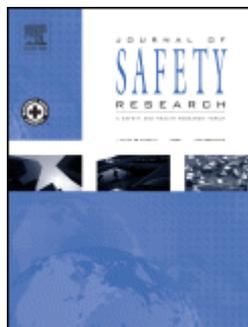


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Patricia Delhomme, Jean-François Verhiac, Cécile Martha. *Are drivers' comparative risk judgments about speeding realistic?* Pages 333-339.

Introduction: This study focused on comparative judgments about speeding risks among young drivers who have a high risk of being involved in a traffic accident.

Method: We examined (a) how these drivers assess their risk of sanctions and their risk of causing an automobile crash because of speeding in comparison to the estimated risks of other drivers, and (b) how realistic their comparative risk judgments are. We measured the relationship between the drivers' comparative risk judgments, self-reported speeding, and driving-related sensation-seeking. We hypothesized that (a) they would think they have less risk of sanctions and of causing a car accident than others, and (b) their comparative judgments of speeding risks would be linked to self-reported speeding and driving-related sensation-seeking. The study was based on a computerized questionnaire survey conducted with 3,002 young drivers (mean age = 22.3) administered by professional investigators. **Results:** The results confirmed our hypotheses. **Impact on Industry:** In order to improve the effectiveness of prevention measures and to evaluate the effect of them, road-safety interventions should take into account comparative risk judgments about the targeted risk behavior.

- **Keywords:** Comparative optimism; Comparative pessimism; Judgment realism; Self-reported speeding; Driving-related sensation-seeking

Saffet Erdogan. *Explorative spatial analysis of traffic accident statistics and road mortality among the provinces of Turkey.* Pages 341-351.

Introduction: The aim of the study is to describe the inter-province differences in traffic accidents and mortality on roads of Turkey. **Method:**

Two different risk indicators were used to evaluate the road safety performance of the provinces in Turkey. These indicators are the ratios between the number of persons killed in road traffic accidents (1) and the number of accidents (2) (nominators) and their exposure to traffic risk (denominator). Population and the number of registered motor vehicles in the provinces were used as denominators individually. Spatial analyses were performed to the mean annual rate of deaths and to the number of fatal accidents that were calculated for the period of 2001–2006. Empirical Bayes smoothing was used to remove background noise from the raw death and accident rates because of the sparsely populated provinces and small number of accident and death rates of provinces. Global and local spatial autocorrelation analyses were performed to show whether the provinces

with high rates of deaths–accidents show clustering or are located closer by chance. The spatial distribution of provinces with high rates of deaths and accidents was nonrandom and detected as clustered with significance of $P < 0.05$ with spatial autocorrelation analyses. **Results:** Regions with high concentration of fatal accidents and deaths were located in the provinces that contain the roads connecting the Istanbul, Ankara, and Antalya provinces. Accident and death rates were also modeled with some independent variables such as number of motor vehicles, length of roads, and so forth using geographically weighted regression analysis with forward step-wise elimination. The level of statistical significance was taken as $P < 0.05$. Large differences were found between the rates of deaths and accidents according to denominators in the provinces. The geographically weighted regression analyses did significantly better predictions for both accident rates and death rates than did ordinary least regressions, as indicated by adjusted R^2 values. Geographically weighted regression provided values of 0.89–0.99 adjusted R^2 for death and accident rates, compared with 0.88–0.95, respectively, by ordinary least regressions. **Impact on industry:** Geographically weighted regression has the potential to reveal local patterns in the spatial distribution of rates, which would be ignored by the ordinary least regression approach. The application of spatial analysis and modeling of accident statistics and death rates at provincial level in Turkey will help to identification of provinces with outstandingly high accident and death rates. This could help more efficient road safety management in Turkey.

- **Keywords:** Accident rates; GIS; Spatial analysis; Geographically weighted regression

Lynne M. Rochette, Kristen A. Conner, Gary A. Smith. *The contribution of traumatic brain injury to the medical and economic outcomes of motor vehicle-related injuries in Ohio.* Pages 353-358.

Objective: To describe traumatic brain injury (TBI) among injured roadway users. Aim 1 assessed the association of age, gender, alcohol/drug use, safety equipment use, type of roadway user, metropolitan area, and primary payer with motor vehicle-related TBI outcome. Aim 2 assessed the relationship of motor vehicle-related TBI and risk/protective factors with medical and economic outcomes. **Methods:** Population-level hospital and trauma databases from the Ohio Hospital Association and Ohio Department of Public Safety, respectively, were probabilistically linked for 2003 through 2006. Injured roadway users (motor vehicle occupants, motorcyclists, bicyclists, pedestrians, and others) were assessed for TBI, ventilator use, intensive care unit (ICU) admission, injury severity score (ISS), need for rehabilitation, death, and total hospital charges. **Results:** The odds of a motor vehicle-related TBI were greater among those not using safety equipment (OR = 1.56). The interactions of alcohol/drug use by gender and of alcohol/drug use by location were significant. Sustaining a TBI increased the odds of requiring ventilation (OR = 3.66), being admitted to the ICU (OR = 2.51), having a high ISS (OR = 4.24), requiring rehabilitation (OR = 2.22), or death (OR = 2.52). When compared with a non-TBI, total hospital charges increased by a factor of 1.35 for a TBI. Hospital charges were \$46,441 on average for individuals who sustained a TBI, whereas mean hospital charges were \$32,614 for patients with a non-TBI. **Conclusions:** Among injured roadway users, individuals who sustain a TBI are more likely to require extensive medical care and have injuries resulting in death. **Impact on industry:** Prevention strategies aimed at reducing alcohol use and increasing safety device use should be encouraged to reduce the burden of TBI.

- **Keywords:** Injury; Brain; Traumatic; Traffic accidents; Trauma; Drinking; Alcohol; Protective devices; Prevention

Ryan C. Smith, E. Scott Geller. *Marketing and alcohol-related traffic fatalities: Impact of alcohol advertising targeting minors.* Pages 359-364.

Alcohol-related youth traffic fatalities continue as a major public-health concern. While state and federal laws can be useful in tackling this problem, the efficacy of many laws has not been empirically demonstrated. We examined the impact of state laws prohibiting alcohol advertising to target minors. *Method:* Using statistics obtained from the Fatality Analysis Reporting System (FARS), youth alcohol-related, single-vehicle, driver traffic fatalities were compared by state as a function of whether the state has a law prohibiting alcohol advertising that targets minors. *Results:* Overall, states possessing this law experienced 32.9% fewer of the above specified traffic fatalities. *Discussion and Impact on Industry:* The results suggest that not only are youth drinking rates affected by alcohol advertisements targeting youth, but also drink-driving behaviors. Indeed, we estimate that if this type of legislation were adopted in the 26 states that do not prohibit targeting of minors with alcohol advertising, then 400 youth lives could be saved annually.

- **Keywords:** Alcohol-impaired driving; Alcohol advertising; Youth vehicle fatalities

Christopher D.B. Burt, Renee J. Stevenson. *The relationship between recruitment processes, familiarity, trust, perceived risk and safety.* Pages 365-369.

Introduction and Method: Participants' perceptions of the safety-related aspects of their organization's recruitment processes were examined, as were their perceptions of safety aspects associated with new recruits. **Results:** One hundred and fifty-four professional fire fighters indicated the trust they held in the safety-related aspects of their organizations' selection and pre-start training. Perceived trust in pre-start training was negatively correlated ($r = -.24, p < .01$) with the risk associated with new recruits, and positively correlated ($r = .50, p < .01$) with ratings of trust in recruits to immediately work safely. Furthermore, trust in recruits to immediately work safely was negatively correlated ($r = -.21, p < .01$) with crews' safety behavior toward recruits. **Conclusions:** These results are interpreted as particularly dangerous for workers, as new recruits lack familiarity with aspects of their new workplace that cannot be addressed by either selection or pre-start training, making them a risk. **Impact on Industry:** Organizations should actively identify new recruits, and encourage existing team members not to immediately trust new recruits to work safely.

- **Keywords:** Safety; Trust; Turnover; Selection; Induction; Training; Familiarity

Bart Hammig, Elizabeth Childers, Ches Jones. *Injuries associated with the use of riding mowers in the United States, 2002-2007.* Pages 371-375.

Context: To examine injuries among patients treated in an emergency department (ED) related to the use of a riding lawn mower. *Design and Setting:* Data were obtained from the National Electronic Injury Surveillance System for the years 2002-2007. National estimates of ED visits for injuries associated with the use of a riding lawn mower were analyzed. Narrative text entries were categorized to provide a detailed record of the circumstances precipitating the injury. Average annual rates were calculated and logistic regression analyses were employed to determine risk estimates for patient disposition and demographic characteristics related to ED visits for injuries associated with riding mowers. **Results:** From 2002 through 2007, there were an estimated 66,341 ED visits for injuries related to the use of riding lawnmowers in the U.S., with an average annual rate of 6.0 ED visits per 100,000 males, and 1.6 ED visits per 100,000 females. Older adults had higher rates of ED visits for injuries (7.2/100,000) than younger age groups. The most common injuries involved contusions (24%); sprains/strains (22%) and fractures (17%). The majority of patients (90%) were treated and released the same day. Results of logistic regression analyses revealed that older adults were more likely to be hospitalized when compared to younger age groups; and incidents involving rollovers

[OR = 5.45 (95% CI = 3.22-9.23)] and being run over [6.01 (95% CI 3.23-11.17)] were more likely to result in hospitalization when compared to all other circumstances of injury. **Conclusions:** Riding mowers present injury patterns and circumstances that are different than those reported for push mowers. Circumstances related to injuries and age groups affected were varied, making prevention of riding mower injuries challenging. *Application/Impact:* Findings support the need to increase awareness and/or change the design of riding mowers with respect to risk of rollover injuries.

- **Keywords:** injuries; lawn mowers; emergency department; United States

Kenneth H. Beck, Alice F. Yan, Min Qi Wang. *A comparison of web-based and telephone surveys for assessing traffic safety concerns, beliefs, and behaviors.* Pages 377-381.

Introduction: The purpose of this investigation was to compare the results of a web-based and a telephone interview survey measuring driver concerns about a variety of traffic safety issues, their beliefs, and specific driving behaviors. **Method:** State-wide, annual random digit-dial telephone surveys and web-based surveys were conducted in Maryland. A total of 1,700 drivers were surveyed by telephone and 6,806 took a web survey. **Results:** Telephone respondents were more likely to be female and older. Web respondents were more likely to be white and not Latino/Hispanic. After controlling for demographic differences, telephone survey respondents were more likely to be concerned about traffic safety. They were more likely to believe that sobriety checkpoints reduce drunk driving (OR = 2.18, 95% CI 1.94, 2.45), they would be ticketed for not wearing a seat belt (OR = 1.26, 95% CI 1.12, 1.43), and they would be stopped by the police if they drove after drinking too much (OR = 1.17, 95% CI 1.03, 1.32). They were less likely to report a variety of risky behaviors including using a cell phone while driving (OR = .54, 95% CI .48, .61) and driving 10+ mph over the speed limit (OR = .81, 95% CI .72, .91), but were more likely to report having been ticketed for a moving violation in the last month (OR = 2.22, 95% CI 1.70, 2.90). Suggestions are offered for overcoming potential sources of sampling bias. **Impact on Industry:** Web-based surveys produce substantially different results than random-digit-dial telephone surveys, when used for public assessments of traffic safety concerns and behaviors.

- **Keywords:** Traffic safety surveys; Telephone; Internet methods

Ryan Olson, Ariel Grosshuesch, Sara Schmidt, Mary Gray, Bradley Wipfli. *Observational learning and workplace safety : the effects of viewing the collective behavior of multiple social models on the use of personal protective equipment.* Pages 383-387.

Introduction: The current project evaluated the effects of the collective behavior of multiple social models on the use of personal protective equipment (PPE). **Method:** Prior to completing a simulated baggage-screening task, participants ($N = 64$) watched a scripted training video that included three confederate trainees. Participants were randomly assigned to one of four manipulations, where different proportions of confederates were shown putting on over-ear sound mufflers before starting the task (0, 1, 2, or 3). White noise played at 70 decibels in the test room, and PPE use was observed unobtrusively through a lab window at five time intervals. **Results:** The mean intervals of PPE use generally increased as the number of positive social models increased (0 = 0.63, 1 = 0.50, 2 = 1.25, 3 = 3.06), and differences between groups were significant [$\chi^2(3, N = 64) = 14.92, p < .01, \eta^2 = 0.24$]. The results suggest that the aggregate prevalence of safety behavior within work groups may be an important determinant of initial PPE use by new employees. **Impact on Industry:** Results suggest that new hires are likely to use PPE at a rate that is proportional to the collective PPE use observed among their peers. Safety leaders should regularly measure the collective level

of PPE use at job sites and encourage majority usage through appropriate interventions such as increasing the availability or quality of PPE, training, or positive reinforcement for compliance.

- **Keywords:** Social Modeling; Occupational Safety; Personal Protective Equipment; Imitation; Behavior

Samia Islam, Frank Goetzke. *Correcting sample selection in FARS data to estimate seatbelt use. Pages 389-393.*

Introduction: In this paper, we show that FARS data can be a comparable alternative to observational NOPUS data in estimating seat belt use in the United States once we correct for sample selection bias. **Results:** Based on assumptions of independence for seatbelt choice, we establish a lower and upper bound for seatbelt usage rates, and find that once we correct for sample selection bias, the seatbelt usage estimates from the corrected FARS emerge at least as a comparable alternative to NOPUS estimates. **Impact on Industry:** This implies that researchers can use corrected FARS to complement NOPUS, thus being able to utilize the rich cross-sectional details available in FARS data to analyze various relevant research questions.

- **Keywords:** FARS data; Sample selection; Seatbelt use

Rebecca B. Naumann, Ann M. Dellinger, Melissa L. Anderson, Amy E. Bonomi, Frederick P. Rivara, Robert S. Thompson. *Preferred modes of travel among older adults : what factors affect the choice to walk instead of drive? Pages 395-398.*

Introduction: There are many factors that influence older adults' travel choices. This paper explores the associations between mode of travel choice for a short trip and older adults' personal characteristics. **Methods:** This study included 406 drivers over the age of 64 who were enrolled in a large integrated health plan in the United States between 1991 and 2001. Bivariate analyses and generalized linear modeling were used to examine associations between choosing to walk or drive and respondents' self-reported general health, physical and functional abilities, and confidence in walking and driving. **Results:** Having more confidence in their ability to walk versus drive increased an older adult's likelihood of walking to make a short trip by about 20% (PR = 1.22; 95% CI: 1.06-1.40), and walking for exercise increased the likelihood by about 50% (PR = 1.53; 95% CI = 1.22-1.91). Reporting fair or poor health decreased the likelihood of walking, as did cutting down on the amount of driving due to a physical problem. **Discussion:** Factors affecting a person's decision to walk for exercise may not be the same as those that influence their decision to walk as a mode of travel. It is important to understand the barriers to walking for exercise and walking for travel to develop strategies to help older adults meet both their exercise and mobility needs. **Impact on Industry:** Increasing walking over driving among older adults may require programs that increase confidence in walking and encourage walking for exercise.

- **Keywords:** Older adults; Elderly; Mobility; Motor vehicle; Physical function; General health