Assessment of State of Preparedness in Management of Mass Road Accident Casualties Among Health Workers at Hoima RRH Hoima City

Kiganda Simon Peter

Faculty of Clinical Medicine and Dentistry Kampala International University Western Campus Uganda.

ABSTRACT

The purpose of this study was to evaluate the health workers' equipment readiness, knowledge, and expertise in managing a large number of traffic accident casualties at Hoima RRH. At Hoima RRH, information was gathered as part of a descriptive cross-sectional study using a checklist, open-ended questionnaires, and 60 health workers who were purposefully chosen to participate. When asked if they knew how to perform CPR, study participants responded positively. All of those who had EMCST and 38 (90.5%) of those who hadn't responded positively were in agreement, with odds ratios of 0.8(0.04-9.01) and P-values of 0.013 and 0.013, respectively. Despite the fact that the majority of health professionals—46, or 76.7%—said there was no standby surgeon for patients with traffic causalities. The study found that while there was insufficient access to emergency medications for a large percentage of casualties (rated at 50%), the hospital did have a working blood bank (ranked at 100%). The study found that health workers had strong knowledge (above 66.7%) and moderate readiness (above 46.7%) in the management of road traffic incidents. The study finds that although HRRH had some equipment, (rated at 50%), it was insufficient. Health workers needed to be empowered through workshops and trainings on current management protocols on managing accident causality patients, and the government should give the hospital more medical equipment.

Keywords: Road traffic accidents, Deaths, Road accident causalities, Health workers, Road causality patients, Emergency drugs.

INTRODUCTION

Road traffic accidents are associated with an estimated 1.25 million deaths globally each year with about 50 million others injured in the process. RTAs and related injuries are a major public health problem in developing countries, [1, 2]. According to the WHO Global Burden of Disease Project 2020, road traffic injuries (RTIs) are the 10th leading cause of death for all age groups globally, accounting for 1,183,492 deaths, [3, 4], More specifically, RTIs were the second and third leading cause of death for persons aged 5–29 years and 30–44 years, respectively, [5]. According to, Trauma experts health workers in emergency departments consider the first 60 minutes (termed the "golden hour") after the injury occurred as the most important period to save lives. The risk of death or severe injury is believed to increase after this period [6, 7]. They noted that during the first hour in the hospital, the most common causes of death are thoracic and central nervous system injuries. Despite the improved methods of management, chest trauma accounts for 25% of trauma deaths and it plays a major role in as many as a further 50% of in-hospital mortality, the study also established that only 4% of a total number

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of health workers were allocated to the emergency department, a figure which was far below the overwhelming number of patients received at a single time, [3]. Additionally, the 2019-2016 Uganda Sample Vital Registration with Verbal Autopsy report by the Centre for Infectious Disease Control [8], showed that in Uganda 48.7 % of deaths from injuries and accidents happened in health facilities such as hospitals or health Centre 27.3% died on the way and at least 24% die at home, [8].

Like many other developing countries, Uganda is met with the challenge of RTAs, which is a major public health and progressive problem. According to [9], at least one person died every day at Mulago national referral hospital as a result of a road traffic accident due to delayed response among health workers on duty. Developing practical measures and awareness for effective healthcare management of RTA victims in hospitals or clinics is paramount. This study focused on the state of preparedness in the management of road accident causality patients by health workers at Hoima RRH, thereby bridging the missing literature gap.

[10], in their study on the Evaluation of Social Inequalities in the Health of Road Accident Victims in Nairobi, Kenya, observed that each year, more than 0.2 million deaths occurred in East Africa due to road accidents. Road traffic accidents are a leading cause of mortality in young people between the ages of 15 and 29 years, [10]. Despite many efforts to improve the outcomes of road traffic accident victims, the death toll resulting from RTAs continues to rise. Many Patients seeking emergency care are further harmed because of the failure to deliver emergency care by medical practitioners, [11]. The lack of emergency preparedness programs as well as inadequate infrastructure and equipment lead to untimely deaths. Hoima RRH recorded a total of 192 casualties in 2017, 258 in 2018 and 160 in 2019. Out of these, 16 ended up with permanent disabilities and the death toll was inconclusive due to the non-availability of data [12]. Although various endeavours have been taken by the Ministry of Health such as increasing health workers' pay to boost their morale, expansion of referral hospitals and equipping them with equipment, many road accident causalities, still get stranded at Hoima RRH, some delayed treatment while others unattended to, this study will therefore assess the preparedness of Hoima RRH in management of mass road accident causality patients.

METHODOLOGY

Study Design.

A descriptive [13] cross-sectional study was done where quantitative method of data collection was employed on health workers who practice health as a form of living. A cross sectional study used because it involved interacting directly with these health workers so that the findings are generated from health workers themselves.

Area of Study

The study was carried out at Hoima RRH located in Hoima District, Western Uganda. Hoima RRH a government hospital with specialized clinics including the ANC/MCH among others. It also comprises of inpatient departments like the surgical, medical, pediatrics and private wards. Most of the people in Hoima district are peasant farmers and majority of the people in Hoima RRH are from catchment areas of Bulisa, Kibaale, Kiryandongo, Kagadi. Kakumiro, Kikuube, Masindi and Hoima city. They live in semi-permanent houses.

Study Population

The study was done among health workers in Hoima RRH who was present during the time of the study and who was at the emergency department.

Sample Size Determination

The sample size was determined using Fishers *et al*, 2003 formula given by the method below,

$n = z^2pq/d^2$

Where,

n= minimum sample size

d = margin of error

z=standard normal deviation corresponding to 1.96

p= 5, q=1-p

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Therefore taking, p = 4 /100=0.04
z = 1.96
q=1-p = 0.94
d= 5% or 0.05

$$n=\frac{1.96^2 X0.04X0.96}{0.05^2}$$

n= 60 respondents were interviewed

The sampling method

The study was carried out among health workers at Hoima RRH in which purposive method of sampling was employed. Purposive is a non-probability sampling method that entails, sampling given population intentionally for the study. The health workers who reported for duty during the time of study was requested to participate in the study, until a total number of 60 was obtained.

Inclusion Criteria

The study included all health workers of Hoima RRH who will consent to take part in the study.

Exclusion Criteria

Health workers who were very busy resuscitating RTA causality patients
Health workers who were busy such as in theatre was excluded.

Dependent variables

Patient management

Independent variable

Available equipment, their readiness.

Research Instruments

A semi-structured questionnaire containing bio data of the respondents and questions assessing knowledge, their readiness to work and if they have necessary equipment required. Close ended and open-ended structured questionnaires in a tabular form, requiring a single response, was administered to participants. Where by a set of questions was used and respondents answered them in writing. An observation check list was also used, and for quantitative purposes, presence of an instrument was equated to 100% score, presence of equipment but not enough to cover the required demand was scored at 50%, while complete absence of equipment was scored 0%.

Validity

To ensure that the results of the study are valid, pre-test was done after which appropriate corrective measures was addressed on the research tool. Irrelevant/ ambiguous questions were dropped from the list and reframing done to capture relevant information.

Reliability

To ensure that there was consistency of the data, research assistants passed through a comprehensive training where they were given a brief enlightenment on RTA after which they will go through the data collection tools.

Data Analysis and presentation

Data was collected manually, tallied and grouped in form of tables as found applicable and appropriate. Also, the acquired results were analyzed by Microsoft Excel and Statistical Package for Social Science (SPSS) then eventually presented using tables, bar graphs and pie charts.

Ethical consideration

After the approval of the research report by the research Committee, an introductory letter was given to the researcher from faculty of clinical medicine and dentistry Sciences research committee of Kampala international university Western Campus which was presented to the Executive Director of Hoima RRH to be allowed to collect data. The participants' consents were obtained by informing them that the information obtained from them were treated with confidentiality and their consent was valued and given utmost respect [14].

RESULTS

Cadre distribution of health workers

Table 1: Showing cadre distribution of participants

Professional Cadre	Frequency	Percentage
Nurses	33	55.0
Clinical officers	11	18.3
Medical officers	16	26.7
Total	**60**	**100.0**

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The study showed that there were more nurses 33(55%) than clinical officers 11(18.3%) and medical officers 16(26.3%) who participated in the study.

Health workers who have received specifically emergency care training.

Table 2: Showing number of health workers who have been in training especially for emergency care.

Special training on emergency care	Frequency	Percentage
Received extra emergency care training	18	30.0
Using basic medical knowledge to manage	42	70.0
Total	**60**	**100.0**

The table 2, above shows that majority 42(70%), of the health workers have not had an extra special training in emergency care for causality patients, only 18(30%) of the health workers said they had previous training in emergency care.

Health workers' knowledge on management of mass causality patients

Table 3: Showing health workers knowledge on management of causality patients.

Knowledge on procedure	EMCST* received		EMCST-not received		Odds ratio (95%CI)	P-value <0.05sigf
	Freq.	percent	Freq.	percent		
Performing CPR** resuscitation						
Good	18	100.0	38	90.5	0.8(0.04-9.01)	0.013
Poor	0	0.0	04	9.5		
Chin lift, Head tilt technique						
Good	16	88.9	35	83.3	0.1(0.05-3.26)	0.044
Poor	2	11.1	7	16.7		
GCS*** scoring						
Good	15	83.3	28	66.7	0.6(0.2-8.63)	0.006
Poor	3	16.7	14	33.3		
Endotracheal intubation						
Good	14	77.8	20	47.6	0.3(0.1-5.47)	0.556
Poor	4	22.2	22	52.4		
Secondary survey						
Good	17	94.4	33	78.6	0.9(0.4-4.89)	0.029
Poor	1	5.6	9	21.4		

Note: EMCST* Emergency Medical care special training, CPR**; Cardiopulmonary resuscitation, GCS***; Glasgow coma scale

The study showed good knowledge response from participants when they were asked about knowing how to perform a CPR, all those who had had EMCST and 38(90.5%) for those who hadn't had EMCST said they knew who to perform a CPR, at an odds ratio of 0.8(0.04-9.01) and P-value of 0.013. The study showed that at least 16(88.9%), and 35(83.3%) for those who had been trained; and those trained respectively, knew how to perform a chin lift, head tilt technique as a maneuver to ensure open air, there was a significant correlation, (OR; *0.1(0.05-3.26)*, 95%CI; p-value; 0.044), between having had a previous training on causality patient and performing the air way maneuver, From study, the majority 15(83.3%); 28(66.7%) of EMC trained and those not trained, respectively knew how to perform a GCS score for the patients, more so, at least 3(16.7%) and 14(33.3%), of EMC trained and non-trained respectively, said could hardly score unconscious with Glasgow coma

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scale. The study also established that there was no significant correlation between having been trained in emergency and performing an endotracheal intubation at an odds ratio of *0.3(0.1-5.47)*, and a p-value of 0.556 the study showed at least 22(52.4%) could not perform an endotracheal intubation on patients. The study also showed that at least 9(21.4%) of the non-EMC trained health workers could not perform a secondary survey for causality patients, the study showed good knowledge response 33(78.6%) for health workers in performing a secondary survey for patients.

Health workers' readiness to manage mass road causality patients
Table 4: Showing health workers readiness in management of causality patients.

Readiness parameter assessed	Frequency	Percentage	(Total; ref.%)
Access to an emergency surgeon			
Yes	14	23.3	
No	46	76.7	(60; 100.0)
Access to emergency phone call			
Yes	12	20.0	
No	48	80.0	(60; 100.0)
Presence of gloves for emergency			
Yes	28	46.7	
No	32	53.3	(60; 100.0)
Presence of dressing aprons			
Yes	24	40.0	
No	36	60.0	(60; 100.0)
Access to trolley for wheeling patients			
Yes	44	73.3	
No	16	26.7	(60; 100.0)

The health workers were asked for their immediate access to emergency surgeon in case a road accident causality was brought it, majority of the health workers, 46(76.7%) said there was no standby surgeon meant for working on road causality patients. The health workers were asked if there was an access to emergency phone, to mobilize for help in case, they received mass causality patients, only 12(20%) of the staff, said they had access to emergency phone, while 48(80%) said they had no access, most of the health workers 32(53.3%), they were not prepared with access to gloves to be used in receiving and management of causality patients. Only 28(46.7%) of the health workers said they had access to gloves every time they needed, more so, at least 36(60.0%) said they couldn't have dressing aprons in emergency needs when they receive mass road accident causalities. The study however found out that they were access to wheeling trolleys for patients who are just brought in to the hospital, majority of the health workers 44(73.3%) said they could access trolleys for receiving patients.

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Availability of equipment for management of causality patients.

Table 5: Showing availability of equipment used in management of causalities.

Observation	Score	Percentage	(Total; ref%)
Emergency drugs			
Present	-	-	
Present but not enough	50	50.0	
Absent	-		(100; 100.0%)
Blood bank			
Present	100	100.0	
Present but not enough	-	-	
Absent	-	-	(100; 100.0%)
Running water			
Present	-	-	
Present but not enough	50	50.0	
Absent	-	-	(100; 100.0%)
Suction machines			
Present	-	-	
Present but not enough	50	50.0	
Absent	-	-	(100; 100.0%)
Oxygen cylinder			
Present	-	-	
Present but not enough	50	50.0	
Absent	-	-	(100; 100.0%)

Note: Observation score; Present = 100.0%; Present but not enough = 50.0%; Absent = 0.0%

The researcher assessed the equipment availability which help in management of mass causality, the study established there was availability of emergency drugs not enough for mass number of causalities scored at 50%, the hospital however has a functioning blood bank scored at 100%. The study also established that the hospital had running water, but some of the water taps were fault and non-functioning and was scored at 50%. From the study, it was established that the hospital had insufficient suction machines scored at 50%, and oxygen cylinders of which some were either empty or nonfunctional and was scored at 50%.

DISCUSSIONS

Health workers' knowledge on management of mass causality patients

The study showed good knowledge response from participants when they were asked about knowing how to perform a CPR, all those who had had EMCST and 38(90.5%) for those who hadn't had EMCST said they knew who to perform a CPR, at an odds ratio of 0.8(0.04-9.01) and P-value of 0.013, this could be because many of the health workers frequently perform a CPR and are therefore accustomed to performing the procedure quite always, when this study is compared with other studies, it shows a difference from report by [15] conducted in East Africa, to evaluate health workers ' knowledge in Emergency lifesaving procedures which revealed low levels of ELP knowledge, taking into consideration that the health workers ' failure to comply with sequence in performing emergency lifesaving procedures was 44.2%.

The study showed that at least 16(88.9%), and 35(83.3%) for those who had been trained; and those trained respectively, knew how to perform a chin lift, head tilt technique as a maneuver to ensure open air, there was a significant correlation, (OR; *0.1(0.05-3.26)*, 95% CI; p-value; 0.044),

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between having had a previous training on causality patient and performing the air way maneuver, this is key in assisting ventilation in a patient experiencing airway obstruction, when it is compared with other studies, it shows a correlation with a study report in 2016 by [16] at Kigali Hospital, which showed that out of the 600 health workers involved in the study, only 21% could perfectly perform a chin lift head tilt technique to allow open airway. The exercise included ensuring opening airway as well as assisted ventilation. From study, the majority 15(83.3%); 28(66.7%) of EMC trained and those not trained, respectively knew how to perform a GCS score for the patients, more so, at least 3(16.7%) and 14(33.3%), of EMC trained and non-trained respectively, said could hardly score unconscious with Glasgow coma scale, GCS score helps to determine intervention response for unconscious patient, and determines if the patient can be managed from ward or needs ICU, when this is compared with other studies, it shows a difference from study report by [17] in their study on effective advanced cardiac life support training among health workers in Uganda, where they cited that, that there was poor emergency care outcomes on management of RTA causality patients in most teaching hospitals in Uganda, and was associated with lack of adequate knowledge and skills acquired by the health providers in recognizing early signs in a patient going into shock. The study also established that there was no significant correlation between having been trained in emergency and performing an endotracheal intubation at an odds ratio of *0.3(0.1-5.47)*, and a p-value of 0.556 the study showed at least 22(52.4%) could not perform an endotracheal intubation on patients, there was a reduced percentage of participants who could perform an endotracheal intubation, this could be because of the few cases of the procedure performed which reduces their exposure, when this study is compared with other studies, it shows a difference with study results by [18] in Burundi which indicated that 98.1% of the study group had heard about basic emergency procedures although only 64% of the participants

could perform an endotracheal intubation for the patient. The study also showed that at least 9(21.4%) of the non EMC trained health workers could not perform a secondary survey for causality patients, the study showed good knowledge response 33(78.6%) for health workers in performing a secondary survey for patients, this could be because for most for most heath workers, they hardly do secondary surveys for patients, since are always concerned with patient stabilization of the patient, when this is compared with other studies, it shows a difference from a study by [19] in their study conducted in Zambia to evaluate knowledge, attitude, and practice and associated factors among health workers revealed that around which showed that 93.3 % of the health workers had good knowledge on management of RTA patients although, only 42% of them could perform a successful secondary survey as per emergency management protocols.

Health workers' readiness to manage mass road causality patients

The health workers were asked for their immediate access to emergency surgeon in case a road accident causality was brought it, majority of the health workers, 46(76.7%) said there was no standby surgeon meant for working on road causality patient, this could be because most of the surgeons who are expected to work on road causality patients are those on duty for the whole hospital and this could reduce service delivery to those causality patients who need urgent attention, when this study is compared with other studies, it shows a difference from study results by [10] on first aid practices among health workers at Kenyatta hospital identified that the majority 87% of the health workers indicated that there was no standby surgeon designated for emergency accidents, since the residing surgeon on duty served the whole hospital at the same time, absence of an emergency surgeon contributed to 1.2 times more likely to death of a patience as compared to days when he was on duty, p; value 0.031. The health workers were asked if there was an access to emergency phone, to mobilize

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for help in case, they received mass causality patients, only 12(20%) of the staff, said they had access to emergency phone, while 48(80%) said they had no access, this could be because of absence of a stationed cell phone purposely for making the calls in case a staff receives a mass number of road accident causalities, when the study is compared with other studies, it shows a correlation with a study by [20], When 750 health workers at different hospitals were asked how they called for emergency help during their lines on duty, about 65% said they used their personal mobile phones, and at least 12% of the hospitals lacked emergency call rooms. The study however found out that they was access to wheeling trolleys for patients who are just brought in to the hospital, majority of the health workers 44(73.3%) said they could access trolleys for receiving patients, more so most of the health workers 32(53.3%), they were not prepared with access to gloves to be used in receiving and management of causality patients. Only 28(46.7%) of the health workers said they had access to gloves every time they needed, more so, at least 36(60.0%) said they couldn't have dressing aprons in emergency needs when they receive mass road accident causalities, this could be because the gloves which are supplied by government are usually used up in first few weeks of supply due to the high number of patients being worked on, this affects health workers readiness to manage patients since the attendants have to first buy the gloves for their patients to be worked on, when compared with other studies, a study by [21] involving 300 health workers at Dodoma hospital, had also indicated that only 20% of the respondents had the personnel protective equipment for rapid emergency response in case of mass RTA victims, at least 45% only cited having no gum boots, while at least 55% citing absence of gloves for their own safety.

Availability of equipment for management of causality patients

The researcher assessed the equipment availability which help in management of mass causality, the study established there was availability of emergency drugs not enough for mass number of causalities scored at 50%, the hospital however has a functioning blood bank scored at 100%, presence of a blood bank helps to store blood for critically ill patients who, might need an immediate blood transfusion, when compared with other studies, it shows a difference from a study by [22] conducted on 'Injury characteristics and outcome of road traffic crash victims at Bugando Medical Centre in Northwestern Tanzania, had noted that out of a total of 78 road traffic crash victims that needed blood transfusion only 25% of them accessed blood in time, 10% of them died due to lack of blood while 65% got it after 12 hours or were referred after stabilization phase, relatedly a 2020 UDHS report had indicated that less than 85% of health workers had ELP training and at least 31% learnt a form of ELP for RTA patients from duty, the study further showed that among 133 studied health workers, it was revealed that at least 2% health workers didn't know emergency drugs required for patient resuscitation. The study also established that the hospital had running water, but some of the water taps were fault and non-functioning and was scored at 50%, presence of running water is essential in cleaning off the spilled off blood, washing hospital beddings to prevent infection spread, this helps to keep the department tide and clean, when compared with other it shows a difference from a study [10], conducted in Nairobi, the capital of Kenya, to estimate the mortality and morbidity of road accident victims, showed that 68% of clinics handling RTA causality patients lack equipped procedure theatre, while 17% of them lacked clean running water, which exposed the victims to post trauma infections.

From the study, it was established that the hospital had insufficient suction machines scored at 50%, and oxygen cylinders of which some were either empty or nonfunctional and was scored at 50%, presence of suction machines and breathing oxygen helps in resuscitation of critically injured patients who have difficulty in breathing or who are having aspirations, this is critical for patients

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survival to prevent brain hypoxia, which would otherwise lead to coma and death, when compared with other studies, it shows a difference from Study report by [19] in Zambia aimed at identifying the challenges of preventable deaths due to RTIs in the early hospital phase based on the attitudes of stakeholders. The main funding was; Lack of adequate oxygen (71%), Poor management of time by staff, (53%) and Low quality of victim management 33%.

CONCLUSION

The study concludes that there was good knowledge (above 66.7%) among health workers in management road causality accidents, there was moderate readiness, (above 46.7%). The study concludes that although there was some equipment, (rated at 50%) at HRRH, there are not enough.

empower health workers through trainings and workshops on current management protocols on management of accident causality patients. The government should provide more medical equipment to the hospital to enable health workers provide services better. The health workers should also be trained on using the medical equipment provided in hospitals.

Recommendation

The study made the following recommendations, there was a need to

REFERENCES

1. Etibu A, Vasilatos, P., Alvarado, B. A., O"Hearn, N., Widger, H. N. and Becker, L. B. (2019). Chest compression rates during cardiopulmonary resuscitation are suboptimal: A prospective study in Nigerian teaching hospitals. Circulation, 11, 428- 434.

2. Anthony, A. O., Kehinde, S. O., Franck, K. S. and Joshua, M. (2022), Road Safety Regulations: How Compliant are Commercial Motorcyclists in Semi-Urban Towns in Western Nigeria, *East African Journal of Health and Science,* 5 (2), 38-46.

3. World Health Organization (2020). A systematic review of retention of adult advanced life support knowledge & skills in healthcare providers, WHO, report, Geneva Switzerland.

4. Oloo, M.O.S., Sat, O. and Sofia, K., (2019). Traffic Information and Road Safety in Kisumu County, South Western Kenya. *International Journal of Social Science and Humanities Research* 7 (2), 1262-1275

5. Gustafusson M., Erick, F. and Brighton, N. (2021). Resuscitating competence in advance life support in developing countries, Critical Care Health worker guidelines 32, 10-12.

6. Kahn, K., Shakirah, G. and Borhtum, D. (2016). Resuscitation Techniques and Deliberate practice of Basic Life skills in health worker education, Health worker Education Perspectives, 315.

7. Hamisu, A. W., Etapelong, S. G. and Ayodeji, I. H. (2019). Nigeria's Bumpy Road towards Polio Eradication. *British Journal of Medical & Health Sciences (BJMHS),* *1*(2).

8. CDC (2020) COVID-19 Vaccination. Centers for Disease Control and Prevention.https://www.cdc.gov/coronavirus/2019-ncov/vaccines/recommendations/older-adults.html

9. Uganda Read Cross Society, (2020) Injury characteristics and outcome of road traffic accident among victims at Mulago National Referral Hospital, a prospective hospital-based study.

10. Wanyonyi, D., Sarah, J., Nalime, S. and Grace, E. (2019). Development & psychometric evaluation of the resuscitation self-efficacy scale for health workers. Journal of Kenyan Academy of Health worker, 42, 1079-1086.

11. Solomon, M., Mercy, A. and Milley, J. (2018). health workers awareness on emergency lifesaving

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procedures updates in Ugandan rural health facilities; 21:151 – 166.

12. HMIS. (2018). Health Management Information Systems. KIU-TH Records. Ishaka - Buushenyi: KIU-Teaching Hospital.

13. Ugwu, C. N. and Eze, V. H. U. (2023). Qualitative Research. IDOSR JOURNAL OF COMPUTER AND APPLIED SCIENCES 8(1) 20-35. https://www.idosr.org/wp-content/uploads/2023/01/IDOSR-JCAS-8120-35-2023.docx.pdf

14. Ugwu, C. N., Eze, V. H. U., Ugwu, J. N., Ogenyi, F. C. and Ugwu, O. P. C. (2023). Ethical Publication Issues in the Collection and Analysis of Research Data. NEWPORT INTERNATIONAL JOURNAL OF SCIENTIFIC AND EXPERIMENTAL SCIENCES (NIJSES) 3(2): 132-140. https://nijournals.org/wp-content/uploads/2023/07/NIJSES-32-132-140-2023.pdf

15. UNICEF (2020) Exploring Pain Management by health workers among Road Traffic Accident Casualties in developing countries.

16. Mbonigaba, A., Mfutindinda, S. and Nzeyimana, S. (2016). Implementation of guidelines for emergency lifesaving procedures among health workers and health workers on duty, in Teaching university of Rwanda, Kigali 43:6;45.

17. Zahara, N., Saniya, T. and Keneth, S. (2016). Review of effective advanced cardiac life support training among health workers in central Uganda 4, 193- 212.

18. Sakubu, L., Fiona, S., Laurene, M. B. M. and Fineout-Overholt, H. (2019). Evidence-based practice in health worker & healthcare: A guide to best performing ELP practices; Burundi, East Africa. Department of Health & Human Services.

19. Nachande, V., Makwawa, F., Bukiran, A. (2019). Retention of health workers" knowledge after ELP/ACLS training after 12-month period in Lusaka national hospital; Zambia.

20. Achirwa, E., Maigula, H., Dhoburt, A. and Rogers, D. L. (2019). Emergency care and causality simulation as a baseline technique for urgent care for health worker and health workers in Malawi.

21. Maduhu, E., Boris, J. and Anthony, T. C. (2019). Undergraduate health workers " acquisition & retention of CPR knowledge in Dodoma Medical institute, Tanzania, East Africa.

22. Jennie, K., Edhavan, Y. D. and Daniel, G. (2021). Optimizing causality resuscitation outcomes with simulation at Health worker homes, 60-61.