

Moderating Influence of Pedestrian Attitude on the Relationship between Enforcement of Traffic Laws and Implementation of Pedestrian Safety Rules in the City of Kisumu

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Abstract: *Implementation of pedestrian safety rules remains a challenge in Kenya despite enforcement of traffic laws put in place to address them. This study set out to establish the moderating influence of attitude of pedestrians on the relationship between enforcement of traffic laws and implementation of pedestrian safety rules in the City of Kisumu, Kenya with the objective examining the same and hypothesis set at 0.05 level of significance. The study adopted the iRAP model and safe systems approach theory and applied mixed methods approach, pragmatism and Ex Post Facto as the research design. The mixed methods approach applied both quantitative and qualitative data. A universe population of residents of the City of Kisumu, comprising of pedestrians and drivers on sampled urban roads were drawn. A sample size of 384 was used, using probability and non-probability sampling procedures. The data collection instruments included questionnaires, interview guide, observation checklist and document analysis. A pilot study was conducted on randomly selected urban roads. Cronbach Alpha tested reliability of instruments. Quantitative data analysis using descriptive and inferential statistics and qualitative data analysis using content analysis was done. Statistical Package for Social Sciences (SPSS) for Windows version 20 was used. Statistical tools of analysis for descriptive statistics captured measures of central tendency such as arithmetic mean, standard deviation presented in tables in frequencies and percentages. Inferential statistics both parametric and non-parametric, tested hypothesis through Multiple Regression Analysis for association between two independent variables on a dependent variable. The study found that attitude of pedestrians moderated the relationship between enforcement of traffic laws and implementation at $p=0.019$, $p<0.05$. The study concludes that attitude of pedestrians moderated the relationship between enforcement of traffic laws and implementation of pedestrian safety rules. The study recommends enhancing implementation of pedestrian safety rules through safe system approach theory. Further research should focus on integrating all interventions to involve all road users.*

Keywords: Enforcement of Traffic laws, Implementation of Safety Rules, Pedestrian Attitude

1. Introduction

Pedestrian safety interventions exist in the City of Kisumu yet implementation of pedestrian safety rules remain a challenge to road users especially pedestrians. The Traffic Act was both poorly implemented and enforced that hindered success (Kipsosgei, 2011). Pedestrians remain unsafe as speed limits of 30km/hr for motorists and 10km/hr for pedestrians is ignored (Opiyo, 2005). Traffic volumes are high, drivers careless and negligent of pedestrians (Pukose, 2007). The neglect of pedestrians in road space design as reported by Opiyo (2002) has rendered pedestrians as great casualties of road accidents, and second as causers of the same.

Statistical evidence revealed that pedestrians as road users occupied a leading position in terms of road crash victims at 46% in Kenya (Ogendi and Odero, 2013). This was followed by the City of Kisumu at 45% (Opiyo, 2005) which was above the regional and global figures at 38% and 22% respectively. However, often lost in these road safety statistics was the fact that a large number of auto related deaths and injuries every year were not of drivers and passengers but pedestrians (iRAP, 2009 Kenya results) yet in the City of Kisumu, pedestrian accidents caused one fifth of injury related hospital admissions (Ogendi et al., 2013). The pedestrian fatality rate for the City of Kisumu stood at 45% and according to Kenya Police Report held at the Central Police Headquarters in the City of Kisumu between

2013-2015, a total of 59 pedestrians had lost their lives or had been severely injured as follows: In 2013, a total of 10 pedestrian fatalities and 10 serious injuries were reported. In 2014, there were 15 pedestrian fatalities and 15 serious injuries reported and in 2015, a total of 9 pedestrian fatalities were reported (Kisumu Traffic Police Records, 2015). The state of implementation of pedestrian safety rules in the City of Kisumu was a cause for considerable concern (Opiyo, 2005). Being hit by a vehicle while walking was the second in rank for pedestrian deaths in the City of Kisumu with pedestrians aged 5-12 being the most affected. Compared with other cities in Kenya such as Nairobi and Mombasa, pedestrians in the City of Kisumu were highly vulnerable in the road safety situation and constituted victims of 80% of the fatalities.

The attitude towards pedestrians by other road users appeared negative and the plight of pedestrians was ignored and neglected (Munalo and Maina, 2010). Pedestrians' educational level of safety in particular and on what affected their lives as road users seemed minimal and the pedestrians themselves were not involved in the safe use of the road (Opiyo, 2005). With an increase in motorized vehicles in recent years in the City of Kisumu, road traffic injuries had emerged as one of the main reasons for mortality, morbidity and disability with trucks, buses, matatus and cars being the major contributors of 80% of pedestrian accident deaths and fatalities in the city (Ogendi and Odero, 2013). Addressing implementation of pedestrian safety rules was therefore vital in reducing the crash data statistics in road safety. However,

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without intervention or if the attitude of pedestrians towards road safety issue was not addressed then severe injury, fatal death, loss of income, reduction in Gross Domestic Product (GDP), increase in amount of time spent on hospitalization and funeral expenses would result and negatively influence the safety of pedestrians. If studied in an integrated safe system using a proactive approach and involving responsible sharing of road space, this study was expected to encourage more people to walk for both safety and mobility. This study therefore sought to establish the influence of road infrastructure interventions moderated by attitude of pedestrians on implementation of pedestrian safety rules in the City of Kisumu.

2. Literature Review

Road safety requires effective enforcement of traffic laws. In instances where the laws are not effectively enforced; fatal accidents continue to increase daily on our urban roads. Corruption poses a threat to enforcement of traffic laws and there is need to know what corruption is and how to solve it (Traffic Focus, 2012). When people fail to respect traffic rules, there is no safety on the roads. Road users have the responsibility of knowing how dangerous corruption is and of ensuring their conduct does not endorse it. However, corruption involves action of both officials and receivers of bribes in equal measure (Traffic Focus, 2012). In Johannesburg, the two problems that stood out to worry the government most were overall death rate and corrupt law enforcers. Regarding fraud and corruption, there would be zero tolerance approach on speed and safety of pedestrians if well planned.

The presence of traffic police as a traffic management strategy influence implementation of pedestrian safety rules (Gwilliam, 2010). Comparatively fewer accidents occurred in areas with traffic controls especially manned by traffic police yet areas without effective controls, free access to roads increased the possibility of risk of collisions (Gwilliam, 2010). This was partly due to traffic mix on the road seen in all road users with high vulnerability and exposure to risk between intersections with great speed differences and handy police presence (Gwilliam, 2002). In this study, presence of police was investigated under enforcement of traffic laws.

Sanctions and fines as enforcement of traffic laws was addressed in NCHRP (2008) which assisted states in selecting programmes, projects and activities that had the greatest potential for the reduction of highway death and injury. The objective was to produce a manual on behavioural highway safety counter measures with a developed framework, guidance for estimating costs and benefits, emerging estimation of newly tested, untied and proved behavioural highway safety counter measures. This study used sanctions and fines as indicators of enforcement of traffic laws and their possible influence on implementation of pedestrian safety rules moderated by attitude of pedestrians.

2.1 Enforcement and Implementation of Pedestrian Safety Rules

Enforcement of traffic laws entail ensuring that road users obey traffic laws and rules on urban roads especially compliance with pedestrian rules. Corruption or bribery is to tender or accept an advantage to perform a duty (Traffic Focus, 2012). It also means abuse of power entrusted on an official for self-gain or failure to perform a duty when there appears to be no gain. Where there is low respect for the law, the level of corruption is high. Corruption results in increased risk and the entire roads transport system is unsafe (Traffic Act, 2012).

Federal Highway Administration (2004) recommend promotion of pedestrian safety by reduction of aimless walking, over-speeding by motorists, ignoring road signals and rights of pedestrians as part of law enforcement (NJTPA, 2011). Law enforcement relating to use of sidewalks specified that, a driver of a vehicle approaching or leaving a road, driveway or building was expected to give a pedestrian priority to use the sidewalk. Provision of sidewalks enhanced pedestrian safety while non-provision required them to walk on the left side of the road facing traffic (Cornell, 2003). In this study, enforcement has been indicated by corruption, presence of police, sanctions and fines.

2.2 Presence of Traffic Police and Implementation of Pedestrian Safety Rules

Presence of police may influence implementation of pedestrian safety positively or negatively. Traffic police presence may be low in large parts of the city and alarmingly, finding witnesses after an accident may not be easy. The person that caused the accident may disappear quickly before the police appear and therefore the presence of police or the victim may not be handy. In particular, this happens in case of an accident between motor vehicle and pedestrians. It is also common for traffic injury accidents without serious damage to the vehicle that a guilty driver reaches a settlement with the victim (paying him/her) which included not involving the police.

Accidents rarely occurred where police mounted traffic controls yet where development control was ineffective and unrestricted access to main roads, the risk of collision increased (Gwilliam, 2002). This was due to the traffic mix by all road users motorized or non-motorized on road intersections where they were vulnerable to high speed differences (Gwilliam, 2002). Traffic Management spells out that fatalities and injuries are majorly caused by over speeding, drunk driving and lack of protection of persons during accidents. There should be enforcement of systematic policies dealing with each at the national level and rigorous policies enforced at local level.

Accident severity would be effectively reduced by speed limits and controls. Physical traffic calming measures for speed control are road narrowing (pavement and raised zebra crossing), control of speed limits by traffic police using static or mobile camera, enforcement by radar guns and tracking vehicles (Gwilliam, 2002). Traffic speeds are reduced through calming of traffic whereby on main roads, road markings (zebra) emphasize speed limits, with colour and texture of the road applied on approaches to critical areas on

the pedestrian crossings. Some calming measures on local roads may however aggravate accidents if introduced on main roads (Gwilliam, 2002).

2.3 Sanctions/Fines and Implementation of Pedestrian Safety Rules

Sanctions and fines as enforcement of traffic laws means making people obey the law or behave in a particular way. In a study, National Cooperative Highway Research Program (NCHRP) (2008) on effectiveness of Behavioural Highway Safety Counter Measures whose purpose was to assist states in selecting programmes, projects and activities that had the greatest potential for the reduction of highway death and injury. The objective of the study was to produce an application manual for behavioural counter measures, framework development and cost- benefit estimation guidance on emergent, untied, experimental and not yet proven behavioural road safety counter measures (TRB, 2013). The study used 104 practical counter measures: A guide to highway safety counter measures for state offices (NCHRP, 2008).

Some counter measures rated proven involved direct costs for their implementation. Benefits cost calculations indicated that most countermeasures would produce a positive benefit cost ration for most states. Estimated effectiveness for 54 of the 104 counter measures was rated as unlikely uncertain or unknown. Three countermeasures actually had been shown to have negative consequences. The study concluded that the countermeasures be avoided until full evidence was realized. In between the proven countermeasures and the unknown, uncertain, unlikely, there were 13 counter measures believed to work but for which evaluation evidence was not yet available. Emerging and developing countermeasures were not yet fully implemented, yet all were evaluated. The classification scheme used to estimate the effectiveness of these measures included voluntary action (countermeasures that were designed to train, educate or request some behaviour), law or regulation (require the behaviour), law enforcement with high-visibility, sanctions and treatment of offenders.

The Traffic Act Cap 403 of 2013 and the Traffic Amendment Bill of 2014 spells the sanctions and fines for different offences committed by road users including pedestrians and motor vehicle drivers in Kenya. Among the sanctions and fines was that a person who contravened and committed a traffic offence would be liable to a fine or attend court in person or pay money in an approved money payment system. For driving on the pedestrian pavement or sidewalk, a penalty for a first offence is an imprisonment for less than three months, or pay a fine <30,000 and for 2nd offence <6 months. For exceeding the speed limit, the Act specifies the range as follows 5 to 10kph as 10,000; 11-20 kph attracts a fine of 15,000, 21-30kph an amount of 20,000 and between 31 or more 25,000. These acts also provided for statutory penalties. The information stated in these legal documents were necessary for improving the level of knowledge of their content to road users, especially pedestrian road users and should be beefed up with other behavioural and engineering interventions to enhance implementation of pedestrian safety rules.

2.4 Attitude of Pedestrians

In this study, attitude of pedestrians was measured by the behavioural component of attitude which is pedestrian behaviour across and along the road, their attitude towards other road users and implementation of pedestrian safety rules. Attitude of pedestrians moderated the relationship between enforcement of traffic laws and implementation pedestrian of safety rules.

The attitude of pedestrians had been negative and ignored so far and yet its effects led to fatal injury and even death which was irreversible. It also had serious cost elements of draining the economy of time spent on bed occupancy by the fatally injured and funeral expenses of those who had died (Tingrall and Hawarth, 2006). Adequate provision of pedestrian facilities in urban areas had been met with negative attitude by city government providers and had not been adequately addressed yet pedestrian traffic deaths were a major social problem closely linked to the road infrastructure interventions enforcement of traffic laws.

An understanding of the existing burden of pedestrian death in the population was necessary for developing effective interventions (Dumbaugh 2005; Dumbaugh and Ewing, 2009, Dumbaugh and Wenhai, 2011; Agarwal 2011; Haque 2011; Naci, Chisholm and Baker, 2009; Gwilliam, 2002) not only for pedestrians but for all other road users. Implementation of pedestrian safety rules was a socially contextualized phenomenon operating beyond transport mobility to safety of pedestrians (Gondo, 2010; Aust and Engstrom 2011; Eleonora, Yannis and Golias, 2012) and was therefore moderated with attitude of pedestrians in this study.

2.5 Implementation of Pedestrian Safety Rules in the City of Kisumu

Although studies have been done on pedestrian safety, specific literature on implementation of pedestrian safety rules remained scanty or not well researched on, both in developed and developing countries. Ogendi et al. (2013) and Manyara(2013) reported that there was a high rate of RTA with pedestrians dying instantly on average. By 2013, a mean total of 3,000 deaths on Kenyan roads were recorded annually (Kenya Police, 2010; ROK, 2013, Manyara, 2013) between 1963 and 2008 the number of registered cars was at 966% raising the motorization level by 152% at the same time span (Ogendi and Odero, 2013). With the increase in Kisumu's population to 409,928 residents (RoK Census, 2009), the number of registered vehicles had also increased due to the high population growth and as a status symbol. The implementation of pedestrian safety rules had meanwhile stagnated deteriorated and remained unplanned increasingly threatening the safety of vulnerable pedestrians. The pedestrian fatality rate for the City of Kisumu stood at 45% and according to Kenya police reports held at the Kisumu Central Police Headquarters between 2013-2015, a total of 59 pedestrians had lost their lives or had been severely injured as follows in 2013, 10 pedestrian fatalities and 10 serious injuries, in 2014 there were 15 pedestrian fatalities and 15 serious injuries, and in 2015, 9 pedestrian

fatalities (Kisumu Traffic Police Records, 2015 unpublished). This life threatening phenomenon had to be addressed if lives were to be saved both from fatal death and severe injury. The road network was poor, with inadequate provision for pedestrian facilities, leading to traffic congestion and traffic mix and law enforcement flaws (Ogendi et al., 2013). The new road constructions ongoing in the City of Kisumu worsened the pedestrian situation as their facilities were ignored. The safe systems approach theory was considered suitable for anchoring this study on, if implementation of pedestrian safety rules was to be realized.

3. Methodology

3.1 Purpose of the Study

The purpose of this study was to establish the moderating influence of attitude of pedestrians on the relationship between enforcement of traffic laws and implementation of pedestrian safety rules on selected urban roads in the city of Kisumu, Kenya.

3.2 Research Hypotheses

The study tested the following alternate hypotheses

Ha: The relationship between enforcement of traffic laws and implementation of pedestrian safety rules depends on the moderating influence of attitude of pedestrians in the City of Kisumu.

3.3 Significance of the Study

The findings of this study is expected to contribute to policy and practice, research and theory that would assist the Kenya Government, political leaders and future researchers in policy making to reinforce their responsibility for providing high quality road infrastructure interventions for pedestrians.

3.4 Research Design

This study applied the mixed methods approach which incorporated the use of both qualitative and quantitative methods concurrently and sequentially in a single study (Bulsara, 2010; Migiro and Magangi, 2011). This study adopted both *ex post facto* design and descriptive survey designs.

3.5 Sampling

This study targeted road users from a universe population of 409,928 (RoK, 2009) residents of the City of Kisumu, of pedestrians assumed to have either walked along or across

the roads as well as drivers who had driven on the sampled roads. A sample size of 384 respondents as established from Krejcie and Morgan (1976) was deemed appropriate and included 200 pedestrians, 100 drivers and 84 key informants who were conveniently sampled.

3.6 Data collection and Analysis

This study applied four instruments namely questionnaire for pedestrians and drivers, interview schedule for key informants, observation guide on selected road users and document analysis for existing records and reports to collect quantitative and qualitative data. The data collected using questionnaires was grouped according to specific objectives and research questions and was mainly quantitative which was analyzed through descriptive analysis and multiple regression as the inferential statistic. Open ended questions were analyzed through thematic content analysis.

4. Findings

4.1 Background Information

The study achieved a response rate of 100% for drivers and pedestrians which was attributed to convenient sampling, researcher administration of the questionnaires and having the questionnaires filled in and returned on the spot.

Cronbach Alpha was used to measure the reliability of the three scales used in the study viz, enforcement, attitude and implementation which was found to be 0.81, 0.69 and 0.70 respectively. This gave an overall reliability coefficient $\alpha = 0.73$ hence the questionnaire was considered reliable.

Majority of those involved in the study, 112(56.0%) were male and were aged between 30- 50 years (57.5%). Further, majority of the participants 119(59.5%) lived in the peri-urban area with those who lived in the core-urban area being 48(24.0%).

4.2 Enforcement of Traffic Laws

Enforcement of traffic laws is an important component of pedestrian safety on the road. Pedestrian view on enforcement of traffic laws as a road infrastructure intervention was therefore sought using items presented as statements.

4.2.1 Pedestrians' View on Enforcement

Table 1 shows response regarding items on a scale of 1-5 where 1 = strongly disagree, 2= disagree, 3=Neutral, 4=agree, 5=strongly agree.

Table 1: Enforcement of Traffic Laws

Statement	SA	A	N	D	SD	Mean	Std.Dev
I am law abiding	84(42.0%)	86(43.0%)	21(10.5%)	(3.5%)	(1.0%)	4.215	0.844
Drivers should be fined for displaying risky behavior on the road	119(59.5%)	64(32.0%)	6(3.0%)	5(2.5%)	5(2.5%)	4.425	0.874

Those who strongly agreed with the statement "I am law abiding" were 84(42.0%) while those who agreed were 86(43.0%). A very small proportion 2(1.0%) strongly disagreed. Therefore, pedestrians in the City of Kisumu

generally considered themselves as law abiding and so were likely to implement pedestrian safety rules.

Sometimes, drivers cause accidents through carelessness. When asked whether drivers should be fined for displaying risky behaviour on the road, the majority of pedestrians 119(59.5%) strongly agreed followed by 64(32.0%) who agreed as provided in Table 4.21. Only 5(2.5%) strongly disagreed with the statement. This is an indication that pedestrians were generally of the opinion that drivers should be fined for displaying risky behaviour on the road. Information also showed that an overwhelming majority of pedestrians (95.5%) supported the increase in quality of enforcement of traffic laws for pedestrians. This indicates that majority pedestrians were dissatisfied with the quality of enforcement of traffic laws in the City of Kisumu.

In order to establish pedestrians' overall view of enforcement of traffic laws, the mean values for the responses in the items were calculated and the summary of findings shows that the distribution was negatively skewed (Skewness = -1.39), with a mean of 3.8825. This suggests that in general, pedestrians' rating of enforcement of traffic laws was above average.

4.2.2 Drivers' views on Enforcement

The results on drivers' opinion on statements regarding road usage are presented on Table 2.

Table 2: Drivers' Opinion Enforcement

Statements	SA	A	N	D	SD	Mean	StdDev
Drivers who break traffic rules make me angry	53(53%)	40(40%)	4(4%)	1(1%)	2(2%)	4.41	0.793
I am worried when family member is driving	12(12%)	21(21%)	19(19%)	35(35%)	13(13%)	3.16	1.245
There is need for more enforcement of traffic laws	59(59%)	30(30%)	5(5%)	2(2%)	4(4%)	1.62	0.972
Pedestrians violate traffic rules more than drivers	19(19%)	26(26%)	18(18%)	24(24%)	13(13%)	2.86	1.333

The study results on drivers' opinion regarding statements on road usage as presented in Table 4.19 indicate that the majority of drivers 53(53%) strongly agreed that drivers who broke traffic rules angered them. This was followed by 40(40%) of the drivers who agreed with the statement. A similar outcome was observed by 59(59%) who strongly agreed that there was need for more enforcement of traffic laws while 30(30%) agreed with the statement.

4.3 Attitude of Pedestrians

Attitude of pedestrians focused on the behaviour component of attitude that pedestrian's exhibit when they cross the road or while walking along the road. In order to establish the influence of attitude of pedestrians on implementation of pedestrian safety rules, respondents were asked a set of 3 statements. The findings in Table 3 show that items received above average ratings.

Table 3: Attitude of Pedestrians towards Implementation of Pedestrian Safety Rules

Statements	SA	A	N	D	SD	mean	StdDev
Crossing a street at night in a well-lit area.	106(53.0%)	71(35.5%)	6(3.0%)	9(4.5%)	7(3.5%)	4.31	0.986
Standing clear of buses, hedges, parked cars or obstacles before crossing a road	63(31.5%)	96(48.0%)	20(10.0%)	12(6.0%)	8(4.0%)	3.97	1.012
Always walking on the sidewalk where there is one.	65(32.5%)	53(26.5%)	62(31.0%)	17(8.5%)	3(1.5%)	3.80	1.037

The findings show that crossing a street at night in a well-lit area had a mean of 4.31 and a standard deviation of 0.986. These results indicate that the majority of respondents 79(39.5%) said that they rarely crossed a street at night in a well-lit area, 76(38%) responded with often and 30(15%) very often and lowest at 15(7.5%) who never crossed a street in a well-lit area. Further, standing clear of bushes, hedges, parked cars or obstacles before crossing a road had a mean of 3.97 ± 1.012 . This result indicates that majority 96(48%) agreed, 63(31.5%) strongly agreed, 20(10%) were neutral while 12(6%) disagreed and 8(4%) strongly disagreed. This implies that pedestrians were keen on their own safety when using the road. Similarly, always walking on the sidewalk

where there is one, had a mean of 3.80 ± 1.037 . These results indicate, that the majority of the respondents 65(32.5%) strongly agreed, 62(31.0%) agreed, 53(26.5%) were neutral, 17(8.5%) disagreed and 3(1.5%) strongly disagreed.

4.4 Implementation of Safety Rules

Implementation of pedestrian safety rules refers to perceived level of safety, level of pedestrian compliance with safety laws and pedestrian activity level as an outcome variable. Five statements were used to measure implementation of pedestrian safety rules as illustrated in Table 4.

Table 4: Implementation of Pedestrian Safety Rules

No. Statement	SA	A	N	D	SD	Mean	std.Dev
I obey traffic rules when walking along the road	82(41.0%)	90(45.0%)	14(7.0%)	7(3.5%)	7(3.5%)	4.17	0.955
The engineers should ensure safety is in-built on the roads for pedestrians	122(61.0%)	64(32.0%)	7(3.5%)	5(2.5%)	2(1.0%)	4.49	0.770
The level of road safety awareness improves implementation of pedestrian safety rules	123(61.5%)	66(33.0%)	6(3.0%)	4(2.0%)	1(0.5%)	4.53	0.701
Age is critical in implementing pedestrian safety rules	61(30.5%)	81(40.5%)	16(8.0%)	21(10.5%)	21(10.5%)	3.70	1.292
Female pedestrians follow regulations relating to implementation of pedestrian safety rules always	40(14.5%)	52(18.5%)	42(21.0%)	37(26.0%)	29(20.0%)	3.19	1.342

The finding shows that obeying traffic rules when walking along the road (Mean = 4.17 ± 0.955), whether the engineers should ensure safety is in-built on the roads for pedestrians (Mean = 4.49 ± 0.770), the level of road safety awareness improves implementation of pedestrian safety rules (Mean = 4.53 ± 0.701) indicated higher awareness for the need for road safety measures and implementation among pedestrians. In general, pedestrians' view of implementation of pedestrian safety rules was above average, with the majority of pedestrians holding a positive view about implementation of pedestrian safety rules in the City of Kisumu.

4.5 Moderator in the Relationship between Enforcement of Traffic Laws and Implementation of Pedestrian Safety Rules

In order to test whether attitude of pedestrians moderated the relationship between enforcement of traffic laws and implementation of pedestrian safety rules, enforcement of traffic laws, attitude of pedestrians and their interaction term were used as independent variables in a linear regression model, with implementation of pedestrian safety rules as the dependent variable. A multiple linear regression model involving the four variables was developed as presented in Table 5.

Table 5: Regression Output for Moderating effect of Attitude of Pedestrians on the Influence of Enforcement of Traffic Laws

Model Summary	R	R Square		Adjusted R Square		Std. Error of the Estimate	
		0.365 ^a	0.133		0.120	0.54513	
Model ANOVA	Regression	8.950	3	2.983	10.039	.000	
	Residual	58.245	196	0.297			
	Total	67.195	199				
Model coefficients	Unstandardized Coefficients		Standardized Coefficients		t	Sig.	
	B	Std. Error	Beta				
	(Constant)	-3.876	2.568		-1.509	0.000	
	Enforcement of traffic laws	1.809	0.662	1.549	2.735	0.887	
	Attitude of pedestrians	2.061	0.767	1.463	2.686	0.177	
Interaction term between enforcement of traffic laws and attitude of pedestrians	-0.464	0.196	-2.147	-2.369	0.019		

$R^2=0.133$, R^2 adjusted=0.120, $Se= 0.54513$, $F(3,196) = 10.039$ on 3 and 196 df, $p = 0.019$

The result indicated that at least one of the partial regression coefficient was not zero hence the overall model was statistically significant $F(3, 196) = 10.039$ ($p=0.000$). The interaction term between enforcement of laws and attitude of pedestrians was statistically significant ($p=0.019 < 0.05$) hence there is moderation effect ($t=-2.369$, $p < 0.05$). Therefore, attitude of pedestrians moderates the relationship between enforcement of traffic laws and implementation of pedestrian safety rules as hypothesized.

5. Discussion and Recommendations

5.1 Influence of Enforcement of Traffic Laws on Implementation of Pedestrian Safety Rules in the City of Kisumu

Enforcement of traffic laws is an important component of implementation of pedestrian safety rules on the road (Chen, 2010). The three items used to measure this variable were "I am law abiding", "Drivers should be fined for causing risky behaviour" and "Quality of pedestrian safety enforcement". The study found that pedestrians' response regarding the items had a majority of 85% agreeing, with only a very small proportion (1.0%) strongly disagreeing with the statements. Therefore, pedestrians in the City of Kisumu generally considered themselves as law abiding.

Sometimes drivers cause accidents through carelessness. Therefore, when asked whether drivers should be fined for committing risky behaviour on the road, cumulatively, 91.5% of the respondents were positive with the statement. This is an indication that pedestrians were generally of the opinion that drivers should be fined for displaying risky

behavior on the road. Information also showed that an overwhelming majority of pedestrians (95.5%) was for the increase in quality of enforcement of pedestrian safety rules, indicating the pedestrian dissatisfaction with the quality of enforcement of traffic laws in the city of Kisumu.

In establishing the pedestrians' overall view of enforcement of traffic laws, the mean values for the responses in the items were calculated and the study found that the distribution was negatively skewed (Skewness = -1.39), with a mean of 3.8825 and $SD= .5190$. This suggested that in general, pedestrians' rating of enforcement of traffic laws was above average. Further, the relationship between enforcement of traffic laws and implementation of pedestrian road safety rules showed that there was a correlation coefficient of 0.281. This was statistically significant at $p < 0.05$ (2-tailed), indicating that as enforcement of traffic laws improved, implementation of pedestrian road safety rules also improved. The variance shared in common between enforcement of traffic laws and implementation of pedestrian safety rules was therefore 7.9%. A linear regression analysis showed that the regression coefficient was statistically significant ($t=3.741$, $p < 0.05$). Thus, an increase of 0.328 units in enforcement of traffic laws was associated with an increase of 1 unit in implementation of pedestrian safety rules. A previous study by Litman et al., (2014) on pedestrian planning policies drawn from the Traffic Act seem to support enforcement of traffic laws as important in enhancing the implementation of pedestrian safety rules. Similarly, the Traffic Act Amendment Bill of 2014 supported the findings as it was meant to provide the public with education that would improve the level of compliance with traffic rules.

Drivers' opinion regarding enforcement of traffic laws on drivers who broke traffic rules had a majority of 93.0% who agreed with the statement. A similar outcome was observed where 89.0% agreed that there was need for more enforcement of traffic laws. Drivers' traffic behaviour was rated poorly, with 40.0% indicating that their behavior was fair, 43.0% as bad and a paltry 3.0% indicating that drivers' behaviour was excellent and 11.0% their behaviour as good. Similar to this was the fact that only 12.0% of the drivers thought that pedestrians displayed good behaviour. The rest thought that pedestrian behavior was fair (47.0%), 41.0% as bad. This trend was maintained for traffic control and behaviour of traffic police. These findings indicate that whereas drivers' traffic behaviour and pedestrian behaviour were considered satisfactory, traffic control and behaviour of traffic police were poorly rated.

Drivers' view on statements about traffic police shows that 41.0% of the drivers were of the view that traffic police did not work well while 30.0% strongly disagreed with the statement. Very few either agreed (11.0%) or strongly agreed (1.0%) with the statement. On the other hand, 29.0% agreed that traffic police were too few to be effective, with 21.0% indicating that they strongly agreed with the statement. On the issue of discrimination by traffic police, 68.0% of the drivers agreed that there was discrimination while 31.0% agreed. This shows that drivers were not happy with the behaviour and manner in which the traffic police officers were carrying out their duties. In similarly vein, Traffic Focus (2012) reiterated that corruption in traffic safety enforcement manifests itself when corrupt traffic officials allow motorists who speed, or who drive unroadworthy vehicles, to proceed with their journey, making the consequences for other road users be potentially disastrous. A breakdown in public trust of the integrity of traffic officials is likely to result in an increase in lawlessness among road users.

In order to test whether attitude of pedestrians moderated the relationship between enforcement of traffic laws and implementation of pedestrian safety rules, enforcement of traffic laws, attitude of pedestrians and their interaction term were used as independent variables in a linear regression model, with implementation of pedestrian safety rules as the dependent variable. The analysis produced a multiple R of .365. This suggests that the three independent variables explained 13.3% of the variance in the dependent variable (Soole, 2013). Therefore, the interaction effect of enforcement of traffic laws and attitude of pedestrians was statistically significant ($t = -2.051$, $p < .05$). Attitude of pedestrians therefore moderated the relationship between implementation of pedestrian safety rules and enforcement of traffic laws as hypothesized.

5.2 Conclusion

On attitude of pedestrians as a moderator between enforcement of traffic laws and implementation of pedestrian safety rules, the analysis produced a multiple R of .36 suggesting that the three independent variables explained 13.3% of the variance in the dependent variable. On regression, the interaction term was statistically significant ($t = -2.369$, $p > .05$). Therefore, attitude of pedestrians

moderated the relationship between enforcement of traffic laws and implementation of pedestrian safety rules as hypothesized.

5.3 Recommendation

Attitude of pedestrians in this study focused on behaviour component of pedestrians while walking along or across the road. Other studies could focus on the cognitive and affective components of attitude on implementation of pedestrian safety rules.

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