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Knowledge, Attitudes, and Practices of Emergency Nurses toward Road Traffic Accident Victims: A Cross-Sectional Study at Connaught Hospital, Sierra Leone

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Abstract:

- ***Background*:**

Road traffic accidents (RTAs) represent a leading cause of trauma and death globally, with the burden disproportionately affecting low- and middle-income countries (LMICs). In Sierra Leone, RTAs constitute a significant share of trauma admissions at tertiary hospitals such as Connaught Hospital. Nurses, as frontline responders, play a critical role in the emergency management of RTA victims. However, little is known about their preparedness, particularly in resource-constrained settings.

- ***Objective*:**

To assess the knowledge, attitudes, and practices (KAP) of emergency nurses toward the management of RTA victims at Connaught Hospital, Freetown, Sierra Leone, and to identify challenges impeding effective trauma care.

- ***Methods*:**

A descriptive cross-sectional study was conducted among all eligible emergency nurses at Connaught Hospital between January and April 2025. Data were collected using a structured, self-administered questionnaire covering socio-demographics, emergency knowledge, attitudes, practices, and systemic challenges. Descriptive statistics were analyzed using SPSS version 25, with results presented in frequencies, percentages, and bar charts.

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➢ ***Results*:**

Out of 52 respondents, the majority (94.2%) demonstrated good practical knowledge of airway, breathing, and circulation (ABC) principles and emergency equipment use. Despite this, only 36.5% rated their trauma training as adequate. A high proportion (94.2%) were willing to provide emergency care, yet 34.6% feared causing harm due to limited training. Critical gaps were identified in equipment recognition, triage decision-making, and psychological readiness. Key challenges included limited resources (75.0%), insufficient training (46.2%), financial constraints (48.1%), and lack of standardized protocols (reported by 44.2%).

➢ ***Conclusion:***

Emergency nurses at Connaught Hospital possess commendable commitment and basic trauma care competencies but face systemic barriers including inadequate training, poor equipment functionality, and protocol dissemination gaps. Targeted interventions such as structured trauma education, investment in emergency infrastructure, and development of national emergency care protocols are urgently needed to improve RTA management outcomes.

Keywords: *Road Traffic Accidents, Emergency Nursing, Trauma Care, Knowledge Attitude and Practice, Connaught Hospital, Sierra Leone.*

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I. INTRODUCTION

Road traffic accidents (RTAs) remain a pressing global public health challenge, resulting in significant morbidity and mortality, particularly in low- and middle-income countries (LMICs). Annually, over 1.2 million people die from RTAs, with millions more suffering non-fatal injuries and long-term disabilities (World Health Organization, 2015). RTAs are currently the ninth leading cause of death globally and are projected to rise to the seventh position by 2030 (Bun, 2018). The burden of RTAs is disproportionately higher in developing countries, where fragile health systems, inadequate road safety infrastructure, and limited access to emergency care exacerbate fatality rates (Damsere-Derry et al., 2017; Zafar et al., 2018).

Sierra Leone, a West African country with one of the lowest life expectancies and highest disease burdens, faces a significant challenge with RTAs, which are among the top contributors to injury-related deaths (Zembe et al., 2022). A recent study revealed that injuries account for approximately 7% of the country's total disease burden, with RTAs responsible for a considerable portion of trauma-related admissions at tertiary hospitals (Bundu et al., 2019). Connaught Hospital, a major referral facility in Freetown, routinely manages high volumes of RTA cases, highlighting the urgent need for structured emergency response systems.

Nurses play a central role in the triage, stabilization, and initial management of trauma patients, including RTA victims. As frontline healthcare providers, their knowledge, attitudes, and practices (KAP) significantly influence patient outcomes, particularly in critical care settings (Afaya et al., 2017; Nshutiyukuri et al., 2020). However, in many LMICs, including Sierra Leone, emergency care training among nurses is often limited or lacking, and evidence on their competencies in managing RTAs remains sparse (Prasad, 2019). Existing studies have largely focused on patient outcomes without adequately exploring the preparedness of nurses, which is a crucial determinant of care quality in emergency departments (Aloyce et al., 2014).

Globally, effective emergency nursing care for RTAs hinges on both structural capacity and human resource readiness. Studies from Rwanda, Uganda, and Ethiopia indicate moderate levels of knowledge and mixed attitudes among nurses in emergency settings, alongside significant gaps in the translation of knowledge into practice (Mamo et al., 2023; Nshutiyukuri et al., 2022; Sylivia & Marcella, 2024). These findings suggest that context-specific assessments are necessary to design interventions that address training needs and resource limitations.

Despite the growing burden of RTAs in Sierra Leone, there is a dearth of published research assessing the KAP of nurses toward emergency care for RTA victims. Understanding these dimensions is essential for developing tailored interventions aimed at enhancing trauma care and reducing preventable deaths. This study, therefore, seeks to evaluate the knowledge, attitudes, and practices of nurses at Connaught Hospital, Freetown, regarding the emergency care of road traffic accident victims.

II. MATERIALS AND METHODS.

➢ *Study Design*

This study employed a cross-sectional study design, which involved the collection of data from all eligible nurses working in the emergency unit of Connaught Hospital during the study period. The design was appropriate for assessing the knowledge, attitude, and practices (KAP) of nurses toward the emergency care of road traffic accident (RTA) victims at a single point in time.

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➢ *Study Period*

The study was conducted over a four-month period, from 1st January to 30th April 2025.

➢ *Study Site*

The research was carried out at Connaught Hospital, located in Freetown, the capital city of Sierra Leone. Connaught Hospital is the country's leading referral center for trauma and emergency care. It also serves as a teaching hospital affiliated with the University of Sierra Leone, offering research, clinical services, and healthcare training.

➢ *Study Population*

The target population comprised all trained and qualified nurses who worked at the emergency unit of Connaught Hospital including triage, critical wards, and the trauma unit for a minimum duration of one continuous week during the study period.

➢ *Sample Size*

The study employed a total population approach, including all nurses who met the eligibility criteria and were present in the emergency unit during the study period.

➢ *Sampling Technique*

A consecutive sampling technique was utilized to recruit participants. This method involved selecting every eligible nurse available during the study period until the required sample size was achieved.

➢ *Data Collection Instruments and Method*

Data were collected using a customized, self-administered questionnaire. The questionnaire was designed to capture statistically significant information on the knowledge, attitudes, and practices of nurses in the emergency care of RTA victims. The self-administered format ensured cost-effectiveness, confidentiality, and minimized interviewer bias, thereby encouraging honest responses. Participants were granted adequate time to complete the questionnaire at their convenience.

➢ *Data Analysis and Presentation*

Data were cleaned, validated, and double-entered prior to analysis. The Statistical Package for the Social Sciences (SPSS) was employed for the analysis of quantitative data.

To assess KAP levels, participants' responses were scored, and a cumulative percentage was computed. A cut-off of ≥50% was considered "good", while a score of <50% was deemed "poor" in each of the knowledge, attitude, and practice categories.

Results were presented using descriptive statistics, including frequencies, percentages and bar chart.

➢ *Eligibility Criteria*

- *Inclusion Criteria:*

✓ All trained and qualified nurses who worked in the emergency unit (triage, critical wards, or trauma unit) for at least one continuous week during the study period.
✓ Nurses who provided informed, voluntary consent to participate.

- *Exclusion Criteria*

✓ Nurses who were unwilling to provide informed consent or declined voluntary
✓ Participation.

- *Ethical Clearance and Consent*

Ethical approval for this study was obtained from the Faculty of Clinical Sciences and Dentistry, College of Medicine and Allied Health Sciences, University of Sierra Leone.

Prior to data collection, participants received verbal and written explanations regarding the purpose, procedures, benefits, and confidentiality of the study. Informed consent was obtained from each participant before administering the questionnaire. Participation was entirely voluntary, and respondents retained the right to withdraw at any point without any consequences.

- *Socio-Demographic Profile Analysis*

The socio-demographic data of the 52 nurses surveyed at the Emergency Unit of Connaught Hospital provides insight into the composition and potential strengths or gaps in the emergency workforce.

- *Age Distribution*

Most participants were middle-aged (51.9%), followed by young adults aged 25–35 years (44.2%), and a small percentage under 25 years (3.8%). This suggests that the emergency unit is largely staffed by individuals with moderate to potentially extensive life and clinical experience, which may support confident and decisive action in high-pressure situations. The presence of younger staff also indicates a developing workforce with potential for growth and training.

- *Gender Composition*

Female respondents made up the majority (73.1%) of the sample, while males constituted 26.9%. This distribution indicates that emergency care delivery at the unit is predominantly performed by women. Gender composition may influence team dynamics and workload distribution, especially in tasks requiring physical strength or gender-sensitive care.

- *Training Exposure*

Emergency Room Training was the most attended program (44.2%), followed by Advanced Trauma Life Support (36.5%), Basic Life Support (32.7%), and Primary Trauma Course (28.8%). Pediatric Advanced Life Support had the lowest attendance (9.6%). This suggests that while a

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significant proportion of the staff has received relevant training in trauma and emergency care, there remains a need for broader participation, especially in pediatric-focused training.

- *Educational Qualifications*

The most common qualification among participants was SECHN (59.6%), followed by diploma holders (28.8%). A few had higher education degrees, including BSc (7.7%) and MSc (1.9%). This indicates that most staff possess basic to mid-level professional qualifications, with fewer individuals having advanced academic training. Educational composition may influence the depth of clinical reasoning and decision-making capacity in critical situations.

- *Marital Status*

Out of the total, 63.4% were married and 36.5% were single. Marital status, while not directly impacting professional skills, may influence availability for certain shifts, stress management, and responsibilities outside the workplace, which can indirectly affect work performance in demanding environments such as the emergency unit.

➢ *Work Experience in Emergency Care*

A large proportion of participants (51.9%) reported 1–5 years of experience at the Accident and Emergency (A&E) unit. About 28.8% had less than one year of experience, while only 9.6% had worked for more than 10 years. This indicates a relatively young and developing workforce, with a small core of highly experienced personnel. The dominance of early-career staff may impact knowledge transfer, mentorship, and leadership within the department.

➢ *Training in Trauma Management and Triage*

Most respondents (84.6%) had been trained in the emergency management of trauma victims, and 69.2% had received training in triage systems. However, a notable proportion (15.4% and 30.8%, respectively) had not received such training, which may present challenges during mass casualty incidents or critical trauma cases that require accurate prioritization and immediate care.

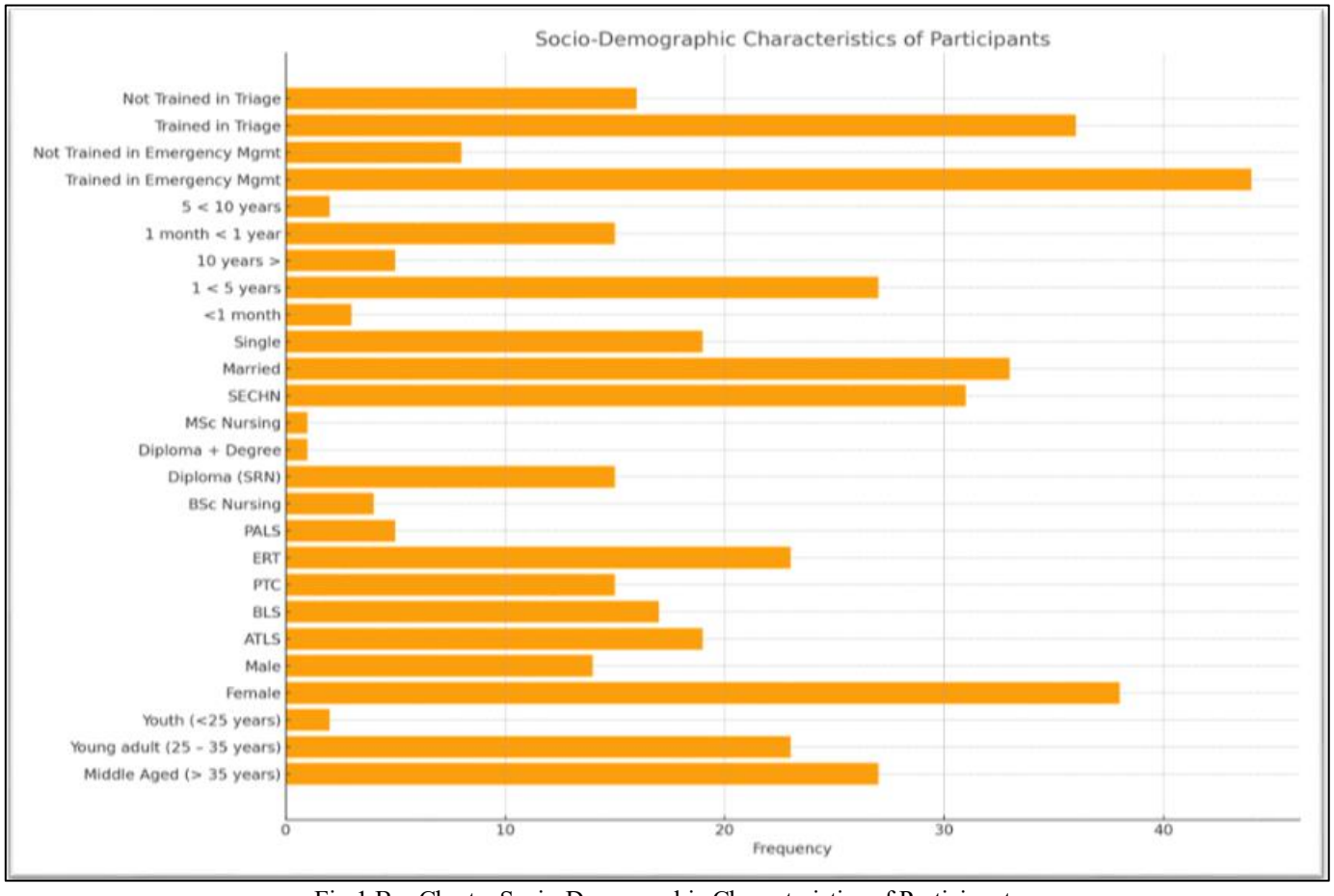

Fig 1 Bar Charts: Socio-Demographic Characteristics of Participants

➢ *Analysis of Emergency Knowledge Assessment*

This analysis evaluates the level of knowledge among nurses concerning the identification and appropriate use of essential emergency equipment and critical procedures relevant to the management of road traffic accident (RTA) victims at Connaught Hospital.

Overall, the data indicates a reasonably good understanding in most critical domains. For instance, 94.2% correctly identified ABC (Airway, Breathing, Circulation) as the priority in quick assessments. Moreover, 98.1% recognized the cervical collar's correct use and 96.2% understood the oxygen concentrator's function. High knowledge was also evident in the application of

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oropharyngeal airways (90.4%) and oxygen cylinders (94.2%).

However, gaps were observed in correctly identifying certain emergency tools. Only 15.4% recognized the correct term 'spinal board' for the hardboard image, while just 36.5% identified the cervical collar accurately despite knowing its use. Similarly, less than a third (26.9%) recognized the oropharyngeal airway, though the majority understood its purpose. The correct naming of tools such as the bag valve mask (71%), oxygen concentrator (67.3%), and back slab (32.7%) suggests partial familiarity that could improve with visual and practical reinforcement in training.

The findings imply a strong practical grasp of emergency care procedures but highlight the need for improved training in equipment recognition and terminologies. Enhancing visual and simulation-based training could further bridge these knowledge gaps.

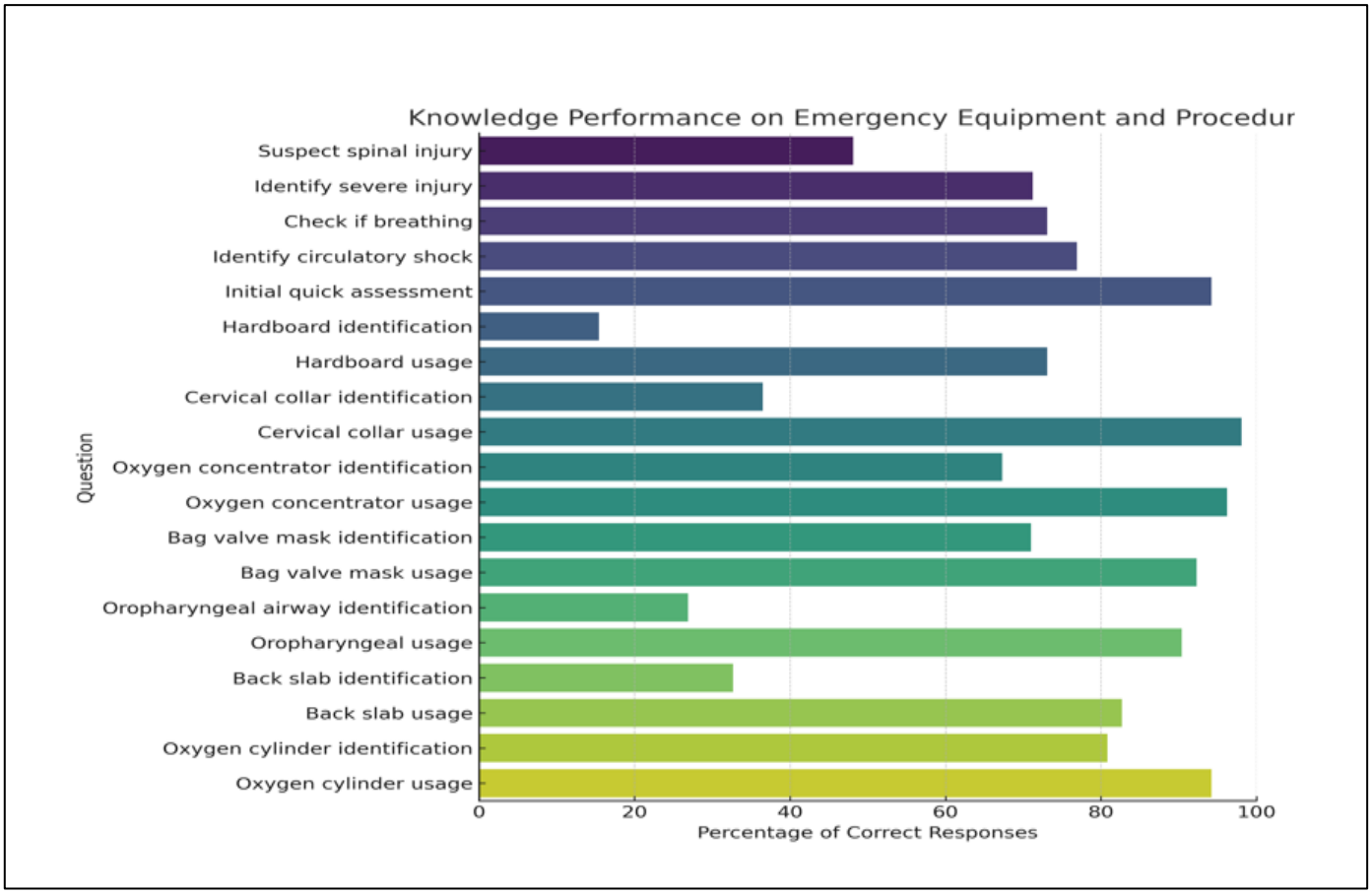

Fig 2 Bar Charts: Analysis of Emergency Knowledge Assessment

➢ *Attitudes Toward Emergency Care of RTA Victims*

- *Immediate Administration of First Aid*

A combined 94.2% of participants either agreed or strongly agreed that it is necessary to administer first aid immediately to RTA victims. This strong consensus underscores a solid foundational understanding of emergency response principles, particularly the concept of the "golden hour" the critical window following trauma during which prompt medical intervention significantly improves survival chances (WHO, 2016; IFRC, 2020). The responses reflect an encouraging awareness among nurses of the urgency and importance of timely care at accident scenes.

- *Willingness to Provide Emergency Care*

A similarly high 94.2% of participants indicated a willingness to provide emergency care, with only 1.9% expressing strong unwillingness. This high level of readiness suggests a strong sense of professional responsibility and confidence among respondents. Previous studies in low- and middle-income countries have reported comparable findings, attributing willingness to a combination of professional commitment and perceived competence in emergency care (Alghamdi et al., 2018; Kassie et al., 2021).

- *Fear of Bloodborne Infections as a Deterrent*

While 53.8% of respondents disagreed that fear of blood and bloodborne infections would deter them from providing care, a notable 15.3% expressed concern (agree or strongly agree). This suggests that although most nurses feel protected or informed, a minority still perceive potential risks. Fear of contracting diseases like HIV and hepatitis through blood exposure has been widely cited as a barrier to trauma response, especially in settings with inconsistent supply of personal protective equipment (Oluwatosin et al., 2017).

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- *Lack of Training as a Barrier*

A total of 38.5% of respondents believed that lack of training would reduce their willingness to provide emergency care. This highlights a critical gap in trauma education. Inadequate training has been repeatedly associated with reduced confidence and increased hesitation in emergency decision-making (Nyaaba et al., 2019; Tsegaye et al., 2022). This emphasizes the need for regular in-service training programs such as Basic Life Support (BLS) and Advanced Trauma Life Support (ATLS) to reinforce trauma management skills.

- *Fear of Causing Harm*

About 34.6% agreed or strongly agreed that they fear applying the wrong treatment and potentially harming a patient. Such concerns are commonly reported among less experienced healthcare providers and are often attributed to limited clinical exposure or simulation training (Samarasekera et al., 2020). While the fear of doing harm may be grounded in a sense of responsibility, it also underscores the importance of hands-on training and mentorship in trauma response.

- *Perception Pof Community Role in Emergencies*

Approximately 78.9% of participants viewed community members as the initial responders in road traffic accidents. This perspective aligns with the widely accepted view that laypersons often play a crucial role in pre-hospital care, especially in areas lacking formal emergency systems (Mock et al., 2003). Moreover, 48.1% disagreed with the idea that community members should only report incidents without assisting victims, indicating that many nurses support the idea of empowering communities through basic emergency response training.

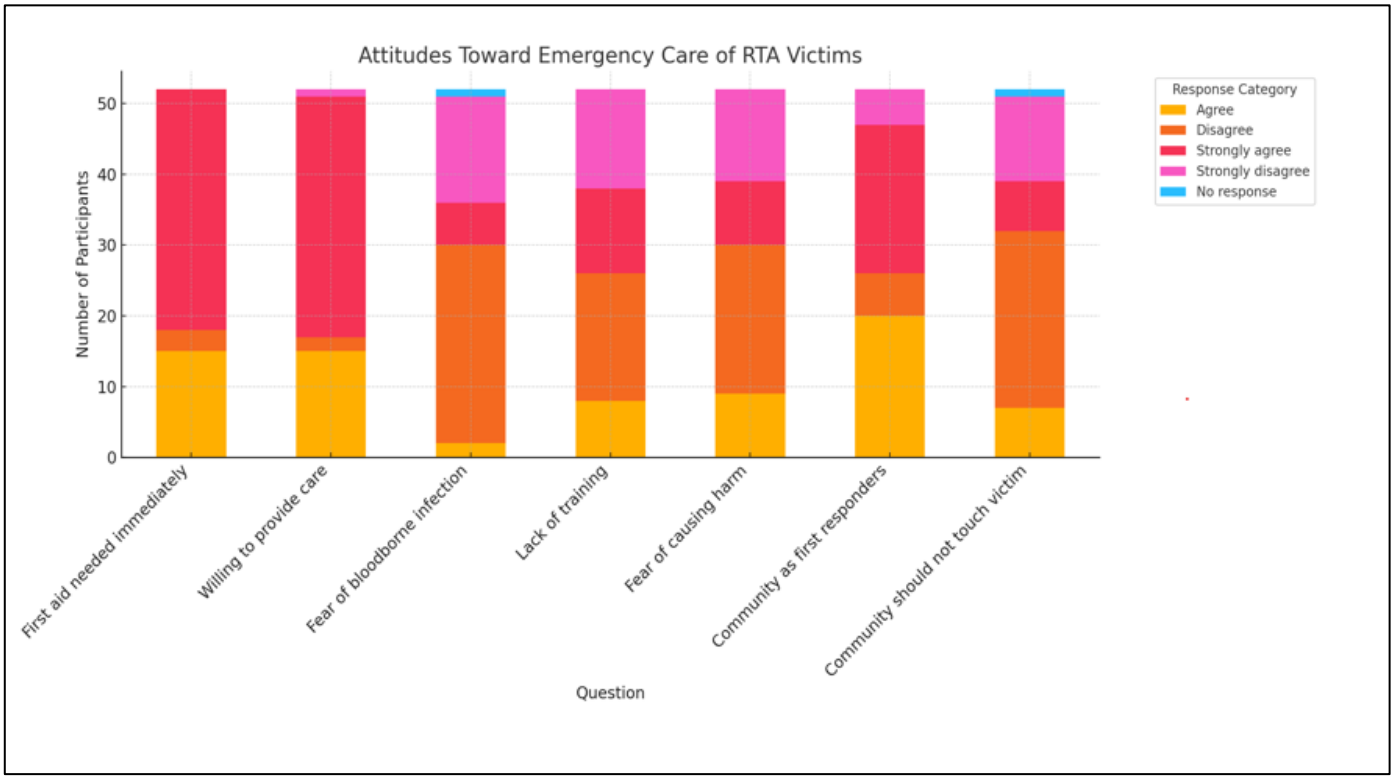

Fig 3 Bar Charts: Attitudes toward Emergency Care of RTA Victims

- *Emergency Care for RTA Victims at Connaught Hospital*

This section evaluates the practical responses and preparedness of nurses in delivering emergency care to road traffic accident (RTA) victims at the scene and during early treatment.

- *Involvement in Emergency Care*

Most participants (80.8%) reported prior involvement in the emergency care of RTA victims at the scene, reflecting active practical exposure among respondents. Only 19.2% had never been involved, which may be due to recent postings, lack of opportunity, or hesitancy in pre-hospital settings.

- *Initial Action at the Scene*

When faced with an RTA scene involving multiple casualties, 61.5% chose to perform a quick safety check of the surroundings first, an essential step in standard emergency protocols. However, 21.2% prioritized rushing the victim to the hospital, indicating a potentially risky deviation from scene safety checks and triage protocols.

- *Triage Practice*

About 78.8% correctly identified that care should begin with victims who cannot move, raise their hands, or speak signifying critical awareness of triage urgency and prioritization. This indicates a sound understanding of

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severity-based triaging, although 13.5% still chose less critical patients.

- *Airway Management in the Unconscious*

Approximately 76.9% correctly selected the chin lift and head tilt method to maintain airway patency in unconscious patients without neck injuries. The 19.2% who opted for quick transportation instead may require further training on the risks of moving such patients prematurely.

- *Circulatory Assessment*

Over half (57.7%) selected the palpation of neck blood vessels to assess for heartbeat, indicating acceptable clinical judgment. However, a notable 34.6% relied on chest movement alone, which may not be a reliable indicator of circulation, showing some misconceptions about circulatory assessment.

- *Bleeding Management*

The majority (76.9%) correctly identified application of pressure at the bleeding site with bandage or linen as the appropriate step. A minority (21.2%) still preferred rushing to hospital without first stabilizing bleeding, potentially compromising patient survival en route.

- *Spinal Injury Handling*

When managing victims with suspected spinal injuries, 78.8% knew to roll the patient onto a hardboard and apply a neck collar aligning with spine protection protocols. A small percentage (5.8%) would transport the victim without immobilization, risking secondary injuries.

- *Transportation Method*

Ambulances were correctly identified by 86.5% as the appropriate mode of transportation. Still, 5.8% favored public transport, and 1.9% relied on location-specific decisions—indicating a need for reinforcement of formal emergency evacuation methods.

- *Choice of IV Fluids*

In early care (first 24 hours), 57.7% opted for IV normal saline to correct hypotension using a large bore cannula. However, 26.9% preferred using both saline and glucose solutions, suggesting a degree of awareness of multi-system support, while 15.4% favored glucose alone, which may not adequately treat shock states in trauma patients.

- *Further Emergency Treatment*

A majority (71.2%) correctly identified the comprehensive approach: stabilization of bleeding, administration of antitetanus vaccine and serum, antibiotic coverage, and blood sampling. This demonstrates a holistic understanding of trauma management within the first 24 hours.

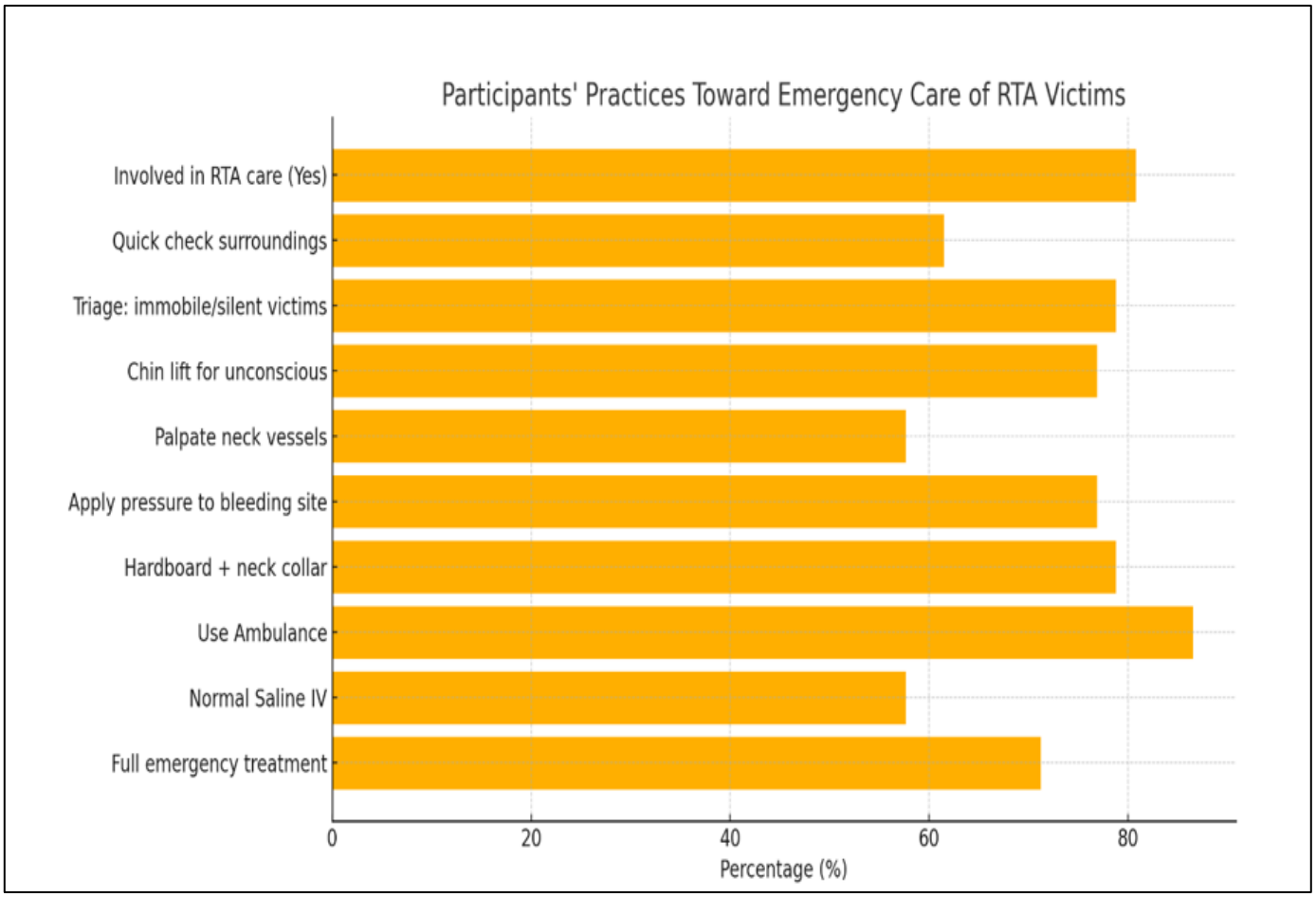

Fig 4 Bar Charts Emergency Care for RTA Victims at Connaught Hospital

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➢ *Challenges and Obstacles in the Management of Road Traffic Accident (RTA) Victims at Connaught Hospital*

This section explores the practical challenges and systemic barriers faced by emergency unit nurses in the management of RTA victims at Connaught Hospital.

➢ *Frequency of Encountering RTA Victims:*

A substantial 71.2% of participants reported encountering RTA patients daily in the emergency unit, while 19.2% encountered them weekly. This high frequency indicates a heavy burden of trauma cases, which can strain personnel, equipment, and resources.

➢ *Adequacy of Training:*

Only 36.5% of respondents rated their training as "adequate" and 15.4% as "very adequate." A concerning 42.3% rated their training as "inadequate," and 3.8% as "very inadequate." These figures point to a pressing need for continuous professional development and refresher programs tailored to emergency trauma management.

➢ *Training Gaps Identified:*

Participants highlighted key areas where training was lacking:

- Triage and initial assessment (46.2%)
- Emergency resuscitation (46.2%)
- Use of emergency equipment (40.4%)
- Trauma management (30.8%)
- Psychological support (23.1%)

The most notable deficiencies were in triage and emergency stabilization core components of trauma care. These gaps may undermine effective patient prioritization and life-saving interventions during critical moments.

➢ *Challenges in RTA Management:*

The most reported obstacles included:

- Limited resources and supplies (75.0%)
- Lack of specialized training (50.0%)
- Financial constraints (48.1%)
- Inadequate infrastructure (38.5%)
- Insufficient staffing (28.8%)

These findings suggest that both logistical and human resource constraints are significant barriers to optimal emergency response. The lack of essential supplies and structural support hinders timely and effective interventions.

➢ *Equipment Availability and Functionality:*

Half of the respondents (50.0%) rated the availability and functionality of emergency equipment as "poor," while only 11.5% rated it "excellent." This suggests that while equipment may be present, it is likely outdated, malfunctioning, or insufficient in quantity — thereby limiting efficiency and patient outcomes.

➢ *Existence of Protocols and Guidelines:*

A relatively small proportion (28.8%) confirmed the existence of sufficient protocols and guidelines, while 44.2% were unsure and 26.9% denied their presence. This uncertainty indicates a lack of awareness or dissemination of standard procedures, which is crucial for consistent care delivery.

➢ *Obstacles to the Implementation of Effective Care*

The top Barriers to Implementing Effective RTA Care Were

- Financial constraints (48.1%)
- Insufficient training programs (46.2%)
- Inadequate infrastructure (38.5%)
- Administrative issues (32.7%)
- Lack of coordination among teams (25.0%)

These findings reveal a complex interplay of systemic and structural issues, calling for a multi-level intervention strategy involving policy reform, budget allocation, and interdepartmental coordination.

➢ *Communication Issues:*

Communication challenges were also notable, with 25.0% stating they "always" experience issues, 34.6% "sometimes," and only 5.8% stating they "never" face communication breakdowns. Poor communication can delay decision-making and compromise care quality, especially in multidisciplinary trauma teams.

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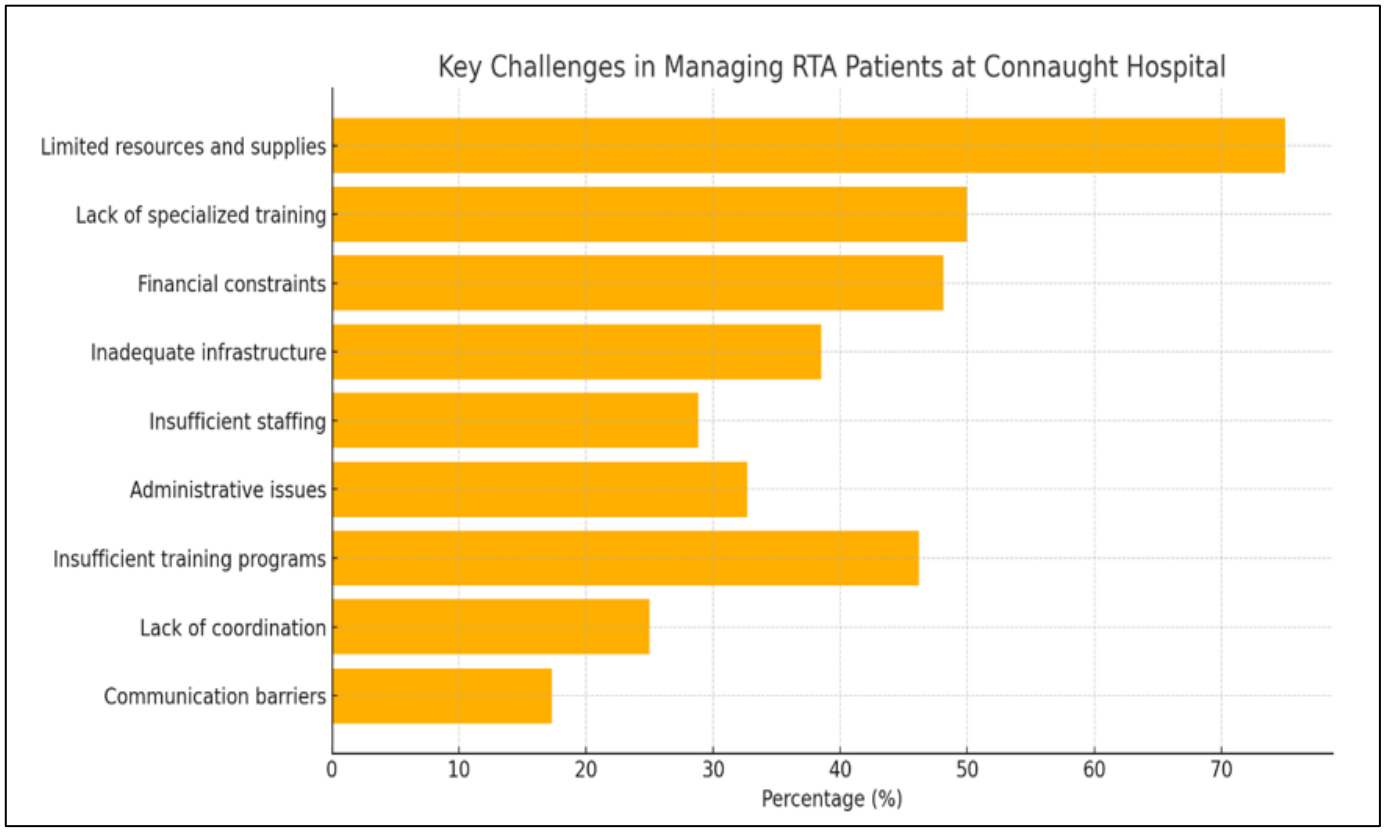

Fig 5 Bar Charts: Challenges and Obstacles in the Management of Road Traffic Accident (RTA) Victims at Connaught Hospital.

III. DISCUSSION

The current study assessed the knowledge, attitudes, and practices (KAP) of emergency nurses at Connaught Hospital in the management of road traffic accident (RTA) victims. Findings showed that 84.6% had received trauma training, and 69.2% were trained in triage. These results reflect relatively strong exposure to emergency care concepts and align with studies from other LMICs. For instance, in Rwanda, Nshutiyukuri et al. (2020) found that 73.7% of nurses had a positive attitude toward trauma care, and practice scores were significantly associated with prior training. Similarly, Mamo et al. (2023) reported that 58.5% of emergency healthcare providers in Addis Ababa had good knowledge and 62.2% had favorable attitudes, with formal training being a key predictor of performance.

Most respondents in the present study demonstrated correct decision-making under emergency scenarios: 78.8% prioritized the most critical patients during triage, and 86.5% used ambulances for transport. These findings are consistent with Mamo et al. (2023), who noted that practical readiness improves significantly when supported by structured education and simulation training. However, similar to reports from Ghana and Ethiopia, key barriers such as equipment shortages, communication lapses, and inadequate protocol dissemination continue to challenge effective RTA management (Osei-Asibey et al., 2022; Mulatu et al., 2023).

Psychological hesitancy reported by 34.6% of nurses who feared causing harm, and 15.3% who feared infections mirrors findings by Nshutiyukuri et al. (2020) and Oluwatosin et al. (2017), where such fears were common, especially in settings lacking sufficient protective equipment. These concerns underscore the importance of both emotional preparedness and adequate safety tools in trauma settings.

Moreover, equipment limitations were starkly reported by 50% of participants who rated availability as "poor." This echoes the observations of Mulatu et al. (2023), who noted that in Ethiopian emergency settings, equipment and supply shortages remain a critical hindrance to patient survival. The weak awareness or absence of standardized treatment protocols, acknowledged by 44.2% of respondents, further undermines consistent care delivery, a challenge also highlighted in prehospital care reviews across LMICs (Mock et al., 2003; Tsegaye et al., 2022).

Thus, the findings reinforce the dual necessity of building individual nurse competencies through structured training and improving systemic support via protocol development, equipment investment, and interdepartmental collaboration.

IV. CONCLUSION

Emergency nurses at Connaught Hospital exhibit commendable practical knowledge and strong willingness to manage RTA victims. Nonetheless, limitations related to equipment availability, inadequate structured training, psychological barriers, and poor dissemination of clinical

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guidelines impede optimal care. Addressing these gaps requires:

- Expansion of trauma-specific training (e.g., BLS, ATLS),
- Investment in functional emergency equipment,
- Development and dissemination of clear clinical protocols,
- Introduction of prehospital models such as the Lay First Responder framework.
- Targeted policy interventions, resource mobilization, and continuous professional development will be essential to strengthen emergency care outcomes for RTA victims in Sierra Leone.

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