of concepts.....	7
2.1.1. Traffic Police officer	7
2.1.2. Traffic police checkpoint.....	7
2.1.3 Considerations of traffic police road checkpoints.....	8
2.1.4. Types of checkpoints	9
2.1.4.1 Random checkpoint	9
2.1.4.2. Mobile checkpoint	9
2.1.4.3 Fixed checkpoint	9
2.1.4.4. Flexible checkpoint	9
2.1.5 Importance of traffic police road check points	11
2.1.6. Traffic Police Patrol.....	11
2.1.7. Road.....	12
2.1.8. Road safety	12
2.1.9. Road traffic accidents/ crash	13

2.1.10. Road crash contributing factors	13
2.1.11. Some causes of road crashes/ accidents.....	13
2.1.11.1. Human factors	14
2.1.11.2. Vehicle factors	14
2.1.11.3. Environmental factors	14
2.1.12. Types of traffic road crashes.....	15
2.1.13 Road crash reduction	15
2.1.14. Road crash/accident data and sources	15
2.1.15. Rwanda and international crashes patterns	16
2.2. Theory related to the study	16
2.2.1. Deterrence Theory	16
2.2.1.1. General deterrence.....	17
2.2.1.2. Specific Deterrence.....	18
2.3. Conceptual frame work.....	18
CHAPTER THREE	19
RESAERCH METHODOLOGY	19
3.1. Research design and approaches	19
3.2. Area of study.....	19
3.2.1. Geography and demography.....	20
3.2.2. Population.....	20
3.3. Sampling technique and sample size	21
3.4. Data collection methods	22
3.4.1. Documentary data collection method	22
3.4.2. Interview	22
3.4.3. Focus group discussions/ Group interview	23
3.5. Data Analysis.....	24
3.6. Validity and reliability	24
3.7. Ethical considerations	25
3.8. The position of the research	25
3.9. Conclusion.....	25
CHAPTER FOUR	26
FINDINGS OF THE STUDY, ANALYSIS AND DISCUSSIONS.....	26
4.1 Socio-demographic characteristics of Respondents.....	26

4.1.1 Distribution of respondents per sex.....	26
4.1.2 Distribution of respondents per age groups	27
4.1.3 Repartition of respondents per marital status	29
4.1.4 Distribution of respondents per level of education	30
4.1.5 Distribution of respondents per experience	31
4.2 Presentation of Findings per Objectives	32
4.2.1 Findings on the relation between traffic checkpoints and road traffic accidents/crashes.....	32
4.2.1.2. Effectiveness of traffic checkpoint in reduction of accidents/crashes	36
4.2.1.3 The extent of traffic checkpoint means of the prevention of road accidents/crashes.....	39
4.2.1.4. Relation between the daily number of the checkpoint deployed and number of the accidents occur per day.	41
4.2.1.5 Causes of the road accidents/crashes	43
4.2.3 Strategies to prevent traffic road accidents	45
4.2.3.1 How those strategies above can be implemented and by who so as to be effective in reduction of road traffic crashes	47
4.2.3.2 The strategies that can come first than others and why in reduction of road traffic crashes ...	48
4.3. The link between theory and findings.....	50
4.4. Conclusion.....	50
CHAPTER FIVE:	52
SUMMARY, CONCLUSION AND RECOMMENDATIONS.....	52
5.1. Discussions.....	52
5.2. Summary of major findings	53
The summary of the findings of this observes had been performed in accordance with research goals.	53
5.2.1 Findings on 1 st Objective: The causes of road traffic crashes in Gasabo District and the relationship between traffic checkpoints and road traffic crashes.....	53
5.2.2 Findings on 2 nd Objective: strategies aimed at reducing road traffic crashes in Gasabo District ..	53
5.3. General Conclusion	54
5.4. Strengths and Limitations	54
5.4.1. Strengths	54
5.4.2. Limitations	55
5.5. Recommendations	55
5.5.1. The Government of Rwanda	55

5.5.2. The Rwanda National Police	56
5.5.2.1. Traffic and Road Safety Department.....	56
5.5.3. Stakeholders	56
5.5.4. Suggestion to further Researchers	57
REFERENCES.....	58
ANNEXES.....	61

LIST OF FIGURES

Graph 1: Gender Distribution of Respondents.....	27
Graph 2: Age group of Respondents.....	28
Graph 3: Marital status of respondents	29
Graph 4: Distribution of respondents by educational level	30
Graph 5: Distribution of Experience of Respondents	31
Graph 6: Opinions of respondents on the relationship between traffic check point and road accidents/crashes in Gasabo District.....	33
Graph 7: Opinions of respondents on effective checkpoints in reducing accidents/crashes	37
Graph 8: Opinions of respondents about the extent of TCP effective means of prevention of road accidents/crashes.....	40
Graph 9: Opinions of respondent in the relation between daily number of checkpoints deployed and number of crashes occurs per day.	42
Graph 10: Opinions of respondents about the causes of road accident/crashes	44
Graph 11: Strategies in respondents' opinion that can help to address road accidents/crashes in Gasabo districts.....	46
Graph 12: The roles and responsibilities of drivers in reduction of road accident/crashes	49

LIST OF ABBREVIATIONS/ ACRONYMS

COVID 19	: Coronavirus 19
CoK	: City of Kigali
FGP	: Focused Group Discussions
GDP	: Growth Domestic Product
IOT	: In order to
IT	: Information Technology
LMIC	: Low Medium Income Countries
MINFRA	: Ministry of Infrastructure
RIB	: Rwanda Investigation Bureau
RNP	: Rwanda National Police
RTA	: Road Traffic Accident
RTDA	: Rwanda Transport Development Agency
RTI	: Road Traffic Injuries
RULA	: Rwanda Utility Regulatory Agency
TCP	: Traffic Check Point
TRS	: Traffic and Road Safety
UR	: University of Rwanda
USA	: United States of America
WHO	: World Health Organization

ABSTRACT

This study explores traffic police road checkpoint and reduction of the road traffic accidents in Gasabo District. The specific objectives of the study were to identify the causes of road traffic accidents and examine the relationship between traffic checkpoints and road traffic crashes; to formulate strategies aimed at reducing road traffic accidents. The methodology used quasi-experimental research approach and qualitative approach. Total population was 900 Traffic Police Officers and drivers. The stratified and simple random sampling techniques were applied to select 90 respondents.

Findings indicated the causes of road traffic crashes and the relationship between traffic checkpoints and road traffic crashes which confirmed by the presence of the police officer on the traffic police checkpoints that reminds road users traffic rules and regulation and how to comply. Traffic and Road Safety department doesn't deploy checkpoints to the rural roads in which might be the cause of many accidents/crashes, Gasabo is more habited, with many cars and many roads that are small, also traffic and road safety department is not able to deploy check points which leads to the occurrence of traffic accidents/crashes. Gasabo district in more habited with many cars that contributes to the causes of accidents. Gasabo district have long range drive roads that influence the occurrences of accidents.

Findings present the strategies aimed at reducing road traffic accidents applying holistic education to the road user to change the mindset, Infrastructure development, Employment of the more technology, Capacity building to traffic and road safety staffs and equip them with modern equipment.

Drivers should abide with traffic rules and regulations, to ensure good condition of the vehicle. they should interpret thoroughly terrain and weather while driving. Police officers must have purpose for being at checkpoint with the checklist to be observed to reduce road accident; Police officers should control checkpoint effectively and ensure safety to avoid accident.

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

Key Words: *traffic police, road checkpoint, reduction, road traffic accidents,*

CHAPTER ONE: INTRODUCTION

This study is about examining the relation between traffic road checkpoints and reduction of crashes, reasons why road traffic accidents/crashes occur and yet there are deployments of traffic police road checkpoints. This chapter focuses on the background of the study. It further customary out the statement of the problem that present rise to the study as well as sketch the objective and research question of the study. Furthermore, it also explores significance of the study as well as the scope and delimitation of the study.

1.1. Back ground of the study

Traffic Police Road Checkpoints are mounted to facilitate movement and follow of pedestrians on the roads where they are much traffic flow of the vehicles specially to help teenager and children who are more exposed because their perceptive, physical and social traits. Nevertheless, walking is one of the foremost methods of travel, mostly in leisureliness times. Child everyday harm predominantly happens in built-up areas, with a major stake at crosswalks (NCBI, 2020).

Traffic police checkpoints mounted at the road initial were presented in Scandinavia in the 1930s (Elder, Shults, and Sleet, 2002) and later became shared in the United States in the early 1980s (Welki, and Zlatoper, 2007). In 1990, the U.S. Supreme Court ran in goodwill of the constitutionality of soberness checkpoints; Nevertheless, the discussion over checkpoints has continuous, and some specific state courts have reasoned them illegal for disrespectful state constitutions (Welki, and Zlatoper, 2007).

Many countries in Africa traffic police road checkpoints practice is applies and used where police services mount traffic checkpoints aimed to discourage drinking and driving by steadily discontinuing drivers for valuation of alcohol deficiency, consequently aggregate the apparent risk of seizure due to alcohol-impaired driving (Research Gate, 2021).

In Rwanda traffic police road police checkpoints are commonly used as the most road safety measures than other road safety measures like awareness campaign, E-traffic policing, patrols, talk shows and sharing information to ensure accidents free hence road safety (Police notebook 2019).

City of Kigali more E-policing gadgets were introduced like traffic lights, speed camera fixed and mobile. However, traffic police checkpoints are observed and used on the streets and main roads of the City of Kigali while enforcing traffic rules and regulations. In Gasabo District particular traffic police road checkpoints are mounted to control traffic follow and ensure free movement of the citizens to avoid road traffic accidents hence enhanced road safety (RNP, 2020).

Globally, Road Traffic Accidents (RTAs) causes 1.35 million deaths and many non-fatal road injuries (RTIs) (WHO, 2018). RTIs make an important health and economic problem in low and middle-income countries (LMICs). Africa countries have a principally unequal burden of RTAs and RTIs. Complying to the World Health Organization (WHO), countries in the Africa region have the highest per capital rate of road deaths in the regardless of having a small fraction of the world vehicles (WHO, 2018). For example, in Great Britain 1, 863 road traffic accidents deaths were reported and recorded in 2016. Raised increase of 4.1 per cent in the relation to that of 2015. It was observed as the highest annual increase since 2011. Also, it was seen that there were 44 per cent less death rate in 2016 in relation to 2006. Furthermore, 24,567 persons were extremely injured in the statistics report of road traffic accidents in 2016 (Great Britain Causality annual report, 2018).

In Africa according to 2018 Global status Report on Road Safety, indicated that there has been no progress in reduction on the numbers of deaths from road traffic accidents in any low-income country between 2013 and 2016, according to World Health Organization's. Example National Transport and Safety Authority (NTSA), office responsible of transport in Kenya logged 3572 fatalities, 6938 serious injuries and 5186 slight injuries as at December 2019 (National Transport and Safety Authority, 2020).

In Rwanda, like many other Low Medium Income Countries, there is absences of complete Road Traffic Causalities (RTCs) data system that links police and hospital records. This constraint is linked with the high rates of road traffic causalities and road traffic injuries under-reporting, increasing distress that exact numbers of RTIs and road deaths are abundant higher than reported one (WHO, 2018).

City of Kigali, is heavily occupied with 2,535 inhabitants per square kilometer, but the majority of the population lives in rural areas (NISR, 2018) and owns 70% of the registered vehicles in

Rwanda. In 2011 72 % of all RTAs in Rwanda took place in Kigali (NISR, 2018). Established investigates of hospital archives paraded that RTIs accounted for 73.4% of all coiled cases and 61.2% of fatal injuries in Kigali. Patterns of injuries at two university teaching hospitals in Rwanda (Petroze and Calland, 2018). In 2019 Gasabo District scored 45 % and 2020 with 47% of the total accidents that occurred in the City of Kigali and this ranks Gasabo as the dominating district with the high-rate number of traffic road accidents in Rwanda for last four years constantly (RNP, 2020).

Worldwide traffic police checkpoints are mounted always aimed to prevent traffic offences like drinking and driving through steadily discontinuing drivers for valuation of alcohol deficiency, therefore aggregate the alleged risk of seizure aimed at alcohol-impaired driving. Globally traffic police checkpoints cover 20 % of road safety strategies and it is considered as thong the best effective road safety strategies to enforce the reduction of road accidents when it comes to human behavior as the cause of the accident. Traffic police checkpoints play a significant part in avoiding alcohol-related accidents and linked injuries (Research Gate, 2021).

Africa countries have a principally unequal burden of road traffic accidents (RTAs) and road traffic injuries (RTIs). Complying to the World Health Organization (WHO), countries in the Africa region have the highest per capita rate of road deaths in regardless of having a small fraction of the world vehicles. Also in Africa Traffic checkpoints is the most road safety strategy that is used where is score 65% among the other road safety strategy to deter and reduce road accidents is the most road safety measures that is applied in Africa in relation to other road safety measures like E-Traffic oriented policing, campaigns and talk shows (Public library of science 2019)

Like other developing countries to reduce road traffic accidents, Rwanda as a country with the high rate of road traffic accident, Rwanda National Police while enforcing road traffic laws deploys police officers at the checkpoints at various main roads mostly other than other road safety security measures like E-Policing (Speed radar cameras mobile and static, Speed governors), campaigns like GERAYO AMAHORO and Radio talks shows in Rwanda. Traffic police checkpoint in Rwanda is used at 75% compared to the other road safety measures aimed to reduce road traffic accidents (RNP, 2020).

1.2. Statement of the problem

Peoples in Africa most of the time experience the existence of the police checkpoints are in urban and rural areas barely have police checkpoints. But in exceptional circumstances when serious traffic violations offences are committed in rural communities the police may mount checkpoints there to hunt out the violators. Again, checkpoints are set where is reasonable information that traffic violators are fleeing to the up-country to avoid detection of arrest (George O, 2005.p.69)

Government of Rwanda through Rwanda National Police endeavors to improve road safety by reducing road traffic accidents and having safe environment to all road users. Road users should feel safer and securer while walking and driving on the road and ensure their safety as well as the safety of others. People's safety on the road is among the vital aspects in order to prevent and reduce traffic accidents, injuries and death. Road users need to understand and familiar with rules regulations specifically kids and younger persons due to their vulnerability to road traffic accident dangers (WHO, 2008).

Rwanda partakes the peak road traffic fatality rate at 22 deaths per 100,000 and the top burden of RTIs at 1,173 disability-adjusted life years per 100, 000 population interrelated with other East African countries (IHME), 2015). City of Kigali with its un well planned road networks possesses 70% of the registered vehicles in Rwanda. In 2012, 72% of all road traffic accidents in Rwanda took place in Kigali (www.statistics.gov.rw, 2017). Gasabo District is the leading district in the country with the high rate of road traffic accidents where for the last two years scored 45 % in 2019 and 47% in 2020 of the total road traffic accidents that arose in the city of Kigali. Well as City of Kigali came up with 103 % in 2019 and 104 % in 2020 of the accidents in whole country (RNP, 2020).

Nevertheless, the impression of these determinations of the traffic police road checkpoints on reduction of road accidents is unidentified subsequently no evaluation ever been piloted to date. Due to the lack of impact of the determinations, might lead strategy makers to advance un appropriate strategies which compromise the ideal of reduction of road traffic accidents. Consequently, there is a need for evaluation police road checkpoints on reduction of the road traffic accidents that contribute to government efforts on road safety. This study examined traffic police road checkpoint on reduction of the road traffic accidents.

1.3. The Research Objectives

This section illustrated two categories of study objectives including main objective and specific objectives.

1.3.1. Main objective

The main objective of the study was to examine the relation between traffic police checkpoints on reduction of road traffic accidents and how it contributes on road safety in City of Kigali.

1.3.2. Specific objectives

- (1) To identify causes of road traffic crashes/accidents
- (2) To formulate/elaborate strategies aimed at reducing road traffic crashes/accident

1.4. Research questions

This study was guided by the following research questions;

- (1) What is the relation between traffic checkpoints and road traffic accidents?
- (2) What are the reasons why road traffic accidents occur and yet there are deployments of traffic police road checkpoints?
- (3) What are strategies should be put in place to prevent traffic road accidents?

1.5. Significance of the study

This study is about traffic police checkpoints on reduction of road traffic accidents in the city of Kigali, Gasabo District. Regardless to Peace and Conflict issues this study its contributions can be explained from three aspects;

First, it would add knowledge towards present stock of knowledge in road safety domain specially to traffic police checkpoints on road traffic accidents. Subsequently, this study would present some empirical messages for policy makers, road users and other stakeholders.

Secondary, the obtained results of how traffic police checkpoints impacted on the reduction of road traffic accidents would motivate government in particular Rwanda National police through Traffic and Road Safety Department to take proper measures.

Thirdly, the study would also contribute to the researchers to broaden capacity of looking issues of public concerns in relation to relationship of the traffic police checkpoints on the reduction of road accidents.

1.6. Scope of the study

1.6.1. Domain

This study destined itself to road safety and discussed of the relation between traffic police road checkpoints and reduction of accidents/clashes as my study area.

1.6.2. Location

The study was conducted in City of Kigali in Gasabo District. This limitation is associated with the different status of road networks and behavior of the road users in Gasabo District. The population density of Gasabo District is 1247/km² (NISR, 2017); Kigali encompasses 71 % of the registered vehicles in Rwanda, and Gasabo possess 46% of the vehicle numbers of Cok.

A study on Road Traffic by Wang et al. (2020) asserts that “retrospective studies of hospital records in 2011 indicates that Road Traffic Injuries accounted for 73.4% of all injury cases and 61.2% of fatal injuries in Kigali”, Gasabo owns 47 % of RTC of City of Kigali (Wang et, al., 2021).

1.6.3. Duration

This study is limited for the duration of the four years that is from 2018 to 2021, due to the empirical study used qualitative approach that focused on respondent’s perception views. This means that respondents be sure of on the memory, that for the four years were reasonable for the respondents to recall the events and phenomenon. Furthermore, to this, within four years Gasabo District had knowledgeable a huge alteration in terms of infrastructure, Policies, the increase of the vehicle and quantity of the law enforcers which are the major variables of the operations in reduction of road accidents /clashes.

1.7. Contribution of the study

The study about traffic police checkpoints and reduction of road accidents/clashes in Gasabo District and this study complement knowledge towards present stock of knowledge in road safety field particularly to traffic police checkpoints and reduction of clashes.

Subsequently, this study presents some empirical messages for policy makers, road users and other stakeholders. Secondary, the obtained results of how road traffic checkpoints impacted on the reduction of road clashes/accident motivate Rwanda National police through Traffic and Road Safety Department to take proper measures. Thirdly, this study also contributed to the

researchers to broaden capacity of looking issues of public concerns in relation to road accidents/clashes.

1.8. Organization of study

The study is organized in five chapters. Chapter one is composed and focused on historical background, problem of statement, objectives, research questions, scope of the study, contribution of the study and organization of the study. Chapter two composed of literature review related to the study. Chapter three comprises of methodology that gives details on research design, population, composition of the size, how data was collected, coded, analyzed and processed. Chapter four is about the analysis and interpretations of the outcomes from collected data well as chapter five focuses on major findings, conclusions and recommendations deducted from the analysis of the research finding.

CHAPTER TWO

LITERATURE REVIEW

This chapter is about the literature review of the survey from books, scholarly articles, and key concepts. The chapter defines the key concepts that related to the study under research. Also provide the theory and its relevance to the study and conceptual frame work that demonstrate the relation of independent and dependent variables. (Younus et al., 2019).

2.1. Definition of concepts

2.1.1. Traffic Police officer

A Traffic police office is an officer who is responsible to monitor drivers and pedestrians on the to ensure their safety. They typically work in traffic bureau within traffic police department, and most of time focuses on patrolling in a specific area of the city or community (INDEED, 2019).

2.1.2. Traffic police checkpoint

It is the team of the Traffic Police Officers with the equipment that mounted a checkpoint on the roadway to stop and to check for impaired drivers. The checkpoint can be utilized to identify alcohol impairment or another and any other traffic law offenders. They are conducted in a fixed location and vehicles are stopped according to a pre-determined plan (e. g every car, every other car etc.).

During the stop, officers engage the pedestrian and drivers in brief conversation in an attempt to determine if the driver is impaired. If the driver found to be impaired, appropriate enforcement action is taken. If it is determined that the driver is not impaired, they are allowed to continue on their way. The strength of the stop is short and non-impaired drivers' interface with law enforcement is slightly intrusive (Lacey, John, Wiliszowski, Connie, et al., 2017).

Traffic police road checkpoints are mounted to ensure road safety measures while observing, controlling and checking road users aimed to discourage drinking and driving by steadily discontinuing drivers for valuation of alcohol deficiency, consequently aggregate the apparent risk of seizure due to alcohol-impaired driving. Also, in Rwanda traffic police road police checkpoints are mostly employed to ensure road safety of the road users other than other road safety measures like awareness campaign, E-traffic policing, patrols, talk shows and sharing information to ensure accidents/crashes related to drink and drive are avoided hence road safety ensured (Police notebook, 2019).

2.1.3 Considerations of traffic police road checkpoints

To mount traffic checkpoint requires many things among them are the intention of the leadership, legal aspects, safety considerations, purpose and aim of the checkpoint, type of the checkpoint, location, Time and duration, conduction of road, resources to be used. Also, traffic data is very most determining fact by assessing existing volume while analyzing traffic counts in relation to the facilities which are road and other infrastructures around like traffic lights, traffic signs.

Furthermore, before mounting checkpoint you need to consider crash history and other problems in the area. Consideration of the roadway characteristics is also observed while mounting traffic checkpoint and this includes horizontal and vertical alignments, number of lanes and surrounding terrain. Also, before mounting traffic checkpoint, you consider traffic control and safety appurtenances which include signs, structure, traffic signals, roadside barriers, pavement makings, lighting during night hours and other traffic controls devices (Perett K.E. and Stevens, A. , 2018).

2.1.4. Types of checkpoints

2.1.4.1 Random checkpoint

Random traffic police checkpoints are set up to achieve surprise, as opposed to permanently located traffic police checkpoints which traffic offenders could evade. They are often established in locations where they cannot be easily observed by approaching traffic officers it is too late to withdraw and escape being observed. Traffic police officers use random checkpoints to detect drivers who are suspected of impaired driving. Traffic police officers also use random checkpoints to check cars and trucks in joint operation with police or from sister security organs when they are pursuing an armed dangerous fugitive.

2.1.4.2. Mobile checkpoint

The mobile checkpoints are mounted by traffic police officers to respond to an immediate traffic operation need and can be removed immediately after execution of the operation without having impact on the security of the concerned area, the population living in it and the personnel deployed for the operation.

Mobile traffic police road checkpoints are one that is set up under dynamic circumstances, following a serious traffic offence and the offenders are thought to still be making their escape. Furthermore, traffic police road mobile checkpoints may be mounted to combat and deter traffic offences e.g., through collecting information, later intelligence related to a certain road used by the traffic law offender aimed to prevent them from the further occurrence of the traffic law irregularities (Younus M, et al., 2019).

2.1.4.3 Fixed checkpoint

A fixed traffic police road checkpoint can be permanent or temporary and it takes place where a decision has been taken to carry out checks on a regular even daily basis. As a result, it can be permanent or it may be set up to control all traffic irregularities on the specific road or area. If permanent, then it is designed according to the specifications of the needs in terms of mission of the checkpoint, location of the checkpoint, time and weather condition, information and strength of the personnel and equipment (Wang D, et al., 2020).

2.1.4.4. Flexible checkpoint

According to (Lacey, John, Wiliszowski, Connie, et al., 2017) flexible checkpoints are referred to as “phantom checkpoints”, “public awareness checkpoints”, “mobile awareness patrol,” and

“mock checkpoint.” This traffic police road checkpoint strategy involves staging traffic police road checkpoint, but not actually staffing the checkpoint or stopping drivers or pedestrian. Instead, it is another kind of enforcement where vehicles are parked on the side of the road and signs are positioned to indicate a specific information that the campaign aims to (e.g., avoid speed, wrong maneuver, DWI etc.). Only one or two police officers or auxiliary personnel are needed to work on one of these traffic police checkpoint.

The checkpoints can be readily moved to other locations during the evening depend on the situation upon information to achieve intended mission. No road users are stopped and no arrest are made at flexible traffic police check points unless road users provoke attention due unsafe driving action while passing by the traffic police checkpoint area.

However, the primary objective of the traffic police road checkpoint-awareness and hopefully deterrence-is accomplished by the number of road users observing the law enforcement activity. Here the authors reviewed flexible road traffic checkpoint activity nationwide, identified jurisdictions with experience conducting them, and the discussed issues involved in implanting such programs.

The authors learned that flexible checkpoint are a versatile, low-cost tool that virtually any size law enforcement agency can adapt to enhance enforcement and increase public awareness of enforcement efforts. A field of the effectiveness of flexible traffic police road checkpoints was conducted by the Illinois State Police in Madison County with Winne County serving as a comparison site.

Traffic police checkpoint activities, termed Roadside Safety Checks (RSCs) in Illinois, were conducted monthly at both side during 2009, with flexible traffic police checkpoints augmenting the RSCs in Madison County. Illinois State Police (ISP) headquarters and field staff were supportive of the traffic police flexible checkpoint concept, though this concept was practical and easy to implement, though it would enhance the potential general deterrence effects of standard RSCs, and said they planned to use traffic police flexible checkpoints in the future.

The use of traffic police flexible checkpoints is gaining acceptance with law enforcement agencies. The agencies the authors contacted had not encountered any adverse publicity and believe that traffic police flexible checkpoints are useful and economical. They believe that traffic police flexible checkpoints expand the general deterrence reach of their other road safety

countermeasure enforcement strategies (Lacey, John W, Connie H, A Scott, Blackman, and Kenneth, 2017).

2.1.5 Importance of traffic police road check points

According to (National Center for Statistics and Analysis, 2017) in the developed world mostly in U.S.A impaired driving it becoming significant, resulting not only in permanent injury, but all too frequency the tragic loss of life. In 2016 there were 10,947 people killed in alcohol-impaired driving crashes, which equates to 29 deaths a day (an average of 1 death every 50 minutes). There is substantial and consistent evidence from research that highly publicized highly visible and frequent traffic police road checkpoints in United States can reduce impaired driving fatal crashes by 18%-24%. Research also shows that for every dollar spent on traffic police road checkpoints, communities can save between \$6 and \$23 in costs associated with alcohol related crashes.

While driving spans all ages, the data indicates that young drivers are at greater risk of experiencing the negative consequences associated with the impaired driving. Motor vehicles crashes remain the leading cause of death for the 15-20-year-old age bracket. At a blood alcohol content (BAC) of 0.7 (which is lower than the legal limit of 08 for drivers over 21 in the U.S.), drivers under 21 are more than five time more likely to be involved in crash than driver over 21.7. In fact, 26% of 15-20-years-old drivers involved in fatal crashes had been driving, and 21% had a BAC of .08 or higher.

Research strongly suggests that when coupled with a strong awareness campaign, traffic police road checkpoints do decrease alcohol-related traffic crashes and fatalities among youth. In the study that reviewed zero tolerance laws and minimum legal driving age laws (MDLA) in the 50 states, it was found that the enforcement of zero tolerance laws alone was associated with 24% reduction in fatal crashes in younger driver. Additionally, the same review indicated that when both zero tolerance and the 21 MDLA law were enforced, fatal crashes among underage drinkers were reduced by 39% (DC: National Center for Statistics and Analysis, 2017).

2.1.6. Traffic Police Patrol

Police patrol consist of dairy patrol, blanket or saturation patrols (special impaired driving enforcement) and special event traffic patrol. In some of these activities, police are looking specifically for impaired drivers, in other they are not depending on the mission. Evidently, Alan

& Helund (1998), the more time police officers on the road, the greater are their chance of observing traffic offenders or impaired drivers. Therefore, traffic offender's detection is to increase traffic police patrol time as the best and most road safety measure. Furthermore, to improve impaired driving detection is to help police use their patrol time more efficiency, 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) (Alan & Helund, 1998).

2.1.7. Road

According to (Theoneste BUREGEYA, 2014) Law N⁰55/2011 of 14/12/2011 governing roads in Rwanda, specifically in its article 2, stipulates about “public roads, streets, public places, parking stations, footpaths, bridges, 16 ferries, as a whole, all ways opened to public traffic by land; “roadway”; the part of the road for automobile traffic (Art 2, Law N⁰55/2011). On the other hand, accident is unpredicted unpleasant incident. May be a fall, crash, collision, explosion (European Union, 2003). In this research, researcher will talk of road to mean “public road” as defined above. In this sense, these traffic accidents happen in case automobile which is passing on the public road hits another one or something; and resulting in death, bodily injury to any person of damage to property, and this is due to various contributing factors.

2.1.8. Road safety

Road safety refers to reduce risk of the road users in accident (Younuss, et.al, 2019). Road safety management activities are composed of many creativities like traffic law enforcement by deployment of the police on the road, it is static or permanent deployment and deployment will can be patrol and these patrols are being conducted by vehicle patrols, motorbike patrols and foot patrols. Road safety also is enforced by using traffic campaigns through radio and talks shows, road campaigns and public gathering aimed to educate community especially road users. Road safety also is enforced by employment of the technology like speed ladder cameras either static or mobile, speed governors, motor vehicles inspection centers, driving licensing systems from payment, registration, testing and production of the driving license. Even during the enforcement of the traffic laws while fining traffic fine tickets are issued electronically and payments. Road safety also is observed in the police institutions community policing programs by involving

community in the awareness campaigns through partnership by police institutions with the community members. In the context of this dissertation road safety campaigns entails police enforcement strategies intended to the reduction of traffic road crashes/accidents

2.1.9. Road traffic accidents/ crash

Crash is an unfortunate crash that occurs unexpectedly and unintended, normally resulting in death, injuries or damages. Crashes, disaster, archaically and catastrophe are an unforeseen and unplanned event usually and mostly with lack of intention or necessity. However, in my respectfully assessment and view, all these definitions they don't indicate of highlight the cause and elements that may involve in the crash. This shows the gap and being oversimplified or generalized (Woesler, 2005).

To be clearly, National Institute of Statistics and Economic of French (2018) defined that road crash it is any crash in which at least one road automobile engaged that taking place on the road open to public circulation, and finally at least one person is injured or killed. In this regard, killed person in the crash is a victim who died immediately or within thirty days following the accident while injured is a victim having suffered trauma requiring medical treatment (with or without hospitalization). At this stage, it is pointless to talk of road crash in the absence of the road concept (National Institute of Statistics and Economic of French, 2018).

2.1.10. Road crash contributing factors

Road traffic crashes are mostly associated and categorized in the main causation area in reference to the most of the scholars and those causal factors are Human factor, Vehicle factor and Environment factor (i.e., weather, time and terrain). Human factor is the leading factor and mainly drivers, mechanics and engineers and any human that contributors to the free movement, easy and smooth movement of goods and service on the road without occurrence of the road traffic crash (Perrett & Stevens, 1996).

2.1.11. Some causes of road crashes/ accidents

Road crashes are main cause of death and serious injuries world. There are various factors that contribute to the high number of road traffic crashes and they are grouped into three main categories which include: road environment factors, vehicle factors, and human factors as was stipulated African Development Bank (AFDB) (2013). Likewise, it indicates that human factors rank highest in contribution of road crashes. 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 factors will not be ignored (AFDB, 2013).

2.1.11.1. Human factors

Human factors ranked as the highest in the contribution of the road crashes; over speeding, violation of road signs, drink and drive, non-compliance with free hand drive and non-compliance with seatbelt as urged by AFDB (2013). It is estimated more than 90% of road crashes are attributed to human error said by Goos (2012). That is the reason to why this study will be focused on human factors rather other factors in our traffic safety programs.

According to Magnus (2013), human factor crashes are results of driver's carelessness and inattention, human mistakes like drive and drive, non-compliance with free hand drive, violation of traffic signs ground and standing etc. Furthermore, according to National Traffic Safety Administration (NHTSA) drink and drive contributed 39% of all fatal crashes and 7% of all crashes that year. That's why researcher's aspiration in the current study focuses on drink and drive as one of the main human factors in causing road crashes and also will attempt to discuss the law enforcement strategy appropriately to overcome this problem, thus. Effectiveness of traffic police checkpoints on the reduction of road crashes (Magnus, 2013).

2.1.11.2. Vehicle factors

Road crashes can be also causes by the condition of vehicle its own. Vehicle is integrated with device like horn, side mirrors, wipers, breaking systems, headlights and breaking lights, i.e. so as to avoid road crashes. All mechanical fault that leads to failure of any vehicle parts like tyres, engine and light systems can lead to cause of road traffic crashes. Vehicle components and vehicle maintenance are the two main conditions that affect vehicle factors as it relates to the causes of road crashes (Abbonkhese et al., 2014)

2.1.11.3. Environmental factors

Road traffic crashes can happen because of the environmental factors which are normally composed of weather, time, terrain and road condition (Nurainie, 2013). All mentioned factor influences conditions that causes traffic crashes like during poor maintenance, poor visibility, fog, snow, guard rills, lack of speed humps many to mentions all these influences and contribute more to the occurrence of the traffic crashes and are categorized as environment factors (Nurainie, 2013).

2.1.12. Types of traffic road crashes

According to (Nurainie, 2013) Crashes are being categorized as Fatal, serious, Slight or Minor and Damage-only crashes and below are types of the forms of traffic road crashes.

- ✓ **Fatal crash** here it involves the death of people as results of the traffic road crashes and providing death that happens with in 30 from the date and day of the crash.
- ✓ **Serious crashes** in such crash no death but it leads and cause serious injuries mostly held and admitted in the hospital as an inpatient.
- ✓ **Slight crash** this is a crash during its occurrence there are no death neither serious injury but a person bears damage and it is clarified as an injury which on one is injured but damage to the vehicle or property.

2.1.13 Road crash reduction

Road crash/accident is the measurements certified by the relevant authorities especially law enforcement agencies aimed to reduce road traffic crash (Taylor and Baruya, 2000). This was the triggering factor the influenced law enforcement agencies to come up with some of the strategies like engineering, road safety campaigns in Rwanda we had (GEREYO AMAHORO).

Also, employment of the IT is among the strategy the is used in reduction of road traffic crashes among those are speed ladder, road sign violation, Surveillance and body worn cameras, breath alcohol test, speed governor and moto vehicle inspection centers (www.police.gov.rw).

2.1.14. Road crash/accident data and sources

Crash data, specifically collected at the national level are principally useful for description, monitoring and diagnosis of accident, the discovery of positive and negative safety development, description of safety targets and assessment of long-term scale safety measures. Trustworthy and correct data are needed to increase mindfulness about the degree of road traffic injuries, and to influence policy makers for the necessary actions. They are also needed to appropriately identify problems, risk factors and importance areas, and to articulate strategy. Set goals and monitor performance. Data-led analysis and management of the leading road traffic injuries problems permits suitable action and resource distribution. Lacking crash data, there will no important, maintainable falls in exposure to crash risk or in the harshness of the crashes (Bhalla et al., 2014).

2.1.15. Rwanda and international crashes patterns

When crash statistics are evaluated, the tendency is usually to compare a country's statics to those adjacent countries. The other factors to be taken account are the Gross national income level and numbers of registered vehicles. Gross National delivers indicator of the country's income level and is therefore a sensible signal of vehicle population and car ownership. It is significant to estimate crash rates between countries in the same income rate situations. Countries Rwanda, Kenya, Uganda, Tanzania, Burundi, Democratic Republic of Congo, Kenya, Sudan and Ghana all are at same level in terms of gross national income and registered vehicles. Consequently, assessment Rwanda and adjacent countries is made to find out the trend of crash in those countries (World Bank, 2021)

2.2. Theory related to the study

It comprises numerous clarifications and discussions of the theories that directing this research like routine activity theory and deterrence theory. To recognize the reason why road users, rebel on traffic rules and regulations regardless traffic police enforcement measures with more efforts. This research study will embrace different tactics to the theory paying attention from psychology, criminology and sociology. Routine activity and Deterrence theories will be scrutinized and tested to find out its applicability during enforcement in the reduction of road traffic accident preventive measure. The two viewpoints have some resemblances but they differentiate from their way of attention (Chapman, A. D., 2004).

2.2.1. Deterrence Theory

Deterrence theory is the part of the criminology theory. Criminologists contend that people exercise their privileged rights and needs in taking the decision of the choice opting to committee crime or to avoid it. Moreover, probable criminal estimates the consequences and gains from committing the crime and the probabilities to be detained then he/she chooses what to do (Snipes, 2010). These show that in case the gains of committing crime are bigger than probable punishments noticeably offender is highly prone to committee crime and in the circumstance where offenders are free from being apprehended there are more chances of committing crimes. In regards to this research traffic offender when they fear harshness of the punishment and then after balancing the gains from disobeying traffic law and consequences of being apprehended by traffic police officer and punished. The probability of being seen and apprehended or not seen rest on the effectiveness of the traffic police checkpoint (Fell et al., 2004).

Furthermore, this research intends to examine effectiveness and efficiency of the traffic police checkpoints in reduction of the traffic road crashes. Deterrence is among the main apparatus that acts to improve in road traffic safety enforcement programs. Deterrence can be applied in the two methods which are general and specific deterrence (R. T. Petroze J. F. Calland, 2019).

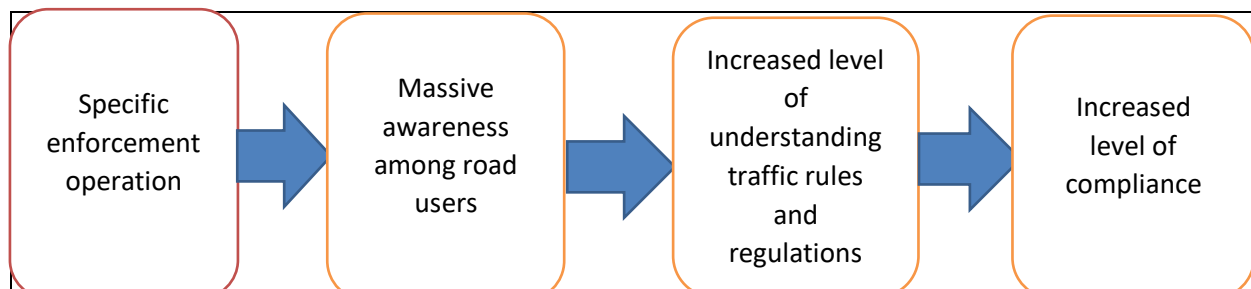
2.2.1.1. General deterrence

The above model normally enlightens penalties against an individual towards citizens, apart from being having severe punishment also it discourages to commit an offence once more. Once traffic offenders come to understand that other got heavy punishment, they will catchphrase from offending same crimes and it has more deferent consequences of unintended experience with punishment and push them to avoid committing traffic offence.

In regards to this research, these methods of deterrence are employed by traffic police officers in the road safety campaigns aimed to reduce traffic road crashes. When traffic offenders observe how severe it is they opt to obey traffic rules and regulations and this is enforced mostly by employing traffic police checkpoints which may result in the reduction of traffic road crashes. This awareness is reliable with general deterrence mothed composed of specific enforcement, massive public awareness through Radio and TV shows, public gathering and meetings, employment of IT solutions like speed radar cameras and speed governors (Kayonga. T, 2020)

Figure below establishes theory of general deterrence as it was practically indicated in the research in the attempt to effect non-compliance of traffic rules and regulations. It demonstrates sequence order of the real practical and theoretical procedures, start with specific enforcement operations, massive awareness in different ways targeting different specific groups, increased level of understanding of traffic rules and regulations and increased level of compliance to traffic rules and regulations.

Figure 2.1: Applying general deterrence model to the study



Source: *Researcher, March 2022*

Deterrence theory has been applied by the big number and it has been used for the while during the course and some difficulties were uncouncted. Present challenge to deterrent theory in relation to the research is that if traffic offender is in the circumstance to make a relative optimal choice. Dilemma is if previous traffic offender will in the mood of understanding penalties and gains level of the risks (Kenkel, 2014).

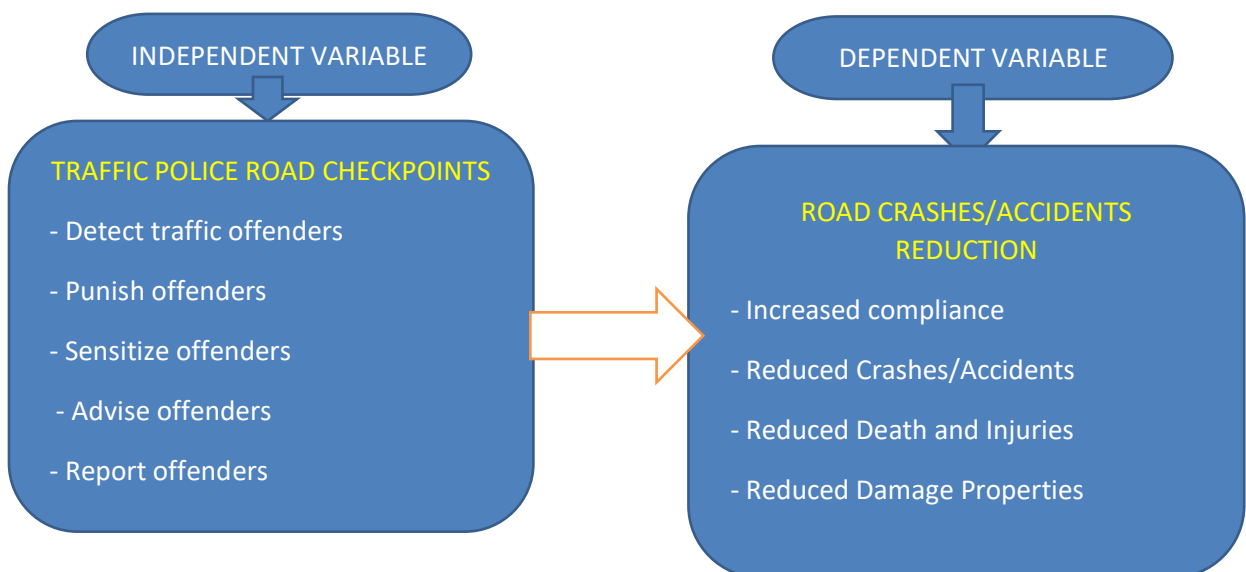
2.2.1.2. Specific Deterrence

In case of the specific deterrence individual traffic offenders are punished alone when committed traffic offence. The given penalty serves as a specific deterrence to offender and won't offend again, specific deterrence clarifies the magnitude of the result of the sanction has on the specific offender (Cullen, 2011). In relation to this study specific deterrence is related to efforts to inspire specific offender was incarcerated for non-compliance of traffic rules and regulations. Specific deterrence deters specific individual offender while general deterrence deters and portray impact to the general public.

2.3. Conceptual frame work

Underneath section researcher enlightens the link between the two variable independent and dependent, also researcher intends to explore how can traffic police road checkpoints be effective so as to be used in the reduction of traffic road crashes.

Figure 2.2 Relationship between traffic police road checkpoint and road accidents/crashes reduction model



Source: *Researcher, March 2022*

Rendering to the above diagram, researcher contends that traffic police road checkpoints can detect, punish, sensitize and advise road traffic offenders this led to reduction of road crashes/accidents. This can be achieved by high level of compliance to the traffic rules and regulations, reduction on the numbers of death, injuries and damaged properties.

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter indicates the research design, population of study, sample size, sampling techniques and the methods used by the researcher to collect data and to analysis and interpret data. Major sources of the information which were primary and secondary data. The study embraced qualitative approach for data collection and analysis. The dependability and soundness of the research instruments, analysis techniques of the study are undertaken.

3.1. Research design and approaches

The research design is the conceptual structure with which research is conducted, it constitutes the blueprint for the collection, measurement and analysis of the data (Kothari, 2004, p.32). It is definitely the framework of what the researchers did and how they were in doing their research. Concerning the research at hand, researcher used quasi-experimental research approach.

According to numerous noticeable qualitative researchers (Creswell, 2002) qualitative approach intended to deeply explore, and interpret social phenomena within its natural setting aimed to understand theoretically original reasons, views and inspiration present in data collected from interview, focus group and reports. Qualitative approach was a method that seeks to answers to questions and involves the collection of evidence.

3.2. Area of study

The study, highlighted relationship between traffic police checkpoints and reduction traffic road crashes /accidents in Gasabo District, Traffic police has been conducting operation to reduce accident by employing traffic police checkpoints and Gasabo District has been observed as the leading District in terms of road traffic crashes/accidents in the country.

Gasabo District is one of the 3 Districts that make up Kigali City. It is the biggest district in Cok and made of 15 Sectors which are Bumbogo, Gatsata, Jali, Gikomero, Gisozi, Jabana, Kinyinya, Ndera, Nduba, Rusororo, Rutunga, Kacyiru, Kimihurura, Kimironko and Remera.

Reference to 2012 Rwandan Census population of Gasabo District was 560907 with population density of 2012 (perkm²) 1237 and Gasabo district population is predominantly urban: 69% of the resident. Preceding study on RTC hotspots in Kigali led by Wang et al. (2020) proclaims that “surveying 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 “

3.2.1. Geography and demography

Kigali City, is a capital city of Rwanda, is located almost in the center of the country. Its geographical position is on latitude 1° 57’s and on the longitude 30° 04 ‘E. The city is built up in hilly place, sprawling across about four ridges and valleys un between. The tops of ridges have an average elevation of 1,600 meters, while the valleys are around 1,300 meters (Buregeya. T, 2014).

The bigger houses and office building tends to be on the tops of the ridges, while the poorer people live in the valleys. The city is ringed most of the way round by higher hills, with some suburban sprawl rising up these. The City of Kigali is composed of three Districts Gasabo, Kicukiro and Nyarugenge. According to the 2012 Population Census City of Kigali Results Gasabo District has the highest population with 530907, Kicukiro 310661 and Nyarugenge 284820.

3.2.2. Population

According to (Strydom, 2005) population is a summation of all organisms of the group which exist in same geographical area. It is a group of the people or items that one or more characteristics of form which data can collected and analyzed. Therefore, from that group some of them are more targeted by the research and this is where the sample selected.

This study focused on the two categories which are Traffic Police officers and Drivers. The total population was 900, well as Traffic Police Officers were 600 and drivers were also 300. Those people are the ones that were expected to have information about relationship between Traffic Police checkpoints and reduction of traffic road crashes/accidents in Gasabo District.

3.3. Sampling technique and sample size

Sampling is the way of selecting a small group of people which signifies the features of a big cluster recognized as populace in order to generalize the outcomes to the whole inhabitants (Gay, 2003). This study uses non-probability sampling where each individual does not have same chance of being able to be selected. Sampling is used to select representative cases of the population, not with the purpose of generalizing results for the sake of it only, just deficient to look at certain research questions within certain cases which assume to stand for or represent the population (Abdalla, 2010).

The sample of this study targeted population representatives who are directly involved and those who always experience occurrence of the crashes/accidents and talented to deliver required information to the researcher. The targeted population is composed of traffic police officers and drivers. In this study, the sample size was selected from target population with 10% of margin errors and confidential level of 90%. The study applies formula of Taro Yamane to determine sample size.

Where: $n = \frac{N}{1+N(e)^2}$ n = Sample Size N =Population e = Margin of error

$$n = \frac{900}{1+[900*(0.1)^2]} = 90$$

In respect of this study, stratified and simple random sampling techniques were applied to select 90 respondents from Traffic Police Officers are specifically deployed in Gasabo District and are three categories:

- i. Commanders who deploy police officers in Gasabo District (Gasabo Sector) in the context of Traffic and road safety department.
- ii. Ordinary police officers who work in the area of study.
- iii. Road traffic crashes/accident investigators that are responsible to investigate accidents in the area of study.

And also, Drivers who were in interest of researcher are drivers of private public transport companies that operates in the area of study Gasabo District. Police officers were found at their work place while drivers some were found at the company office and others at Nyabugongo and Down Town parks in collaboration with their institution and company leadership.

Table 3.1: Category of the Respondents

No	Categories	Population	Sample size	Sampling
1	Traffic Police Officers	600	60	Stratified and simple

2	Drivers	300	30	random sampling techniques
	Total	900	90	

Source: *fieldwork January 2022*

3.4. Data collection methods

As aimed purpose of finishing this research, primary and secondary data its more essential. Primary data is the data collected by the researcher for the first time were secondary is that data that collected by another person (Kothari, 1990). According to Streubert and Carpenter (1999: 60) data analysis starts with listening to participants’ oral description, and is followed by reading and re-reading the exact transcription or written responses. Refer to this research three collection methods were used and enlightened roar.

3.4.1. Documentary data collection method

According to (Payne, 2004) documentary data collection method is a technique that is used to categories, investigate, interpret and identify the constraint of physical sources, most commonly written documents whether in private or public domain through collecting and analyzing available relevant documents for the research at hand (Marshall 2006) documentary data collection methods complements other data collection methods like observation technique, interviewing technique.

Documentary therefore enabled researcher to gather and make use of the existing reports, policy and legal documents and other records traffic police checkpoints on reduction of the road traffic accidents in Gasabo district. It also equipped researcher with a general overview of the topic of research.

3.4.2. Interview

An interview in an interaction in oral that are set by the interviewer to provoke oral response from the interviewer (Mathers, 2007, p.8). In order apply interview method effectively, researcher shaped a report with a view to increase the openness of the respondents by making them believe that their choices were very useful to the study and were going to be a preference rather than a trial.

Method of data collection used in this study was popular interview and semi-structured interview were conducted with open-end questions and offered the best avenue for gaining information and

encouraged in-depth responses of respondents which were traffic police officers and drivers selected by for the research based on their experiences on the matter under study.

Researcher used semi-structure interview in good atmosphere where respondents were freely responding face-to-face and researcher considered two groups meant of traffic police officers and drivers. First, 02 focus made up of two and six participants each, participated willingly in the semi-structured interview. 12 experienced professional drivers were interviewed and 10 traffic police officers (commanders, accident investigators and subordinates) ranged by ranks from Caporal to Superintendent and one chief superintendent. This indicates that researcher mate almost above 96% of the participants were interviewed and shared their views about relation of traffic checkpoints and reduction of crashes/road accidents 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

3.4.3. Focus group discussions/ Group interview

Interview method is a data collection technique that encompasses verbal questioning of respondents. It involves verbal discussion between two or more people in the process of data collection for the purpose of research (Cohen, & Morsion, 2007).

In comparison to other techniques of data collection, interview might help as a rich source for discovering people's inner moods and attitudes (Wisker, 2007). Equally, interview method is also considered as a valued technique for discovering the construction and mediation of mean in the natural setting (Cohen et al., 2007) consequently a mixture of all its advantages permits the researcher to explore the research participants' opinions in greater depth.

Interviews can be steered in a face-to-face which a meeting between the researcher and one informant at a time. The face to -face interviews conveniences getting a full picture and permits the interviewees to speak their own voice and express their opinions and feelings (Berg, 2007). Interviews can also be done in group where researcher meets with a group of informants (researcher and the group) through the focus group interview method (Denscombe, 2010).

In regard to the benefit of focus group its where an individual can influence one another just as real life (Casey & Krueger, 2000). Researcher used focus group interview to generate deeper information about the traffic police checkpoints on reduction of the road traffic accidents in

Gasabo district. Focused group discussion was composed of 4 people from target population were purposively selected from 2 categories.

The focused group discussion has enabled in understanding and perfection the data collected from interview and reports. Observations was used to observe their body language or even a combination of methods. The session of interviews was conducted in unstructured and semi-structured and each session took between 30 to 40 min focuses to the discussions best on how was graceful.

3.5. Data Analysis

Analytic course entails of identification of the issues, determining the availability of appropriate data, selecting on which methods are fitting for replying questions of interest, applying the methods and assessing, summarizing and communicating the results.

According to (Creswell, 2012) data analysis is the procedure of developing answers to the questions and interpretation of the data also research question and objectives are considered. The researcher opted content and narrative analysis forms, according to Charles P. (2000) content analysis is used to detect the patterns that appears from the text by grouping content into words, concepts and themes and qualify the connection between all grouped contents. Narrative analysis concentrates on the stories that respondents tell and language they use to make sense of them, also might enable the researcher to summarize the outcomes of the focused case study

3.6. Validity and reliability

Data quality assurance and data quality control of the research are codependent. According to (Chapman, 2004) hereto are factors that any study should be worried about in scheming a study, examining results and evaluating the quality of the study, they facilitate to prevent errors from entering a dataset, assuring data quality for entered data, inspection and continuation data quality during the project.

Furthermore, researcher makes sure that the questions administered were simple, exact and easy to understand by participants. Due to this research, the researcher certain the validity of the instruments by making sure that the questions and interview guide matched with research objectives. The research exploited the collected information only for academic use and extreme privacy and confidentiality were applied.

3.7. Ethical considerations

Whereas conducting the research, the researcher experienced and respected various ethical deliberations such as being truthful with the respondents, being impartial, open and genuine with them. Beforehand starting with data collection procedures, the researcher guaranteed that he deliberated with dissimilar respondents, and clarified to them the purpose of the research. Researcher asked the respondents agreement to participate in the research. Further, he guaranteed that secrecy had experiential. Names of the respondents were not revealed anywhere, during the research and after completing the research.

3.8. The position of the research

This segment describes the role of the position of the researcher in the research. Throughout the data collection, researcher has thought and considered the position (Senior Police Officer) as the factor that can impact the free power and the consent of the 90 respondents to deliver true information without any fear or dishonest because of that position.

Subsequently, the researcher's approach to the respondents was polite, introduced himself as a student from UR who conducting the research for academic purpose. This permitted him to make a decent rapport between him and respondents, and they were free and consent to partake without any heaviness.

In this regard, the position of the researcher absolutely impacts in this research because of the knowledge, skills and experience the researcher had in reduction of traffic road crashes helped him abundant to gather all pertinent and correct information from the respondents about the current study by questioning the respondents' analytical questions in order to achieve the research objectives.

3.9. Conclusion

Fleetingly, this chapter strained mainly to expose the methodological technique used by the researcher and the justification in order to attain dependable and valid data so as to reach its required objectives. It demonstrated population of the study; methods were used for the data collection with more elaboration why was it used.

Recommended strategies were laid to clarify sample representative, data analysis and interpretation have been illuminated aimed to make sure that readers are easily get to know and understand reliable and its validity findings sources and instruments. Ethical considerations and researcher's position in the process of data collection.

CHAPTER FOUR

FINDINGS OF THE STUDY, ANALYSIS AND DISCUSSIONS

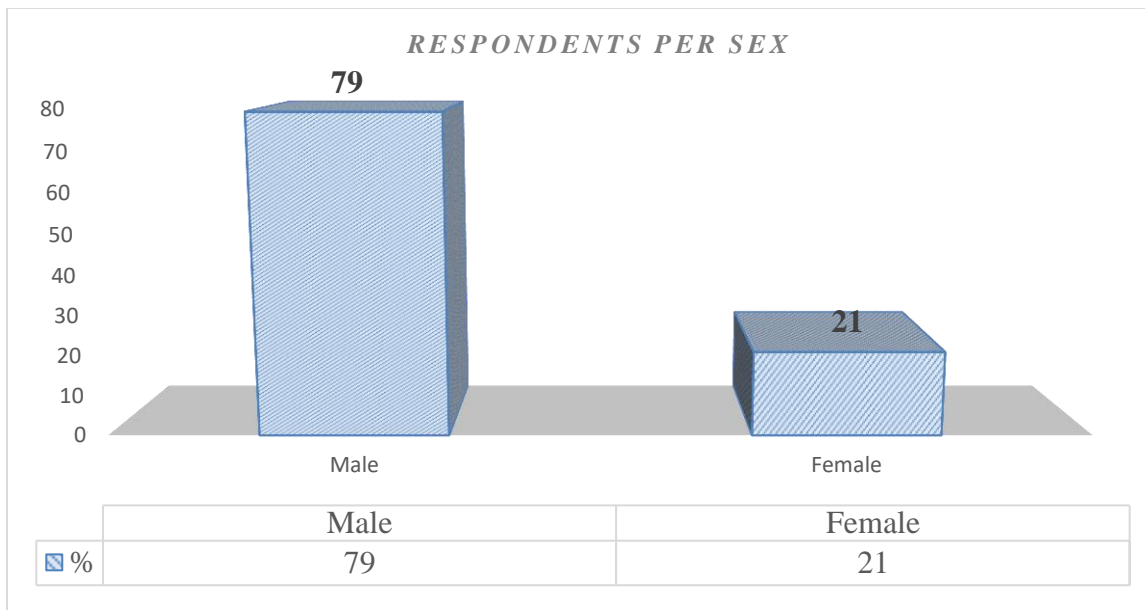
This chapter presents the findings of the study obtained from respondents interviewed, its interpretation and analysis in relation to traffic police road checkpoints and reduction of road accidents/crashes. This is a significant part that answers to the research questions with the intention of achieving the general objective of the study. Subsequently, it will facilitate to examine the relation between traffic checkpoints and reduction of accidents/crashes in Gasabo district.

4.1 Socio-demographic characteristics of Respondents

This section demonstrates basic demographics of respondents which includes gender, age group, education level, and the basis to choose them was how often they access the information and work experience to road traffic checkpoints and its relationship to the reduction of accidents/crashes. In this regard 60 police officers (08 commanders, 12 traffic accidents investigators and 40 ordinary traffic police officers that mounts traffic checkpoints) and 30 drivers (05 tax car drivers, 05 government driver, 05 individual drivers and 15 public transport company drivers) were interviewed as the members of the target groups.

4.1.1 Distribution of respondents per sex

Surveys can provide more valuable data if the questions are asked consciously. Gender dissimilarities benefit in data interpretation to hypothesize the different perceptions that may impact the research. In this study according to the gender perspective respondents selected to give their views, and opinions on the study subject findings confirmed that the majority were males with 79% of respondents as detailed in graph N^o1 below.



Source: *primary data from the field (2022)*

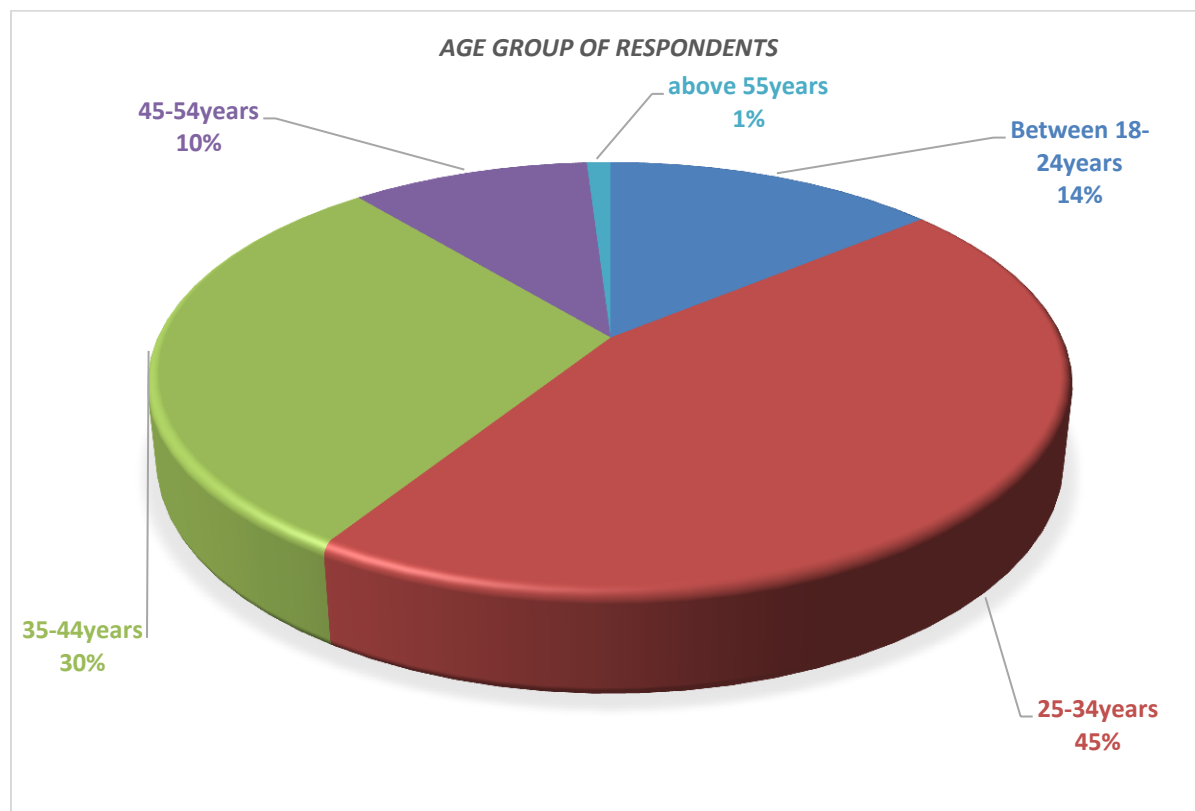
Graph 1: Gender Distribution of Respondents

From the findings of the graphic N°1 above, it is indicated that majority participants in this study were males. This is justified by the fact that 79% of respondents were males while 21% are females participated in this study. The cause of the big dissimilarities originates from the point that in traffic police gender ration is at 9% and driving services female numbers is smaller than the male at 0.4% but it has no influence on the analysis and interpretation of the data as their views and opinions are relevant compared to that of their fellow male as they have some experience and exposure in relation to the relation of traffic checkpoint and reduction of traffic accidents.

4.1.2 Distribution of respondents per age groups

The most commonly used age bands for survey with adults are 18-24, 25-34, 35-44, 45-54, 55-64 and 65 and over. However, it is your choice about which age bands you use, depending on who your sample population is and how you want to analyse your data. Age is determinant factor in regards to the research on traffic police checkpoint and reduction of the road accidents. Interviewees they should be having an assured age for them so as the provided information to be reliable in accordance to their maturity. And in the context of Rwanda to be police officer or a driver you be having 18 years old and above. Also, 60years is a retirement age, it is assumed that interviewees bellow 18 years and above 60 years are not reliable interviewees.

In respect of current study, findings present the majority of 45% in the range of ages between 25-34 years old. More details are shown on graphic N° 2 below.



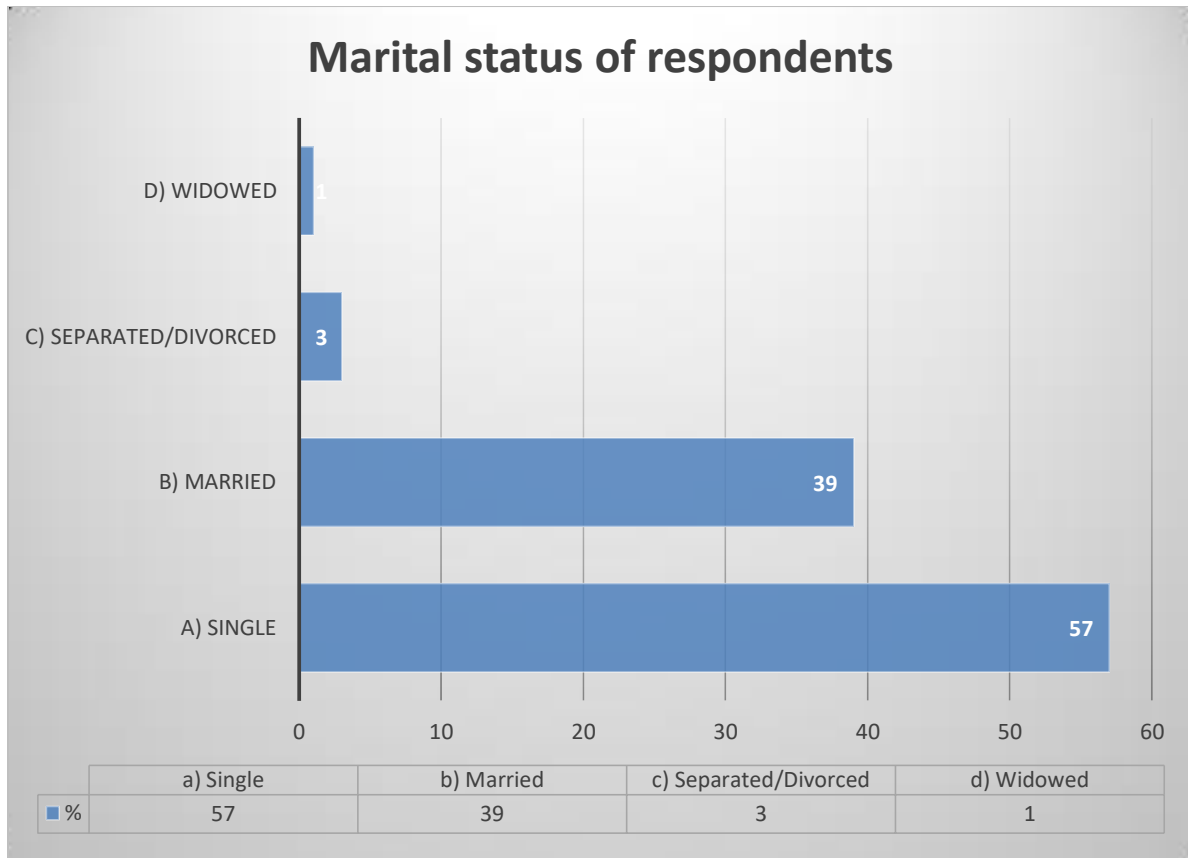
Source: *primary data from the field (2022)*

Graph 2: Age group of Respondents

Findings in the graphic above indicate that the respondents participated in this survey are aged enough in relation to the Rwandan labor law as 14.0% of respondents are between 18-24 years old; 45% in the range of ages between 25-34 years; 30% in the range of ages between 35 to 44 years, 10% in the range of ages between 45 to 54 years, and 1% of them is above 55 years old. Findings obtained are as an indicator that the respondents of this study were mature, and they have enough and reliable information related to traffic police road checkpoints and reduction of road accidents/crashes. Also, it is observed that 89% of the respondents are between 18-45 years old which indicates that they are strong and energetic in relation to the work of the traffic police officers and driving services which impact a lot to the liability of the information obtained by the researcher.

4.1.3 Repartition of respondents per marital status

Marital status in survey data help to understand rate of participants who were single, married, widowed, and separated or divorced. This study carried out at Gasabo District indicated that majority of 57% of respondents were singles.



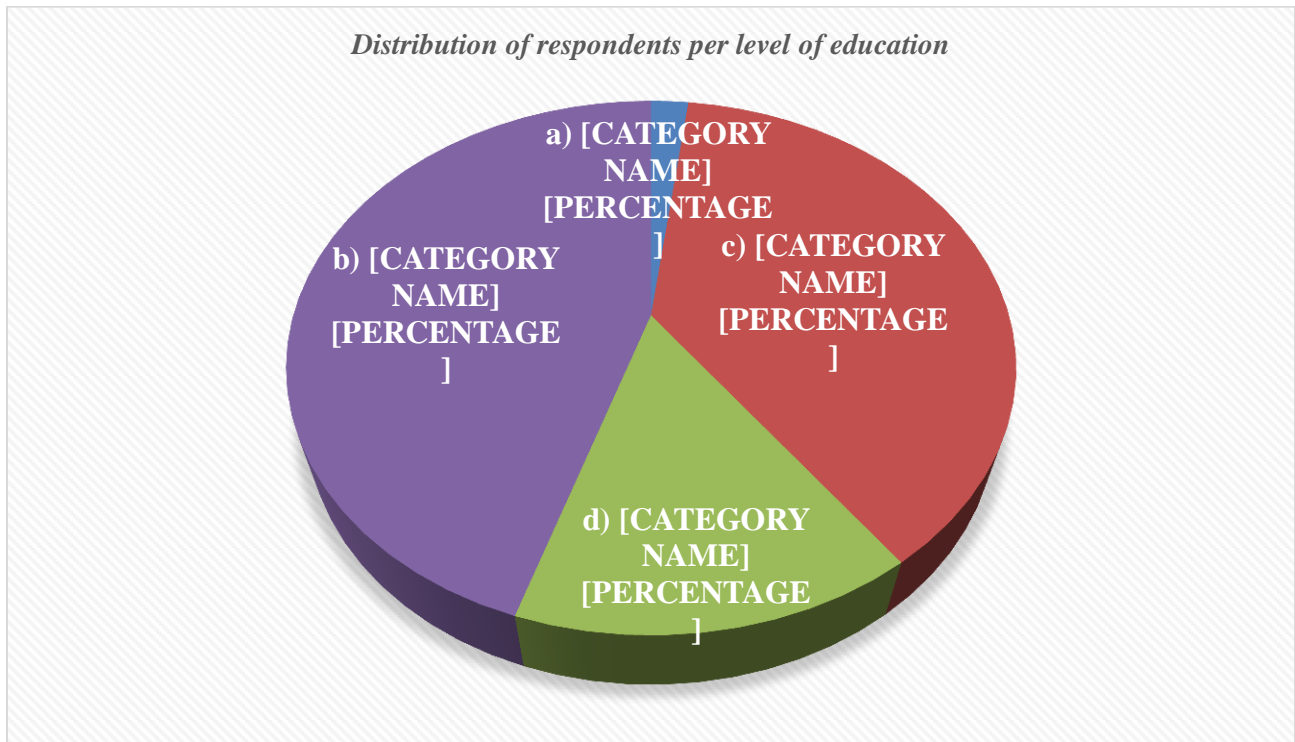
Source: primary data from the field (2022)

Graph 3: Marital status of respondents

Findings in graph N^o3 show that the information related to marital status of respondent's majority of 57% of respondents are single that followed by 39% respondents who are married; 3% of respondents separated or divorced participants while 1% of the respondent are widowed. The above indicates that the big number are single which score 57% of the respondents followed by the married one with 39%. All these it doesn't have any impact to the survey.

4.1.4 Distribution of respondents per level of education

Respondents in the study possess dissimilar levels of the education that gives weighty sense to this survey as education contributes significantly on how people understand and interpret phenomenon and impact their perception. In regard to this research on traffic checkpoints and reduction of road accidents education influences understanding and opinion formulation hence enhance research with the variety of the information that is reliable. The category of the respondents according to their education level are in indicated in the graph bellow



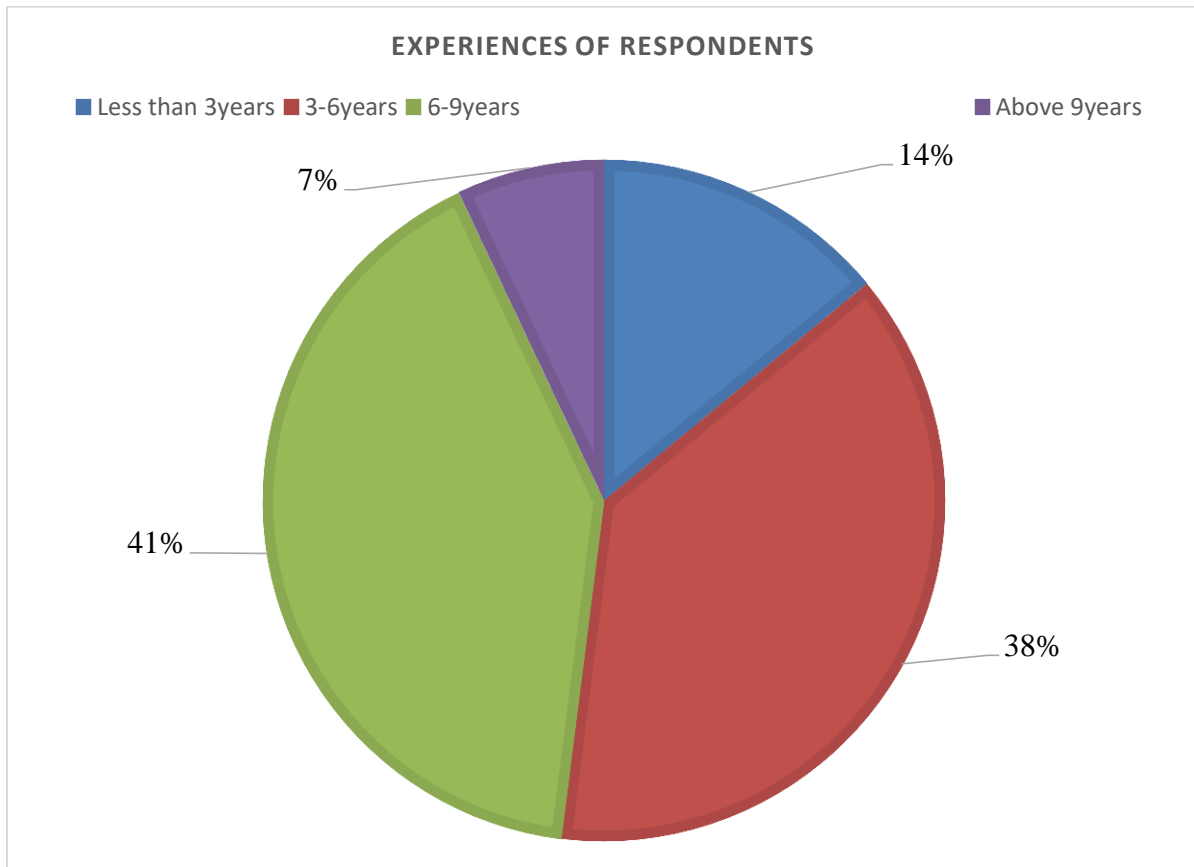
Source: primary data from the field (2022)

Graph 4: Distribution of respondents by educational level

From the above graph N^o4, it is clear that a significant number of 45% of respondents have university bachelor's degree, followed by 38% respondents who have secondary level, 15% respondents have professional's courses, and 2% of respondents have Masters in Gasabo District. By having the big number of the respondents that have significant education level as indicated in the graph above it manifest that they level of intellectualism are mature enough hence being able to realize the issue under survey and demonstrate their opinions and views sensibly. By providing required information that makes the results of the findings of the survey to be realistic.

4.1.5 Distribution of respondents per experience

As far as the experience of respondents in to traffic police road checkpoints and reduction of road accidents/crashes in Gasabo District. It has been evidenced that more skilled and experienced staffs perform well hence contributes a lot to the effect attainment of the goal of any given organization or institution. In this regard traffic police officers, they should be having skills and knowledge, especially traffic rules and regulation in particular traffic accident investigations and accident case file management in Gasabo district



Source: *primary data from the field (2022)*

Graph 5: Distribution of Experience of Respondents

Findings indicates in the graph N^o5 above that the experience of respondents in relation to traffic police road checkpoints and reduction of road accidents/crashes in Gasabo District; 14% of respondents have less than 3years of experiences; 38% of respondents have experienced between 3-6years; 41% of respondents have experienced between 6-9years; and 7% of respondents have experienced above 9years.

Findings indicate that 88% of the respondents have enough experience of 3 to above 9 years which means no relation between the occurrence of the accident and lack of experience of the police officers in Gasabo District. And if traffic police department manages to deploy checkpoint effectively it can significantly contribute to the reduction of the traffic road accident in Gasabo District as the police officers and drivers they have enough experience.

4.2 Presentation of Findings per Objectives

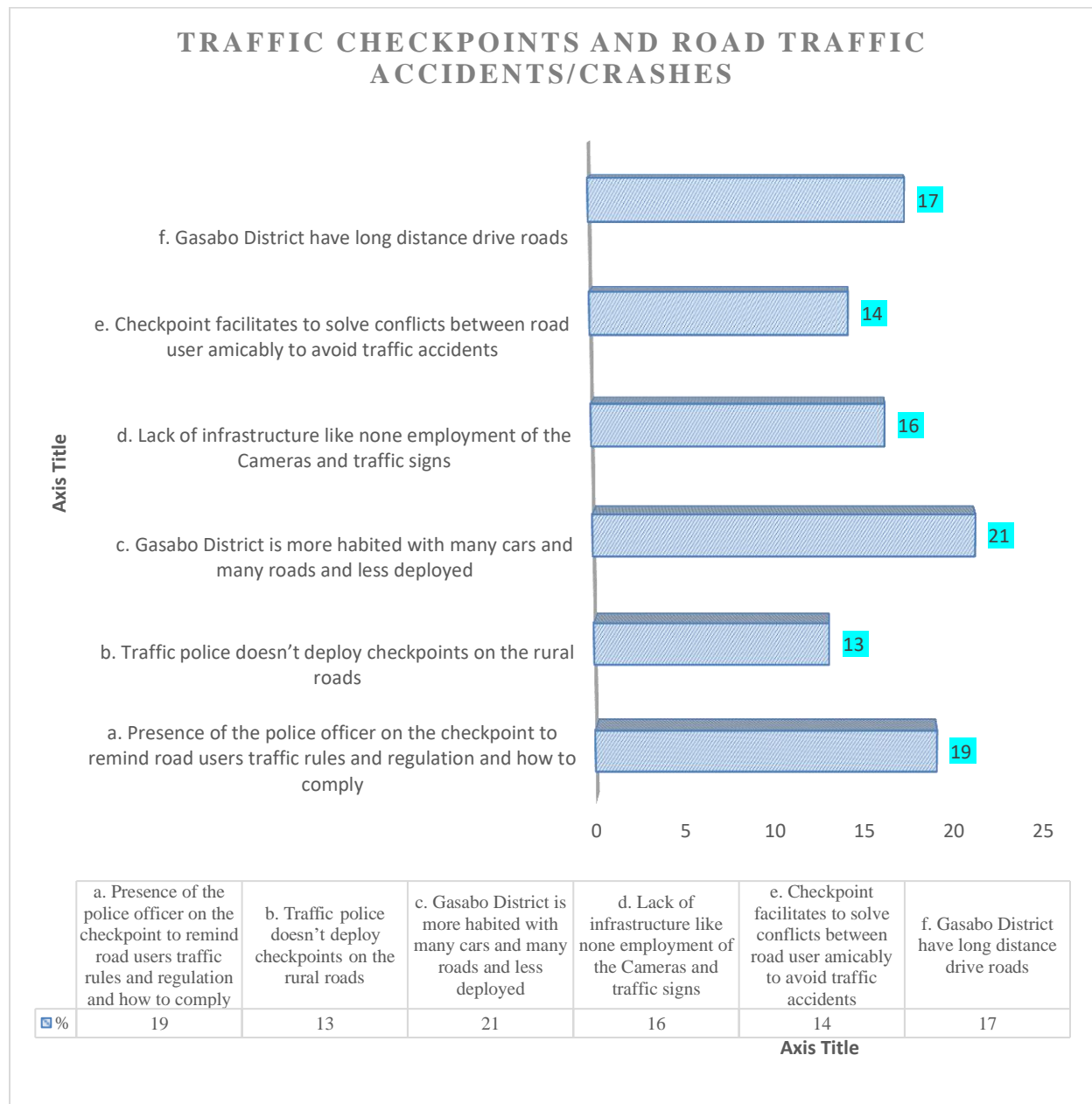
Under this section the researcher's finding present and indicate related specific questions of the study that is the relation between traffic checkpoints and road traffic accidents/crashes, the reasons why road traffic accidents/ crashes occur and yet there are deployments of traffic police road checkpoints and the strategies should be put in place to prevent traffic road accidents/crashes. Also, this section analysis the findings attained from both primary data which are attained from interviews from ordinary traffic police officers and drivers, secondary data received from the commanders and investigator of the accidents.

4.2.1 Findings on the relation between traffic checkpoints and road traffic accidents/crashes.

Findings from opinions confirmed existence of relationship between traffic check point and road accidents/crashes, this can be traced in the accordance with effectiveness of checkpoints on reduction of accidents, the relation between daily number of checkpoints deployed and number of accidents that occurs per day. During the survey research used to following points to find out if there is relation between traffic checkpoint and road accidents/crashes.

- a. Presence of the police officer on the checkpoint to remind road users traffic rules and regulation and how to comply
- b. Traffic police doesn't deploy checkpoints on the rural roads
- c. Gasabo District is more habited with many cars and many roads and less deployed
- d. Lack of infrastructure like none employment of the Cameras and traffic signs
- e. Checkpoint facilitates to solve conflicts between road user amicably to avoid traffic accidents
- f. Gasabo District have long distance drive roads

The bellow graph demonstrates the findings from the respondents that indicate relationship between checkpoints and occurrence of the road accidents.



Source: primary data from the field (2022)

Graph 6: Opinions of respondents on the relationship between traffic check point and road accidents/crashes

Findings in Graph N^o6 respondents revealed that they are remarkable relationship between traffic check point and road accidents/crashes and below are their opinions:

a. The big number of the respondents scored 21% and they highlighted that Gasabo district is densely habited with the big numbers cars and many roads that are small, also traffic police is not able to deploy checkpoints which leads to the occurrence of traffic accidents/crashes. This indicate that Gasabo district being overpopulated other than other districts of City of Kigali, with lot of cars and being less deployed with checkpoints, it qualifies direct relationship between checkpoints and the presence of more accidents in Gasabo District compared to other districts of the City of Kigali. On this point respondent reported that ...

... Maze imyaka 12 ntuye mwizindiro kandi nkorera Kimihurura hali urujya nuruza rw'imodoka nyishi cyane kuruta ahandi hantu henshi mumugi wa Kigali Cyane cyane umuhanda kwa Kimihurura-Lando- Kimironko. Niharahare kandi haba imodoka nyishi cyane bitso bigatuma baha impanuka nyinshi (D4) Second one nkorera kumuhanda Kimirinko - Nyabugogo usanga bidutwara umwanya munini cyane kuruta uva Gahanga-Nyabugogo (D9)

... The first respondents view was that is resident in the place called Zindiro for 12 years and works Kimihurura where drives every day and always they face challenge of the traffic jam on the road Kimihurura-Lando-Kimirinko. Second respondent pointed out that works on the road Nyabugogo-Kimironko, it takes long time from Kimironko to Nyabugogo other than Gahanga-Nyabugogo and yet its far than Kimironko-Nyabugogo. In view of the respondents, Gasabo being over habited with many cars and many roads and less deployed leads to the occurrence of the accidents.

b. Presence of the police officer on the checkpoint to remind road users traffic rules and regulation and how to comply scored second position with 19%. This indicates that if Gasabo District is well deployed with enough checkpoints it reminds road users traffic rules and regulation and how to comply with hence reduction of the road accidents. *This was expressed by 04 ordinary police officers that....*

... On the road Kimicanga-Kimihurura-Convention center-Gishushu-Lando-Giporoso, it's avery bussy road with huge traffic counts but there is less occurrence of the accident because of the presence of the checkpoints (OP4, OP5, OP6 & OP8)

c. 17% of the respondents indicated that Gasabo District have long distance drive roads, according to their views...

... they gave example of the long-distance roads like Gatsata to Kajevuba 21kms on Gicumbi road, Giporoso-Murindi-Kabuga-Nyagasambu and Kinamba-Gisozi (ULK)-Kagugu-Kibagabaga-Kimirinko-Zindiro. Respondents highlighted that the more the longer distance you drive especially in the city the more you are exposed to the risks of the road accident (DI, D2, D3 & D6)

d. Lack of infrastructure like none employment of the Cameras and traffic signs leads to the occurrences of traffic accidents/crashes score by 16 % of the respondents. *Lack of the sign post was emphasized by 04 commanders....*

... During focused discussions they pointed out that traffic signs alert the road users and facilitates by warning, directing or instructing what to be done and facilitates easy traffic flow. They come with the example of the place like Kimironko junction to Kibagaba, Zindiro, Stade amahoro and Kigali parents' roads formerly it was congested location with heavy jam and frequency of accidents before putting their one-way sign post. After posting sign post jam ended and traffic flow was stopped hence less accidents. (PC2, PC3, PC4, PC6)

this shows that being Gasabo having less infrastructure like sign posts exposes the community to the accidents and employment of the checkpoints could be the solution to reduce accident hence observed relation between checkpoint and reduction of accident.

e. Checkpoints facilitates to solve conflicts between road user amicably to avoid traffic accidents/crashes this was expressed by the 14% of the respondents. This situation happens on the road during minor accidents where for the first time the conflict parties don't agree on the causer of the minor accident. Sometimes traffic police officers come in try to facilitate them to solve their issues amicably other than spent a lot of time on the minor issue that they could solve themselves. means that traffic police officers help community members be humble to each other hence less accidents.

f. Respondents expressed at level of 13% of the whole targeted group that traffic police don't deploy checkpoints to the rural roads which might be the cause of many accidents/crashes. *04 respondents they expressed out....*

... that Gasabo District being having many rural roads with many vehicles and traffic police having not contribute checkpoints in the rural roads of Gasabo contribute more to the occurrence of the road accidents. They come up with the examples of the rural roads with more motorcycles and vehicles that are not being deployed and most of times they are called to go there to investigate accident cases those are Kimironko-Zindiro-Birembo-Kinyinya and Kagugu-Batsinda-Gasanze-Nyacongo-Nduba more to mention. (PI4, PI6, PI7 & PI10).

In regards to the given information from the respondents indicates that Gasabo District is ranked number one in City of Kigali for having big numbers of accidents due to many rural roads that are being used by the many motorcycles and vehicles and yet are not deployed with checkpoints hence direct relation between checkpoints and reduction of road accidents.

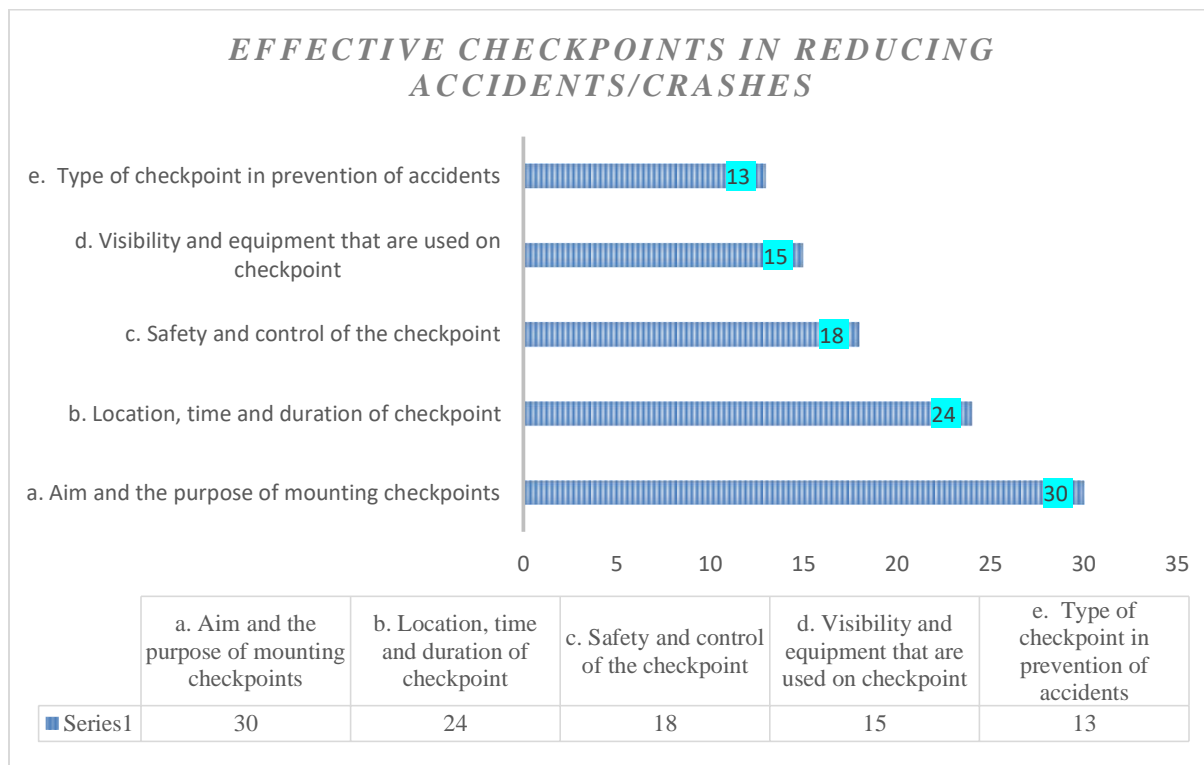
4.2.1.2. Effectiveness of traffic checkpoint in reduction of accidents/crashes

In this section it is all about the analysis, presentation and interpretation of the opinion and views of the interviewees in relation the effectiveness of checkpoints in reduction of the road accidents. Effectiveness of the checkpoint can be traced from its purpose, the reason why it has been mounted, what will be aim of mounting checkpoint. This makes police officers on the checkpoint to do their work effectively without any confusion. The effectiveness of the checkpoint can be seen from it operation results and its determined by the position where you positioned it, time and how long it will take upon the information that you want. Furthermore, to observe the effectiveness of the checkpoints you consider the safety of the road user and even the police of the checkpoints also you consider the control of the vehicle and make no escape routes. Traffic police checkpoint should be visible from far and it should be mounted by using reflecting materials that are on the required standards to avoid any risks. Checkpoint to prevent accident will be determined by its type flexible checkpoint can be effective in deterrence of drink and drive operations because it makes easier to shift from one location to another upon the give information hence being effective.

The respondents reply the following questions so as to come up with their views:

- a. Aim and the purpose of mounting checkpoints?
- b. Location, time and duration of checkpoint

- c. Safety and control of the checkpoint
- d. Visibility and equipment that are used on checkpoint
- e. Type of checkpoint in prevention of accidents



Source: *primary data from the field (2022)*

Graph 7: Opinions of respondents on effective checkpoints in reducing accidents/crashes

The below are represents the views from graph N^o7 on the effectiveness of the checkpoint in reduction of the road accident

a. Findings indicated in graph N^o7 above show opinions of respondents related to the effectiveness checkpoints in reducing accidents/crashes. *And below were the ideas of the respondents...*

... 30% responded that the aim and the purpose of mounting checkpoint contributes much to the deterrence of accidents. They further more explained that police officers before going at the work (mounting checkpoint) they must be understanding why they are going there and what are they going to do and how are they going to do it. They expressed that most of the time commanders send the subordinates to mount checkpoint without briefing of what to do and even subordinates they don't ask before they leave for the work. Respondents they highlighted that the

more the aim and purpose of the checkpoint is defined the less the accident and vis versa. (PC1 & PC8). This means that the well defines aim and the purpose of mounting checkpoint police will have informed on what to and how which will help them to achieve their mission effectively.

b. Also respondents were asked how effective is the checkpoint by considering Location, time and duration before employ it in reducing accidents. *24% respondents they responded that...*

... the checkpoint to be effective it should be mounted at the location that maximize the effects the occurrence of the accidents and that location should be able to accommodate the checkpoint in order to avoid further risks to the police officers themselves who are on the checkpoint. Respondents furthermore, they mentioned that checkpoint to be effective the police officer the need to consider the time that how often the accidents occur and its frequency for example is it weekend? Day or night, evening or morning, during peak hours or etc.... Also, respondent (PC1) replied that the time checkpoint it takes mounted on the road contribute to the its effectiveness, because the longer it stays in location the greater than the impact to its effectiveness in reduction of the accident and the vice versa.

c. About the safety and control of the checkpoints that leads to less occurrence of the accidents, 17 respondents out of 90 which is equivalent to 18% confirmed it.

.... Four respondents they reported and explained that security of the checkpoint means the effective control of all the vehicles that are passing at the checkpoint where are being checked without any escape. if all vehicles are stopped and asked what to be asked in regard to the purpose of the checkpoint then checkpoint will be effective. (OP 10, OP12. OP13 & OP14)

d. Visibility and equipment that are used on checkpoint how can lead to the reduction of accidents 15% of respondents and its it is second last point that scored less response but it cannot be ignored these percentage is significant. The visibility and equipment used to mount checkpoint matters where traffic police checkpoint should be visible from far and its should mounted by using reflecting materials that are on the required standards to avoid any risks.

e. The last point to assess the effectiveness of the checkpoints is the type of checkpoint and its mobility to prevent accidents and it scored 13% of the respondents.

... Here respondents highlighted that how flexible to move from one place to another upon the given information about the traffic violators or offenders it is very paramount to the effectiveness of the checkpoint. Furthermore, during focused group discussions respondents they explained that mobile checkpoints are to respond to an immediate traffic operation need and can be removed immediately after execution of the operation without having impact on the security of the concerned area, the population living in it and the personnel deployed for the operation. Additionally, mobile checkpoints may be mounted to combat and deter traffic offences e.g., through collecting information, later intelligence related to a certain road used by the traffic law offender aimed to prevent them for the further occurrence of the traffic law irregularities. From the respondent's views revealed that types checkpoints are mounted depends on the information and the purpose of the checkpoints and this proves that by having information of the cause of the accident I certain area you will mount fixed point to deter accident so as to achieve its effectiveness. (PC4 & PC6)

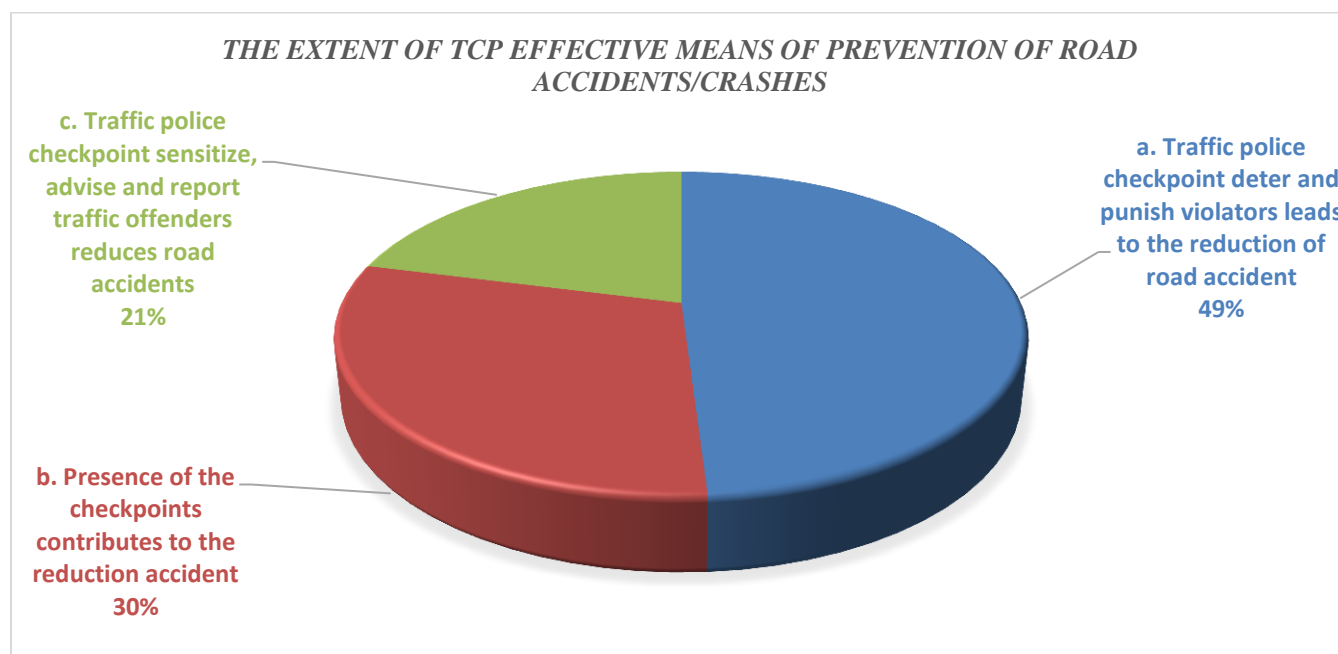
4.2.1.3 The extent of traffic checkpoint means of the prevention of road accidents/crashes.

The performance of the checkpoint is expressed and demonstrated by the practical activities that are being conducted at the checkpoint in order to achieve its mission by preventing road accident.

Traffic checkpoint is among the four main measures that are use used to achieve road safety other than Patrols, awareness campaign and employment of the IT solutions. Traffic police officers to be effective on the checkpoint they should deter and punish violators of the traffic rules and regulation. Also traffic police officer on the checkpoint while interacting with the community they should remind road users by sensitizing them to comply with traffic rules and regulations not just fining them. Furthermore, police officers on the checkpoint depending on the circumstance they need to advise the road users instead of punish always and they should report to their immediate leader how work was done during the course of the work. Additionally, checkpoints should be seen and be presence at the wright location in the wright his can contribute to its extent in prevention of the road accident. Below are questions that we posed to the respondents

- a. Traffic police checkpoint deter and punish violators leads to the reduction of road accident

- b. Presence of the checkpoints contributes to the reduction accident
- c. Traffic police checkpoint sensitize, advise and report traffic offenders reduces road accidents



Source: primary data from the field (2022)

Graph 8: Opinions of respondents about the extent of TCP effective means of prevention of road accidents/crashes

Findings to what extent the checkpoints are the means of prevention of road accidents/crashes. Interviewees they responded 49% that checkpoints by detecting and punishing violators leads to the reduction of road accident/crashes. *During focused group discussions four ordinary police officers pointed out that...*

.... people fear to be punished and avoid committing traffic offences, they give example that those traffic offences that are being fined with huge fine amount of money, if offenders are detected and fine they to fear to repeat such traffic offence. (OP15, OP16, OP18 & OP20)

Presence of the checkpoints contributes to the counter measures of accident reduction this was acknowledge by 27 respondents out of 90 which is equals to 30% of the targeted confirmed. They urge that...

... the presence checkpoint is more effective when it comes to the deterrence principle as the measure of the road safety enforcement technique. They further urged that during awareness to the community while sensitize, advise and report traffic offenders checkpoint is most effective

road safety measure and prevent road traffic accidents. They further expressed that this road safety measure is the more effective road safety measure during the prevention campaign and makes community members to work easily with the traffic police in traffic road safety community policing campaigns. (OP1 & OP2)

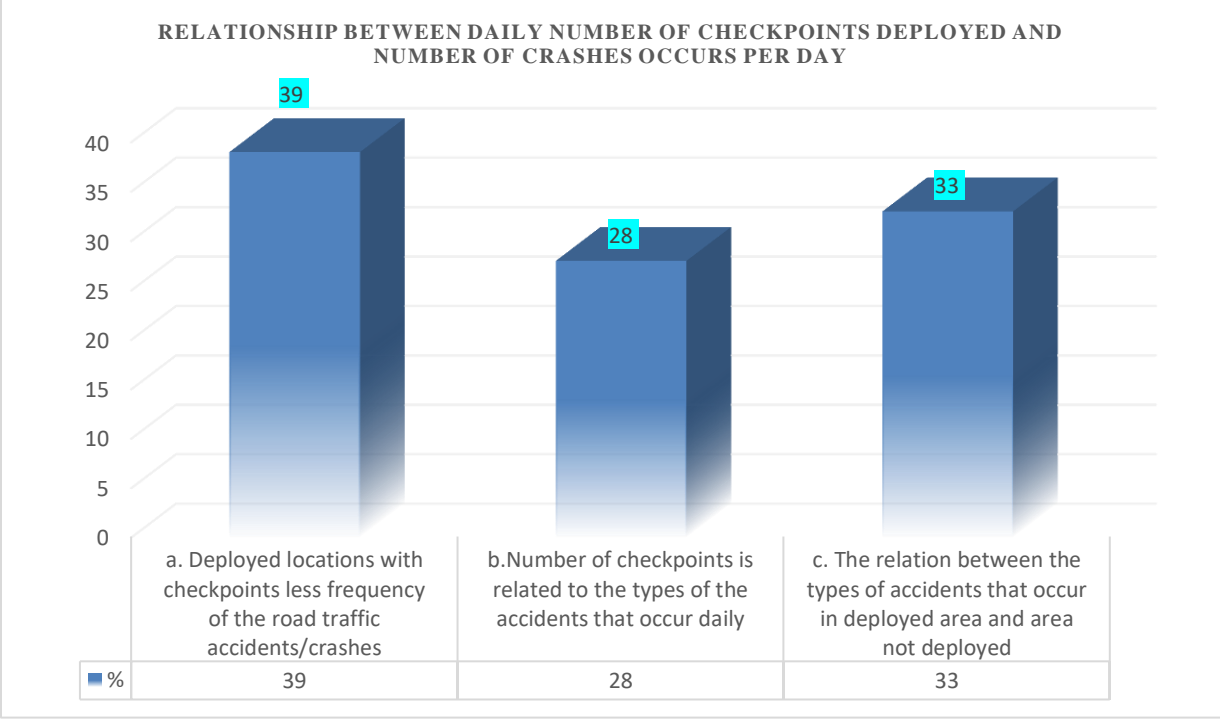
4.2.1.4. Relation between the daily number of the checkpoint deployed and number of the accidents occur per day.

Relationship between the checkpoints and the reduction of the accident can be also seen compared to the number checkpoints deployment and the number of the accident. Also relationship between checkpoints deployed and the accidents occurred can be traced by understanding the frequency of the accident in particular location and how often is deployed with checkpoints. Subsequently, it can also be observed by understanding number of checkpoints deployed and type of accident that occur. Finally, relation between number of the checkpoint deployed and number of the accidents occur per day can be traced by analyzing types of accidents that occur in deployed area and area that are not deployed.

Below were questions posed to the respondents;

- a. Deployed locations with checkpoints less frequency of the road traffic accidents/crashes
- b. Number of checkpoints is related to the types of the accidents that occur daily
- c. The relation between the types of accidents that occur in deployed area and area not deployed

In regards to the options of the respondents in graph below are the results presented.



Source: primary data from the field (2022)

Graph 9: Opinions of respondent in the relation between daily number of checkpoints deployed and number of crashes occurs per day

Findings confirmed that there is a great relationship between daily number of checkpoints deployed and number of crashes occurs per day. The big of the respondents they pointed their opinions that most deployed locations with checkpoints less frequency of the road traffic accidents/crashes at 39% of the whole targeted group.

They reported that location where frequently deployed with the checkpoint the occurrence of the accident it's at minimal level and this impact to the occurrence of the accident either positively or negatively. Two accident investigator they pointed out with example that less deployed road like Gastata- Nyacongo, Batsinda-Gasanze those places are earmarked as accident hot spots and are not deployed. (PI2 & PI3)

Also from the respondents views it was realized that there is the relation between the types of accidents that occur in deployed area and area less deployed at 33%.

...Two drivers furthermore, expressed that most deployed places there are no fatal accidents that took place, most of time are minor accident and this is influenced by the presence of the checkpoints. Respondents they explained that if a drive while driving and see police

officers it reminds you or a drive to pay attention hence recognizable relationship between checkpoints reduction of the road accidents. (D7 & D8)

Number of checkpoint deployed in relation to the types of the accidents that occur on the daily basis respondents they highlighted that...

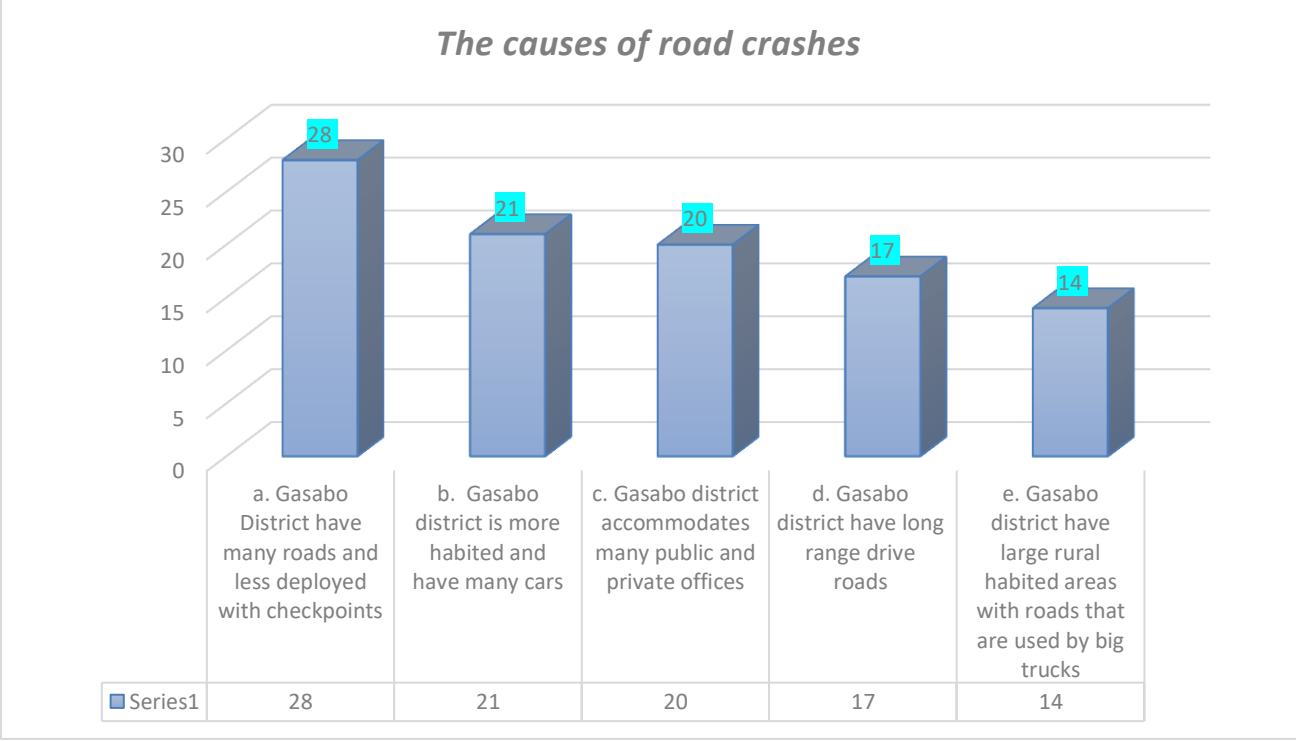
... During focused group discussions four investigators they highlighted and pointed out that the locations or place less deployed people tend to be reluctant and committed traffic offences like drink and drive, overspending wrong maneuver more to mention which can cause or influence fatal or serious accidents hence recognizable link between the number of checkpoint and the type of accident. (PI1, PI5, PI8 & PI9)

4.2.1.5 Causes of the road accidents/crashes

There are various factors that contribute to the high number of road traffic crashes and they are grouped into three main categories which include: road environment factors, vehicle factors, and human factors African Development Bank (AFDB, 2013). For the purpose of the research below questions were posed to the respondents,

- a. Gasabo District have many roads and less deployed with checkpoints
- b. Gasabo district is more habited and have many cars
- c. Gasabo district accommodates many public and private offices
- d. Gasabo district have long range drive roads
- e. Gasabo district have large rural habited areas with roads that are used by big trucks

Graph below presents the opinion of the respondents upon the posed question to them above



Source: primary data from the field (2022)

Graph 10: Opinions of respondents about the causes of road accident/crashes

Findings confirmed that the causes of road accidents/crashes in Gasabo District are very much related to the questions that were posed to the respondents and their opinions are indicated below;

28% of the respondents confirmed that Gasabo District have many roads and less deployed with checkpoints that leads to occurrence of accident, this is big number of the respondents and their views witness and evidence that Gasabo have many roads other than other districts of the City of Kigali, also because of being not fully deployed with checkpoint it impacts much to its higher scorer in terms of accident.

...The second group of the respondent that scored 20% reported that Gasabo district is more habited and have many cars that contributes to the causes of accidents. they further witnessed that is can be observed by the long que that is traffic jams during peak hours to and from the work.

Also, respondents pointed out how Gasabo district have long range drive roads that influence the occurrences of accidents and this impact more the relationship between checkpoints and reduction of the road accidents. Gasabo district by having large rural habited areas with roads that are used by big trucks that contributes to the occurrence of accident.

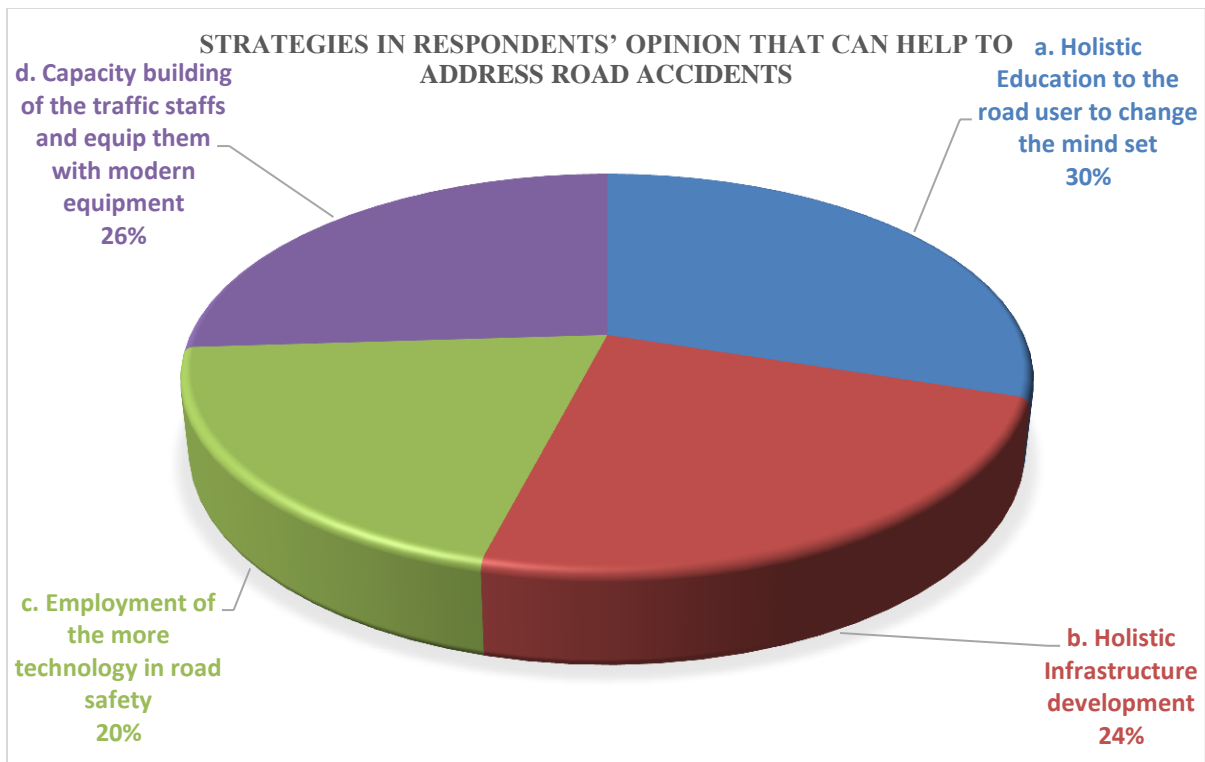
In the focused group discussions four ordinary police officers gave example of some sectors like Nduba, Gikomero, Rutunga more to mention, those sectors they have many tarmac roads with. (OP 22, OP23, OP24 & OP21)

4.2.3 Strategies to prevent traffic road accidents

Findings in this section present the opinions from respondents related to the strategies in respondents' opinion which can help to address road accidents in Gasabo District; how those strategies are implemented and by who so as to be effective in reduction of road traffic crashes; which strategies can come first than others and why in reduction of road traffic crashes; the roles and responsibilities of drivers on reduction of accidents/crashes in Gasabo District. Below are the questions that ere posed to the respondents

- a. Holistic Education to the road user to change the mind set
- b. Holistic Infrastructure development
- c. Employment of the more technology in road safety
- d. Capacity building of the traffic staffs and equip them with modern equipment?

Their views and opinions are indicated in the graph N^o12 below and percentage with the explanations



Source: primary data from the field (2022)

Graph 11: Strategies in respondents' opinion that can help to address road accidents/crashes in Gasabo districts

From graph N^o11 from above, below are the opinions of the responses from respondents...

Respondents with the dominant number in relation to the targeted group pointed out their opinions that it requires holistic Education to the road user to change the mind set and this score 30% of the respondents.

...Respondents they further pointed out that in relation to the terrain of our country Rwanda with hills and sharp corners and in reference on how people perceive the use of the road it requires holistic education that can help to change the mindset of the road users. They also pointed out an example where almost all infrastructures that attracts more people are nearby the roads and this exposes the community to the accident some of them are Schools, Markets and shopping centers, Hospitals, Garages, depose, petrol stations and more to mention. Respondents also they highlighted that it impacts a lot to the occurrence of the accidents/crashes which requires mindset and make sure that the infrastructures should be positioned in mind with the standard distance from the road hence less risks of the accidents/crashes to the community members.

Holistic Infrastructure development like road and road sign post was also expressed by the respondents with 24% of the targeted group. They furthermore, explained Gasabo district as more habited district requires more roads that are on standards with sign posts. This will reduce the occurrence of the accidents/crashes.

Employment of the more technology in road safety was the third score with 20% of the respondents, Respondents urge that employment of the IT solutions impact much than human in reduction of the accidents with example like Fixed and mobile cameras. To hem Gasabo ditrict should be enforced with more cameras.

As it is stipulated in the chapter 3 of the survey the big number of the respondents are police officers from traffic be it commanders, accident investigators and ordinary police, they reported that there is great need for the capacity building to TRS staffs and equip them with modern equipment. Skilled staffs with familiarized equipment will facilitate more in reduction of the road accidents/crashes.

4.2.3.1 How those strategies above can be implemented and by who so as to be effective in reduction of road traffic crashes

During this study, respondents stated that strategies outlined can be implemented effectively in reduction of road traffic accident/crashes in Gasabo District where:

Holistic Education to the road user to change the mind set it need to be done by all concerned example traffic rules and regulation should be included in the curriculum of the studies from primary level. Rwanda National Police to have constant awareness campaigns on the use of the road and other traffic rules and regulations.

Ministry of Infrastructure, Rwanda Transport Development Agency and City of Kigali to come together and have holistic to the infrastructure development in Gasabo district with focus on the road and road sign posts.

Gov't to work and support all concerned with road and safety in City of Kigali to employment more technology in road safety policy hence reduction of the accidents in Gasabo district.

Rwanda National Police should put in priority capacity building for Traffic police staffs and equip them with modern equipment

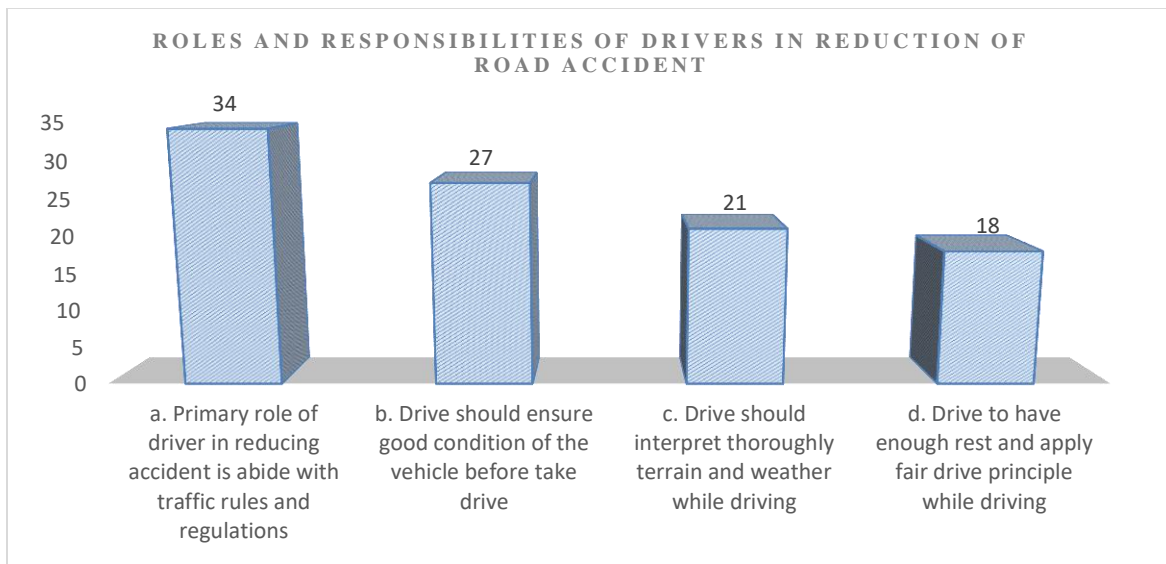
- ✓ Rwanda National Police should increase number of police officers and equipment such as Cameras,
- ✓ Training to the use of roads and traffic laws and regulations to people; implementation effective traffic roads laws and regulations.
- ✓ Legal and policy frameworks: The rules of the road are good, except for the fact that pedestrians are not subject to any penalties e.g., non-compliance with traffic lights, zebra crossing.
- ✓ Pedestrians: There is a need to be educated in primary school so that people need to know the rules of the road without having to drive.
- ✓ Passengers: should be taught to know his or her rights so that he or she is not taken aback by the fact that the driver of the vehicle is looking for something else to report to the offender ... for example motorists, Coaster.

4.2.3.2 The strategies that can come first than others and why in reduction of road traffic crashes

According to the opinions of respondents stated that Primary personnel in reduction of the accidents/crashes is driver. The role of driver in reducing accident is abide with traffic rules and regulations, drive to ensure good condition of the vehicle before drive; and drive to interpret thoroughly terrain and weather while driving come first as detailed on graph. Below are the questions that were posed to the respondents:

- a. Primary role of driver in reducing accident is abide with traffic rules and regulations
- b. Drive should ensure good condition of the vehicle before take drive
- c. Drive should interpret thoroughly terrain and weather while driving
- d. Drive to have enough rest and apply fair drive principle while driving

In graph below N^o12 below are the opinions of the respondents from the questions posed to them



Source: primary data from the field (2022)

Graph 12: The roles and responsibilities of drivers in reduction of road accident/crashes

Respondents expressed that driver play a big role and responsibility in reduction of the accident/crashes while abiding with the traffic laws and regulation by scoring 34% of the whole team of the respondents.

... They furthermore, pointed out that thought they are other factors that influences the occurrence of the accident, if drives can be very attentive while driving, they can minimize the rate of the occurrence of accidents/crashes.

Respondents argue that the drive must ensure good condition of the vehicle before drive, this point come as second and scored 27%. This signifies the positive and negative impact of the drivers in ensuring condition of the vehicle.

When drives manage to interpret thoroughly terrain and weather while driving according to the respondents views it scored 21%. This indicates that among the three factors that influence the occurrence of the accidents/crashes (Drive, Vehicle and Weather or Environment) drive can eliminate other factors hence reduction of accidents/crashes.

Drive to have enough rest and apply fair drive principle while driving as it was mentioned by respondents due to some of the accidents are caused by the fatigue of the drives.

4.3. The link between theory and findings.

The deterrence theory stipulates that people or individuals exercise their human right or privileges in taking choices in a given case they opt to commit or run away from it. Consequently, possibly criminal sense of balance the burdens and the gain from the violations and opportunity to be stopped and punished then she/he will choose to do it.

In regards to the deterrence theory as it was used in this study by examining how traffic check can apply deterrence in reduction of the accidents/crashes. Traffic offender might not drive when she/he is worried about the harshness of the penalty but after balancing the profits from driving wrongly and the risks to be arrested by the traffic police officers and being fined for the wrong driving and after assessment that there are no chances of being stopped and fined, she/he will opt to commit that traffic offence of riving wrongly.

Results of findings indicates that traffic police checkpoints are mounted and visible on the roads to stop the traffic offenders that may lead the occurrence of the road accidents/crashes where they will be fined with the severe fines. Subsequently, such enforcement will increase awareness that will make public perception to changed and avoid traffic offences that will contribute the occurrence of the accidents. Consequently, apparent risk become adequately high and drivers will opt to drive carefully so as to avoid any traffic offence that can lead to the occurrence of the accident/crashes

4.4. Conclusion

This chapter indicates the results and findings that collected from the survey at the terrain where the researcher used questionnaires. The information obtains from two categories of the respondents which are TRS police officers and drives, secondary data obtained from traffic. Basic demographics of respondents which includes gender dominated with male at 71% but impact on the study, age group is much reliable where 18-45 years score 89% of the targeted group, education are reliable and meet the expectations where 100% respondents range from secondary level to masters. The basis to choose them was how often they access the information and work experience is the motivating factor and with the fact that from 3 to 9 years and above working experience respondents scores 93% of the group.

Furthermore, respondents view on the relation between checkpoints and accidents/Crashes was that Gasabo is more habited with long distance road drive, many rural roads, few enforcement

signs and less deployed with checkpoints that leads to accidents. Also, on the fact that how effective checkpoint is, respondents pointed out that its effectiveness is achieved through aim and the purpose of the mounted checkpoint, level of the deterrence to prevent accident, location, time and duration of the checkpoint at particular location, safety and control measures in place to avoid the escape of the violators, equipment and the type of the checkpoint. All determines the effective of the checkpoint.

Moreover, the respondent's view on the fact that to what extent is that checkpoint prevent accident they highlighted that police officers on checkpoint they should ensure deterrence, punishments, sensitizing, advising and reporting traffic and regulation violators. Respondents also they reported that relationship between the number of the checkpoints employed with the number and type of accident occurred is that were the checkpoints are deployed less accidents and even when it occurs not fatalities, where no deployment or less more accident with fatalities. Also, interviewees pointed out that the considerations to employ checkpoints are; the level of traffic flow and traffic counts, nature of the terrain, occurrence frequency of the accident at particular place, area or location, a certain event or activity that requires smooth traffic flow.

Additionally, assessment, analysis and interpretation of the gathered information using thematic approach was made to get it. Lastly concept in relation to the theory like public perception of the fines due to violation of traffic offence that can cause accident were assessed and its implication on reduction of road accidents was also discussed.

CHAPTER FIVE:

SUMMARY, CONCLUSION AND RECOMMENDATIONS

The study was conducted with the overall objective to examine the relationship traffic police road checkpoint and reduction of the road traffic accidents aimed to propose essential and necessary strategies that may come up with the better deterrent and preventive effects on the identified problems. The chapter summaries the findings and its results, presents recommendations and suggestions. Also, survey examined the relationship of the occurrence of the accidents and the employment of the traffic police checkpoint in Gasabo District.

5.1. Discussions

The specific objectives of the study were to identify causes of road traffic accidents and examine the relationship between traffic checkpoints and road traffic crashes; to formulate strategies aimed at reducing road traffic accidents. Concern to methodology, quasi-experimental research approach was adopted to assess traffic police road checkpoint and reduction of the road traffic accidents in Gasabo District. Qualitative approach was a method seeks to answer to the questions, and involves the collection of evidence. The total population size was 900, composed of 600 Traffic Police Officers and 300 drivers.

The stratified and simple random sampling techniques were applied to select 90 respondents from Traffic Police Officers who deploys in Gasabo District, are three categories including; (a) Commanders who deploy police officers (b) Ordinary police officers who work in the area of study (c) accident investigators that are responsible to investigate accidents in the area of study. Drivers who were in interest of researcher are drivers of private public transport companies that operates in the area of study.

Police officers were found at their work place while drivers some were found at the company office and others at Nyabugongo and Down Town parks in collaboration with their institution and company leadership. Data were collected through documentary data collection method, Interview and Focus group discussions/ Group interview. Data were analyzed using Statistical Package for Social Sciences IBM 23.0 version and athematic method.

5.2. Summary of major findings

The summary of the findings of this observes had been performed in accordance with research goals.

5.2.1 Findings on 1st Objective: The causes of road traffic crashes in Gasabo District and the relationship between traffic checkpoints and road traffic crashes

Findings in Graph N⁰6 showed the relationship between traffic check point and road accidents/crashes in Gasabo District. Where there was presence of the police officer on the checkpoint reminds road users traffic rules and regulation and how to comply; traffic police doesn't deploy checkpoints to the rural roads which might be the cause of many accidents/crashes; Gasabo is more habited, with many cars and roads that are small, also traffic police is not able to deploy checkpoint which leads to the occurrence of traffic accidents/crashes, None employment of the Cameras and traffic signs leads the occurrences of traffic accidents/crashes, Gasabo have long drive roads that are not being deployed effectively by traffic police.

Findings in graph N⁰10 show opinions of respondents about the causes of road crashes, Gasabo District have many roads and less deployed with checkpoints that leads to occurrence of accident; is more habited and have many cars that contributes to the causes of accidents; Gasabo district have long range drive roads that influence the occurrences of accidents, it have large rural habited areas with roads that are used by big trucks that contributes to the occurrence of accident and Gasabo district accommodates many public and private offices hence heavy traffic flow.

5.2.2 Findings on 2nd Objective: strategies aimed at reducing road traffic crashes in Gasabo District

Findings in graph N⁰12 show strategies in respondents' opinion that can help to address road accidents in Gasabo district, as stated by respondents, Holistic Education to the road user to change the mindset, Infrastructure development like road and road sign post. Employment of the more technology in road safety and Capacity building to traffic police staffs and equip them with modern equipment. According to the opinions of respondents stated that Primary role of driver in reducing accident is abide with traffic rules and regulations, drive to ensure good condition of the vehicle before drive, to interpret thoroughly terrain and weather while driving come first.

5.3. General Conclusion

Road crash/accident is measurements certified by the relevant authorities especially law enforcement agencies aimed to reduce road traffic crash. This was the triggering factor the influenced law enforcement agencies to come up with some of the strategies like engineering, road safety campaigns in Rwanda we had “GEREYO AMAHORO” Also, employment of the IT is among the strategy is used in reduction of road traffic crashes among those are speed ladder, road sign violation, surveillance and body worn cameras, breath alcohol test, speed governor and moto vehicle inspection centers.

Findings indicated most of respondents said that there is no connection because the police officers arrive at work place on time, as accidents usually occur between 17:00 and 2100h, the problem is that roads are many than the number of traffic police checkpoints. Where traffic police deploy there are no major accidents, so there is no connection. The presence of police check point reduces accidents/crashes in the area of Gasabo District. Rwanda National Police should increase number of police officers and equipment such as and motto bikes.

The traffic rules and regulation are clear except for the fact that pedestrians are not subject to any penalties e.g., non-compliance with traffic lights, zebra crossing. There is a need for strong coordination and cooperation at all levels of the institutions that are responsible the road safety. Also, road safety council should be active and oversee issues that leads to the higher rate of the accidents in Gasabo district deeply and have the long-term solutions.

5.4. Strengths and Limitations

5.4.1. Strengths

The core strengths of this survey were a strong and comprehensive structure process of investigation of the knowledge, skills and practices from traffic police officers and drivers upon their familiarity and know-how. Focus group and semi-structured interview data correction methods were applied to get to know the relation between traffic police checkpoints and the occurrence of accident.

Also, other strength is that that thematic exploration of the respondents and documentary reports discover that road traffic accident it is still big challenges that threatens the live of the community in particular Gasabo district. Additionally, there is need for having holistic approaches. like educating general public to change the mind on how to use road, infrastructure

development and enforcing traffic police road and safety department with personnel, skills and equipment.

5.4.2. Limitations

Due to limited time, resources Covid-19, the researcher used suitable and convenience samples for the all interviewees instead of random sampling. Also because of the Covid-19 guidelines and procedures it was time consuming and monetary cost. In relation to the above limitations, it is not conceivable that truly come up with conclusion that the study is attained hundred percent correct.

5.5. Recommendations

Holistic approaches, like educating general public to change the mind on how to use road, holistic road infrastructure development and enforcing traffic police road and safety department with personnel, skills and equipment have been reported and pointed out as the best and more in the deterrence of traffic road accidents/crashes. Bringing together the above-mentioned approaches will impact significantly to the reduction of the accidents that result from violation of traffic rules and regulations. Subsequent recommendations obtained from the survey findings and the good practices in the literature review will be useful and facilitate the government of Rwanda, Rwanda National Police, Stakeholders and General Public.

5.5.1. The Government of Rwanda

In relation to the research outcome, the final goal of road safety operations it involves traffic police road checkpoints in reduction of road traffic accidents/crashes. The aim is to deter and to prevent danger that is being caused by traffic rules and regulation violators that most of time cause road traffic accidents that results into fatalities and deaths. To attain greater impact, they require laws, policies and infrastructure development, some recommendations were draw to the government of Rwanda:

- a. To have policy in place that enable general community to study traffic laws, rules and regulation a primary level and above that enable to change mindset and to mobilize funds that support government institutions responsible for the road safety infrastructure development like road and IT solutions as a road safety measures.

5.5.2. The Rwanda National Police

Rwanda National Police as the lead institution that responsible to the road safety hence prevent road accident that results into loss of lives below are recommendations that may facilitate to the prevention of accidents.

- a. To enforce Traffic and Road Safety department with skilled personnel and modern equipment hence having capacity deploy verse vis the at the ground and to have strong partnership with other road safety stakeholder aimed to come up with appropriate road safety policy.

5.5.2.1. Traffic and Road Safety Department

Traffic and Road Safety Department and unit responsible for the enforcement of the road safety measures and road traffic checkpoint is the most used road safety measure in Rwanda more specially in City of Kigali, specifically in Gasabo district in prevention of road accident. The traffic police checkpoint to be effective and come up with a greater impact in reduction and prevention of the traffic road accident. The following recommendations should be considered;

- a. Police officers must have purpose for being at checkpoint with the checklist to be observed, checkpoints should be fully manned to ensure safety and positive attitude at the check point to minimize risk of accidents by deterring, punishing, sensitizing, advising and reporting traffic laws violators.

5.5.3. Stakeholders

Stakeholders means the whole community and they role that they take or contribute positively or negatively in regards to the road safety campaigns in order to come up with appropriate road safety environment hence reduction of the accident.

Some of the Traffic and Road Safety department immediate stakeholders are Driving schools, Public and Private Transport Companies, City of Kigali, Rwanda Transport Development Agency (RTDA) Rwanda Utility Regulatory Agency (RURA), Drivers Associations, Motorists Associations and general public. The stakeholders to come up with the greater impact in reduction or prevention of the road traffic accidents, some recommendations were putted forward as indicated below;

- a. To ensure strong coordination and cooperation among themselves and partnership with Traffic and Road Safety department in awareness campaigns to uphold the mindset of the general public about road safety hence high compliance of traffic rules and regulations.

5.5.4. Suggestion to further Researchers

Because of the limited resources and time, the size and the range of his research was limited and constrained to the relationship between traffic police road check point and the reduction of the checkpoint, effectiveness of traffic police checkpoints, number of checkpoints in relation to the number of accidents occur and why accidents occur and yet there are traffic checkpoints. The survey leaves a space for the incoming and other researchers to conduct further research on how IT is effective in reduction of road accidents. Survey proposes future research on the involvement of the civil servants in the occurrence of accidents. It was observed that Gasabo accommodates more government office and more embassies. There is a need prove this phenomenon as human factor on the impact on traffic accident in Gasabo district.

REFERENCES

- R. T. Petroze J. F. Calland, 2019. *Department of Surgery*, , s.l.: University of Virginia Health System, PO Box 800709, Charlottesville, VA 22908, USA e-mail: calland@virginia.edu.
- Abbonkhese et al., 2014. *All mechanical fault leads to failure of any vehicle parts like tyres, engine and light systems can lead to cause of road traffic crashes*, s.l.: s.n.
- AFDB, 2013. *Some causes of road crashes/ accidents* , s.l.: s.n.
- Alan & Helund, 1998. *the more time police officers on the road, the greater are their chance of observing traffic offenders or impaired drivers.* , s.l.: s.n.
- Bhalla et al., 2014. *Data-led analysis and management of the leading road traffic injuries problems permits suitable action and resource distribution*, s.l.: s.n.
- Chapman, A. D., 2004. *Principles of Data Quality: Report for the Global Biodiversity Information Facility. Global Biodiversity Information Facility, 74 Copenhagen.*, s.l.: Available at <http://www.gbif.org/communications/resources/print-andonline-resources/download>.
- Elder, Shults, and Sleet, 2002. Effectiveness of sobriety checkpoints for reducing alcohol-involved crashes. *Traffic Injury Prevention*, Volume 3, pp. 266-74.
- Great Britain Causality annual report, 2018. *road traffic accidents deaths were reported and recorded in 2016*, Kigali: RNP.
- INDEED, 2019. *www.indeed.com*. [Online] [Accessed May 2022].
- Lacey, John, Wiliszowski, Connie, et al., 2017. *National Highway Traffic Safety Administration, 1200 New Jersey Avenue, SE, Washington, DC United States 20590.* SE, Washington, DC United State: s.n.
- Magnus, 2013. *human factor crashes are results of driver's carelessness and inattention, human mistakes* , s.l.: s.n.

National Center for Statistics and Analysis, 2017. *Importance of traffic police road check points*, s.l.: s.n.

National Institute of Statistics and Economic of French, 2018. *Road crash it is any crash in which at least one road automobile* , s.l.: s.n.

National Transport and Safety Authority, 2020. *Example National Transport and Safety Authority (NTSA), office responsible of transport in Kenya logged fatalities, 6938 serious injuries and slight injuries*, s.l.: s.n.

NCBI, 2020. www.ncbi.nlm.nih.gov. [Online]
Available at: <http://www.ncbi.nlm.nih.gov>
[Accessed 11 March 2022].

NISR, 2018. www.statistics.gov.rw. [Online]
[Accessed 2022].

Nurainie, 2013. *Road traffic crashes can happen because of the environmental factors normally composed of weather, time, terrain and road condition* , s.l.: s.n.

Perett K.E. and Stevens, A. , 2018. *"Review of the Potential Benefits of Road Transport Telematics"*., s.l.: TRL Report 220. Crowthorne. UK: Transport Research Laboratory.

Petroze and Calland, 2018. Department of Surgery, University of Virginia Health System,. *PO Box 800709, Charlottesville, VA 22908, USA e-mail: calland@virginia.edu*.

PLOS, 2019. journals.plos.org. [Online]
[Accessed March 2022].

Police notebook, 2019. *Rwanda traffic police road police checkpoints as most employed to ensure road safety of the road users other than other road safety measures*, s.l.: s.n.

Research Gate, 2021. www.researchgate.com. [Online]
[Accessed 04 Feb 2022].

RNP, 2020. www.police.gov.rw. [Online]
[Accessed 04 Feb 2022].

- Theoneste BUREGEYA, 2014. *Spatial variation of vehicular road accident in Kigali City*”, Department of civil engineering and environmental technology, School of Engineering (Nyarugenge Campus). , s.l.: College of Science and Technology P.O. Box 3900 Kigali, Rwanda.
- Wang D, et, al., 2020. *Built Environment Analysis for Road Traffic Crash Hotspots in Kigali, Rwanda.* , s.l.: Front. Sustain. Cities 2: 17.doi: 10.3389/frsc.2020.00017, retrieved online on 20 November 2021.
- Wang et, al., 2021. 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.*
- Welki, and Zlatoper, 2007. The impact of highway safety regulation enforcement activities on motor vehicle fatalities.. *Transportation Research E Logistics Transportation Rev.*, 43(2), p. 208–217.
- WHO, 2008. *Government of Rwanda through Rwanda National Police endeavors to improve road safety by reducing road traffic accidents* , s.l.: s.n.
- WHO, 2018. *Complying to the World Health Organization (WHO), countries in the Africa regions highest per capital rate of road deaths*, s.l.: WHO.
- Woesler, 2005. *crashes, disaster, archaically and catastrophe are an unforeseen and unplanned event* , s.l.: s.n.
- World Bank, 2021. *Rwanda and international crashes patterns*, s.l.: data@worldbank.org.
- Younus et al., 2019. Road safety and Road Accidents: An Insight,. *International journal of information and computing science*, 6(4).
- Younus M, et al., 2019. *Road safety and Road Accidents:* , s.l.: An Insight, International journal of information and computing science, Volume 6, Issue 4, April 2019, ISSN NO: 0972-1347.
- George O, 2005.p.69. *The Impact of Police Checkpoints on Crime and Community*,in nigeria, Faculty of Law, University of Nigeria, Enugu Campus

ANNEXES

INTERVIEW GUIDE FOR FACE TO FACE WITH INTERVIEWEES/RESPONDENTS

Topic: Traffic Police Road Checkpoints and Reduction of Road Accident/Crashes

Target Audience: 90

Principal Investigator: John MULISA

Total Participant time required: 25 – 45 minutes

1. INTRODUCTION (10 Minutes)

Welcome the interviewees 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 & interviewees)

Outline general milled 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.

APPENDICES

SEMI-STRUCTURED INTERVIEW QUESTIONS USED DURING FACE-TO-FACE INTERVIEW

The initial interview queried information on

1. Basic demographics

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

S/N ⁰	IKIBAZO	HITAMO IGISUBIZO KIRI CYO
1.	Igitsina/Gender	Gabo/Male
		Gore/Female
2.	Imyaka/ Age	Btn 19-29
		Btn 30-49
		Btn 50-59
3.	Irangamimerere/ Mari status	Married
		Single
		Widow
		Divorced
4.	Amashuli/ Education	Abanza/Primary
		Ayisumbuye/Secondary
		Imyuga/Professionals
		Kaminuza/University
		Amashuli y'ubumenyi ngiro/Recitals
		Ayandi /Others..... Ibisobanuro
5.	Uburambe mu kazi/ Experience	Hasi y'imyaka 3
		Imyaka 3 - 6
		Imyaka 6 – 9
		Hejuru 9

1. What is the relation between traffic checkpoints and road traffic accidents/crashes in Gasabo District?

a. In your opinion, what is the relationship between traffic check point and road accidents/crashes?

Ku gitekerezo cyawe, ni rihe sano riri hagati yo kugenzura ibinyabiziga n'impanuka zo mu muhanda mukarere ka Gasabo?

b. How effective are checkpoints on reduction of crashes in Gasabo District?

Ubona abapolice bagenzura ibinyabiziga ibinyabiziga n'impanuka zo mu muhanda ar'ingirakamaro kuruhe rwego mukarere ka Gasabo?

c. To what extent do you think TCP are effective means of prevention of road accidents/crashes?

Utekereza kuruhe rwego ko abapolice bagenzura ibinyabiziga mu muhanda nka bumwe muburyo bwiza bwo kugamabnya impanuka mukarere ka Gasabo?

d. What is the relation between daily number of checkpoints deployed and number of crashes occurs per day in Gasabo District?

Ni rihe sano riri hagati y'umubare wa abapolice bashyirwa mu muhanda kugenzura impanuka buri muni n'umubare w'impanuka uba ku muni mu karere ka Gasabo?

e. What do you think could be the cause of road crashes in Gasabo District (P & D)

Utekereza ko ari gishobora kuba intandaro y'impanuka mukarere ka Gasabo?

f. What other contributing factors?

Ni izihe mpamvu zindi zitera impanuka mukarere ka Gasabo?

2. What are the reasons why road traffic accidents/ crashes occur and yet there are deployments of traffic police road checkpoints in Gasabo District?

Zihe mpamvu zituma impanuka ziba kandi nyamara hari bapallice bashinzwe kugenzura ko impanuka zitaba baba boherejwe mu muhanda mukarere ka Gasabo?

a. What are the basis and considerations of deploying traffic police checkpoints in Gasabo District?

Nibiki mushingiraho kugingo mushyire ahantu abapolice bashinzwe umutekano wo mu muhanda mukarere ka Gasabo?

b. What does police officers on checkpoints do to reduce crashes in Gasabo District?

Niki bakora abapolice bashyinzwe umutekano mu muhanda iyo bageze aho bakorera kugirango bagabanye impanuka mukarere ka Gasabo?

c. What is the relationship between time of the deployment of the checkpoints and time occurrence of road traffic crashes?

Niri sano riri hagati y'igihe abapolice bagenzura ibinyabiziga mu muhanda bagerera mu muhanda n'igihe impanuka zibera?

d. What is the relationship between traffic checkpoints locations and occurrence road traffic crashes?

Niri sano riri hagati yaho abapolice bagenzura ibinyabiziga mu muhanda baba bari nahabera impanuka?

3. What are strategies should be put in place to prevent traffic road accidents/crashes in Gasabo District.

a. What strategies in your opinion can help address road accidents in Gasabo districts in the following sectors:

Ni izihe ngambo mubitekerezo byawe zishobora gufasha mugukemura impanuka zo mu muhanda mu;

- Infrastructures /Ikorwa remezo
- Legal and policy frameworks/ amategeko na politiki yimikoreshereze y'umuhanda
- Law enforcement agencies/ Inzego zishinzwe kubahiriza ataegero y'umuhanda(Govt of Rwanda, RNP, TRS, RTDA, Cok Gasabo District Civil society)
- Pedestrians/ Abanyamaguru
- Drivers/ Abayibozi bibi nyabiziga
- Passengers/Abagenzi

b. How those strategies can be implemented and by who so as to be effective in reduction of road traffic crashes?

Ni ubuhe buryo izo ngamba zoshobora gushyirwa mubikorwa, ninde kugirango bigire akamaro mukugabanya impanuka zo mu muhanda mukarere ka Gasabo?

c. What are strategies that can come first than others and why in reduction of road traffic crashes?

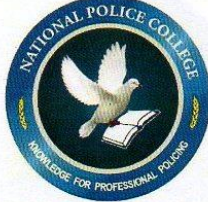
Ni izihe ngamba zishobora kuza mbere kuruta izindi kandi kubera iki mukugabanya impanuka mukarere ka Gasabo?

d. What are the roles and responsibilities of drivers on reduction of crashes in Gasabo District?

Ni uruhe ruhare ininshingano z'abashoferi mukugabanya impanuka zo mu muhanda mukarere ka Gasabo?

RWANDA NATIONAL POLICE

Musanze, 16 Dec 21



NATIONAL POLICE COLLEGE
TEL: (+250)788311379
P.O.BOX: 23 Musanze
E-mail: npc@police.gov.rw

TO WHOM IT MAY CONCERN

This is to certify that **CSP JOHN MULISA** is a student at Rwanda National Police College, undertaking a Master's Degree in Peace Studies and Conflict Transformation for the academic year 2021-2022. He is conducting a research on: "ROAD TRAFFIC CHECKPOINTS AND REDUCTION ON ROAD ACCIDENTS IN CITY OF KIGALI: CASE STUDY GASABO DISTRICT", for which he is required to collect data from relevant sources.

Any assistance rendered to him in this regard is highly valued by the College.


R MUJIJI
CP
COMMANDANT





UNIVERSITY of
RWANDA

**COLLEGE OF ARTS AND SOCIAL SCIENCE (CASS)
CENTER FOR CONFLICT MANAGEMENT (CCM)**

AUTHORIZATION TO SUBMIT THE CORRECTED DISSERTATION

I, undersigned, **Prof MASABO Francois** President of the panel of examiners of the dissertation done by Mr. **John MULISA** Entitled: **“TRAFFIC POLICE ROAD CHECKPOINTS AND REDUCTION OF ROAD ACCIDENTS/CRASHES: A CASE STUDY OF GASABO DISTRICT.”**

Hereby testify that he successfully entered the suggested corrections by the panel of examiners and stands with my authorization to submit required copies to the administration of the CCM for administrative purposes.

Done at: Kigali

Date: 16st June 2022

Name and Signature of the Main Examiner,

Prof MASABO Francois

EMAIL: ccm@ur.ac.rw

P.O. Box 56 Huye

WEBSITE: ur.ac.rw



AUTHORISATION TO SUBMIT THE DISSERTATION FOR EVALUATION

I, undersigned, **Dr. Aggée SHYAKA MUGABE**, hereby testify that under my supervision, Mr JOHN MULISA has successfully completed writing his MA Dissertation titled "Traffic Police Road Checkpoints and Reduction of Accident /Crashes. Case Study of Gasabo District"

Therefore, she / he stands with my authorization to submit required copies to the Administration of CCM for evaluation.

Done at Kent, **8 June 2022**

Names and signature of the Supervisor:

A handwritten signature in blue ink, appearing to read 'Dr. Aggée SHYAKA MUGABE'.

Dr Aggée SHYAKA MUGABE

JOHN MULISA THESIS

ORIGINALITY REPORT

16% SIMILARITY INDEX	13% INTERNET SOURCES	4% PUBLICATIONS	9% STUDENT PAPERS
--------------------------------	--------------------------------	---------------------------	-----------------------------

PRIMARY SOURCES

1	www.prevention.org Internet Source	2%
2	www.frontiersin.org Internet Source	1%
3	Submitted to University of Rwanda Student Paper	1%
4	www.nhtsa.gov Internet Source	1%
5	Submitted to Eiffel Corporation Student Paper	1%
6	trid.trb.org Internet Source	1%
7	www.coursehero.com Internet Source	1%
8	dag.un.org Internet Source	1%
9	Submitted to Mount Kenya University Student Paper	<1%