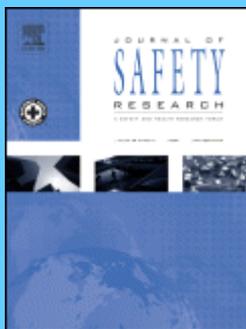


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Allan F. Williams, Anne T. McCartt. *Views of New Jersey teenagers about their state's policies for beginning drivers.* Pages 1-6.

Background: Three New Jersey licensing policies are unique in the United States: (a) minimum licensing age of 17; (b) applying full graduated driver licensing (GDL) rules to beginners younger than 21; and (c) requiring license status decals on vehicle plates of drivers in GDL. *Methods:* New Jersey 17–19 year-olds were surveyed by telephone and online. *Results:* Eighty-four percent approved licensing at 17; 77% approved applying GDL to older novices; 23% approved the decal policy. Probationary licensees ages 18–19 were more likely than 17 year-olds to have multiple nighttime restriction violations in the past month. There were no age group differences in passenger restriction violations. *Discussion:* All three policies have been considered in other states. Views of teenagers directly affected by the policies can be taken into account in considering their implementation. *Practical applications:* Views of licensing policies by affected teenagers indicate potential support or obstacles to their adoption in other states.

- **Keywords:** Teenage drivers; Graduated driver licensing; Licensure; License decals; Teenage licensing laws

Kent J. Nielsen. *Improving safety culture through the health and safety organization: A case study.* Pages 7-17.

Introduction

International research indicates that internal health and safety organizations (HSO) and health and safety committees (HSC) do not have the intended impact on companies' safety performance. The aim of this case study at an industrial plant was to test whether the HSO can improve company safety culture by creating more and better safety-related interactions both within the HSO and between HSO members and the shop-floor.

Methods

A quasi-experimental single case study design based on action research with both quantitative and qualitative measures was used.

Intervention

Based on baseline mapping of safety culture and the efficiency of the HSO three developmental processes were started aimed at the HSC, the whole HSO, and the safety representatives, respectively.

Results

Results at follow-up indicated a marked improvement in HSO performance, interaction patterns concerning safety, safety culture indicators, and a changed trend in injury rates. These improvements are interpreted as cultural change because an organizational

double-loop learning process leading to modification of the basic assumptions could be identified.

Practical applications

The study provides evidence that the HSO can improve company safety culture by focusing on safety-related interactions.

- **Keywords:** Intervention; Industrial plant; Complexity theory

Loren Staplin, Kenneth W. Gish, Kathy J. Sifrit. *Using cognitive status to predict crash risk: Blazing new trails?* Pages 18-25.

Introduction

A computer-based version of an established neuropsychological paper-and-pencil assessment tool, the Trail-Making Test, was applied with approximately 700 drivers aged 70 years and older in offices of the Maryland Motor Vehicle Administration.

Method

This was a volunteer sample that received a small compensation for study participation, with an assurance that their license status would not be affected by the results. Analyses revealed that the study sample was representative of Maryland older drivers with respect to age and indices of prior driving safety. The relationship between drivers' scores on the Trail-Making Test and prospective crash experience was analyzed using a new outcome measure that explicitly takes into account error responses as well as correct responses, the error-compensated completion time.

Results

For the only reliable predictor of crash risk, Trail-Making Test Part B, this measure demonstrated a modest gain in specificity and was a more significant predictor of future safety risk than the simple time-to-completion measure.

Impact on industry

Improved specificity and the potential for autonomous test administration are particular advantages of this measure for use with large populations, in settings such as health care or driver licensing.

- **Keywords:** Crash risk prediction; Driver; Aging; Cognitive impairment; Trail making Test

Gloriam Vanine Guenzburger, Debra Barbiaux Atkinson. *DUI Countermeasures: Differences between court jail sentences and jail time actually served and available alternative sanctions in select California counties.* Pages 27-35.

Introduction and methods

Jail sentences and actual jail times were compared for 2006 California driving under the influence of alcohol or drugs (DUI) offenders from select counties using matched data from Department of Motor Vehicles (DMV), court, and sheriff databases. Additionally, alternative sanctions to jail were investigated.

Results

Jail sentences reported by courts were consistently longer than actual jail time. Actual jail time percentages across participating counties ranged from 0 to 67% for 1st DUI offenders, 0 to 20% for 2nd offenders, and 0 to 66% for 3rd⁺ offenders. Median percentages of jail sentences actually served across participating counties were 0%, 7%, and 22% for 1st, 2nd, and 3rd⁺ DUI offenders, respectively. Alternative sentences were used more often for 1st DUI offenders and less so for 2nd and 3rd⁺ offenders.

Conclusions

Caution is warranted regarding conclusions about jail ineffectiveness as a DUI deterrent from previous studies given that most were based on jail sentence or statutory lengths, which appear to overestimate actual jail times.

- **Keywords:** Alcohol; DUI; Sentencing; Evaluation; Time served

Allan F. Williams, Brian C. Tefft. *Characteristics of teens-with-teens fatal crashes in the United States, 2005–2010. Pages 37-42.*

Background

More than 40% of fatal crashes of 16- and 17-year-old drivers occur when transporting teenagers. Characteristics of this predominant crash type and prevention possibilities are described, based on data from fatal crashes in the United States during 2005–2010.

Results

Fifty-seven percent of 16- and 17-year old drivers in fatal crashes had at least one passenger. Most commonly, all passengers were ages 13–19 (42% of all drivers and 73% of those with passengers). Of fatal crashinvolved drivers with teenage passengers and no passengers of other ages, 56% had one passenger, 24% had two, and 20% had three or more. Most frequently, passengers were the same sex and within one year of the driver. Risk factors involving speeding, alcohol use, late-night driving, lack of a valid license, seat belt non-use, and crash responsibility were more prevalent with teenage passengers than when driving alone, and the prevalence of these factors increased with the number of teenage passengers. Many risk factors were most prevalent with passengers ages 20–29, although few crashes had this occupant configuration. Risk factors were least prevalent with a passenger 30 or older.

Discussion

Fatal crashes of 16- and 17-year-old drivers with teen passengers are a common crash scenario, despite passenger restrictions in 42 states and the District of Columbia during some or all of the study period. The proportion of these fatal crashes decreased slightly from 46% in 1995 (pre-GDL) to 43% in 2010 and showed no signs of decreasing during the six-year study period (range 41% to 43%).

Practical applications

Existing passenger restrictions are relatively weak and could be strengthened. Fatal crashes involving teen passengers, especially multiple passengers, are more likely to involve alcohol, late-night driving, driver error, and invalid licensure, so stepped-up enforcement of existing laws involving these behaviors might reduce the prevalence of such crashes.

- **Keywords:** Teenagers; Teenage driving; Passengers; Passenger restrictions; Graduated driver licensing

Casserly R. Whitehead, Timothy S. Webb, Timothy S. Wells, Kari L. Hunter. *Airmen with mild traumatic brain injury (mTBI) at increased risk for subsequent mishaps. Pages 43-47.*

Background

Little is known regarding long-term performance decrements associated with mild Traumatic Brain Injury (mTBI). The goal of this study was to determine if individuals with an mTBI may be at increased risk for subsequent mishaps.

Methods

Cox proportional hazards modeling was utilized to calculate hazard ratios for 518,958 active duty U.S. Air Force service members (Airmen) while controlling for varying lengths of follow-up and potentially confounding variables. Two non-mTBI comparison groups were used; the second being a subset of the original, both without head injuries two years prior to study entrance.

Results

Hazard ratios indicate that the causes of increased risk associated with mTBI do not resolve quickly. Additionally, outpatient mTBI injuries do not differ from other outpatient bodily injuries in terms of subsequent injury risk.

Conclusions

These findings suggest that increased risk for subsequent mishaps are likely due to differences shared among individuals with any type of injury, including risk-taking behaviors, occupations, and differential participation in sports activities. Therefore, individuals who sustain an mTBI or injury have a long-term risk of additional mishaps.

Practical applications

Differences shared among those who seek medical care for injuries may include risk-taking behaviors ([Cherpitel, 1999](#), [Turner and McClure, 2004](#) and [Turner et al., 2004](#)), occupations, and differential participation in sports activities, among others. Individuals with an mTBI should be educated that they are at risk for subsequent injury. Historical data supported no lingering effects of mTBI, but more recent data suggest longer lasting effects. This study further adds that one of the longer term sequelae of mTBI may be an increased risk for subsequent mishap.

- **Keywords:** Occupational safety; Accidents; Concussion; Performance decrements; Long-term risk

Jane Ford, Robert Henderson, David O'Hare. *The effects of Crew Resource Management (CRM) training on flight attendants' safety attitudes.* Pages 49-56.

Introduction

A number of well-known incidents and accidents had led the aviation industry to introduce Crew Resource Management (CRM) training designed specifically for flight attendants, and joint (pilot and flight attendant) CRM training as a way to improve teamwork and communication. The development of these new CRM training programs during the 1990s highlighted the growing need for programs to be evaluated using research tools that had been validated for the flight attendant population.

Method

The FSAQ (Flight Safety Attitudes Questionnaire—Flight Attendants) was designed specifically to obtain safety attitude data from flight attendants working for an Asia-Pacific airline. Flight attendants volunteered to participate in a study before receiving CRM training (N = 563) and again (N = 526) after CRM training.

Results

Almost half (13) of the items from the 36-item FSAQ showed highly significant changes following CRM training. Years of experience, crew position, seniority, leadership roles, flight attendant crew size, and length of route flown were all predictive of safety attitudes.

Practical applications

CRM training for flight attendants is a valuable tool for increasing positive teamwork behaviors between the flight attendant and pilot sub-groups. Joint training sessions, where flight attendants and pilots work together to find solutions to in-flight emergency scenarios, provide a particularly useful strategy in breaking down communication barriers between the two sub-groups.

- **Keywords:** CRM; Crew Resource Management; Flight attendants; Training evaluation; Safety

Anne T. McCartt, Wen Hu. *Effects of red light camera enforcement on red light violations in Arlington County, Virginia.* Pages 57-62.

Objectives

In June 2010, Arlington County, Virginia, installed red light cameras at four heavily traveled signalized intersections. Effects of camera enforcement on red light violations were examined.

Methods

Traffic was videotaped during the 1-month warning period and 1 month and 1 year after ticketing began at the four camera intersections, four non-camera "spillover" intersections in Arlington County (two on travel corridors with camera intersections, two on different corridors), and four non-camera "control" intersections in adjacent Fairfax County. Logistic regression models estimated changes in the likelihood of violations at camera and spillover intersections, relative to expected likelihood without cameras, based on changes at control intersections.

Results

At camera intersections, there were significant reductions 1 year after ticketing in odds of violations occurring at least 0.5 s (39%) and at least 1.5 s (86%) after lights turned red, relative to expected odds without cameras, and a marginally significant 48% reduction in violations occurring at least 1 s into red. At non-camera intersections on corridors with camera intersections, odds of violations occurring at least 0.5 s (14%), 1 s (25%), and 1.5 s (63%) into the red phase declined compared with expected odds, but not significantly. Odds of violations increased at the non-camera intersections located on other Arlington County travel corridors.

Conclusions

Consistent with prior research, red light violations at camera-enforced intersections declined significantly. Reductions were greater the longer after the light turned red, when violations are more likely to cause crashes. Spillover benefits were observed only for nearby intersections on travel corridors with cameras and were not always significant.

Practical application

This evaluation examined the first year of Arlington County's red light camera program, which was modest in scope and without ongoing publicity. A larger, more widely publicized program is likely needed to achieve community-wide effects.

- **Keywords:** Red light cameras; Red light running; Red light violations

Manuel Suárez-Cebador, Juan Carlos Rubio-Romero, Antonio López-Arquillos. *Severity of electrical accidents in the construction industry in Spain.* Pages: 63-70.

Problem: This paper analyzes the severity of workplace accidents involving electricity in the Spanish construction sector comprising 2,776 accidents from 2003 to 2008. *Method:* The investigation considered the impact of 13 variables, classified into 5 categories: *Personal, Business, Temporal, Material, and Spatial.* *Results:* The findings showed that electrical accidents are almost five times more likely to have serious consequences than the average accident in the sector and it also showed how the variables of age, occupation, company size, length of service, preventive measures, time of day, days of absence, physical activity, material agent, type of injury, body part injured, accident location, and type of location are related to the severity of the electrical accidents under consideration. *Summary:* The present situation makes it clear that greater effort needs to be made in training, monitoring, and signage to guarantee a safe working environment in relation to electrical hazards. *Practical applications:* This research enables safety technicians, companies, and government officials to identify priorities and to design training strategies to minimize the serious consequences of electrical accidents for construction workers.

- **Keywords:** Electrical accidents; Construction; Severity; Safety; Variables

Angela H. Eichelberger, Lawrence E. Decina, Jessica S. Jermakian, Anne T. McCartt. *Use of top tethers with forward-facing child restraints: Observations and driver interviews.* Pages: 71-76.

Objective

Despite the safety benefits, many parents do not use top tethers with forward-facing child restraints. Detailed information was collected about why parents are not using tethers.

Methods

The sample included 479 drivers who had forward-facing child restraints installed in passenger vehicles equipped with tether anchors. The survey was conducted primarily at shopping centers, recreation facilities, child care facilities, car seat check events, and health care facilities in mostly suburban areas surrounding Philadelphia, Washington, DC, Fredericksburg (VA), and Seattle. Drivers were surveyed about their knowledge and use of tethers and experience with child restraints. Tether use was observed to verify whether tethers were being used correctly.

Results

Fifty-six percent of forward-facing child restraints were installed with the tether; 39% were installed with the tether used correctly. The tether was used with 71% of LATCH lower anchor installations and 33% of seat belt installations. Drivers who installed child restraints without tethers most often said they did not know about the tether or how to use it.

Conclusions

Although the tether use rate was slightly higher in the current research than in previous studies, many parents and caregivers still use forward-facing child restraints without attaching the tether. Because the main problem is lack of awareness of the tether or how to use it, public education should focus specifically on the safety benefits of tethers and how to use them.

Practical applications

Information about why caregivers fail to use top tethers is potentially useful to child restraint manufacturers, child passenger safety technicians, and others who work with parents to improve motor vehicle safety.

▪ **Keywords:** LATCH; Tether use; Child restraints; Observations; Interviews

Verónica Sedano de la Fuente, Miguel A. Camino López, Ignacio Fontaneda González, Oscar J. González Alcántara, Dale O. Ritzel. *The impact of the economic crisis on occupational injuries.* Pages: 77-85.

Introduction

The potential influence of the current economic crisis on occupational accident rates and accident severity is studied in an analysis of all workplace accidents that occurred in Spain throughout the period 2000–2009.

Method and results

The investigation confirms that occupational accidents in Spain are affected by the current economic crisis, which has provoked a sharp fall in both the number of accidents and the probability of having one. This may be justified by certain factors such as age, gender, length of service, size of the firm, and the employment stability of the injured worker. The influence of these factors is analyzed.

Practical applications

The economic crises seems to provoke a sort of “natural selection” in the labor market and only the best adapted tend to remain (older workers, with more experience, a higher percentage of women, more workers in larger companies and permanent contracts), all of which means that the probability of workers having an injury is considerably reduced.

▪ **Keywords:** Economic crisis; Injuries; Accidents; Unemployment; Severity

Chen Chen, Yuanchang Xie. *The impacts of multiple rest-break periods on commercial truck driver's crash risk.* Pages: 87-93.

Introduction

Driver fatigue has been a major contributing factor to fatal commercial truck crashes, which accounted for about 10% of all fatal motor vehicle crashes that happened between 2009 and 2011. Commercial truck drivers' safety performance can deteriorate easily due to fatigue caused by long driving hours and irregular working schedules. To ensure safety, truck drivers often use off-duty time and short rest breaks during a trip to recover from fatigue.

Method

This study thoroughly investigates the impacts of off-duty time prior to a trip and short rest breaks on commercial truck safety by using Cox proportional hazards model and Andersen–Gill model.

Results

It is found that increasing total rest-break duration can consistently reduce fatigue-related crash risk. Similarly, taking more rest breaks can help to reduce crash risk. The results suggest that two rest breaks are generally considered enough for a 10-hour trip, as three or more rest breaks may not further reduce crash risk substantially. Also, the length of each rest break does not need to be very long and 30 min is usually adequate. In addition, this study investigates the safety impacts of when to take rest breaks. It is found that taking rest breaks too soon after a trip starts will cause the rest breaks to be less effective.

Practical applications

The findings of this research can help policy makers and trucking companies better understand the impacts of multiple rest-break periods and develop more effective rules to improve the safety of truck drivers.

- **Keywords:** Driver fatigue; Rest-break duration; Survival analysis; Hazard ratio; Hours-of-Service

Pedro Torres, Eduardo Romano, Robert B. Voas, Mario de la Rosa, John H. Lacey. *The relative risk of involvement in fatal crashes as a function of race/ethnicity and blood alcohol concentration.* Pages: 95-101.

Introduction

The literature presents a puzzling picture of Latinos being overrepresented in alcohol-related crashes, but not in noncrash drinking and driving. This report examines if, like other demographic variables in which some groups are at a higher crash risk than others (e.g., young drivers), different racial/ethnic groups face different crash risks.

Method

This study compares blood-alcohol information from the 2006–2007 U.S. Fatality Analysis Reporting System (FARS) with control data from the 2007 U.S. National Roadside Survey. Logistic regression, including a dual interaction between BAC and race/ethnicity, was used to estimate crash risk at different BAC levels.

Results

It was found that, although Hispanic and African-American drivers were less likely to be involved in single-vehicle crashes than their White counterparts, all drivers face similar BAC relative crash risk regardless of their group membership. The overrepresentation of Latino drivers in alcohol-related crashes could be explained by differences in patterns of consumption, driving exposure, lack of awareness of driving rules, and/or socioeconomics.

- **Keywords:** Crash risk; Drinking and driving; BAC; Alcohol-related crashes; Race/ethnicity

Tara Kelley-Baker, Eduardo Romano. *Child passengers killed in reckless and alcohol-related motor vehicle crashes.* Pages: 103-110.

Introduction

About 20 years ago, concern was raised about the dangers that children face when driven by drinking drivers in the United States. During the last decade, the pace of research on this topic subsided. Yet in 2010, every day three children younger than age 15 were killed, and 469 were injured in motor-vehicle crashes.

Method

The aim of this effort is to describe the status of the problem in the United States and suggest lines of research. From the Fatality Analysis Reporting System (FARS), we selected crashes in which a driver aged 21 or older was driving at least one child younger than age 15. We identified crashes that occurred at different times of the day in which the driver was speeding, ran a red light, or was alcohol positive. We described the drivers' demographics and examined how they relate to the different crash types.

Results

We found that, although driving a child seems to protect against the studied forms of risky driving, such protection varies sharply depending upon the drivers' and children's demographics and the crash type. There is no clear reason to explain the drivers' decision to endanger the children that they drive. The percent of children killed in speeding-related and red-light running motor-vehicle crashes has remained relatively stable during the last decade. Future research must (a) examine the effectiveness of current child endangerment laws; (b) examine crashes other than fatal; and (c) be more targeted, looking at specific drivers' age and gender, specific children's ages, the time of the crash, and the type of crash.

Practical applications

Significant attention needs to be given towards improving state laws on child endangerment. Policymakers' reaction to this problem is tentative because of our limited understanding of the problem; therefore, further research is needed. With unfocused countermeasures and prevention efforts, we have been restricted in our ability to evaluate these responses. The findings of this report should be informative to policy makers.

- **Keywords:** Child endangerment; Motor-vehicle crashes; Alcohol; Speeding; Red-light running