

Assessment of knowledge, attitude and practice of first aid amongst minibus drivers, conductors and road traffic police officers in Ndola, Zambia

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ABSTRACT

Introduction: Road Traffic accidents are common in Zambia. In spite of this, Zambia has no organized pre-hospital emergency system. The main objective of this study was to assess the knowledge, attitude and practice of first aid amongst mini bus drivers, mini bus conductors and road traffic police officers in Ndola, Zambia. **Methodology:** This was a cross sectional study assessing the knowledge, Attitude and Practice of First Aid amongst mini bus drivers, minibus conductors and Road Traffic Police Officers in Ndola, Zambia with a sample size of 220. From the questionnaires, data was entered using Microsoft excel and exported to SPSS version 21.0 for analysis. **Results:** There were 220 respondents in this study. Mini bus drivers 110(50%) constituted the majority of respondents. Regarding attitude, 198(90%) of the respondents had a positive attitude towards first aid and of these 194 (98%) were willing to undertake training in First aid. With respect to Road Traffic Accident (RTA) witnessing, 169 (77%) of the respondents had witnessed a RTA in the previous one year and of these, 106(63%) provided some help to the victims of the RTA. On knowledge assessment with respect level of education, respondents who went up to primary school level of education scored the least with an average score of 37.5% and the average scores for all respondents was 50%. In addition Knowledge score with respect to job title reviewed that Road Traffic Police Officers scored the highest with an average of 54.5%, minibus drivers scored an average of 53.1% while minibus conductors scored an average of 45.2%. With respect to attitude, those with a positive attitude scored an average of 50.4% while those with a negative attitude scored an average of 35.7%. In terms of prior training in life saving skills, only 38(17.3%) of the respondents had prior training. **Conclusion:** There was inadequate knowledge of first aid, more with minibus conductors and formal training in first aid was lacking in the respondents despite them providing some forms of help to the victims. There was lack of training in life saving skills among respondents and respondents were willing to take lifesaving skills trainings henceforth; formal training is needed for them to provide the correct and effective aid needed.

Key words: First Aid, Road Traffic Accidents, Knowledge.

Introduction

Injury, an increasingly significant public health issue worldwide, accounts for up to 16% of the global burden of disease, with road traffic injuries (RTIs), in particular, on the rise [1]. The morbidity and mortality resulting from accidents are greater than any other disease entity worldwide [2].

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Road traffic accidents alone are the second leading cause of death in young adults, second only to HIV/AIDS [3]. They (RTA) account for a substantial part of these accidents and are the most common cause of fatality from accidents in most parts of the world [2]. By 2030, road traffic accidents are predicted to be the eighth-leading cause of death and fourth-leading cause of disability-adjusted life years worldwide [4]. Currently, more than 90% of road traffic injury deaths occur in Low and Middle Income Countries (LMICs) [5]. Prevention and control of RTIs require multi-sectoral integrated actions aiming at limiting the occurrence of crashes, providing best possible care in the event of a crash (before reaching the hospital and in

the health care facility) and suitable rehabilitation services for the injured person [6]. However, it is often possible to minimize crash consequences by providing effective pre-hospital services promptly. Currently, more than 90% of road traffic injury deaths occur in developing countries where approximately 80% of injury deaths occur in the prehospital setting [7]. Pre-hospital services are a continuum of activities at the crash site and till the injured person is adequately managed by hospital staff. First care responders, the ones who are first at the crash site, can take necessary steps for safety and smooth management, especially where transportation systems are yet to develop. In most low-and middle-income countries (LMICs) including Zambia, transportation of road traffic victims is usually provided by relatives, drivers of private vehicle (minibuses, taxis and other local vehicles), police officers, and other motorists (bus drivers, minibus drivers and taxi drivers) who are usually untrained [7]. Ambulances, if available, usually takes long time to arrive at the accident scene. In many parts of the country, one of the most common observations in relation to Pre-hospital care is the interaction of untrained lay people and their lack of knowledge and skills in handling the situation in general and the victims in particular. While the problem of deaths and injuries as a result of RTA is acknowledged as a global phenomenon, it is not a new phenomenon. Previous work within low to middle income countries (LMIC) identified both prevention and care application at the point of injury as vital to reducing the impact of RTA [8]. In spite of such efforts, the increasing mobility of many populations in LMIC, limited passenger safety regulations, limited road infrastructure, poor roadway safety features, poor driving practices and most important, lack of established pre-hospital care processes have led to the increasing incidence of RTA-associated morbidity and mortality [9]. The aim of this study was to establish the knowledge, attitude and practice of first aid among minibus drivers, bus conductors and road traffic police officers in Ndola and the specific objectives were; to determine proportion of minibus drivers, bus conductors and Road Traffic Police Officers who had witnessed a road traffic accident one year prior enrollment into this study and whether they rendered help or not to the victims, to determine the proportion of minibus drivers, bus conductors and Road Traffic Police Officers trained in life saving skills, to determine the level of first aid knowledge among mini bus drivers, bus conductors and Road Traffic Police Officers, to assess the attitude of first aid by minibus drivers, bus conductors and Road Traffic Police Officers and to assess the willingness of minibus drivers, bus conductors and

Road Traffic Police Officers to undergo first aid training in Ndola.

Methodology

Study Design, site and population

This was a cross sectional study which was assessing the knowledge, Attitude and Practice of First Aid amongst mini bus drivers, minibus conductors and Road Traffic Police Officers in Ndola, Zambia. A catchment area was defined and included, Ndola town centre (Tisokone market) and Main Masala mini bus stations, Ndola Main and Kansenshi Police Stations. These stations were purposively selected because there are high densely populated areas. The study population included all minibus drivers, minibus conductors and traffic police officers in Ndola.

Data collection

Written informed Consent was obtained from all study participants before enrollment into the study. Data on the knowledge, attitude and practice of first aid among the participants was collected using structured questionnaire. In addition data was collected on number of previous accidents witnessed by participants, forms of intervention rendered at the scene of the previous RTA, baseline first-aid knowledge, previous training, and willingness to undergo first aid training. Four (4) research assistants who were closely supervised by the researcher collected data from the participants of the study. A sticker was being stuck on the minibus so as not to administer the questionnaires to the same participants more than once. In cases where the participant could not read and/or understand some medical terms, the research assistants would interpret the questionnaire into local languages (Mainly Ichibemba, which is the most common language on the Copperbelt).

Data Entry and Analysis

Data was entered using Microsoft excel. Thereafter, the data was exported to SPSS version 21.0 for analysis and anova was used to determine associations between knowledge and level of education, between knowledge and job title and between knowledge and attitude towards first aid. A P value yielding a value of less than 5% was considered statistically significant.

Ethical considerations

Permission to conduct this study was granted by the Tropical Disease Research Centre (TDRC) Ethical Review Committee based at Ndola Teaching Hospital, Ndola.

Results

In total, there were 220 respondents in this study. There were only 3(1.4%) females. The respondents age ranged from 20years to 45years and the majority 67(30.5%) were between 25-29years of age. Mini bus drivers 110(50%) constituted the majority of respondents and in addition, most of the respondents 147(67%) had gone up to secondary school level of education. (Table 1)

Knowledge score , 170(77.3%) knew what first aid was and 137 (62.3%) knew the suitable way of moving an unconscious victim. 128 (58.2%) and 126(57.3%) knew the best position of transporting an unconscious victim and the acceptable femur/thigh fracture management respectively. However, 179(81.4%) and 116(52.7%) did not know the best and safest way to stop bleeding and appropriate treatment for a suspected collarbone fracture respectively , while 166 (75.5%) and 157(71.4%) could not tell the first step to do when approaching an accident scene and the first thing to do when evaluating an injured victim respectively. (Table 2)

In terms of, it was found that 198(90.0%) of the respondents had a positive attitude towards first aid and of these, 194 (98.0%) were willing to undertake training in First aid. Overall, out of 220, respondents 88.2% were willing to train in first aid. (Table 3)

In total, 169 (77%) of the respondents had witnessed a RTA in the previous one year and of these 106(63%)

provided some help to the victims of the RTA. Of these 169 respondents, 74 (44%) witnessed a RTA 1-5 months prior to participating into this study while 46(27%) witnessed a RTA less than a month prior the participation. (Table 4)

With respect to knowledge score out of eight questions, it was found that, those who went up to primary school level of education scored the least with an average score of 3.39(37.5%) while those with secondary and tertiary levels had an average score 4.09(51.3%) and 4.39(55%) respectively and the average score for the entire group was 3.98(49.8) and p-value of 0.013. Knowledge score with respect to respondents' job titles should that Road Traffic Police Officers scored the highest with an average of 4.36(54.5%), minibus drivers scored an average of 3.62(53.1%) while minibus conductors scored an average of 4.25(45.2%) and the average score was 5.00 (50.0%) while the p-value was 0.01. And knowledge score with respect to attitude of respondents towards first aid reviewed that respondents with a positive attitude scored an average of 50.4% while those with a negative attitude scored an average of 35.7%. (Table 5)

All the 11 road traffic police officers had previously been trained in some forms of life saving skills and only 10(10.1%) of minibus conductors and 17 (15.5%) of minibus drivers had been trained. In total, only 38(17.3%) of the respondents had prior training in life saving skills. (Table 6)

Table 1: Respondents Description (Total respondents 220)

Factor	Frequency	Percentage
GENDER		
Male	217	98.6
Female	3	1.4
AGE(years)		
20-24	28	12.7
25-29	67	30.5
30-34	59	26.8
35-45	66	30
MARITAL STATUS		
Single	54	24.5
Married	161	73.2
Divorced	5	2.3
JOB TITLE		
RTPO*	11	5
Minibus Drivers	110	50
Minibus conductors	99	45

LEVEL OF EDUCATION		
Primary	42	19
Secondary	147	67
Tertiary	31	14

*Road Traffic Police Officer

Table 2: First Aid Knowledge Assessment (Total respondents 220)

Factor	Response	Frequency	Percentage
First Aid definition	Correct response	170	77.3
	Wrong response	50	22.7
Acceptable femur/thigh fracture management	Correct response	126	57.3
	Wrong response	94	42.7
Suitable way of moving an unconscious victim	Correct response	137	62.3
	Wrong response	83	37.7
Suspected collarbone fracture, appropriate treatment	Correct response	104	47.3
	Wrong response	116	52.7
Best and safest way to stop bleeding	Correct response	41	18.6
	Wrong response	179	81.4
First step to do when approaching an accident scene	Correct response	54	24.5
	Wrong response	166	75.5
First thing to do when evaluating an injured victim	Correct response	63	28.6
	Wrong response	157	71.4
Best position of transporting an unconscious victim	Correct response	128	58.2
	Wrong response	92	41.8

Table 3: attitude towards first aid

Factor	Frequency	Percentage
Positive	198	90
Negative	22	10
Total	220	100

Table 4: Witnessed a RTA in the previous year or less and help provided or not

Factor	Response frequency		Percentages
Witnessed a RTA* in the previous year	Yes	169	77
	No	51	23
	Total	220	100
Help provided or not	Yes	106	63
	No	63	37
	Total	169	100
When was a RTAs* witnessed?			
< 1month prior		46	27
1-5 month prior		74	44
5-10months prior		20	12
>10months prior		29	17
Total		169	100

*Road Traffic Accidents

Table 5: Knowledge score with respect to level of education, job title and first aid attitude (Total respondents was 220)

Factor	Frequency	Mean score	95% confidence interval for Mean		p-value
			Lower bound	Upper bound	
LEVEL OF EDUCATION					
Primary	42	3.39	2.88	3.90	0.013
Secondary	147	4.09	3.85	4.33	
Tertiary	31	4.39	3.76	5.03	
JOB TITLE					
Drivers	110	4.25	3.98	4.52	0.011
Conductors	99	3.62	3.26	3.98	
RTPOs	11	4.36	4.02	4.70	
FIRST AID ATTITUDE					
Positive	198	4.03	3.82	4.24	0.051
Negative	22	2.86	1.50	4.21	

Table 6: Prior training in life saving skills

Factor	Frequency	Percentages
DRIVERS		
Trained	17	15.5
Not Trained	93	84.5
CONDUCTORS		
Trained	10	10.1
Not Trained	89	89.9
RTPOs*		
Trained	11	100
Not Trained	0	0
OVERALL		
Trained	38	17.3
Not trained	182	82.7

*Road Traffic Police Officers.

Discussion

In total, there were 220 respondents in this study. There were only 3(1.4%) females. The respondents age ranged from 20years to 45years and the majority 67(30.5%) were between 25-29years of age. Mini bus drivers 110(50%) constituted the majority of respondents and in addition, most of the respondents 147(67%) had gone up to secondary school level of education.

Knowledge assessment in the current study showed that 170(77.3%) knew what first aid was and 137 (62.3%) knew the suitable way of moving an unconscious victim. 128 (58.2%) and 126(57.3%)

knew the best position of transporting an unconscious victim and the acceptable femur/thigh fracture management respectively. However, 179(81.4%) and 116(52.7%) did not know the best and safest way to stop bleeding and appropriate treatment for a suspected collarbone fracture respectively while 166 (75.5%) and 157(71.4%) could not tell the first step to do when approaching an accident scene and the first thing to do when evaluating an injured victim respectively. In relation to a similar study in Nigeria in which definition and perceived components of first aid were being assessed, the study reviewed that 79 (34.5%) defined first aid as what is done for the patient at the

accident site [11]. In this same Nigerian study, a majority 128(59.9%) correctly prioritized airway management as the first thing to do when evaluating an injured victim. Meanwhile only 37.6% identified the correct order for all the three care areas. Furthermore, the same Nigerian study, in relation to safe patient positioning after a traumatic event, 42 (18.3%) believed placing the victim sideways, 172 (75.1%) face-up position and 15 (16.9%) believed face down positioning was best. In this same study, best and safest way to stop bleeding was asked and, 90 (44.5%) believed a tourniquet should be used for on-going severe bleeding, 104 (51.5%) believed a dressing and pressure should be applied and 8 (4.0%) responded that the wound should be left alone. Considerations for fracture management were that 184 (88.5%) believed splints could be used for obvious fractures while 16 (7.0%) believed splints should not be used; 29 (12.7%) were undecided. For those unconscious patients being transported to the hospital, 160 (69.9%) of the participants believed supine positioning was best for the patient; 12.2% believed sitting upright was preferred [11]. In the current study, Knowledge score was compared with different levels of education and it was reviewed that those who went up to primary school level of education scored the least with an average score of 37.5%. The average score for the entire group was 50% and there was a correlation between educational level and knowledge levels. With regard to knowledge and job titles, it was reviewed that Road Traffic Police Officers scored the highest with an average score of 55%, Minibus drivers scored an average of 53.8% while minibus conductors scored an average of 45%, and it was found that an association between knowledge levels with job title existed. These findings did not agree with a similar study in India that showed that drivers had better knowledge in pre-hospital compared to teachers and police [12]. When it came to first aid attitude, this study showed that 90% of the respondents had a positive attitude towards first aid and of these, 194 (98%) was willing to undertake training in First aid. The 194 represented 88% of all the respondents of the study. In addition, the present study reviewed that those respondents with a positive attitude scored an average of 50.4% while those with a negative attitude scored an average of 35.7% and there was some evidence that there was an association between attitude and first aid knowledge amongst participants. Therefore, efforts could be made to improve the attitude of the respondents in this study through radio and Television programs. Positive attitude would enable people to have interest in first aid and learn more about it and hence improving on their first aid knowledge. This in turn would improve the lifesaving

skills in the participants of the study and eventually reduce the mortality rates and disabilities associated with road traffic accidents. With regards to road traffic accident witnessing, this present study reviewed that 169 (77%) of the respondents had witnessed a RTA in the previous one year and of these 106(63%) provided some help to the victims of the RTA. Out of all those that had witnessed a RTA, 74 (44%) witnessed a RTA 1-5 months prior to participating into this study while 46(27%) witnessed a RTA less than a month prior the participation. Even if the majority of the respondents in this study provided help to the victims of Road traffic accidents, only a minority 38(17.3%) of the respondents had prior training in life saving skills. A similar study in India showed that nearly 372 (52 %) of people interviewed, including bus and minibus drivers had witnessed more than two emergencies during the last six months. The most common emergencies witnessed were road traffic injuries (52%) [12].

In this current study, the majority of respondents has witnessed a RTA before and some of them provided some form of help to the victims of these RTAs. Despite this, when it came to prior training in life saving skills, this study reviewed that all the eleven Road traffic Police Officers had prior training in some forms of life saving skills and only 10 (10.1%) of minibus conductors and 17(15.5%) minibus drivers had been trained. Henceforth, only 38(17.3%) of the respondents had prior training in life saving skills. These findings differed with a similar study in India that showed that the majority 442(62%) of drivers had prior training and 58% of them felt confident enough to provide aid without any hesitance [12]. Nearly 58% of study participants felt confident enough to provide first aid, nearly 45% of those who were confident to provide aid had some experience of first aid training [12]. In another study, though the majority of participants had witnessed emergencies more than once and nearly half of them had been called to help during emergencies, only 34% had undergone some sort of training [13]. Due to the lack of training in first aid skills from the participants of the current study, the help some of them rendered to the victims of road traffic accidents was questionable with respect to effectiveness. Therefore in order to be confident that participants render effective help, formal training would be needed.

Study limitations.

Some participants of this study were refusing to participate in this study, therefore, there was no random selection of participants of this study and as such generalizability of the findings of this study would depend on how different those who participated

in this study are from those who refused to participate. Some participants in this study could not read and or speak English and as interpretation of questionnaire into local language had to be made. However, some medical terminologies are not in local languages and there may have been some misinterpretations. Despite the above limitations, we believe that the extent of this might have been minimal.

Conclusion

There was inadequate knowledge of first aid, more with minibus conductors and formal training in first aid was inadequate in the respondents. Most of the respondents had witnessed road traffic accidents in their line of duty and some of them provided some forms of help to the victims. Despite the fact that respondents could provide first aid to the victims of road traffic accidents even with their lack of training in life saving skills, formal training was needed for them to provide the correct aid needed and this would help in reducing the consequences of these accidents taking into consideration that currently Zambia has no formal pre-hospital emergency services.

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