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Musculoskeletal Trauma on a Major Highway in Ghana: A Crossectional Study

Prah GK[1], Konadu-Yeboah D[2], Forson PK[3]

[1]Trauma and Specialist Hospital, Winneba, Ghana
[2]Department of Orthopaedic Trauma, Komfo Anokye Teaching Hospital, Ghana
[3]Department of Emergency Medicine, Komfo Anokye Teaching Hospital, Ghana

Abstract

Purpose: This study examined the epidemiology of road traffic trauma at the Trauma and Specialist Hospital, Winneba.

Method: A cross-sectional design with a mixed-method approach was used to collect data over three months. Primary data were gathered from health professionals, members of the Ghana Private Road and Transport Unit, Motto Transport and Traffic Department, and National Ambulance and Fire Service Departments using both closed- and open-ended questionnaires.

Results: The hospital received an average of 54.5% road traffic accidents (RTAs) weekly. Only 22.7% of victims arrived by ambulance; 77.3% were brought by unqualified individuals without paramedic or first aid training. Despite major injuries, recovery rates were 70-80%. It was agreed that driver negligence often caused accidents, suggesting increased police presence, driver-focused education, and periodic training. The driver's license acquisition process should be stricter. All respondents affirmed the hospital's strategic location for managing numerous cases.

Conclusion: The hospital is well-placed to handle many accident cases but needs more resources to enhance its trauma care capabilities. The lack of first aid at accident sites is a significant cause of death, indicating the need for better protective policies. The facility's recovery rates are promising.

Keywords: Road Traffic Accidents, Emergency Medical Care, Trauma care, Preventive measures, Road safety

Introduction

One of the most serious public health issues worldwide is the problem of Road Traffic Accidents [1]. In 2008, Road Traffic Accidents (RTA) was ranked as the fourth leading cause of death in the world [2]. According to the WHO, about 1.24 million people die annually on the world's roads leaving about twenty to fifty million people sustaining various disabilities.

In Africa alone, Road Traffic Accidents have affected economic outcomes, created a burden on the health sector as well as on families of affected victims [3].

In Ghana, the impact of RTAs is very huge as compared to some of its neighbouring countries Mends Brew et al (2018). In 2016 alone, the rate of increase in fatalities was 15.6% (resulting in 2084 traffic deaths) (Ghana Road safety commission 2016). A report by the National Road Safety Commission in 2007 indicated that at least six people are killed daily in Road Traffic

Accidents in Ghana. This report showed that 25% of these fatalities often involved children [4]. According

to the Ministry of Transport, presently, about 50% more road deaths occur on non-urban roads than on urban roads. And thus, data on reported RTAs in Ghana continue to rise. Failure in reducing the frequency of these crashes will lead to an increase in preventable deaths [5].

At the moment, Road Traffic Accidents have become a growing public health and development concern worldwide. Africa continuous to record the highest fatality rate, with 28.3 deaths per 100 000 population [6]. In 2016, the World Health Organisation (WHO) identified road injury as the ninth most frequent cause of death worldwide and predicted a 40% increase in global road traffic deaths by the year 2030 [7]. This means that the number of fatal and disabling road injuries will continue to soar if care is not taken. Economic development in the African continent has influenced the rate of RTAs, due partly to the increase in the number of vehicles on the roads.

In Ghana, RTAs have become a national issue. In that, four to six people die daily in the country as a result of RTAs [8]. Apart from that, statistics show that Ghana suffers a loss of over 230 million dollars annually due to RTAs with more than 1600 fatalities and this loss compares to 1.7% of the country's Gross Domestic Product [9].

Study setting

Effutu Municipality, Winneba is one of the twenty administrative districts in the Central region of Ghana. With a population of 68,597 which represents 3.1 percent of the population of the Central region [10]. The Municipality also hosts a public university and two renowned health facilities; the Trauma and Specialist Hospital and the Municipal Hospital. This study was carried out at the Trauma and Specialist Hospital in Winneba (T&SH). Presently, it is a regional hospital and provides both secondary and referrals services.

Methods

A consecutive sampling technique was used to recruit 50 respondents, over a four month period, from August 1, 2019 to November 30, 2019. Since the study used a limited number of respondents, this particular technique was effective in addressing the research design and objectives of the study. It comprised of ten physicians including Specialists and ten nurses at the T&SH, ten members of the Motor Transport and Traffic Department of the Ghana Police Service, Winneba Division, ten members of the Ghana Private Road and Transport Union (GPRTU) Winneba, five members of the Ghana Fire Service, Winneba and five members of the Ambulance and Paramedic unit, Winneba.

Data was collected with a structured questionnaires and key informant interviews interview interviews (close-ended and open-ended questions). The questionnaire and interviews were divided into three sections. In total 50 questionnaires and interviews with varied questions depending on the group of respondents involved.

Data processing and analysis

The data analysis generated knowledge that gave meaning to the data collected. The data collected were grouped under sub-headings in which the questionnaires were structured. The data were manually analyzed mainly using frequencies, percentages, and themes to generate the results. Each questionnaire item was analyzed and the views of respondents converted to percentages. The responses with the highest percentage were considered as the general view of respondents to about that particular item.

Ethical clearance was given by the Management of the hospital. Consent was sought from all participants before the study.

Results

Fifty people responded to the questionnaire .Out of this number, 38.8% were females and 61.2% males with a median age of 29 years . Three-quarters of respondents had tertiary education as their highest educational qualification.

Table 1

SUMMARY OF RESPONSE FROM THE T&SH	FREQUENCY	PERCENT (%)
How often do you see RTA cases?		
i. Weekly	12	54.5
ii. Bimonthly	3	13.6
iii. Monthly	3	13.6
iv. More than monthly	4	18.1
How are victims of Road Traffic Accidents usually brought to the hospital?		
i. Ambulance	5	22.7
ii. Private cars	4	18.1
iii. Police/fire service	3	13.6
iv. Public cars	7	31.8
v. All	3	13.6
How often should such training and workshops the management of Road Traffic Accidents be organized?		
i. Monthly	5	22.7
ii. Quarterly	14	63.6
iii. Biyearly	0	0.00
iv. Yearly	3	13.6
In case of a referral, how quickly is it done?		
i. Less than 24hrs	10	45.4
ii. More than 24hrs	-	-
iii. Between 24hrs and 48hrs	12	54.5
What is the percentage of discharge of victims of RTAs admitted to the hospital?		
i. About 90-100%	5	22.7
ii. 70-80%	14	63.6
iii. 50-69%	3	13.6
SELF REPORTED PRACTICE (II) FOR T&SH		
Are victims of Road Traffic Accidents usually given First Aid before being transported to the hospital?		
i. Yes	4	18.1
ii. No	18	81.8
Is the Trauma and Specialist hospital well equipped to handle Road Traffic Accident cases?		
i. Yes	11	64.7

ii. No	6	35.2
Are periodic training and workshops on the management of Road Traffic Accidents required?		
i. Yes	15	83.3
ii. No	3	16.6
Does the hospital have an RTA protocol?		
i. Yes	12	66.6
ii. No	5	27.7
iii. Don't know	1	5.5
KNOWLEDGE OF ROAD USAGE MTTD	**FREQUENCY**	**PERCENT**
What do you think is the most contributory factor to RTIs on the Accra-Cape Coast-Takoradi road?		
i. Drivers negligence	7	77.7
ii. Poor road networks	0	0.00
iii. Noncompliance with road safety regulations by Pedestrians	0	0.00
iv. Passengers attitudes	1	11.1
v. Poor vehicles maintenance	1	11.1
What do you think can be done to change the situation?		
i. Increase police presence on the road.		
ii. Educating drivers on road safety practices	2	25.0
iii. Expanding the roads	6	75.0
iv. Others, Specify……....	0	0.00
	0	0.00
What preventive measures has the MTTD put in place to reduce the rate of RTAs on the road?		
i. Educating drivers on road safety practices	3	25.0
ii. Increased checks points/barriers on the road	3	25.0
iii. Regular check of vehicles roadworthiness	2	16.6
iv. Enforcing the Road Traffic Act	4	33.3
KNOWLEDGE OF ROAD USAGE GPRTU	**FREQUENCY**	**PERCENT (%)**
What do you think are the common causes of road accidents on the Accra-Cape Coast-Takoradi highway?		
i. Drivers negligence	6	35.29
ii. Poor road networks	1	5.88
iii. Passengers attitudes	6	35.29
iv. Poor vehicle maintenance	4	23.53
KNOWLEDGE OF ROAD USAGE (II)	**FREQUENCY**	**PERCENT**
Do you think drivers should undergo periodic training?		

i. Yes	10	100.0
ii. No	0	0.0
Do you think all your drivers are qualified to be behind the wheel?		
i. Yes	1	10.0
ii. No	9	90.0
Do you think the DVLA should tighten the process of license acquisition?		
i. Yes	6	60.0
ii. No	4	40.0
Do you think the Trauma and Specialist Hospital is strategically positioned to tackle RTA cases?		
i. Yes	10	100.0
ii. No	0	0.00
KNOWLEDGE OF ROAD USAGE FIRE AND AMBULANCE	**FREQUENCY**	**PERCENT (%)**
What do you think are the common causes of road accidents on the Accra-Cape Coast-Takoradi highway?		
i. Drivers negligence	10	71.4
ii. Poor road networks	2	14.2
iii. Passengers attitudes	1	7.1
iv. Poor vehicle maintenance	1	7.1
What is your response time to RTAs on the Accra-Cape Coast-Takoradi road?	9	90.0
i. Less than 30mins	0	0.00
ii. More than 30mins	1	10.0
iii. Between 30mins to 1hr	0	0.00
iv. More than 1hr		

Data collected indicated that RTAs were rampant on the Accra-Cape Coast highway, taking 54.5% out of all the cases received weekly at the T&SH. This means that 54.5% of the time, physicians of the hospital attend to victims of road accidents weekly.

When health care professionals were asked how victims of RTA's were usually brought to the hospital's A&E ward, 31.8% said, they were often brought in with public cars, 18.1% in private cars, and only 22.7% of victims were brought in with an ambulance. One of the major challenges with assisting victims of road traffic accidents during an emergency, in this part of the world is transportation. Most victims are attended to and transported by unqualified people instead of first responders (ambulance and paramedics services). Most of the victims are therefore transported without lifesaving first aid and could contribute to death and further injury. It is not surprising that, When it came to whether respondents had any knowledge on the hospital's RTA protocol, the majority of them answered in the affirmative with 66.6%. Just a few of them

did not know of the existence of the RTA protocol in the hospital with a 5.5%. This could be a result of the duration in which they have worked in the hospital. The majority of respondents who knew the protocol could have possibly been introduced to it through the periodic training and workshops staff were mandated to attend on RTAs.

From the study, it was realized that the recovery rates of RTA patients were between the range of 70-100%. Frequently, RTAs lead to tragedies such as loss of life, severe injuries, and or disabilities. It is, therefore, important that health institutions such as the T&SH put in more work to save the lives and to the best of their abilities prevent permanent disabilities. There is no doubt that 70-100% was good but the ultimate should be 100%.

The citing of T&SHW is, paramount to treating and saving the lives of RTA victims on the Accra – Cape Coast Highway. However, for the facility to function at its optimum level, adequate skilled personnel and the equipment they will need to do their work effectively will have to be in place. An ACT scan and an MRI will be crucial in this regard, especially with head injuries. Also, as to whether the Trauma and Specialist hospital is well equipped to handle Road Traffic Accident cases, 64.7% answered in the affirmative, and 35.2% answered in the negative.

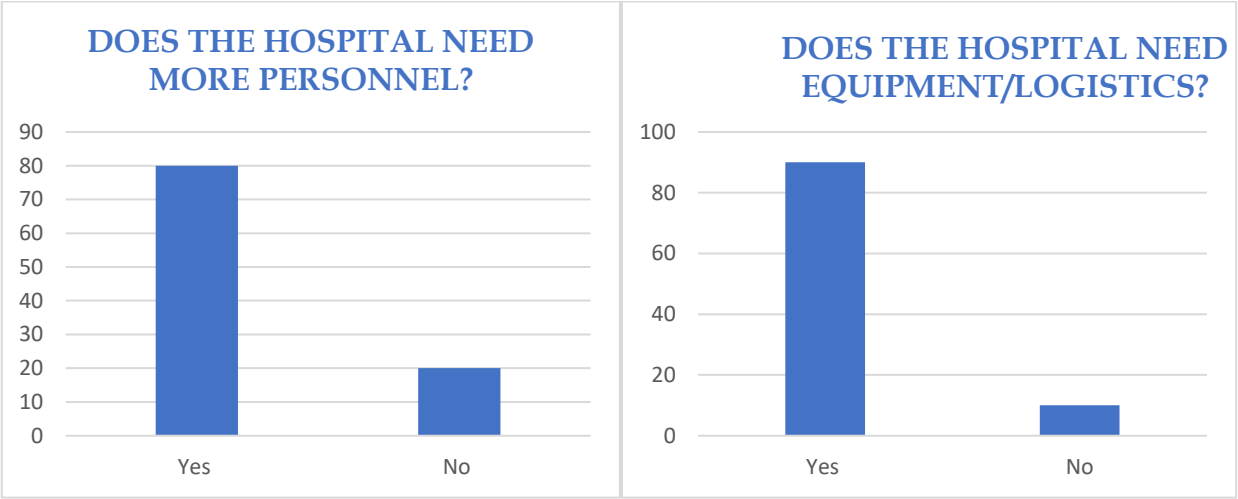

Figure 1 and Figure 2

In other to understand what contributes to the high cases of RTAs on the stretch of road, we spoke to the MTTU of the district and GPRTU as well. This will help to inform policy direction in the future. A vast majority of the respondent when asked what the most contributory factor to RTAs on the Accra-Cape Coast-Takoradi road was, 77.7% pointed to driver's negligence. 11.1% to passenger attitudes. 75.0% of respondents suggested that the education of drivers on road safety practices was the surest way possible. It goes to state that future policies on accident prevention should be driver-centered. It was therefore not surprising that even the respondents from the GPRTU stated that most drivers ought not to be behind the wheel with 90% of the respondents believing that most drivers were not qualified to be behind the wheel. In finding out how often training and workshops on management of Road Traffic Accidents should be organized and how often they are done. 68.1% of the participants said the training was done whilst 63.6% said training and workshops should be improved and done quarterly. This signifies that the training and workshop programmes are in place and should be encouraged.

Discussion

This study sought to describe the perception of health workers, the MTTD, DVLA, GPRTU, National Ambulance and Ghana National Fire Service officials on the characteristics of victims of RTAs in the Winneba municipality.

As found in studies that describe the perception of officials on characteristics of road traffic accidents and victims, our study showed that healthcare workers are of the view that victims of RTA are brought to the T&SH more by public/commercial vehicles more than ambulances. which corroborates with the findings by. This finding is consistent with studies carried out by Gebresenbet RF et al [11] which showed that in most developing countries, there is limited access to formal prehospital care. This study also had respondents suggesting that ambulances are the second-highest means of transporting RTA victims to the hospital. This finding appears to be an improvement in prehospital care in Ghana. Ten years ago, another study by C. Nee-Kofi Mould-Millman et al[12] describe an ambulance as one of the least used means of transporting patients. This study showing an improvement of up to a quarter of victims brought transported by ambulance is evidence of policy interventions in the area of pre-hospital care in Ghana. It must be noted that the government intervened in 2019 when 230 ambulances were distributed to each district in Ghana[16]. This may have contributed to the improvement in the use of ambulances to transport RTA victims. That notwithstanding, there yet remains a lot of work to improve prehospital care as more than three-quarters of victims are transported via non-conventional means.

Our study showed consonance among healthcare workers, MTTD, DVLA, Ambulance, and Fire officials as to the major causes of road traffic accidents. All these categories of workers suggested that driver negligence, passenger attitudes, and poor vehicle maintenance were the topmost causes of road traffic accidents Driver negligence stood out as the main cause of road traffic accidents. This observation corroborates several studies that have found various driver factors that relate to road traffic accidents[15]. The use of alcohol and other psychoactive substances by drivers has been described as a cause of reckless driving. Alcohol and other substances cause impairment of judgment and fine motor skills and predispose road users to road traffic accidents. Studies by Forson et al [13] have described the frequency of alcohol and psychoactive substances among drivers in Kumasi, Ghana. In these studies, it was shown that drivers had alcohol and psychoactive substances on board at the time of the road traffic accidents and these substances may have been the cause of the accidents. Damsere-Derry et al [14] also conducted a study that described the presence of alcohol among drivers traveling on the major highways in Ghana. Trauma and Specialist Hospital where this current study was conducted sits on one of the highways where Damsere-Derry et al [14] conduct the alcohol breath tests. This study also shows that there has been little done to reduce driver negligence. Vehicle characteristics and roadworthiness is an area that requires further study in Ghana.

Limitation

This study is limited in several ways. First of all, this study is a cross-sectional study that used qualitative methods to describe the characteristics of road traffic victims. The results of this study are not generalizable because of the study design employed. The results of this study is only representative of the respondents from the Winneba municipality only. This study cannot establish any causality regarding road traffic accidents and road user category. There may have been a recall bias among respondents as they were asked questions that required estimating and describing road traffic accident victims and vehicle characteristics.

In spite of these limitations, our study described characteristics of road traffic accidents by using a diverse group of people thereby limiting the risk of selection bias and responses. The study also demonstrates stronger validity from the responses by the various health workers. This study has shown that some gains have been made in pre-hospital care in Winneba and has highlighted driver negligence as the major cause of road traffic accidents.

Conclusion

The Trauma and Specialist Hospital as its name suggests was designed to cater for trauma and injury cases and well suited to carry out this endeavor. In the past years, health professionals have done their best in handling all the cases of RTA that get to the hospital. However, like most institutions in Ghana, the issue of adequate skilled personnel and equipment lingers.

Since the appropriate readiness of staff before patients with major injuries are received would guarantee an optimum clinical outcome, the T&SH has over the years established an emergency preparedness plan. This is a great feat as it prevents undue delay. This goes to complement the national policy which by itself has implementation challenges.

The extent to which the policy and guidelines can be adequately implemented is dependent on the availability of the logistics, financial wherewithal, and commitment from health professionals. In short, the gulf between theory and actual practice of the policy and guidelines must be narrowed.

Also, the issue of transportation of victims to the hospital is paramount. It is welcoming news that the National Ambulance Service has been recently equipped with ambulances under the one constituency one ambulance program. However, more will need to be done as one ambulance is not enough. This will ensure that crucial first aid is given to all victims before transporting them.

Single Overriding Communication Objective (Soco)

The T&SH is contributing tremendously to concerning treating victims of RTAs on the Accra -Cape Coast highway. However, the facility needs more skilled personnel and logistics to continue to better serve its objective as a secondary referral hospital. The management of the hospital, the Effutu Municipality, and the government should look at a policy and provide provisions to improve the hospital in this regard. Sadly, most patients arrive in the hospital without first aid and not in ambulances. Therefore, policies should be tailored towards getting more ambulances for the stretch or road. With the issue of accident prevention, the policy should be driver centered and the government should take note in this regard

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