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Editorial

Letter from the Editors

The *Journal of Safety Research* is pleased to publish in this special issue the proceedings of several papers presented at the 4th International Conference on Road Safety and Simulation convened at Roma Tre University in Rome, Italy, October 2013. This conference serves as an interdisciplinary forum for the exchange of ideas, methodologies, research, and applications aimed at improving road safety globally.

Conference proceedings provide the opportunity for research in its formative stages to be shared, allowing our readers to gain early insights in the type of work currently being conducted and for the researchers to receive valuable feedback to help inform ongoing activities. This conference in particular offers an array of research topics not often covered by this journal from researchers practicing in over 11 countries. As is common with publishing conference proceedings, the papers published in this issue did not go through the normal *JSR* review process. Each paper included in this issue did meet the Road Safety and Simulation conference review requirements. They reflect varying degrees of scientific rigor, methodological design, and groundbreaking application.

The proceedings published in this special issue of *JSR* draw from the following road safety research sectors represented at the conference: driving simulation, crash causality, naturalistic driving, and new research methods.

It is our hope that the publication of these important proceedings will stimulate vigorous dialogue, rigorous research, and continuing innovative initiatives and applications, leading, ultimately, to fewer traffic fatalities, injuries, and crashes.

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A comparison of contributing factors between alcohol related single vehicle motorcycle and car crashes

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ABSTRACT

Introduction: Alcohol related crashes have accounted for approximately 35% of fatal crashes per year since 1994 nationwide, with approximately 30% involving impairment over the legal blood alcohol content limit of 0.08%. Educational campaigns and law enforcement efforts are two components of multi-faceted programs aimed toward reducing impaired driving. It is crucial that further research be conducted to guide the implementation of enforcement and educational programs. *Method:* This research attempts to provide such guidance by examining differences in alcohol-involved crashes involving motorcycles and passenger cars. Prior safety research has shown that motorcyclists follow a significantly different culture than the average passenger car operator. These cultural differences may be reflected by differences in the contributing factors affecting crashes and the severity of the resulting injuries sustained by the driver or motorcyclist. This research is focused on single-vehicle crashes only, in order to isolate modal effects from the contribution of additional vehicles. The crash data provided for this study are from the Ohio Department of Public Safety from 2009 through 2012. *Results:* The injury severity data are analysed through the development of two mixed logit models, one for motorcyclists and one for passenger car drivers. The models quantify the effects of various factors, including horizontal curves, speeds, seatbelt use, and helmet use, which indicate that the required motor skills and balance needed for proper motorcycle operation compounded with a lack of mechanical protection make motorcyclists more prone to severe injuries, particularly on curves and in collisions with roadside objects. *Practical Applications:* The findings of this study have been incorporated into combined motorcycle and sober driving educational safety campaigns. The results have shown to be favorable in supporting national campaign messages with local justification and backing.

1. Introduction

Alcohol related crashes account for roughly 35% of all fatal crashes in the United States (FARS, 2012). The approximately 10,000 fatalities involving a blood alcohol concentration (BAC) above legal limits represent a loss of life that is completely preventable in our society. The effects and contributing factors of alcohol related car crashes are of equal importance to the motoring, educational, and law enforcement communities alike. It is widely known and accepted that alcohol impairs the competence and reactions of motor vehicle operators (Brovold et al., 2007; Colón & Cutter, 1983; Creaser, Ward, Rakauskas, Shankwitz, & Boer, 2009; Orsay, Doan-Wiggins, Lewis, Lucke, & RamaKrishnan, 1994; Soderstrom, Dischinger, & Kerns, 1996).

Research sponsored primarily through the National Highway Traffic Safety Administration (NHTSA) has investigated at length the effects, results, indicators, and social factors of operation of a vehicle under the influence of alcohol or drugs (OVI) crashes. A report on the *2007 National Roadside Survey of Alcohol and Drug Use by Drivers* indicates that the single largest vehicle classification with illegal BAC is motorcycles. OVI occurrences with motorcycles are particularly high, in part, due to the social convention of drinking and riding. Unfortunately, motorcycle riders are at an increased risk in comparison to passenger cars, SUVs, light and heavy trucks due to the increased vulnerability, and a greater need for balance and coordination (Compton & Bening, 2009). The effects of alcohol on the physical abilities of motorcycle operators and their riding abilities are outlined by Soderstrom et al. (1996).

While current research on impaired driving has been crucial in the reduction of illegal BAC observations (Compton & Bening, 2009), there is still an alarming number of alcohol related fatal crashes in the United States and abroad. Impaired operators are a risk to society as

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