

Differences in calibration of skills in distracted driving situations

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The dangers of driver distraction are the topic of frequent reminders on television commercials, bumper stickers, and in general media coverage. However, it is still common see drivers texting while driving and crash statistics and observational studies corroborate this continued engagement. Two possible explanations for this risky behavior are that drivers value the information in the message and therefore feel they cannot wait to respond—even in spite of the risks—and/or drivers do not have an accurate understanding of their driving abilities (i.e., have a poor calibration of their driving skills) and therefore might believe that they can tolerate the additional activities while driving. These two possible explanations and their potential interaction were examined together in a driving simulator study. Twenty participants (10 male, 10 female; Mage = 39) first responded to a questionnaire that quantified their propensity or capacity to delay a text messaging task (versus seeking immediate gratification). This delay discounting measure, applied in previous studies, was used to identify drivers who preferred a smaller hypothetical monetary reward if they responded to a text message immediately or a larger reward if they delayed responding to the message. The delay discounting measure utilized four different scenarios: either in sunny and clear weather or in a winter storm with a text message from their significant other (to induce a sense of urgency to respond to the message) presented either on the handheld phone screen or over the vehicle voice system. The point at which responding to the text message and monetary amount were equal in value (the indifference point), was calculated and used to group drivers into high and low discounters. Following the completion of this survey, participants completed six drives in a fixed-base driving simulator. The six drives consisted of two levels of ambient traffic (high and low) and three levels of distraction (control, cognitive n-back task, and texting task). The order of the drives was determined using a balanced Latin square design. During the drives, participants were prompted to verbally rate their driving performance. Lateral wind of varying strengths were also present, making it a challenge to maintain lane position. Measures of cognitive workload (peripheral detection task), driving performance, and task performance were collected. Upon completion of the drives, participants completed a second set of questionnaires to control for potential individual factors, such as impulsivity and personality. Data analysis is underway. Based on previous literature, we expect to see degraded driving performance in the distracted conditions as well as degraded performance in the peripheral detection task due to increased workload compared to the control condition. Further, we expect subjective ratings of driving performance to be inflated for most participants, but more so for those who value the message more. Findings will help inform the field of the factors and the interaction of factors that influence the decision to drive distracted.

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