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Sensation Seeking Behavior and Crash Involvement of Indian Bus Drivers

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Abstract

Road crashes and environmental degradation are among the prominent issues of concern today in most of the developing economies particularly India. Buses, which are key mode of public transit in India, are unfortunately involved in a significant number of crashes in recent time. Bus driver's attitude and his ability to comprehend traffic situations aptly contributes largely to passenger safety. In this study the effect of sensation seeking behavior on crash involvement rates of bus drivers in India was investigated. Study was conducted to assess sensation seeking behaviors of sample bus drivers from Karnataka State Road Transport Corporation (KSRTC). Assessment was conducted using a modified Zuckerman's Sensation seeking scale (ZSSS) form V questionnaire that included sub scales such as boredom susceptibility, disinhibition, experience seeking, and thrill and adventure seeking. The survey results were further related to their crash involvement histories through ratio analysis. Further a Generalized Linear Model with log link and Poisson error was developed to ascertain the influence of these traits on their crash involvement propensity.

The results indicate that acute levels of Sensation seeking increased crash involvement rate in the tested drivers. Risk of severe crashes (major and fatal) was observed to be high in drivers with high levels of sensation seeking. Extreme levels of boredom susceptibility and disinhibition, and lower levels of thrill and adventure seeking were found to be dangerous in terms of road crash tendencies. These results highlight the importance of driver behaviour on road safety and also validate the use of ZSSS in behavioural studies of Indian bus drivers. Also, the need for setting efficient standards for behavioral evaluation, necessary for the scrutiny of transport vehicle drivers during their licensing and recruitment process in India has been stressed upon. Through this

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study it would also help in monitoring road safety attitude in transport vehicle drivers and help in reducing road fatalities and other related losses. Some specific recommendations with respect to KSRTC Bus drivers have been made in this paper in this regard.

*Keywords:*Type your keywords here, separated by semicolons ;

1. Introduction

Indian traffic scenario is extremely diverse in comparison to that of developed countries. With the heterogeneous traffic environment, minimal adherence to lane discipline and poor maintenance of road structures, it becomes highly essential for the drivers to remain patient and maintain vigilance throughout the task of driving. Human error is considered as a contributing factor for up to 90% of road crashes worldwide according to Green [1]. The MoRTH, [2] report shows that driver faults comprise of up to 78% of road accident causes in India. These statistics accentuate the need to understand driver behavior specific to traffic scenarios in developing countries, and to identify effective measures to counter road safety issues.

Driving is a skill that requires constant co-ordination of mind and body. In heterogeneous traffic conditions, the task of driving becomes highly complex. While driving heavy vehicles (ex: buses, trucks) in India specifically, drivers need to remain cautious throughout to safely respond to vehicles of different sizes coming their way abruptly from any direction. These complexities have caused an increasing number of heavy vehicle crashes in many Indian cities as observed by Singh et al. [3] and Kaul et al. [4]. Bus driver faults are of greater concern as it not only involves the safety of other road users but also the safety of several passengers. Bus crash statistics of some of the state transports undertaking (STUs) of India are shown in Table 1.

Table 1: Bus crashes histories due to driver faults in some of the STU's in India (2010-11)

Sl. No.	STU	State	Total number of accidents	Accidents due to driver fault	Percentage of accidents caused due to driver faults
1	APSRTC	Andhra Pradesh	2879	1378	47.9%
2	MSRTC	Maharashtra	3407	1900	55.8%
3	GSRTC	Gujarat	1010	413	40.9%
4	KSRTC	Karnataka	1278	832	65.1%
5	RSRTC	Rajasthan	493	112	22.7%
6	TNSTC	Tamil Nadu	4195	3338	79.6%
7	BMTC	Bangalore	558	180	32.3%
Total Number of crashes caused due to bus driver faults				8153	59%

Source: State Transport Undertakings (STU): Profile and Performance Report by Central Institute of Road Transport (CIRT), 2010-11

Drivers' inherent personality plays a crucial role in his driving behaviour and is essential in recognizing and assessing their crash involvement propensity. Iversen et al. [5] stated that in recent years emphasis is being laid on understanding the emotional and personality features of drivers that influence their driving behaviour besides environment and vehicle factors. Decision making, personality and driving styles, psychological abilities and personality traits of drivers are among the crucial factors influencing driving and crash risk. According to the studies by West et al. [6] drivers who were involved in a crash in which their own behaviour played a role, had four times the odds of having a similar accident in the next two years when compared to crash free drivers. These behavioural functions are difficult to quantify, and to consider them in road safety evaluation is an intricate task. The present work focuses on a specific personality trait of bus drivers i.e., Sensation seeking behaviour wherein its influence on crash involvement propensity of Indian bus drivers is analysed in detail.

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