

Practice of Road Safety Measures among Kenyatta University and United States International University Students in Nairobi County, Kenya

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Abstract

Objective: To assess the practice of road safety measures among Kenyatta University (KU) and United States International University (USIU) students in Nairobi County.

Design: A cross-sectional descriptive study.

Setting: Nairobi County, Kenya.

Subjects: Four hundred and twenty-nine (429) undergraduate students aged between 18 to 45 years.

Results: Among the 429 sampled students, 299 (69.7%) respondents displayed good practice of road safety measures. This study further revealed that residence, course undertaking and University attending were found to be significant with practice of road safety; $\chi^2 (1)=11.078$, $p=0.001$, $\chi^2 (1)=9.207$, $p=0.002$ and $\chi^2 (1)=15.529$, $p=0.001$ respectively.

Conclusion: Good practice of road safety measures was displayed by most of the participants with slightly above average score, and there was significant difference in practice of road safety measures among the two universities. Place of residence, course undertaking and university attending were socio-demographic variables with significant influence on practice of road safety while gender, religion and car ownership were not significant with practice of road safety among the study participants. Despite good practice of road safety measures, the participants scored slightly above average, meaning there is still room for improvement. Therefore the study recommends introduction of mandatory road safety education in all learning institutions by the Ministry of Education (MoE) in conjunction with National Transport and Safety Authority (NTSA) through development of a responsive road safety curriculum for each category of education. This is reinforced by UNESCO report of 2006 that noted disaster, including road traffic accidents begins in schools, hence the remedy of tackling disasters must begin in schools.

Keywords: Road traffic accidents; Practice; Safety

Introduction

Road traffic accidents (RTAs) have been increasing worldwide and becoming an important public health problem. Each year road traffic accidents cause 1.25 million deaths and over 20 to 50 million injuries [1,2]. If nothing is done, projections show by 2030 RTAs will become the fourth leading cause of death worldwide, currently holding the ninth position [3]. More than (90%) of these injuries occurred in low and middle income countries (LMIC) with over half of those killed or injured on world's roads being vulnerable road users- pedestrians, cyclists and motorcyclists [4]. In Kenya (42%) of those killed on our roads are vulnerable road users [5]. Africa has the highest fatality rate in the world at 28.3 per 100,000 people, while Kenya has 59.9 per 100,000 people [6,7].

In Kenya, the most productive age group between 15 to 44 years is also the most affected by RTAs representing almost a third of all fatalities [8]. Over half of those killed on Kenyan roads are vulnerable road users including, pedestrian, cyclists, motor cycle riders and passengers in public transport, including university students [9]. According to National Transport and Safety Authority (NTSA), Nairobi County leads in road traffic accidents, followed closely by Nakuru County. The two major roads fuelling these numbers are Nairobi Mombasa highway and Thika superhighway. In 2015, Nairobi County recorded 668 fatalities from road traffic accidents and 65 of this fatalities occurred along Thika Superhighway [5]. This brings into sharp focus the missing link in the prevention strategies being employed currently. This, therefore, led to the present study to assess the practice of road safety among Kenyatta and United States International University students who are vulnerable road users.

Materials and Methods

Setting

The study was conducted in Kenyatta and United States International University in Nairobi County. The two universities were chosen purposefully because they are situated along Thika Superhighway. Thika superhighway is ranked second in road traffic accidents after Nairobi Mombasa road [5]. Thika Superhighway and the Northern corridor have been identified as high impact roads in the country responsible for (80%) of all RTA victims presenting in their respective county hospitals [10]. Thika Superhighway is regularly used by students from both KU and USIU regularly making them vulnerable to road traffic accidents.

Study design

The study employed cross-sectional descriptive design.

Study population

The study targeted undergraduate university students from KU and USIU. Overall population for this study was 43,000 students; specifically Kenyatta University had 38,000 students while United States international university had 5000 students.

Sampling technique

Kenyatta University (KU) and United States International University (USIU) were chosen purposefully because they are situated along Thika superhighway which is the second leading road in road traffic fatalities in Kenya. Fisher et al. method was used to calculate the sample. Later the sample was exposed to weighted sampling to balance the samples in the two universities, noting KU had produced larger sample than USIU as the sample was allocated to each university using Probability Proportionate to Size (PPS) which uses the population to allocate the sample. Random sampling was used to select five schools in KU out of 15 schools, while in USIU all the three schools were included in the study. The schools were exposed further to random sampling to departmental level where one department was chosen randomly in each school. Selection of students to take part in the study in each department, the sample was exposed to Systemic Random Sampling (SRS) where K^{th} value was calculated on the strength of sample in each department which gave interval between one participant and the other. The first respondent was selected randomly using the student's admission numbers.

Table 1 Assessment of the practice of road safety among KU and USIU students.

Variable assessing practice of road safety	Yes (%)	No (%)
If the road is clear I rarely use the foot bridge	184 (42.9%)	245 (57.1%)
I do not always board a vehicle at the bus stop	249 (58%)	180 (42%)
I love vehicles that over speed as you reach your destination on time	126 (29.4%)	303 (70.6%)

Data analysis

Data collected were cleaned, coded, entered and analyzed using SPSS version 20. Data analysis was both descriptive and inferential.

Results

Overall 299 (69.7%) respondents displayed good practice of road safety measures and 130 (30.3%) had bad practice of road safety measures. Specifically, 78 (86.7%) respondents from USIU had good practice of road safety measures and 221 (65.2%) respondents were from KU (**Figure 1**).

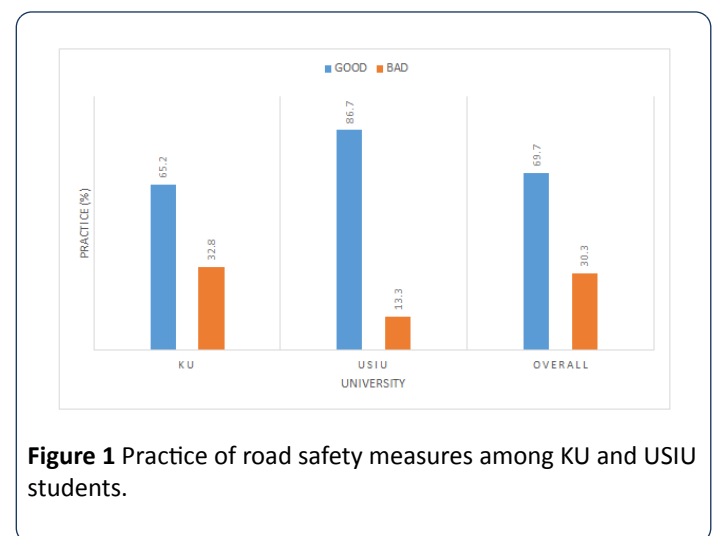


Figure 1 Practice of road safety measures among KU and USIU students.

The study sought to assess the practice of road safety among KU and USIU students by examining specific variables. A result as presented in **Table 1** and it indicates that 249 (58%) respondents do not always board a vehicle at the bus stop. Of this 199 (58.7%) respondents were from KU while 55 (55.6%) respondents were from USIU. On the question of a driver using hand held phone while driving 127 (29.6%) respondents felt that it was not their problem, 105 (75.4%) respondents were from KU, while 22 (24.4%) respondents were from USIU. The study further established 184 (42.9%) respondents rarely use foot bridge if the road is clear, 144 (41.3%) were from KU, while 44 (48.9%) respondents from USIU. All students observed during the observational survey used foot-bridge while crossing Thika superhighway. During Focused Group Discussion (FGD) the discussant said they do not use the foot bridge at night because of security reasons, one discussant said '.... who want to be mugged up there, I would rather run across the road.....' Discussant 6 from KU.

When crossing the roads I always use pedestrian zebra crossing points	184 (42.9%)	245 (57.1%)
If I board a vehicle and driver drives while using mobile phone it is none of my problem	127 (29.6%)	302 (70.4%)
I like just a little bit intoxicated driver as they drive without fear	57 (13.3%)	371 (86.5%)
I only put seat belt when I see the police	191 (44.5%)	238 (55.5%)
I always obey traffic lights as a pedestrian	258 (60.1%)	171 (39.9%)
I always board overloaded vehicles anyway	145 (33.8%)	284 (66.2%)

Additionally, this study revealed 191 (44.5%) respondents only put on seat belt when they see traffic police officer, 151 (44.5%) respondents were from KU and 40 (44.4%) from USIU. During observational study, none of the students was observed to have used seat belt after boarding public transport vehicle. During FGD ‘the respondents said ‘... Seat belts are dirty and even the police themselves does not use them...’ Respondent 2 from USIU.

The study further examined the association between socio-demographic characteristics with practice of road safety

measures among KU and USIU students. As presented in **Table 2** below, this yielded mixed results. Residence, course undertaking and University attending were found to be significant; χ^2 (1)=11.078, $p=0.001$; χ^2 (1)=9.207, $p=0.002$ and χ^2 (1)=15.529, $p=0.001$ respectively, while gender; χ^2 (1)=0.013, $p=0.909$, age; χ^2 (2)=0.328, $p=0.849$, religion; χ^2 (2)=0.892, $p=0.640$ and car ownership; χ^2 (1)=4.825, $p=0.365$ were not significant with practice of road safety measures (**Table 2**).

Table 2 Association between socio-demographic characteristics with practice of road safety measures.

Socio-demographic characteristics		Practice of Road Safety		χ^2	df	P-value
		Good	Bad			
Gender	Male	150 (50.2%)	66 (50.8%)	0.013	1	0.909
	Female	149 (49.8%)	64 (49.2%)			
Age (years)	18-23	217 (72.6%)	92 (70.8%)	0.328	2	0.849
	24-29	55 (18.4%)	24 (18.5%)			
	>30	27 (9.0%)	14 (10.8%)			
Residence	Rural	183 (61.2%)	57 (43.8%)	11.076	1	0.001
	Urban	116 (38.8%)	63 (56.2%)			
Religion	Christian	244 (81.6%)	109 (83.8%)	0.892	2	0.64
	Islam	34 (11.4%)	15 (11.5%)			
	Others	21 (7.0%)	6 (4.6%)			
Course	Science	160 (64.0%)	90 (36.0%)	9.207	1	0.002
	Arts	139 (77.7%)	40 (22.3%)			
Car ownership	Yes	138 (64.8%)	75 (35.2%)	4.4825	1	0.365
	No	161 (74.5%)	55 (25.5%)			
University attending	KU	221 (65.2%)	118 (34.8%)	15.529	1	0
	USIU	78 (86.7%)	12 (13.3%)			

Discussion

The study established that the study participants displayed good practice of road safety measures with USIU students performing slightly better than KU students. These findings are consistent with other findings reported in Agartala Government Medical College and in Panjab University both in India [11,12]. Looking at the numbers closely, practice of road safety measures

among the study participants although good, it still needs improvement. The difference in practice of road safety among the two universities could be due to socioeconomic factors. However, contrary to these findings is a study on practice of road safety measures in Benha University in Egypt, where a self-administered questionnaire, revealed unsafe road use behavior was rampant among students [13].

Specific variables used to assess the practice of road safety measures revealed most of the respondents do not board public transport vehicles at a bus stop. Similar findings were reported in a study on road risk perception and pedestrian injuries among students of Sham University in Egypt that reported poor adherence to road safety measures among university students [14]. Agreeing with these findings is another study on psychological predictors of mobile phone use while crossing the street among college students, (40%) of students admitted to having used mobile phone while crossing the road [15]. This finding could be due to lack of enforcement of road safety measures by enforcing agencies, therefore boarding a vehicle at non designated places do not attract any consequences or punishment.

This study further established that a third of the respondents did not perceive it as a problem if a driver used hand held mobile phone while driving. These findings are consistent with a study in Iran amongst college students where (23.4%) of the students considered using mobile phone while driving as none hazardous [16]. In another study among undergraduate medical students in India, (20%) admitted to use hands free mobile devices while driving [17]. This could be partially due to increase in hand held phones in developing countries and the trend of using mobile phone while driving without thinking of consequences; secondly it could be due to the false security of feeling in control despite using hand held mobile phone while driving.

The revelation that almost half of the respondents rarely use Foot Bridge or zebra crossing points when crossing the road differed with observational study because none of the students was observed to have crossed the highway without using footbridge. Further probe during focused group discussion (FGD) revealed university students do not use footbridge at night because of security concerns. Similar findings were reported in Uganda where pedestrian overpass use was low with males less likely to use it and the reason given for nonuse was mainly time saving [18], while in Kenya security concerns came out boldly in the focused group discussion [19-23].

Conclusion

Though several studies have reported that correct and consistent use of seat belt reduces fatalities and severity of injuries when involved in road traffic accident, our current study established that use of safety seat belt was not a common practice among the students. In focused group discussion (FGD), non-use of seat belt was due to lack of enforcement, hence the participants did not see the need of using them, observing that, even law enforcers do not use seat belts when they board public transport. During observational study none of the students was observed to have used seat belt after boarding public transport. Similar findings were reported in a 24 hour observation study among vehicle occupants in Nigeria, where compliance with use of seat belts was slightly above half. Several other studies concur with these findings on poor compliance of safety seat belt use among both passengers and drivers. In our study the participants were never observed to have used seat belt at all

and this could be due to poor enforcement of traffic rules by the law enforcers and ignorance on part of the study participants.

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