Matching Countermeasures to Driver Types and Speeding Behavior

Speeding is a common behavior; most drivers exceed the speed limit some of the time. It is also a complicated behavior that varies by driver and situation. Speeding-related crashes take a large annual toll in injuries, lost lives, and high economic costs in the United States. Speeding is a safety problem requiring serious attention.

This study explored driver speeding typologies developed in two previous NHTSA studies, the 2011 *National Survey of Speeding Attitudes and Behaviors* (NSSAB) (Schroeder, Kostyniuk, & Mack, 2013) and *Motivations for Speeding* (Richard et al., 2013). An address-based mail survey was conducted in Idaho using a sample drawn from de-identified driver records obtained from the Idaho Transportation Department (ITD). The sample was stratified by age, gender, and number of speeding convictions (0, 1, and 2+ in the last three years). Younger drivers and those with 2+ convictions were oversampled relative to the general population.

A total of 1,925 returned surveys were included in the analyses. Survey respondents included males (52%) and females (48%). There were three age groups: younger drivers 18 to 24 (11.2%), drivers 25 to 64 years old (70.6%), and older drivers 65+ (18.2%). Within these demographic categories, drivers were selected based on number of convictions in the previous 3 years. These included drivers with 0 convictions (49.5%), 1 conviction (19.4%), and 2+ convictions (31.1%). Drivers with 2+ convictions were greatly overrepresented in the sample relative to the Idaho driving population due to oversampling of this group of primary interest.

Attitudes and Behaviors

There was a clear age-related pattern apparent across most attitude and behavior questions, with younger drivers' responses consistently more favorable to speeding and older drivers the least favorable to speeding. Societal norms seemed to influence the majority of drivers. Most drivers also acknowledged a link between speeding and safety, and most drivers also reported wanting to obey the posted speed limit. However, most drivers disagreed with the statement that there were "no excuses" for exceeding the speed limit. In terms of speeding behaviors, most drivers reported following traffic, but more drivers said they keep up with faster traffic than said they stay with slower traffic. Although self-reported speeding represented a minority of the responses for most of the questions, those drivers who did, indicated different reasons for speeding. Reasons given for speeding varied and included enjoying driving fast, speeding to reduce travel time, and situational reasons such as driving a powerful car, driving on straight roads, or driving during late night/early morning hours.

Speeding Convictions

Driver age (Figure 1), gender, marital status, and weekly mileage driven were all significant predictors of speeding convictions. Consistent with past research on speeding behavior, younger drivers in the study, as well as respondents who drove more miles per week and were single had higher rates of speeding convictions. Contrary to previous studies, females in our survey had higher rates of speeding convictions than males. Drivers who tended to keep up with faster traffic or pass other traffic, and to report driving at higher speeds on certain roadways, typically had more speeding convictions. In general, driver characteristics related to faster driving behaviors were significantly associated with having more speeding convictions.

Figure 1. Proportion of Speeding Convictions by Driver Age
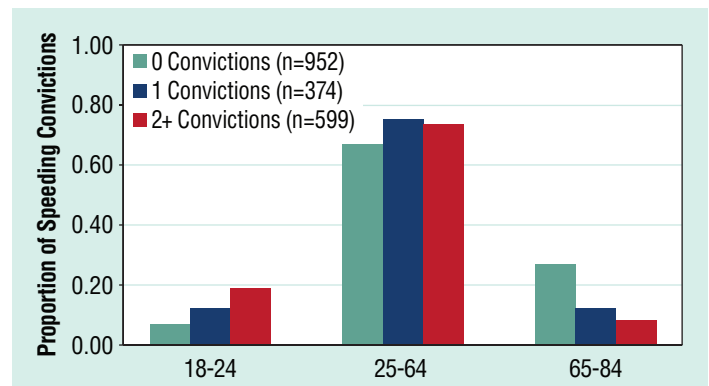
Driver Speeding Typologies

Analyses indicate that the concept of different speeder types has merit. The two approaches investigated (Richard et al., 2013; Schroeder, Kostyniuk, & Mack, 2013) resulted in typologies that were similar, especially in the category that represented non/low speeders. The general distribution of drivers across speeder categories was quite similar for both typologies; though the overlap between the typologies was not as strong at the individual driver level. There was no significant difference between drivers with 0 or 1 speeding conviction; however, the two typologies were significantly different for drivers with 2+ convictions, suggesting that classification of repeat speeders may be more complicated than other driver types. It is notable that similarities between typologies occurred even though they were based on entirely different sets of questions, suggesting that the speeding typology approach is capturing persistent behavioral and attitudinal aspects that underlie differences among drivers with regard to speeding. Both typologies were significant predictors of the number of speeding convictions.

Speeding Countermeasures

Drivers provided a range of views regarding the effectiveness of different types of countermeasures (CMs) for reducing speeding (Figure 2). Some CMs were clearly viewed as effective, such as using cruise control, speed bumps, increased enforcement, stopping distance education, and radar-based flashing speed displays. Conversely, other CMs that were rated as having low potential effectiveness included speed awareness courses, engine speed limiters, digital speedometers, and fuel-efficiency displays.

In terms of the relationship between specific CMs and drivers, one key trend was that, while drivers with speeding convictions tended to be supportive of positive sanctions (road treatments and signs), they consistently provided lower ratings for negative sanctions (fines, enforcement, vehicle limiters, etc.). Although the survey questions addressed CM effectiveness, it could be that speeders rated CMs as ineffective if they would be negatively affected by them personally. Thus, these negative responses may indicate that such CMs could potentially influence speeding, but could also come with some public pushback, especially from speeders.

The survey found generally widespread support for trying to address the speeding problem. A clear majority of all drivers believed that doing so was somewhat or very important. While there were predictable differences in agreement across conviction categories, over two-thirds of repeat speeders still expressed some degree of agreement with this view (84% for 0 convictions, 74% for 1 conviction, and 68% for 2+ convictions).

Figure 2. Perceived Effectiveness of Countermeasures By Age, Gender and Number of Speeding Convictions

Countermeasure	Age	Gender (female)	1 Conviction	2+ Convictions
More Police Enforcement	▲▲▲	▲▲▲		▼▼
Rumble Strips	▲▲▲	▲	▲▲	▲▲
Roadside Speed Display at Dangerous Locations*	▲▲▲	▲		▲
Roadside Speed Displays	▲▲▲	▲▲▲		
More Speed Limit Signs	▲▲	▲▲▲		▲
Stopping-Distance Education	▲▲▲		▼▼	▼
Higher Fines for Habitual Speeders	▲▲▲		▼▼▼	▼▼▼

Positive Assoc.: ▲ = p < 0.05; ▲▲ = p < 0.01; ▲▲▲ = p < 0.001
Negative Assoc.: ▼ = p < 0.05; ▼▼ = p < 0.01; ▼▼▼ = p < 0.001

Self-Reported Conviction Versus Driver Records

The self-reported number of speeding citations across drivers most frequently matched the number of actual convictions drivers had in the past year, but this match decreased as the number of convictions increased (89% for 0 convictions, 64% 1 for conviction, and 39% for 2+ convictions). Although generally good, the accuracy of self-reporting was affected by other factors. In particular, having other non-speeding convictions led to over-reporting of speeding tickets, likely because of confusion between the two types. Moreover, other factors such as the passage of time and an increased desire to manage self-image lead to under-reporting of speeding citations.

Summary

The study provided useful information on speeding and countermeasures as well as important insights for future research in this area. Drivers that were younger, single, and that drove more miles per week tended to report more attitudes and behaviors supportive of speeding and speeding-related characteristics were associated with more speeding convictions. The study supported the concept of speeder typologies with both typologies predicting number of speeding convictions. Speeders were more supportive of positive sanctions for speeding and rated negative sanctions, which would negatively impact them, as less effective. Self-reported convictions generally matched actual conviction for the past year, but there were clear reductions in accuracy over time and with increased number of convictions.

References

Richard, C., Campbell, J., Lichty, M., Brown, J., Chrysler, S., Lee, J., ... & Reagle, G. (2013). *Motivations for speeding, Volume II: Findings report* (Report No. DOT HS 811 818). Washington, DC: National Highway Traffic Safety Administration.

Schroeder, P., Kostyniuk, L., & Mack, M. (2013). *2011 National survey of speeding attitudes and behaviors* (Report No. DOT HS 811 865). Washington, DC: National Highway Traffic Safety Administration.

How to Order

To order the *Matching Countermeasures to Driver Types and Speeding Behavior*, prepared by Battelle Memorial Institute, write to the Office of Behavioral Safety Research, NHTSA, NTI-130, 1200 New Jersey Avenue SE., Washington, DC 20590, fax 202-366-7394, or download from www.nhtsa.gov.

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