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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

an abbreviated version of the US Census data (15). Subjects were also asked where they obtained most of their TLK. The mean number of TLK questions answered correctly on the survey was also considered in relation to whether the subject was the driver or passenger of the vehicle and whether or not the subject claimed to be restrained at the time of the collision. Blood alcohol content (BAC) and illicit drug use, as determined by a blood alcohol level and urine toxicology screen, were collected concurrently on patient presentation to the Emergency Department. The mean number of TLK questions answered correctly on the survey by subjects with a BAC > 0.08% or a positive urine toxicology screening test were compared to those subjects with a BAC < 0.08% or a negative urine toxicology screening test. A description of each subject's injuries was also documented and converted to an Injury Severity Score (ISS) by a hospital employee with over 20 years of experience in accurately calculating ISS. The ISS were also examined in relation to the mean number of TLK questions answered correctly to verify whether or not TLK was related to morbidity.

RESULTS

Demographic Data

There were 190 subjects enrolled in the study. The self-reported demographic data as they relate to ethnic background, English fluency, highest level of education, and household income are listed in Table 1.

Driving Data

The responses to questions regarding the subjects' preparations for a safe driving experience before the collision are listed in Table 2.

When subjects were asked what state their driver's licenses were from, there were 141 (74.2%) from California, one (0.5%) from Arizona, one (0.5%) from Washington, one (0.5%) from Utah, one (0.5%) from Maryland, and two (1.1%) from Mexico. The other 43 (22.6%) subjects did not have a current driver's license. One hundred seventy-four (91.6%) subjects were the drivers of the vehicles at the time of the collision, and 16 (8.4%) were passengers.

Among the Hispanic subjects who completed the questionnaire, 86.9% were wearing a seat belt at the time of the collision, 61.0% were driving with a valid license, and 37.0% did not possess a current license.

Table 1. Demographics of Study Participants

Subjects	n	%
Male	109	57.4
Female	81	42.6
Ethnic background		
Hispanic	92	48.4
Non-Hispanic white	66	34.7
Asian/Pacific Islander	19	10
African-American	9	4.7
Other ethnicity	4	2.1
English fluency		
Speak English fluently	168	88.4
Do not speak English fluently	21	11.1
Read English fluently	165	86.8
Do not read English	23	12.1
Both speak and read English	165	86.8
Highest level of school completed		
At least some elementary school	13	6.8
Completed middle school	15	7.9
Graduated from high school	60	31.6
Attended some college	76	40
Attended trade school	11	5.8
Attained a bachelor's degree	12	6.3
Attained a post-graduate degree	3	1.6
Household income		
\$0–20,000	44	23.2
\$20,001–35,000	43	22.6
\$35,001–50,000	36	18.9
\$50,001–75,000	31	16.3
\$75,001–100,000	14	7.4
\$100,000 or more	1	0.5

TLK Data

The eight TLK questions on the questionnaire and the responses given to those questions are shown in Figure 1. When comparing the demographic and driving data in relation to the mean number of TLK questions answered correctly, there were six variables found to be associated with significantly fewer questions being answered correctly ($p < 0.05$; 95% confidence interval does not contain zero) (Table 3); five of these variables had a p -value ≤ 0.005 . These five variables include the Hispanic group, subjects who were not fluent in either written or spoken English, subjects with less than a high school education, subjects who did not possess a current driver's license, and subjects who did not use the Department of Motor Vehicles (DMV) as a resource for their driver's education. The sixth variable, subjects with a household income under \$35,000, had a p -value of 0.023.

The prevalence of subjects in the Hispanic group among these six significant variables was calculated. In the Hispanic group, there were 22 of 23 subjects (95.7%) who did not read and write English fluently, and 22 of 28 subjects (78.6%) with less than a high school education. Furthermore, 34 of 43 subjects (79.1%) without a valid license were from the Hispanic group. Only two subjects

Table 2. Number (n) and Percentage (%) of Subjects Responding to Questions Regarding the Available Restraints on their Vehicle and their Experience with and Preparation for Driving in Traffic

Driver Variables	n	%
Vehicle involved in collision was equipped with working seat belt	180	94.7
Vehicle involved in collision was not equipped with working seat belt	5	2.6
No response	3	1.6
Vehicle involved in collision was equipped with air bag	118	62.1
Vehicle involved in collision was not equipped with air bag	59	31.1
Unsure	11	5.8
No response	2	1.1
Wearing seat belt at time of collision	164	86.3
Not wearing seat belt at time of collision	20	10.5
No response	6	3.2
Current driver's license	147	77.4
No current driver's license	43	22.6
No response	0	0
Driving 10+ years	84	44.2
Driving < 10 years	89	46.8
No response	13	6.8
Used organized traffic school or DMV materials for driver's education	142	74.7
Used other sources (media, word-of-mouth) for driver's education	48	25.3

DMV = Department of Motor Vehicles.

possessed a driver's license from Mexico, so a significant difference could not be determined between US and foreign driver's licenses. In addition, 23 of 48 subjects (47.9%) who had used a source of TLK other than a driver's education class or DMV materials, and 47 of 87 subjects (54.0%) with a household income < \$35,000 were from the Hispanic group.

The results of an analysis of variance (ANOVA) using the five most significant variables ($p \leq 0.005$) are shown in Table 4. The second and third columns show the results of a simple dichotomy based on the characteristics in the first column. The fourth and fifth columns show the results of the ANOVA with all five variables, using data from 154 participants who were Hispanic or NHW and had complete data on the other four variables shown. (The coefficients are for dichotomous variables and also can be interpreted as differences.) The only variable that proved to be a significant predictor of the TLK score was the source of subjects' traffic law knowledge (driver's education or DMV materials vs. other sources). Furthermore, after controlling for ethnicity,

language, education, and a current driver's license, learning about traffic laws from the DMV or driver education was associated with a score of 0.43 points higher on the TLK questions.

Differences in TLK were not significant between genders, number of years driving, restraint use or presence of functioning restraints in the vehicle, drivers vs. passengers, ethnic groups other than Hispanics and NHWs, or according to differences in blood alcohol content or illicit drug use.

Although there was a trend toward fewer TLK questions being answered correctly as ISS increased, the number of subjects with a higher ISS (> 19) was so few that the difference was not significant when using ANOVA. The mean number of questions answered correctly by subjects with an ISS of 1–19 ($n = 174$) was 4.34; the mean number of questions answered correctly by subjects with an ISS of 20–29 ($n = 4$) was 4.00; the mean number of questions answered correctly by subjects with an ISS of 30 or more ($n = 3$) was 3.00 ($p = 0.098$).

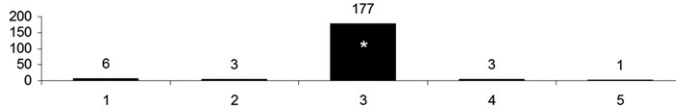
DISCUSSION

The estimated Hispanic population, as of July 1, 2004, comprised 14.1% of the United States population. This is the nation's largest ethnic minority, and this group is projected to comprise 24% of the nation's population by the year 2050 (13). In the state of California, the demographic is changing even more rapidly. The percentage of Hispanics is rapidly increasing in California, whereas the percentage of NHWs is declining. The California Department of Finance has projected that the Hispanic population will comprise the majority of the California population by the year 2040. In the population aged 25–34 years, the Hispanic population in California already is the majority (16). One of the cities within the catchment area of this study was 76.1% Hispanic in the year 2000 (17).

With this large shift in demographics comes a shift in language, culture, and socioeconomic balance. The State of California has shown a great deal of interest in how this shift is affecting employment and education, but much less effort has been directed toward learning how this shift will affect the health and safety of either the Hispanic population or the general population as a whole. As the Hispanic population increases, there is a

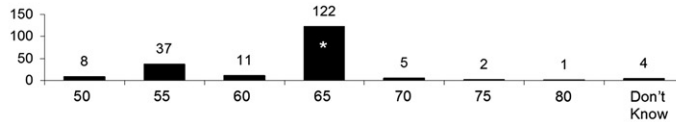
Figure 1. The eight TLK questions on the questionnaire and the responses given to those questions. The absolute number of subjects that gave an answer to each question is given above the bar that corresponds to their specific answer listed on the x-axis. An asterisk (*) has been placed on or over the bar that corresponds to the correct answer.

1. Which of the following choices best describes your understanding of the seat belt laws in California:

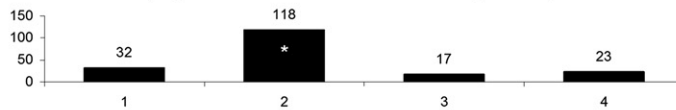


1. It is only mandatory that the driver be wearing a seat belt, restraints for all other passengers are optional.
2. Only passengers in the front seat must be wearing a seat belt, restraints for all other passengers are optional.
3. It is mandatory that all passengers of the vehicle wear a seat belt or be secured by a car seat or booster seat
4. All restraints are optional
5. I don't know.

2. The maximum speed limit (in miles per hour or mph) on most California Highways is:

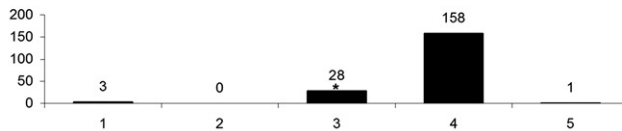


3. If two cars arrive at the same time at an intersection that has a stop sign at all four corners – who has the right of way?



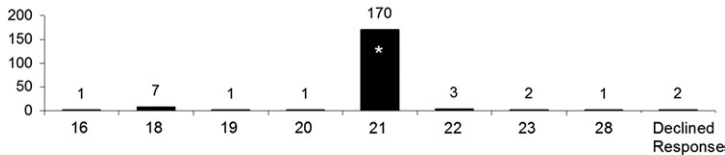
1. The car on the left
2. The car on the right
3. The car that accelerates first
4. I don't know.

4. When may you cross a double yellow line?

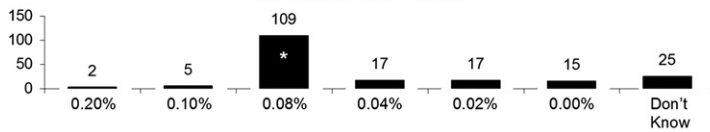


1. To enter the carpool lane
2. To pass another vehicle
3. To make a left hand turn
4. Never
5. I don't know.

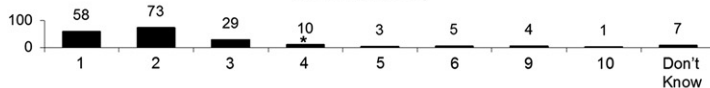
5. What is the legal drinking age in California?



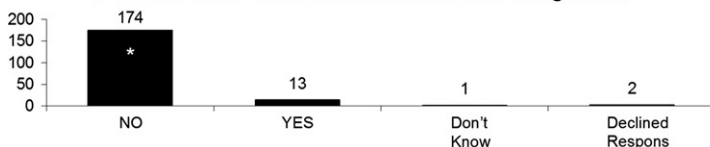
6. What do you think the legal blood-alcohol level in California is for drivers 21 years or older?



7. How many drinks do you think it takes for an average adult man to reach the maximum legal blood alcohol level? (One drink is defined as the equivalent of one 12-ounce bottle of beer (4% alcohol) or 4-5 ounces of wine.)



8. Do you think it is safe to drink and drive if you have had several alcoholic drinks but can still walk in a straight line?



potential for increased numbers of risky drivers and those involved in fatal MVCs.

The first step in decreasing risk-taking among the Hispanic drivers is determining why some Hispanic drivers take more risks than the majority of the population. The 1995 NHTSA suggested that many Mexican immigrants are unaware of the risks involved in disobeying US traffic laws because the laws in their country are different and are either enforced less rigorously or are completely ignored (11). Our study reinforces this idea with data demonstrating that the Hispanic group scored lower on the TLK questions than the NHW group. This is an important finding because all the subjects enrolled in this study had been involved in a MVC that caused injuries serious enough to require admission to the hospital. A report from the Federal Highway Administration demonstrated that at least 97% of all motor vehicle collisions are the result of driver error (18). This, along with the results of the current study, suggests that many of the MVCs that involved the subjects in this study were caused by traffic laws being broken, either through ignorance or indifference. The Hispanic group was the one group in this study that scored lower on the TLK questions than any other ethnic group, and significantly lower than the NHW group. This finding suggests that the Hispanic group, especially those involved in MVCs, has a lower level of knowledge and understanding of the California traffic laws than the majority of the driving population. The results of this study suggest that social, as well as ethnic, background has an influence on TLK, as a lower education level, lack of English fluency, and a lower household income also resulted in significantly lower TLK scores. Although these social influences were present in both the Hispanic and NHW groups, the Hispanic group still had a significantly lower TLK score than the NHW group. A larger study would be required to investigate the degree to which social differences affect the behavior of different ethnic groups when driving.

Undoubtedly, there are other factors that contribute to risky driving behaviors among the Hispanic population, but awareness of the laws themselves seems to be a major contributing factor.

The reasons that the Hispanic group has a poor understanding of traffic laws are many, but we were able to elucidate some significant contributing factors in this study. There are very few opportunities for Hispanics to gain TLK in California if they are living in the state illegally, because California requires "lawful presence" to obtain a driver's license. This policy precludes all undocumented immigrants from obtaining a driver's license, and the individuals who drive without licenses often do not actively seek out sources of correct TLK

(19). In our study, a disproportionately high percentage of the subjects driving without a valid license were from the Hispanic group. Whereas 48.4% of all subjects were Hispanic, 79.1% of the subjects who were driving without a current valid driver's license were from the Hispanic group. It is not known whether the subjects' licenses were revoked or if they had never received them. However, based on demographics, we speculate that the majority of those driving without a license would belong to the latter group because they are living in the United States illegally and are unable to obtain licenses. Undocumented Hispanic immigrants are more likely to live in poverty than NHWs, therefore, these are individuals who may not have the financial means, or any incentive, to pay for or attend driver's education classes (20). Thus, they are left to either use the knowledge and practices they learned in their countries of origin or use information they have picked up from other sources, such as word of mouth, which may be unreliable. This speculation is supported by the observation that the greatest predictor of how well subjects performed on the TLK questions was the source of their TLK. Subjects who had used driver's education classes or official DMV materials as their source scored significantly higher than those who used other sources.

Other factors that were found to significantly affect the performance of subjects on the TLK questions were fluency in English and level of education. The majority (78.6%) of subjects who had not completed a high school education were from the Hispanic group. It is theoretically possible that subjects with lower levels of education had a more difficult time understanding the TLK questions rather than not knowing the correct answers to the questions. For example, lack of English fluency has been previously found to be associated with a lack of traffic law knowledge and understanding of the proper use of child safety restraints (21). Of the six demographic factors that were found to contribute to a decreased awareness of traffic laws among MVC victims in this study, three were in some way related to education: fluency in English, formal education level, and source of TLK. The results of the ANOVA are consistent with the source of information having an important effect on TLK, and the effects of ethnicity, language, formal education, and driver's licensure being largely mediated through their effect on the major source of information.

The combination of these factors highlights the importance of educating the Hispanic population in a way that is culturally appropriate. This study also demonstrates that education and outreach is especially important to those drivers without a valid license. The 1995 NHTSA report cited several methods of traffic law education that have been successful among the different

Table 3. Differences in the Number of TKL Questions Answered Correctly between Demographic and Traffic-related Variables

Demographic and Traffic-related Variables	Mean Difference in Number of Questions Answered Correctly	95% CI	p-Value
NHW vs. Hispanic	0.49	-0.83 to -0.15	0.005**
Fluent in English vs. no fluent in English	0.82	-1.27 to -0.37	< 0.0005**
Graduated from high school vs. no high school graduation	0.87	-1.29 to -0.44	< 0.0005**
Possess valid driver's license vs. no driver's license	0.91	-0.98 to -0.25	0.001**
Source of TLK = DMV-approved materials vs. source of TLK ≠ DMV-approved materials	0.72	0.38 to 1.07	< 0.0005**
Household income > \$35,000 vs. household income < \$35,000	0.38	-0.72 to -0.05	0.023*
Female vs. male	0.04	-0.28 to 0.36	0.805
Driver vs. passenger	0.2	-0.77 to 0.36	0.48
Wearing a restraint vs. no restraint	0.33	-0.84 to 0.18	0.208
Driving > 10 years vs. driving < 10 years	0.32	-0.64 to 0.01	0.057
Urine toxicology negative vs. urine toxicology positive	0.04	-0.33 to 0.42	0.799
BAC < 0.08 vs. BAC > 0.08	0.27	-0.39 to 0.86	0.455

* Significant difference with $p \leq 0.05$.

** Significant difference with $p < 0.005$.

CI = confidence interval; NHW = Non-white Hispanic; TLK = traffic law knowledge; DMV = Department of Motor Vehicles; BAC = blood alcohol content.

Hispanic communities (11). Among these methods are a variety of direct community outreach programs, church and school programs, and programs that appeal to the family unit.

We recommend the continued and expanded use of programs that have been successful in converting Hispanics to the adherence of US traffic laws. Based on the results of this study, we propose that an increased dissemination of DMV-approved information to Hispanic communities as part of an outreach program may yield some success in increasing TLK among the Hispanic population. It is our hope that, as the Hispanic population grows throughout the United States and becomes the majority in California, these efforts will increase the general TLK among the Hispanic population and decrease the number of both fatal and non-fatal MVCs, decrease the number of repeated or multiple MVCs, and increase the safety of our society as a whole.

Limitations

There are some important limitations to this study. First, the answers to the survey questions were self-reported by the subjects. However, there was an effort to limit self-report bias. The TLK questions were designed to objectively assess level of TLK, and did not ask questions regarding the subjects' involvement in risky behavior, which would have made the survey more prone to self-report bias.

Additionally, the Hispanic group was not divided into ethnic subgroups of the Hispanic population and

may not be representative of the Hispanic population in other regions of the country. The Hispanic group in the catchment area of this study is primarily composed of immigrants from Mexico and descendants of Mexican origin. The results of this study may have differed if it had been conducted in an area of the United States where the Hispanic group is primarily composed of a different cultural or ethnic group. In addition, if the Hispanic group in this study had been subdivided so that each of the Latino and other ethnic groups were analyzed separately, the results may have differed among the distinct Hispanic subgroups.

The amount of time spent in the United States by immigrants was not determined. Subjects who had spent more time in the United States may have answered differently than those who had spent less time. If the Hispanic group had been subdivided into groups based on years spent in the United States, there may have been a difference in TLK between recent immigrants and those who have spent several years or their entire lives in this country.

This was a small study comprised of fewer than 200 subjects. The results of this study suggest that the Hispanic population overall may have a lower level of knowledge and understanding of the traffic laws, which may lead to MVCs involving a higher percentage of Hispanics with hospitalized injuries, however, a larger study is required to provide the power to make stronger assertions. There are undoubtedly other factors that contribute to risky driving behaviors among the Hispanic population, but this study suggests that awareness of the laws themselves is a major contributing factor.

Table 4. Differences in TLK-associated with the Five Significant Variables, and Regression Coefficients from an ANOVA Including All Five of these Characteristics

Characteristic	Difference in TLK	p-Value	Coefficient*	p-Value
Hispanic ethnicity	-0.49	0.005	-0.21	0.238
Not fluent in English	-0.82	< 0.0005	-0.44	0.086
Less than HS education	-0.87	< 0.0005	-0.25	0.331
No current driver's license	-0.61	0.001	-0.22	0.304
Driver education or DMV the major source of TLK	-0.72	< 0.0005	-0.43	0.023

* Controlling for the other variables with $p \leq 0.005$ for the difference in TLK.

ANOVA = analysis of variance; TLK = traffic law knowledge; HS = high school; DMV = Department of Motor Vehicles.

CONCLUSION

Hispanics who were admitted to the hospital due to MVCs were not able to answer as many TLK questions correctly as NHWs. A lower score on the survey was best predicted by the source of the subjects' TLK. Other demographic factors that contributed to the lower scores seen in the Hispanic group were an inability to speak and read English fluently, lower levels of education, and driving without a valid license. Due to the increasing density of the Hispanic population in California and other regions across the country, a heightened emphasis on culturally specific traffic-law education is needed using programs that have been previously successful as models. This is especially true for those drivers who have never had any formal traffic-law education in this country and are driving without a valid license.

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ARTICLE SUMMARY

Why is this topic important?

Motor vehicle collisions are a leading cause of preventable morbidity and mortality, and the Hispanic population is one group that is involved in a disproportionately high percentage of fatal motor vehicle collisions in the United States.

What does this study attempt to show?

This study investigates some of the demographic factors contributing to a lack of knowledge and awareness of traffic laws among the Hispanic population in southern California to explore the role that ethnicity may play in motor-vehicle-related trauma.

What are the key findings?

This study demonstrates a lower level of traffic-law knowledge among 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 traffic law knowledge from sources other than a driver's education class or Department of Motor Vehicles materials. Analysis of variance showed that the source of knowledge was the strongest predictor of accurate traffic law knowledge.

How is patient care impacted?

These findings suggest that an emphasis on culturally specific traffic law education is needed.