

## Public Health in Emergency Medicine

### TRAFFIC LAW KNOWLEDGE DISPARITY BETWEEN HISPANICS AND NON-HISPANIC WHITES IN CALIFORNIA

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□ **Abstract—Background:** The Hispanic population is one group that is involved in a disproportionately high percentage of fatal motor vehicle collisions in the United States. **Study Objectives:** This study investigated demographic factors contributing to a lack of knowledge and awareness of traffic laws among Hispanic drivers involved in motor vehicle collisions (MVCs) in southern California. **Methods:** The cross-sectional study enrolled adults ( $n = 190$ ) involved in MVCs presenting to a Level I trauma center in southern California over a 7-month period. Subjects completed a survey about California traffic law knowledge (TLK) consisting of eight multiple-choice questions. The mean number of questions answered correctly was compared between groups defined by demographic data. **Results:** The mean number of TLK questions answered correctly by Hispanic and non-Hispanic white groups were significantly different at 4.13 and 4.62, respectively ( $p = 0.005$ ; 95% confidence interval  $-0.83$  to  $-0.15$ ). Scores were significantly lower in subjects who were not fluent in English, had less than a

high school education, did not possess a current driver's license, and received their TLK from sources other than a driver's education class or Department of Motor Vehicle materials. Analysis of variance showed that the source of knowledge was the strongest predictor of accurate TLK. **Conclusion:** Source of TLK is a major contributing factor to poor TLK in Hispanics. An emphasis on culturally specific traffic law education is needed. © 2011 Elsevier Inc.

□ **Keywords—**motor vehicle collision; Hispanic; non-Hispanic; traffic-law knowledge; cultural differences; ethnicity

#### INTRODUCTION

Motor vehicle collisions (MVCs) are a leading cause of preventable morbidity and mortality in the United States. In 2002, MVCs were the eighth leading cause of death overall and the number one leading cause of death among the population aged 3–33 years. In this age group, MVCs were responsible for 24.7% of all deaths in the United States (1). However, the mortality rate has been decreasing over the past few decades. This decline has been attributed to safer roads, safer vehicles, and improved traffic safety laws (2). Further reductions in the

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death, injury, and disability caused by MVCs can be made by identifying groups with high rates of fatal MVCs and then determining effective methods to reduce the behaviors that placed these groups at higher risk.

The Hispanic population (including, but not limited to, the Latino, Central and South American, Cuban, Puerto Rican, and Spanish subpopulations) has been identified as one group that is involved in a disproportionately high percentage of fatal MVCs in the United States. Braver reported that Hispanic men had elevated occupant death rates per unit of travel when compared to Whites (3). Baker et al. found that Hispanic children aged 5–12 years had an occupant death rate per unit of travel that was 72% higher than non-Hispanic Whites (NHWs), and Hispanic teenagers had the highest occupant death rate per unit of travel among all ethnic groups studied (4). The Hispanic population is also more likely to demonstrate risky behaviors when they are involved in MVCs. Several studies have reported that Hispanic motorists are over-represented in alcohol-related traffic collisions (5–7). One of these studies, which looked at injured motorists admitted to trauma centers in Illinois, reported that Hispanic crash victims had lower rates of safety belt use and higher rates of alcohol involvement than NHW motorists (5). Several other studies have shown that Hispanic motorists, in general, are more likely to disobey traffic-safety laws. One of these studies consisted of interviews and observational data demonstrating that Hispanic farm workers in California have low rates of safety belt and car seat use (8). Another study done in non-crash-involved motorists demonstrated that alcohol use is higher among Hispanic drivers than others (9). Several other surveys have found that safety belt use is lower among Hispanic Americans compared with the general population (10–12).

Although several studies have shown that African-American and Native American populations have an even higher incidence of fatal MVCs in selected regions of the country, the present study focuses on the Hispanic population because it is the most rapidly growing minority population in the United States (US) (13). Orange County, California has a population of nearly 3,000,000 people, with 32% Hispanic, 49% non-Hispanic White, 16% Asian, and 30% foreign born (14). In the 2000 census, 92% of Hispanics who gave a specific origin were of Mexican origin (15). Due to sheer numbers, Hispanic driving practices will have a much greater impact on the safety of our society than other minority groups, especially in regions such as southern California where Hispanic populations are densest.

There are a number of cultural and social factors that have an impact on non-compliance with traffic laws among the Hispanic population. The 1995 National Highway Traffic Safety Administration (NHTSA) report

illustrated that many recent Mexican immigrants are unaware of US traffic laws. The laws in Mexico are different and less rigorously enforced or not enforced at all (11).

The primary objective of this study was to investigate demographic factors that contribute to a decreased awareness of traffic laws among individuals who are involved in MVCs. This study looked at the level of traffic law knowledge (TLK) among patients who were hospitalized due to MVCs. Because Hispanics suffer more morbidity and mortality from MVCs than NHWs, our principal goal was to document whether or not hospitalized Hispanics with MVC-related injuries have a lower level of knowledge of traffic laws than NHWs with similar injuries. We also looked at a number of other demographic factors that might contribute to low TLK among Hispanics and other ethnic groups.

## MATERIALS AND METHODS

The study was approved by the University of California, Irvine School of Medicine Institutional Review Board. Data collection was conducted via face-to-face interviews using a questionnaire in English, Spanish, and Vietnamese, at a Level I trauma center in Orange County, California. All adult drivers and passengers who were admitted to the hospital due to injuries sustained during a MVC were considered for enrollment in the study. Potential subjects, once medically stable and no longer under the influence of alcohol or drugs, were approached by one of two research staff members regarding consent to be enrolled. No attempt was made to classify or collect data regarding the few patients who declined enrollment. The study was restricted to patients who were able to participate in a verbal interview during their hospital stay. The questionnaire was developed in English and translated into Spanish and Vietnamese. A physician assistant or nurse practitioner employed by the hospital conducted all English interviews. All Spanish and Vietnamese interviews were conducted by approved native speakers who are also employed by the hospital.

The questionnaire consisted of several demographic questions and eight questions regarding the subject's understanding of California traffic laws. The answers given by the subjects for the eight TLK questions were compared to the predetermined correct answers in accordance with California law as outlined in the California Driver Handbook. The mean number of TLK questions answered correctly on the survey was considered in light of the subject's demographic data, which included race, gender, English fluency, education level, and average household income. Cutoff points for analyzing continuous or ordinal data, such as income level, were based on

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