

Assessment of Post Traumatic Stress Disorder and the Associated Socio Demographic Parameters of Road Traffic Accident Victims

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Abstract:

Background: Road traffic accident (RTA) is a global trauma which can produce a traumatic stress with tremendous physical, social and psychological impairments to the victims. Post traumatic stress disorder (PTSD) is the most common mental disorders among the RTA victims.

Objectives : To assess the PTSD among the RTA victims and the relationship between the socio demographic parameters of RTA victims with PTSD.

Methods: This cross sectional study conducted among 202 RTA patients attended in the inpatient dept. of a specialized hospital in Dhaka city for one year duration. Data collected from these patients using a semi structured interview administered questionnaire and PTSD assessed by using Diagnostic and Statistical Manual-IV DSM-IV(PCL-S). The collected data were analyzed by using SPSS software (Version 21) and $p < 0.05$ considered as significant.

Results: The mean age of RTA victims found 37.6 (± 13.2) years, majority 57.4% belongs to 18-30 years age group. Out of 202 RTA patients 41.1% developed PTSD having e"51 score in Diagnostic and Statistical Manual-IV DSM-IV (PCL-S) checklist. Among the socio demographic parameters age and occupation were significantly associated with the PTSD; whereas education, family income, sex were not associated significantly with PTSD.

Conclusion: This study found a high magnitude of PTSD among RTA victims.

Key words: Road traffic accident, Post traumatic stress disorder, Victims, Parameters.

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Introduction:

Road traffic accident (RTA) is a global trauma as well as a rapidly growing burden in developing countries. It is a major threat that cannot be totally prevented. Like many other countries in the world Bangladesh also suffers a great deal due to this RTA every year. Basically these accidents occur due to simultaneous flow of heterogeneous traffic, mixed flow pattern of traffic and pedestrians. World health organization (WHO), Harvard University and World Bank (WB) simultaneously run a program named "Study Global Burden of Disease" which shows that RTA was the ninth biggest cause of death in the year of 1990, however by 2020; the ninth position of

RTA will be raised to the third place. [1-2] Research suggested that involvement in RTA may put individuals at an increased risk for a wide range of psychiatric disorder, including anxiety, depression, delirium, Post Traumatic Stress Disorder (PTSD). [3-5] This disorder is characterized by persistent re-experiencing the traumatic event in the form of vivid dreams, flash backs, night mares, disturbing memories, which may affect the victims normal life. It is not only the physical and psychological impairment but also high healthcare costs. [6-8] PTSD is prevalent among RTA victims, the prevalence of PTSD among RTA survivors ranging from 6.3 % to 58.3%. [9] RTA is more strongly associated with PTSD symptoms and psychological variables. [10] Though RTA is a major health problem in countries like Bangladesh and PTSD is closely related with it, but the psychological aspect of RTA victims are often ignored in research sector. Moreover the investigations of its psychological risk factors and sequels have been neglected. Hence it is very necessary to diagnose the PTSD and psychological assistance, mental health care and motivational intervention is needed after road traffic injury. Because after road traffic injury maximum lose their jobs and they are unable to lead normal life due to their scare of injury, amputation of limb. So more research work should be conducted on this topic

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for a better life and to add psychological intervention after hospitalization and during discharge of RTA patients. Present study aimed to assess the PTSD among RTA victims and the relationship between the socio demographic parameters with it.

Methods:

This descriptive cross sectional study was conducted among the RTA patients admitted in the inpatient dept. of National Institute of Traumatology and Orthopaedic Rehabilitation (NITOR) with the objective to assess the level of PTSD among them. The study was conducted for one year duration with purposively selected 202 RTA victims using a pretested semi structured interview administered questionnaire, where PTSD Diagnostic and Statistical Manual-IV DSM-IV(PCL)^[11] used to assess the PTSD. The PCL is a 17 item self report measure reflecting DSM-IV symptoms of PTSD. There are three versions of the PCL for DSM-IV, they are the PCL-M, the PCL-C and the PCL-S. Among these three versions of PCL for DSM-IV the PCL-S (specific) used in this study, which actually asks about the symptoms in relation to an identified stressful experience such as assault, disaster or accident. The PCL-S checklist contain 17 items that have response options ranging from 1 “not at all” to 5 “extremely”. The range of score is 17-85 and the score ≥ 51 considered as presence of PTSD; the score < 50 considered as absence of PTSD. The responses rated as “moderately” or above, that means the responses 3 through 5 on individual items are counted as presence of PTSD. The RTA patients age 18 years or above, irrespective of sex who were interested to participate in this study were included as inclusion criteria and those patients who were severely injured or ill to take part in the interview were excluded from this study. Ethical clearance was obtained from the Institutional Review Board (IRB) of National Institute of Preventive and Social Medicine (NIPSOM) and the reference number is NIPSOM/IRB/2013/1125. Prior to the study, a written permission to collect the data from the patients was taken from the Director of respective

hospital and written informed consent was taken from the respondents to conduct the study. Finally after checking and editing the collected data were analyzed by using SPSS software version 21 on the basis of study objectives and the results presented in the form of tables and figure. Confidentiality and anonymity of the respondents were maintained strictly. Statistical significance was accepted for values of $p < 0.05$.

Results:

The study was conducted for one year duration with purposively selected 202 RTA victims among the RTA patients admitted in the inpatient Dept. of National Institute of Traumatology and Orthopaedic Rehabilitation (NITOR).

Table I reveals that the mean age of RTA patients was 37.6 (± 13.2) years, more than half 116 (57.4%) belongs to 18 – 30 years age group; , majority 148 (73.3%) were male and among the occupational variation 28.7% were in business/ service, 21.3% were motor workers.

Table II reveals that among the RTA patients majority 156 (77.2%) patients injury was severe which includes any kind of fracture, whereas 46 (22.8%) were in moderate injury (any kind of sprain) and mild injury refers as only abrasion, laceration, bruise; less than half 86 (42.6%) faced accidents in highways, majority 141 (69.8%) patients affected lower extremity and the duration of suffering from RTA is 41.1 (± 24.3) days.

Table III reveals that the mean PTSD score was 44.1 (± 8.2), majority 83 (41.1%) patients PTSD score was ≥ 51 , whereas 70 (34.7%), 49 (24.3%) patients score was 31 – 40 and 41-50 respectively.

Figure 1 shows that 83 (41.1%) RTA patients developed PTSD

Table 4 shows the association between PTSD and socio demographic parameters of RTA patients. Here sex was not significantly associated with the PTSD (as $p > .05$); whereas age and occupation had significant association with PTSD (as $p < .05$).

Table-I

Socio demographic parameters of the RTA patients

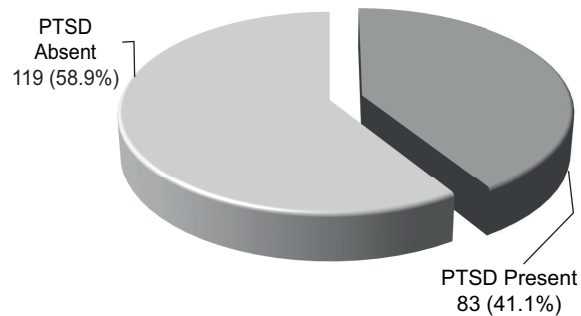
Socio demographic parameters	Category	N (%) (N=202)
Age (in years)	18 – 30	116 (57.4%)
	31 – 59	67 (33.2%)
	60 – 75	19 (9.4%)
	Mean (\pm SD) : 37.6 (± 13.2) years	
Sex	Male	148 (73.3%)
	Female	54 (26.7%)

Table-II

<i>RTA related variables [N=202]</i>		
RTA related variables	Category	N(%)
Severity of injury	Mild	-
	Moderate	46 (22.8%)
	Severe	156 (77.2%)
Place of accident	Highway	86 (42.6%)
	Subway	73 (36.1%)
	Intersection of road	43 (21.3%)
Affected body parts	Neck and chest	22 (10.9%)
	Upper extremity	30 (14.9%)
	Lower extremity	141 (69.8%)
	Spinal cord	9 (4.5%)
Mean duration of suffering from accident (days)	Mean (\pm SD)	41.1 (\pm 24.3)

Table-III*RTA patients by PTSD score [N=202]*

Score of PTSD	N (%)
31 – 40	70 (34.7)
41 – 50	49 (24.3)
\geq 51	83 (41.1)
Mean (\pm SD)	44.1 (\pm 8.2)

**Fig-1:** Distribution of RTA patients by PTSD [N=202]**Table-IV***Association between PTSD and socio demographic parameters of RTA patients*

Socio demographic parameters	Category	PTSD present	PTSD absent	p value
		N (%)	N(%)	
Sex	Male	57 (38.5)	91 (61.5)	0.218 ^{ns}
	Female	26 (48.1)	28 (51.9)	
Age (in years)	18 – 30	57 (49.1)	59 (50.9)	0.017 ^s
	31 – 59	22 (32.8)	45 (67.2)	
	60 - 75	4 (21.1)	15 (78.9)	
Occupation	Student	7 (50.0)	7 (50.0)	.05 ^s
	Business / Service holder	22 (48.0)	36 (52.0)	
	House wife	18 (52.9)	16 (47.1)	
	Daily laborer	4 (28.6)	10 (71.4)	
	Motor worker	25 (58.1)	18 (41.9)	
	Other	18 (25.6)	29 (74.3)	

p-value was calculated by chi square test

s : Significant, ns :Not significant

p-value significant at <0.05

Discussion:

Present study assessed the level of PTSD among the RTA patients and the relationship between the socio demographic parameters and PTSD among the RTA victims. According to the study results the mean age of RTA patients was 37.6 (± 13.2) years; majority (57.4%) belongs to the 18-30 years age group. Ongecha et al.^[12] reported in a study the mean age of RTA patients was 34.6(± 12.7) years, which was quite close to the present study result. Majority (73.3%) RTA patients were male, which was also similar with the study result by Ongecha et al.^[12], where 74.0% RTA patients were male. In Bangladesh like other developing countries male are more affected in RTA than female, as because male are more exposed in road than female. Among all the RTA patients majority (41.1%) had e"51 score of PTSD, where as 34.7%, 24.3% belongs to the score range 31-40, 41-50 respectively. The mean PTSD score among the RTA victims found 44.1(± 8.2). Present study also found that among 202 RTA patients 83 (41.1%) patients developed PTSD, which was really alarming. These patients had a positive PTSD test after one month of accident. Psychological problems are common in accident victims. The RTA victims suffer from psychological problems that may affect the quality of life. It is reported that anxiety is the common after math of physical and emotional trauma. In different studies the probable PTSD among RTA survivors found 15.4%^[13], 32.4%^[14], 22.8%^[15]. Among RTA victims present study reported much higher percentage of PTSD in comparison with the above mentioned studies. In a meta analysis, it was showed that the pooled prevalence of RTA survivors was 22.25% (95% CI : 16.71% - 28.33%) and the PTSD ranging from 6.3% to 58.3%.^[9] Present study also found female RTA patients (48.1%) had PTSD, which was higher compared to male (38.5%); but the variation by sex with PTSD was not statistically significant (as $p > 0.05$). The present finding in the screening tools are consistent with several previous findings that women have significantly higher percentage for depression compared to men.^[16] Regarding age distribution present study found that (49.1%) patients who developed PTSD belongs to 18-30 years age group, where as 32.8% and 21.1% patients who developed PTSD belongs to 31-59 years and 60-75 years age group. This difference of PTSD by age was statistically significant (as $p < .05$). It is clearly visible those younger groups are more prone to develop PTSD.

Prior research on socio demographic predictors of depression has shown high risk for less education or absence of any formal education as potential risk factors for depression or stress related disorder. But present research finding regarding education was inconsistent with the finding, as because educational qualification was not associated with PTSD. This difference of PTSD by occupation of the RTA patients was statistically significant (as $p < 0.05$). Stress was significantly associated with some clinical and socio-demographic variables such as income, professional activity and comorbidities. Similar to this study higher percentage of depression was found among unemployed and those without family income.^[16]

Conclusion:

The study concluded that among the RTA victims a significant amount of patients developed PTSD. Young Male and Daily laborer were predominant among RTA victims, but the majority of female victims develop PTSD, younger age group was predominant and majority of them develop PTSD.

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