

## Original Research Article

# How aware are our truck drivers regarding prevention of road traffic accidents? A cross-sectional study in Dankuni area, Hooghly

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## ABSTRACT

**Background:** Road traffic accidents are an emerging global health problem. It is projected that road traffic injuries will move up to the third by the year 2020 among leading causes of the global disease burden.

**Methods:** A cross-sectional study was conducted among 248 truck drivers in Dankuni area Hooghly for a period of 2 years from August 2017 to July 2018. By simple random sampling 248 truck drivers were selected from 641 registered drivers of the two-truck driver's association. Ethical clearance was obtained from the Institutional Ethics committee of AIHH and PH, Kolkata. After getting informed written consent for participation, the pre-designed pre-tested schedule was filled up. Data was analysed using SPSS16 version and bivariate analysis was done. For knowledge score (12 items), each item of positive response was scored as +2 and for negative response +1. Stress among truck drivers was assessed using perceived stress scale.

**Results:** Mean age of the participants was 37 years. 24.2% participants studied up to secondary school and 134 (54%) belonged to class IV. 21.0% had history of alcohol addiction, 80.6% had high stress. Adequate knowledge of traffic sign was observed among 79.8% participants and overall adequate knowledge was found among 135 (54.4%) participants.

**Conclusions:** Regular behavioural change communication sessions and intermittent sessions on safe-driving methods among truckers may prove beneficial in preventing road traffic accidents.

**Keywords:** Knowledge, Road traffic accident, Truck drivers

## INTRODUCTION

Trucking industry plays an integral role in driving the growth of India. Truck drivers are important part of our society as they are indirectly contributing to our daily living by transportation of food and other essential amenities. It is a highly strenuous occupation with high risk of physical and mental ill-health. The stressful and demanding nature of work done by the truck drivers, impact their physical and mental wellbeing.<sup>1</sup>

Road traffic accident can be defined as "An event that occurs on a way or street open to public traffic resulting in one or more persons being injured or killed where at least one moving vehicle is involved".<sup>2</sup> According to WHO: "A road traffic accident (RTA) is an injury due to crashes originating from terminating with or involving a vehicle partially or fully on a public road". It is projected that road traffic injuries will move up to the third by the year 2020 among leading causes of the global disease burden.<sup>3</sup>

In the world, 1.35 million people die each year as a result of road traffic accident. Road traffic crashes also retard the economic growth of any country. According to report of traffic department of West Bengal 2015, the incidents of road traffic accidents in India was 501423 and in West Bengal it was 13208. According to the 2014 statistics suggested by WHO, the number of persons killed per 100 accidents was at 51.4% in the state, which was the fourth highest in the country. The West Bengal goods and commercial vehicle contributed around 45-50% to the road accidents in 2016.

In West Bengal, overloading of goods is a common phenomenon. This adversely affects the road pavements, is a threat to road safety and reduces the life of the vehicle and thus is to any type of accidents.<sup>4</sup>

India as a signatory to Brasilia declaration to reduce road accidents and traffic fatalities by 50% by 2022. The Government has embarked upon a statewide drive "Safe drive save life" (SDSL) campaign on 2016 initiative to bring down road traffic accident.

Motor vehicle act 2019 coming into effect from September for breaking traffic rules. It consists of high penalties for driving error to imprisonment up to one month for racing and speeding and up to six months for offence relating to accidents. Pradhan Mantri Surakha Bima Yojana (PMSBY) is one of the social security schemes that the Government had announced in the 2015 budget (accidental death).

Road accident is an outcome of the interplay of various factors, some of which are the length of road network, vehicle population, human population and adherence of road safety regulation etc. Road accidents cause injuries, fatalities, disabilities and hospitalization with severe socio-economic cost across the country. Consequently, road safety has become an issue of concern both national and international level. Therefore, at all cost all vehicles plying in the roads need to be driven with both care and safety by responsible and devoted drivers.

The objective was to assess the knowledge status of truck drivers regarding prevention of road traffic accident.

## **METHODS**

### ***Study design***

A cross-sectional study was conducted in Dankuni area Hooghly, West Bengal over a period of two years, August 2017 to July 2019. A sample of 248 truck drivers were interviewed with pre-designed and pre-tested schedule.

### ***Sample size determination***

A study by Chakrabarty et al in Delhi 2013 among 102 car drivers 40% showed correct knowledge regarding RTA. By taking 40% as prevalence and absolute error 5%

sample size calculated was,  $n=368.7$ . Since, total registered truck drivers in the study area were 641. Multiplication with fixed population effect ( $N-n/N-1=0.65$ ) was done to obtain a sample size of 241. Taking non-response rate 2.5% final sample size was 248.

### ***Sampling technique***

A total 248 truck drivers were selected from 641 registered drivers from the available list of truck driver's association by simple random sampling. Drivers who were unwilling to participate in the study and not given informed written consent were excluded.

### ***Ethics***

Ethical clearance was obtained from the Institutional Ethics committee of AIHH and PH, Kolkata, West Bengal, India.

### ***Study tools and technique***

After getting informed written consent from participants, face to face interview was carried out using predesigned, pretested schedule containing Socio-demographic, socio-economic and behavioral characteristics and knowledge regarding prevention of road traffic accident

Stress among truck drivers was assessed using perceived stress scale (PSS-4). Lowest score was 0 and highest score was 16. Median score 8 was considered as cut-off, low stress: score <8 and high stress: score  $\geq 8$

Knowledge regarding prevention of road traffic accidents (RTA) (dependent variable). Scoring of each item of 12-items knowledge domain was, 2 for positive response and 1 for negative response. Median of attained knowledge score (22) was considered as cut-off, adequate knowledge: score  $\geq 22$  and inadequate knowledge: score <22.

### ***Statistical analysis***

Data was analyzed using SPSS16 Version. Bivariate analysis was done to find out the relationship of knowledge regarding prevention of RTA with other variables.

## **RESULTS**

In Table 1, majority of the truck drivers were aged between 28-37 years (34.7%). Mean age of the participants was 37 years with age range of 18 to 62 years. 67.3% participant's belonged to joint family. Majority of the participants studied up to secondary school 60 (24.2%) while 54 (21.8%) were illiterate. Majority of the participants 134 (54%), belonged to Class IV (modified BG Prasad scale 2019). Among participants 21% had history of alcohol addiction. For 44.8% of participants average driving hours per week was 21-30

hours. Majority (80.6%) of the participants suffered from high stress.

**Table 1: Distribution of study participants according to socio-demographic characteristics and occupational differentials (n=248).**

Variables	Number (%)
<b>Age (years)</b>	
18-27	61 (24.6)
28-37	86 (34.7)
38-47	52 (21.0)
48-57	34 (13.7)
>57	15 (6.0)
<b>Type of family</b>	
Joint family	167 (67.3)
Nuclear family	81 (32.7)
<b>Education</b>	
Illiterate	54 (21.8)
Primary	56 (22.6)
Middle school	54 (21.8)
Secondary	60 (24.2)
Higher secondary	19 (7.6)
Graduate	5 (2.0)
<b>Duration of truck driving in life time (in years)</b>	
1-10	119 (48.0)
11-20	84 (33.9)
21-30	33 (13.3)
31-40	12 (4.8)
<b>Average driving hours per week</b>	
10-20	21 (8.5)
21-30	111 (44.8)
31-40	95 (38.2)
41-50	20 (8.1)
>50	1 (0.4)
<b>Alcohol addiction</b>	
<b>Status of stress</b>	52 (21.0)
Low stress	48 (19.4)
High stress	200 (80.6)
<b>Type of injury</b>	
Minor injury	21 (8.5)
Major injury	8 (3.2)

In Table 2, 135 (54.4%) participants had adequate knowledge regarding road-traffic accident. Regarding traffic sign of “one-way sign” was known among 94.4% participants. “silence zone sign” was known among 89.1%, participants, “stop sign” was known among 97.6%, participants, “warning sign” was known among 60.5% participants, and “parking sign” was known among 83.1% participants. Overall knowledge about traffic sign was observed among 79.8% participants.

In Table 3, knowledge regarding prevention of road traffic accident was found significantly associated with increasing age ( $p < 0.01$ ), type of family ( $p < 0.04$ ),

addiction of alcohol ( $p < 0.003$ ) and duty hours per week ( $p < 0.02$ ).

**Table 2: Distribution of study participants according to their knowledge about prevention of RTA (n=248).**

Knowledge variables	Correct	Incorrect
	N (%)	N (%)
Traffic rules should be followed by all	179 (72.2)	69 (27.8)
Permitted roads should always be followed	199 (80.2)	49 (19.8)
Rash driving is harmful	170 (68.5)	78 (31.5)
While driving mobile phone should not be used	175 (70.6)	73 (29.4)
Loud music should be avoided while driving	179 (72.2)	69 (27.8)
Should not drive when drunk	195 (78.6)	53 (21.4)
Regular checking of vehicle must be done	221 (89.1)	27 (10.9)
<b>Knowledge of traffic signs</b>		
One-way sign	234 (94.4)	14 (5.6)
Silence zone sign	221 (89.1)	27 (10.9)
Stop sign	242 (97.6)	6 (2.4)
Warning sign	150 (60.5)	98 (39.5)
Parking sign	206 (83.1)	42 (16.9)
Adequate knowledge (median score $\geq 22$ )	135 (54.4)	21.5 $\pm$ 1.3
Inadequate knowledge (median score $< 22$ )	113 (45.6)	Maximum attainable score-24 Maximum attained score-24

## DISCUSSION

### Age

In this study, it was found that mean age of truck driver (37 $\pm$ 10.9) years, minimum age 18 years and maximum age 62 years. In a study by Sharma et al in Hyderabad, slightly lower mean age 28.46 $\pm$ 9.3 years was found among truck drivers.<sup>5</sup> Singh et al in their study among 296 truck drivers of Bareilly district Uttar Pradesh found mean age to be 32.52 years.<sup>6</sup> While a study by Dhawan et al, in Mumbai observed a mean age of 30 years among the truck drivers.<sup>7</sup> Another study in South India observed a mean age of 39.38 years with minimum age 22 years and maximum age 67 years.<sup>8</sup>

### Family type

In this study, it was found that majority of the truck drivers were belonged to joint family 167 (67.3%). In a comparative study in Kolkata among 254 bus drivers by Mukherjee et al, it was found that in Group I- joint family 56.4%, On the other hand in Group II- joint family 50%.<sup>9</sup>

### Educational status

In this study, majority of participants completed secondary level 60 (24.2%). And more than 21% participants were illiterate though the present RTO rules driving license cannot be given to any person who had not completed class VIII. In a comparative study in Kolkata among 254 bus drivers by Mukherjee et al, it was found that in Group I- minimum literacy 55.7%. On the other hand in Group II- minimum literacy 44.7%.<sup>9</sup>

### Socio-economic status

In this study, socio-economically most of the drivers belonged to class IV 134 (54.0%) according to BG Prasad scale 2019. In a comparative study in Kolkata among 254 bus drivers by Mukherjee et al, it was found that in Group I - monthly income was Rs 6000-8000 per month. On the other hand, in Group II - monthly income was Rs 8000-10000 per month.<sup>9</sup>

**Table 3: Association of knowledge regarding prevention of RTA with different factors (n=248).**

Variables	Inadequate knowledge N (%)	Adequate knowledge N (%)	df	$\chi^2$ value	P value
<b>Age (in years)</b>					
≥35	72 (52.6)	65 (47.4)	1	6.03	0.01
<35	41 (36.9)	70 (63.1)			
<b>Injury</b>					
Minor injury	6 (28.6)	15 (71.4)	1	2.83	0.10
Major injury	5 (62.5)	3 (37.5)			
<b>Education</b>					
Illiterate	23 (42.6)	31 (57.4)	1	0.246	0.36
Literate	90 (46.4)	104 (53.6)			
<b>Family type</b>					
Joint	83 (49.7)	84 (50.3)	1	3.52	0.04
Nuclear	30 (37.0)	51 (63.0)			
<b>Alcohol</b>					
No	80 (40.8)	116 (59.2)	1	8.49	0.003
Yes	33 (63.5)	19 (36.5)			
<b>Duty hours/week</b>					
<30	52 (39.4)	80 (60.6)	1	4.33	0.02
≥30	61 (52.6)	55 (47.4)			
<b>Stress</b>					
Low	21 (43.8)	27 (56.2)	1	0.079	0.45
High	92 (46.0)	108 (54.0)			

### Alcohol addiction

In this study it was found that 21% truck drivers were consumed alcohol while in a study conducted by 17. Tajvar et al, Mumbai among 100 truck drivers, 10% truck drivers were consumed alcohol while driving.<sup>17</sup> A study by Singh et al, among 296 truck drivers of Bareilly district Uttar Pradesh 67.5% were consumed alcohol.<sup>6</sup>

### Stress

In this study, it was found that, 80.6% truck drivers suffered from high stress. It was far more than that was observed in other studies. In a study by Shashikala et al, it was found that among 480 auto drivers, 29.2% had mild stress and, 2% had moderate stress.<sup>10</sup> While a study conducted by Chaudhari et al showed the magnitude of stress was 27.6%.<sup>11</sup>

### Knowledge

A study by Chakrabarty et al in Delhi 2013 among 102 car drivers showed that maximum level of awareness about road sign of driving was 89%, the safe way of stopping during emergency was 40%, safe place of parking the vehicle was 39%, road marking 27%, overall driver had shown average and above average level awareness 52 to 77%.<sup>12</sup>

On the contrary, in this study correct knowledge about parking sign was found among 83.1% and adequate knowledge about traffic sign was found among 79.8% of participants.

### CONCLUSION

Truck drivers work in a stressor-filled environment and often are exposed to variety of health risks. This study

revealed that only considerable proportion of participants had inadequate knowledge regarding prevention of road-traffic accidents despite governmental efforts through campaigns to increase awareness among the truck drivers. Therefore, addressing the stressors and behavioural determinants contributing to their poor awareness level through regular health-screening program is the need of the hour to improve road safety. Regular behavioural change communication (BCC) sessions and intermittent sessions on safe-driving methods among truckers may prove beneficial in preventing road traffic accidents. Implementation of stringent motor vehicle rules and regulations are also recommended to mitigate future RTA risks. Future researches on designing effective BCC intervention to improve awareness among truckers are recommended.

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