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First Aid Kit Uses among Commuter Bus Attendants in Nyamagana District, Mwanza City

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Abstract

Introduction: Provision of prehospital care in the event of a crash is vital to prevent loss of life and other severe outcomes. However, this involves adequate first aid knowledge and skills among vehicle attendants, and most importantly, the availability of the first aid kit items and knowing their uses. The aim of this study was to determine the knowledge, availability, and use of first aid kits among commuter bus attendants. **Methods:** This cross-sectional study was conducted in Nyamagana district, Mwanza, Tanzania in May 2018. A total of 240 were recruited randomly and interviewed using pretested questionnaires. Data was first entered in Microsoft Excel for data cleaning and consistent checks and thereafter exported to the software STATA for analysis. **Results:** Findings from the study showed that 22.9% of respondents had knowledge concerning first aid practice. Only 17.9% of the participants claimed to have ever had first aid training. All commuters had incompletely equipped first aid kits. Around 30.8% of the respondents reported having practiced giving first aid. **Conclusion:** The majority of commuter bus attendants were found to have insufficient knowledge of first aid and first aid kits, according to the current study. No vehicle had a complete kit despite the fact that the majority of the participants believed that having a first aid kit in the vehicle was essential. The majority of participants expressed a desire to assist and learn, indicating that efforts to train commuter attendants should be undertaken and potentially save lives.

Keywords

First Aid Kit, First Aid, Prehospital Care, Commuter Buses, Mwanza

1. Introduction

Every year, about 1.2 million people worldwide die due to road accidents [1]. Road traffic accidents (RTA) are an increasingly significant public health issue worldwide, accounting for up to 15% of the global burden of disease [2]. About 90% of road traffic injury deaths occur in low and middle-income countries (LMICs), with around 80% of deaths occurring in the pre-hospital setting [3] [4]. A lack of knowledge and skills in handling injury situations is very common in most of these LMICs [4].

Tanzania it is among the countries with the highest RTA in Africa [5]. This is in part because of poor roadways and poor driving skills, which have led to an increase in death and disability in the country due to RTA [3] [6]. However, there is not an organized pre-hospital care system in Tanzania [7]. Fewer than 10% of seriously injured patients receive ambulance evacuation, but there have been reports of delays [5]. In many cases, relatives, good-willed drivers of private vehicles, and sometimes police officers are the scene transport road traffic victims. All these are laid and are usually untrained to assist victims [3] [8] [9].

The prevention of severe morbidity and mortality due to RTA requires multi-sectorial integrated actions that include limiting the occurrence of crashes [10]. Further, the provision of the best pre-hospital care in the event of a crash is essential and lifesaving [10]. Pre-hospital services are the continuum of activities that occur at the crash site and continue till the victims of the accident are adequately managed in the hospital [11]. If prompt and effective care can be provided following a potentially fatal injury that occurs after an RTA, victims can be saved from severe outcomes [12]. However, this involves adequate first aid knowledge and skills among vehicle attendants, and most importantly, the availability of the first aid kit items and knowing their uses.

Only a small percentage of drivers know about first aid [13]. However, among those with knowledge, only a few practices providing first aid [13]. Low understanding of first aid among participants was found in studies conducted in Ethiopia and Zambia [14] [15]. Most of the drivers expressed a willingness to learn about first aid [14] [16]. The study done in Zambia shows that most drivers will still give first aid despite their lack of knowledge [16].

Evidence available shows providing first aid to the victim right after an accident could improve the outcomes [10] [12]. This has been more successful when a first aid kit with basic contents is present at the scene and, most importantly, when the drivers have at least a basic understanding of first aid [17] [18]. Challenges in providing first aid include lack of a first aid kit, overcrowding, and uncooperative victims [19]. Attendants who own a kit are more likely to give first aid to victims who have sustained injuries than those who do not have a first aid kit in their vehicle [14] [16] [20].

Around 61% of Tanzanians use road-based public transport in rapidly growing cities like Mwanza [21]. Most of these are commuter buses in different areas of the city [6] [21]. This implies that the majority of Tanzanians are at risk of

RTA and probably will not get lifesaving first aid [5] [8] [9] [21]. However, there is limited data in Tanzania on knowledge and use of first aid kits among commuter bus attendants. In view of this context, the study aimed to determine the knowledge and use of first aid kits among commuter bus attendants in Nyamagana district, Mwanza city.

2. Methods

2.1. Study Design and Area

This study was a cross-sectional study conducted in May 2018 in Nyamagana District, which comprises Mwanza City. Nyamagana District is one of the seven districts of the Mwanza Region of Tanzania. It is bordered to the north by Ilemela District, to the east by Magu District, to the south by Misungwi District, and to the west by the Mwanza Bay of Lake Victoria. Part of the region's capital, the town of Mwanza, is within the Nyamagana District. Mwanza is the second largest and most rapidly growing city in Tanzania. It is estimated that 1,182,011 will live in Mwanza in 2021 [22]. It is the center of trade for the Lake Zone and Western Zone regions of Tanzania. It also serves as a hub for various interactions between Tanzania and other East African countries with high movements of people from the Democratic Republic of Congo, Rwanda, Burundi, Uganda, and Kenya. Nyamagana district experiences an average of 1150 cases of RTA per year [23]. This study included all commuter attendants in the Nyamagana district. Attendants whose buses were hired for private use during the data collection period were excluded.

2.2. Sample Size and Sampling Procedure

A minimum number of 240 commuters was recruited as determined by the Taro Yamane sample size formula 1967 based on 602 registered commuters in the Nyamagana district. A simple stratified technique was used to select equal commuters from the major city routes converging at all major stops. After selection of the first commuter by rotary, an interval of 2 (N^{th} = 602/240) commuters was used to pick the next from a list obtained from the land transport regulatory authority registration directory. Interviews were conducted at Thaqafa, Mohamed, Bugarika, Sahara, and Igombe town bus stops. The attendants were recruited when commuters were queuing at the stops to wait for passengers to board.

2.3. Data Collection

Data was collected using a structured interview schedule through a pre-tested questionnaire on the first aid kit and its use. Questionnaires were written in English (Appendix 1) and translated into the Swahili language, which is the common language, so that all participants, whether illiterate or educated, could participate in this study, to avoid any bias in data collection [16]. The questionnaire had five main parts, which assessed socio-demographic characteristics,

knowledge, attitude, practice, and the availability of first aid kits.

Questions were developed from the adaptation of questions from similar studies done in Ethiopia and Zambia. Pretesting was done among private-hire commuters' attendance at Bugando Hill and Mission stops. Study variables included sociodemographic characteristics (*i.e.*, age, education, job experience, and marital status), awareness, previous lessons, identification, availability, use, and reasons for keeping a first-aid kit in the vehicle. Then, after the knowledge scores of respondents were graded, scores between 0 and 4 were considered to have inadequate knowledge; those with a score between 5 and 7 were considered to have adequate knowledge.

2.4. Data Analysis

Data was first entered in Microsoft Excel for data cleaning and consistent checks and thereafter exported to the software STATA version 14 for analysis. Sociodemographic characteristics, knowledge, and availability of first aid kits were analysed using descriptive statistics.

2.5. Ethical Consideration

Permission was sought from the Joint CUHAS/BMC research ethics and review committee to gain permission to conduct the study with certificate no. CRECU/553/2018. Permission was requested from Mwanza Regional Administrative Secretary, Regional Medical Officer, and District Medical Officer. Data collection in the study was voluntary, with respondents signing a written consent form before the interview. The purpose of the study was explained to the participants, and the confidentiality of the information was kept. The data remained anonymous throughout data analysis, using codes to prevent stigma.

3. Results

3.1. Sociodemographic Characteristics of Commuter Attendants

A total of 240 commuter attendants were recruited with a 100% response rate. The average age was 21 (IQR 18 - 24), with the oldest respondent being 54 years of age. Around half, *i.e.*, 51.3% (123) of respondents, reached secondary education. The majority, 91.3% (219), had more than a month on the job. See **Table 1** for more details of sociodemographic characteristics.

3.2. Commuter Attendants' First Aid Kit Knowledge

About 45% (108) of commuter attendants were aware of what the first aid kit was. Among the respondents, only 17.9% (43) reported having learned about first aid kits and their use. However, only 22.9% (55) of the commuter attendants had adequate knowledge of a first aid box kit. Commuter attendants were further asked to identify and use various items essential for first aid kits, and the results are summarised in **Table 2**.

Table 1. Sociodemographic characteristics of commuter attendants.

Variable	Frequency	Percentage
Age		
18 - 32	154	64.7
33 - 44	78	32.5
≥45	8	3.33
Education		
No Formal Education	8	3.3
Completed Primary	61	25.4
Secondary School	123	51.3
Vocation and College	48	20
Job Experience		
<week	5	2.1
1 - 4 weeks	14	6.7
≥4 weeks	219	91.3
Marital Status		
Single	148	58.3
Married	78	32.5
Separated	4	1.7

Table 2. Commuter attendants' first aid kit knowledge.

Variable	Frequency	Percentage
Awareness of First Aid Kit		
Aware	108	45
Not Aware	132	55
Previous Lessons on First Aid kits		
Had learned	43	17.9
Not learned	197	82.1
Knowledge of First Aid Kit		
Adequate Knowledge	55	22.9
Inadequate Knowledge	185	77.1
Identification of first aid kits parts (correctly able to identify)		
Item	n/240	Percentage
Bandage	108	45
Spirit	105	43.8
Scissors	108	45
Cotton wool	105	43.8
Bucket	105	43.8
Pain Killer	106	44.2

3.3. Availability of First Aid Kit Items

All commuters had first aid kits as required by law. However, on inspection, the first aid kits varied in content, as seen in Table 3. Products which were mostly available in first aid kits were antihistamines 96.3% (231), safety pins 93.3% (224), sterile gauze 92.8% (222) and adhesive tape 91.7% (220).

3.4. The Reason for Keeping a First-Aid Kit in the Vehicle

The majority, 87.5% (210) of the commuter attendants, thought it was beneficial to have a first aid kit. Among those that said it was beneficial to have a first aid kit, 15.4% (37) said it was because the law demands they have a first aid kit in the vehicle. However, the majority, 72.9% (175), said it was beneficial as it helps in providing medical care before full medical treatment arrives.

3.5. Use of First-Aid Kits

Around 30.8% (74) of commuter attendants self-reported having ever used the first aid kit. The rest, 69.2% (166), did not report having ever used the first aid kit. Moreover, 14.4% (37) of commuter attendants reported having ever advised their colleagues on the use of a first aid kit. However, 162 (67.5%) commuter attendants were willing to share the importance of the first aid kit with their colleagues.

4. Discussion

According to this study, the majority of commuter attendants had inadequate knowledge of first aid. On the other hand, there were boxes of first aid kits available, but none of them had all the needed items. Furthermore, just a few commuter attendants have acknowledged providing first aid in the past.

In this study, most commuter attendants were young adults. This is a group highly associated with RTA in Tanzania [6]. Prevention of RTA-related injuries

Table 3. Availability of first aid kit items.

Variable	Frequency	Percentage
Cotton	165	68.8
Spirit	189	78.8
Sterile gauze	222	92.8
Bandage	192	80.0
Adhesive tape	220	91.7
Pain killer	200	83.3
Antihistamines	231	96.3
Scissors	164	68.3
Safety pins	224	93.3

is multisectoral and requires first prevention of RTA. Risk factors for RTA include the driver's competency and skill [3] [6] [21]. According to studies conducted in Ethiopia and Nigeria, experience in providing first aid increases with age [24]. Hence, in this context, Tanzanians are likely to be driven by drivers who are not very competent both in driving and in giving first aid in the event of an RTA. However, an opportunity presents itself as most commuter attendants have completed primary school and have completed secondary and post-secondary training. This is an important prospect as studies show that this age group is essentially capable of being trained in and learning first aid [6] [21] [24].

Only 22.9% of the respondents had adequate knowledge concerning the first aid kit. This is similar to a study done among taxi drivers in Ethiopia [24]. Lacking knowledge of first aid does decrease confidence in providing first aid [24]. Commuter bus attendants will be able to offer first aid if first aid training is prioritized in Tanzania [7] [24]. Giving first aid requires cooperation from the victim. However, victims respond more positively to confident and skilled first aiders [5] [24]. Only 17.9% of participants in the current study reported having had first aid training, which is lower than the study results in Ethiopia (26.8%) and India (61.0%) [24] [25]. The fact that first aid training got little attention in the study area may be the cause of this discrepancy from the current study.

First aid was perceived positively; in the current study, 87.5% of the participants believed that first aid was necessary. Their practice, however, did not match their attitude. This could be because the majority of participants had no prior first aid training and thought their knowledge was insufficient to provide first aid. Even though many commuter attendants were ready to provide first aid, all vehicles lacked complete kits. The lack of first aid essential items is associated with a reduced intention to provide first aid to victims of RTA [24] [25]. When items go missing, the individual who wants to give first aid becomes worried [25]. This also contributes to a lack of cooperation from the victim as fear of more harm than good emerges [5] [25]. On top of fearing law enforcement, this contributes to commuter attendants being freed from the scene rather than staying and helping [5] [15] [25].

5. Strengths and Limitations

This study was community-based, and a rigorous sampling procedure was done to ensure increased chances of presentation of commuter attendants. Further, the actual inspections of items and kits were done rather than relying on self-reporting. On the other hand, this study has some limitations. First, the use of a split average is taken to measure knowledge. This could create bias as most commuter attendants showed hesitance and no clear-cut knowledge. Second, the measure of associations was not done, and thus inferences were drawn from other similar studies.

6. Conclusion

The majority of commuter bus attendants were found to have insufficient know-

ledge of first aid and first aid kits, according to the current study. No vehicle had a complete kit despite the fact that the majority of the participants believed that having a first aid kit in the vehicle was essential. The majority of participants expressed a desire to assist and learn, indicating that efforts to train commuter attendants should be undertaken and potentially save lives.

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Availability of Data and Materials

The data set generated and/or analyzed during the current study is available from the corresponding author upon reasonable request.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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Appendix 1: Questionnaire in English

1.1. Socio-Demographics Characteristics

1. Serial No……

2. Age…….

4. Marital status: Single [ ] Married [ ] Separated [ ]

5. Educational level: informal [ ] Primary [ ] Secondary [ ] Vocation and College [ ]

6. Job Experience: Day [ ] Week [ ] Month [ ] Year [ ]

1.2. Knowledge on the Use of the First Aid Kit

1. Do you know what first aid kit is?

a) Yes

b) No

2. If yes, do you know the basic contents of first aid kit? If yes, tick those apply

a) Bandage [ ], b) Spirit [ ], c) Machete [ ], d) Pain killer (for example Panadol) [ ], e) Scissor [ ], f) Cotton [ ], g) Bucket [ ]

3. Have you ever been educated about the use of the basic first aid kit contents present in the vehicle?

a) Yes [ ]

b) No [ ]

4. If yes, where did you learn from?

a) From Media, for example Television, Radio [ ]

b) In school [ ]

c) In street [ ]

5. What is the use of the bandage in first aid kit?

a) Used to support the dressing in place [ ]

b) I don't know [ ]

6. What I the use of safety pins in first aid kit?

a) Used to fasten pieces of clothing together [ ]

b) I don't know [ ]

7. What is the use of cotton wool in the first aid kit?

a) Used for cleaning the wound [ ]

b) I don't know [ ]

1.3. Attitude towards Using First Aid Kit

8. Do you think it is beneficial to have first aid kit in the vehicle?

a) Yes [ ]

b) No [ ]

9. If yes, why do think it is beneficial?

a) Aids in providing first aid before full medical treatment [ ]

b) Because it's required by the law [ ]

10. Did you ever advice your fellow co-workers on the use of the first aid kit

a) Yes [ ]

b) No [ ]

11. Are you willing to share the important of first aid kit with other co-workers?

a) Yes [ ]

b) No [ ]

1.4. Practice of Using First Aid Kit

12. Have you ever used first aid kit to give first aid to a victim?

a) Yes [ ]

b) No [ ]

13. Have you ever used first aid kit for broken bone?

a) Yes [ ]

b) No [ ]

14. If yes, what first aid kit item did you use for broken bone?

a) Items of clothing for example bandage, to support the injury to prevent unnecessary movements

b) Cooled the broken part with running water to minimize the pain.

15. Do you have the first aid kit in your vehicle?

a) Yes [ ]

b) No [ ]

1.5. Availability of the First Aid Kit in the Vehicle

16. If yes, does it have the following items?

ITEM	PRESENT	ABSENT
Cotton wool		
Spirit		
Sterile gauze		
Bandages		
Adhesive tapes		
Pain killers		
Antihistamines		
Scissor		
Safety pins		