The goal of this study is to examine how driver behavior is influenced by the reliability of an in-vehicle warning system under naturalistic driving conditions. Driver responses to lateral drift warnings were examined to determine if the latency to initiate a corrective steering response was related to prior system reliability. An operational definition of subjective reliability was developed based on measures of the proportion of lateral drift warnings that the drivers responded to in the 24-hour period preceding a warning event that elicited a steering correction (called the day proportion). Age, gender, weather condition, light level, road class, and day proportion were used to model response latency to make a steering correction in a linear model. A main effect of day proportion was found, suggesting that reaction time to respond decreases by about 300 msecs as the day proportion increases from 0 to 1.

The study illustrates a method of quantifying subjective reliability and performance using naturalistic data. The results suggest that latency to make a steering correction is inversely related to the perceived reliability of the warning system in the 24 hours preceding the warning.