

Provision of Care Following Road Traffic Injuries in a District in South India: A Qualitative Analysis of Stakeholder Perspective

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Abstract

Introduction: It is essential to explore ways to prevent and reduce the severity of injuries in road crashes. This study attempts at getting a ground-level understanding of perspectives surrounding road traffic injury among various stakeholders. **Materials and Methods:** In-depth interviews and focused group discussions were conducted over a period of 6 months among traffic police, toll booth operators, road transport officers, nurses, and intensive care specialists. The transcribed data were coded and analyzed, and a percentage of final themes as well as codes were drawn. **Results:** The common reasons cited for delay in transport of accident victims were fear regarding medicolegal issues among the first responders (36.9%) and delay in ambulance (41.5%). 26.1% agreed that time delay in transport can be reduced by generating awareness. Teaching first aid to the general public is essential as opined by 75% of nursing staff and 66.7% of emergency physicians. Documentation procedures (15.4%), long waiting hours (10.2%), and out-of-pocket expenditure and financial constraints (10.2%) were the commonly cited reasons for problems faced by patient bystanders. **Conclusions:** Creating awareness and improving access to ambulance were the two essential recommendations to prevent delay in prehospital care. Majority of the care providers and patient bystanders agreed that improving insurance coverage is essential to reduce financial constraints.

Keywords: In-depth interview, injury, perspectives, qualitative, road traffic injuries

INTRODUCTION

Considered as an important public health issue, road traffic injuries (RTIs) are currently ninth leading cause of death globally and predicted to become the seventh leading cause by 2030. Death toll is high in middle- and low-income countries where urbanization and motorization have grown rapidly and RTIs remain a neglected issue.^[1,2] Other than health effects, RTI leads to significant loss in economy at individual level and family level and to the society. The imbalance in pace of motorization and the development of road infrastructure poses concern, especially for RTI.^[3,4] Inadequacy in public health infrastructure and poor access to health facilities also compounds the effects of RTI.^[5] Road safety is a multisectoral and public health issue requiring engagement at different levels for RTI prevention.^[6] This study aims to understand a ground-level perspective on causes and prevention aspects and care with regard to road traffic injury among various stakeholders.

Aims and objectives

The purpose of this qualitative data collection was:

1. To assess the facilitators/barriers/constraints/complaints that affect care provision in RTI among selected stakeholders
2. To explore the experiences and recommendations regarding RTI care-related elements in trauma care network among selected stakeholders.

MATERIALS AND METHODS

The data presented and discussed are the qualitative component part of a larger mixed-methods study. In-depth

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interviews (IDIs) and focused group discussions (FGDs) were conducted between June and December 2019 at district road transport officer (RTO) office, selected police stations, toll booth, and at selected hospital facilities (two tertiary teaching institutes, one tertiary corporate hospital, one specialist hospital, and one general hospital) where the investigators were employed, FGDs were conducted among consenting traffic police, the toll booth operators, and among nursing staff, and the IDIs were conducted among the nurses, intensive care specialists, i.e., emergency care specialists and casualty medical officers and patient bystanders in hospital settings, and among the RTO.

Those stakeholders who could not participate in the study after three consecutive meetings scheduled, were excluded from the study.

Method of data collection

Institutional ethical clearance was obtained from the parent institution. Permissions for conduction of FGDs and IDIs were taken from respective administrative heads of participating sites including permissions from Director Medical Administration, Dean and Medical Superintendents of respective hospitals, Deputy Commissioner of Police (crime and traffic) for traffic police interviews, and the National Highways Authority of India (NHAI) project director for toll booth operators' interviews.

The detailed guide for the FGD and IDI tool was derived based on the review of literature and was validated by experts. The FGD guide included questions on common reasons for RTI, places more prone for RTI, facilitators/barriers for provision of services, role of regulatory measures in RTI prevention, attitude of public toward first aid, quality of first aid, and recommendations for improving prehospital care. The IDI guide included questions on prehospital care (reasons for transport delay, how to prevent delay, and opinion on prehospital care elements) as well as care provided within the hospital (preparedness of hospital on RTI, facilitators and constraints for provision of care, complaints regarding quality of care, and recommendations for improving care provided in the hospital). The FGDs/IDIs were conducted by two investigators as moderator and scribe, respectively, after obtaining informed consent from each respondent. The entire proceeding was audiotaped and scribed. The discussion was continued until theme saturation was achieved.

Data analysis

The transcribed FGD and interview data were coded and analyzed alongside the field notes constructed by the moderator. The audio recordings were used to verify the data and the analysis. The coding was done individually by all investigators. The number of times the same codeword or sentence was repeated was noted. A percentage of final themes and codes were drawn.

RESULTS

Stakeholder distribution is provided in Table 1. The deductive thematic analysis of the FGDs revealed common reasons for RTI and for delay in victim transport, treatment delays, role of Medico legal case (MLC) tag, barriers for law enforcement, constraints at the hospital in implementing care, and suggestions for improvement in pre- and posthospital care. The themes and common codes that came up during the FGD were found to be interconnected and interlinked with each other, as shown in Figures 1-3.

IDIs shed light on stakeholder's perspectives that influence the entire pathway (prehospital and inhospital care) and their recommendations at individual, government, and administrative levels. Fear regarding medicolegal issues for first responders at accident site (36.9%) and delay in ambulance (41.5%) were the most common reasons cited for delay and 26.1% agreed that creating awareness among the general public would reduce the same [Table 2]. Table 3 shows themes derived from specific stakeholders. The common facilitators for provision of care to RTI patients in the hospital were availability of adequate workforce and resources (70.4%) and training of consultants and nursing staff (74.1%) whereas some of the constraints included long working hours (22%) and financial constraints (22%).

Teaching first aid to the general public was perceived as a good option among 75% of the nursing staff and 66.66% of the emergency physicians. Improving facilities in ambulance for maintaining airway, breathing, and circulation was essential according to 15% of the nursing staff.

The various requirements highlighted by the participants of the majority were for adequate workforce and resources at hospital by 73.1% and periodic training of personnel by 76.9%. The emergency physicians (83.3%) quoted financial constraints restricting patients from availing quality trauma care and 66.7% emphasized the need for more trauma care facilities. Documentation procedures (15.4%), long waiting hours (10.2%), and out-of-pocket expenditure and financial constraints (10.2%) were the reasons for problems faced at health facility by patient bystanders.

DISCUSSION

The studies by Misra *et al.*,^[7] Sanyang *et al.*,^[8] and Gebresenbet and Aliyu^[9] found that the most common age group involved in RTI was 20–30 years. “*Indian statistics on RTA shows it is more common between 25 and 35 years. The youth of the country are an issue. They have the knowledge but are overconfident.*” “*Indians do not lack in skills. They lack in discipline.*” – ARTO.

Negligence from the drivers and overspeeding were commonly cited in the FGDs among the traffic police.

Delay in transport of patients was seen as an important factor for mortality by Chandrasekharan A *et al.*^[10] Our study

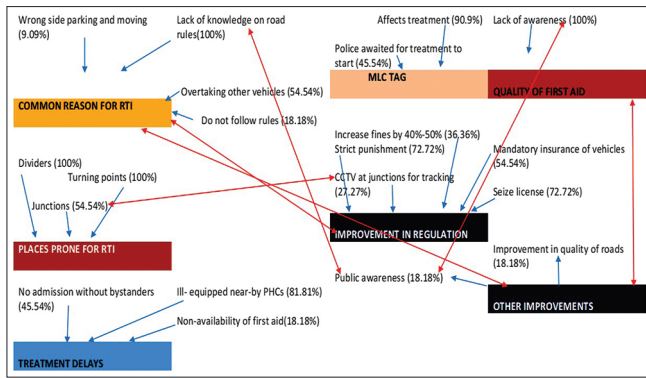


Figure 1: Thematic analysis of toll booth operator's perspectives on road traffic injury (focused group discussion 1, n = 11)

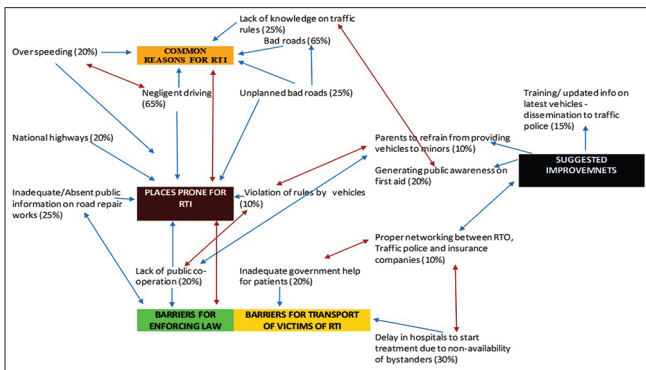


Figure 2: Thematic analysis of traffic police perspectives on road traffic injury (focused group discussion 2, n = 20)

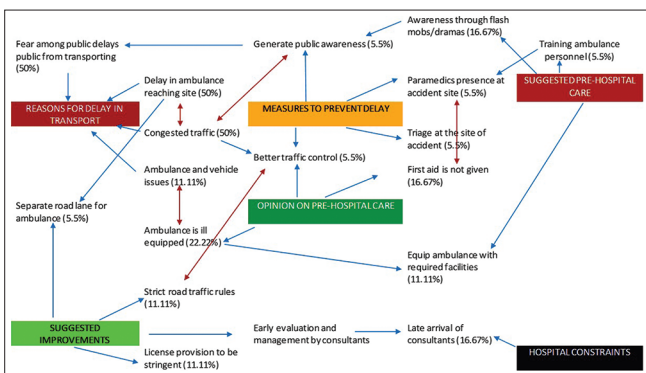


Figure 3: Thematic analysis of nursing staff's perspectives on road traffic injury (focused group discussion 2, n = 18)

substantiates this *“Bystanders take to nearest hospital without knowing seriousness of injury and if definite facility for treatment is not available there, reaching higher centre will result in delay”* (CMO, tertiary teaching hospital).

“The accident occurred in an interior and remote rural area. So, the ambulance took a lot of time to first understand our location when I called, and then to reach there. Then we had to be transported to the city which took further time because of the traffic” (38-year-old female bystander).

Traffic congestion, a general lack of awareness among the public along with ambulance issues, and fear regarding legal issues concerning the accident act as contributors for delay in transport of the victim.

A study done in Tanzania^[11] states that bad roads contributed to 17.9% of the RTI. Participants in our study mentioned that unplanned dividers, unnecessary flyovers, inadequate publicizing regarding repair works, new structures/roads being built, absence of free lefts where required, etc., are causes that contribute to accidents.

Proper networking between RTO, traffic police, and insurance companies was stressed in order to control vehicle licensing and registering.

Regarding first aid, many opined that first aid provided was inadequate and not timely.

“Usually in accidents patients die due to hypovolemic shock which can be easily managed, but such cases are not managed well at the primary and secondary facilities sometimes and that leads to death.” – FGD-nursing staff.

“Most of the ambulance manpower is not trained to provide first aid at the site of the RTI. Many times, patients are transported in 108 ambulances without providing proper first aid. For e.g., femur fractures are transported without splinting; these facilities are not available in the ambulance” – Nursing staff 4, tertiary hospital.

“If patient is bleeding from somewhere, they just tie a cloth and bring here” – CMO, tertiary hospital. *“Most cases come in rickshaw, cervical spine is already injured and we just have to experiment rather than treat”* – Emergency specialist 2, tertiary hospital.

“Knowledge of first aid is poor, they use road side herbs” – CMO, general hospital.

From the FGDs, it was evident that the common reasons for road traffic accidents and accident-prone sites could be overcome with improvements suggested. Barriers for enforcing law could be improved by educating the public, stricter enforcement of laws while issuing driving license, etc.

Including first aid education in school curriculum was also seen as a way of educating the public by the RTO official and the patient bystanders.

“The school curriculums should include the first aid teaching as it is a basic necessity for everyone to know in case of any kind of accidents.” – ARTO.

Our study highlighted the presence of well-trained workforce to be the most important facilitator. *“Emergency trauma technician is available, who can manage patient from door itself, he is well trained in BLS, ACLS, ATLS; they will literally manage every case”* – Emergency specialist 1, tertiary hospital.

However, few participants felt some constraints in terms of long working hours as well as financial constraints and poor insurance coverage. *“Since it is a private hospital and in our*

Table 1: Participant characteristics (n=116)

Focus group discussions	FGDs conducted, n (%)	Male, n (%)	Female, n (%)	Total participants, n (%)
Nursing staff	2	5	13	18 (36.73)
Traffic police	2	20	-	20 (40.82)
Toll booth operators	1	9	2	11 (22.45)
Total	5	34 (69.4)	15 (30.6)	49 (100)
In-depth interviews	Sample	Male	Female	Total participants, n (%)
Road transport officer	100	1	-	1 (1.49)
Nursing staff involved in emergency care	30	2	18	20 (29.85)
Intensive care specialists/CMO	100	6	1	7 (10.45)
Patient bystanders	10	19	20	39 (58.21)
Total		28 (41.8)	39 (58.2)	67 (100)

FGDs: Focused group discussions, CMO: Casualty Medical officer

Table 2: Common stakeholder perspectives about prehospital care following road traffic injury and recommendations (in-depth interviews among nurses, emergency physicians, and patient bystanders), (n=66)

Common codes	Number of repeats (%)
Prehospital care	
Theme 1: Reasons for delay in patient transport	
Fear of medicolegal issues among first responders	24 (36.36)
Poor awareness, fear, and response of local people	20 (30.3)
Delay in ambulance	27 (40.9)
Congested traffic	12 (18.18)
People crowding around at accident site, mutual fights, recording videos, delaying transport, and care	10 (15.15)
Theme 2: Preventing transport delays	
Creating awareness among general public about legal matters	17 (25.75)
Increasing the number of ambulances	8 (12.12)
Improve training for first responders	8 (12.12)
Theme 3: Opinion on prehospital care	
Poor quality of first aid at accident site	8 (12.12)
No knowledge of first aid	8 (12.12)
Quality of care is better in private facility than public hospitals	6 (9.09)
Theme 10: Recommendations	
Ensure periodic training of staff	12 (18.18)
Development of standardized protocols	12 (18.18)
Improve communication services	8 (12.12)

country insurance is not universal, most of the patients who come to our hospital don't have a health insurance, if patients had health insurance, we could have managed well without waiting for anything" – Emergency specialist 1, tertiary hospital.

Our study thus substantiates the recommendations by other studies^[2] concerning schemes for patients, insurance coverage, infrastructure of roads, increase in well-equipped facilities to deal with emergencies, legislations, etc. The study has particularly emphasized the need for insurance facilities, as the poor coverage of insurance has been

identified by multiple stakeholders to be a barrier in providing adequate care.

"The number of government hospitals in India are not sufficient for the load of RTI cases. BPL and Ayushman Bharat scheme cover only cardiac cases. It does not cover head injury, haemothorax or pneumothorax due to RTI, that results in huge bills in the private hospitals. At least 50% of the amount should be covered in private hospitals under these schemes for RTI cases also to help the poor people" – Nursing staff 3, tertiary hospital.

Our findings also emphasize the need for upgrading facilities like primary health centers (PHCs) with better infrastructure to deal with emergencies. "If referral centres are not nearby PHC may need to be upgraded to a trauma care facility" – CMO, PHC.

"There is a need for special trauma care centres even in PHC's, because if it's a bad RTI and it is in a remote place, in between time taken to reach specialty hospital there can be so many complications" – 27-year-old male bystander.

Legislation being the backbone for any policy implementation requires cooperation from different sectors. The view of participants was also along the same lines. "For RTIs, I feel that prevention is always better than cure. So, safety legislation like seat belts, safety helmets etc., need to be pushed more rather than focusing only on building hospitals. Besides, even if hospitals are built; usually, they come up in urban areas, which does not solve the issue of delay. Rather than that, training of the primary and secondary hospitals in dealing with trauma patients might prevent unnecessary delay" – a 26-year-old female bystander.

"Majority of the improvement happens with regulation, as people will get awareness more with fine" – P 8-Toll booth operator.

CONCLUSIONS

The study emphasizes creating awareness among the general public for promotion of road safety and on legal aspects of RTI, on first aid training for the first responders, and at primary

Table 3: Stakeholder perspectives about in-hospital care following road traffic injuries

Common codes	Number of repeats (%)
IDI among nurses, emergency physicians (n=27)	
Theme 4: Hospital preparedness	
Better triaging and segregation of patients	7 (25.92)
Fast response	17 (62.96)
Theme 5: Positive facilitators	
Availability of adequate workforce and resources	19 (70.37)
Well-trained consultants and nursing staff	20 (74.07)
Theme 6: Constraints at health-care facility for trauma care provision	
Long working hours	6 (22.22)
Shortage of staff	6 (22.22)
IDI among nurses (n=20)	
Theme 7: Promotion of first aid as part of prehospital care	
Teach the public and first responders about aspects of first aid	15 (75)
Training of ambulance staff (EMTs and paramedical staff)	5 (25)
IDI among emergency physicians (n=7)	
Theme 8: Constraints at health-care facility	
Financial constraints for patients in availing quality trauma care	5 (71.43)
Long working hours	3 (42.86)
Nonavailability of health insurance facilities with patients	1 (14.28)
Theme 9: Problems faced at the hospital (patient bystanders) (n=39)	
Documentation procedures	6 (15.38)
Long waiting time	4 (10.25)
Out-of-pocket expenditure and financial constraints	4 (10.25)
IDI: In-depth interviews, EMTs: Emergency medical services	

levels of care. It also focuses on improving insurance coverage to address financial constraints.

Limitations

Random sampling was used for selecting participants. Representation of intensive care physicians and RTOs was minimal.

Recommendations

Medical colleges can help support the traffic police and NHAI

departments by collaborating with these departments to generate awareness among the general public regarding safety measures and first aid as well as help to allay fear regarding medicolegal issues. These institutions can also ensure better implementation of cashless facility for RTI under the existing Ayushman Bharat Scheme.

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Conflicts of interest

There are no conflicts of interest.

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