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Gender differences in psychosocial predictors of texting while driving

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ABSTRACT

A sample of 158 male and 357 female college students at a midwestern university participated in an online study of psychosocial motives for texting while driving. Men and women did not differ in self-reported ratings of how often they texted while driving. However, more women sent texts of less than a sentence while more men sent texts of 1–5 sentences. More women than men said they would quit texting while driving due to police warnings, receiving information about texting dangers, being shown graphic pictures of texting accidents, and being in a car accident. A hierarchical regression for men's data revealed that lower levels of feeling distracted by texting while driving (20% of the variance), higher levels of cell phone dependence (11.5% of the variance), risky behavioral tendencies (6.5% of the variance) and impulsivity (2.3%) of the variance) were significantly associated with more texting while driving (total model variance = 42%). A separate regression for women revealed that higher levels of cell phone dependence (10.4% of the variance), risky behavioral tendencies (9.9% of the variance), texting distractibility (6.2%), crash risk estimates (2.2% of the variance) and driving confidence (1.3% of the variance) were significantly associated with more texting while driving (total model variance = 31%.) Friendship potential and need for intimacy were not related to men's or women's texting while driving. Implications of the results for gender-specific prevention strategies are discussed.

1. Introduction

Distracted driving is the diversion of attention away from activities critical for safe driving toward a competing activity, which may result in insufficient or no attention to activities critical for safe driving (Hosking et al., 2009). Experts further agree that distracted driving places demands upon cognitive, auditory, vocal/verbal, visual motoric, and other resources separately or in any combination (Foley et al., 2013). Of the many activities that comprise distracted driving, cell phone use became "emblematic" of driver distraction in public opinion and in research activity from 2000 to 2005 (AAA, 2008; p. 3). Texting while driving, defined as the use of a cell phone device to send or receive displayed or voice-activated messages while driving a moving vehicle, has recently claimed the attention of traffic safety experts (Hosking et al., 2009; Lee, 2007; Owens et al., 2011).

The expansion of cell phone ownership by Americans (33% in 1999–91% in 2008) has resulted in increasing numbers of drivers who text (Wilson and Stimpson, 2010). Atchley et al. (2012) observed that as cell phone technology becomes more pervasive, overall use increases and the average age of users decreases (p. 279). By 2011, 31.2% of American drivers surveyed by the Center for Disease Control (2013) had read or sent a text or message while driving in the past 30 days. The rate reached 50% for young drivers age 18–24. CDC data for high school students for 2011 revealed that 44.5% had engaged in texting while driving (Olsen et al., 2013). Texting while driving is almost universal among college-age samples. A survey of young adult drivers revealed that 92% had read, 81% had replied to, and 70% had initiated a text while driving (Atchley et al., 2011).

1.1. Distraction effects of texting

The research on effects of texting while driving has had to adapt to changing technologies that tend to be quickly embraced by young drivers (Lee, 2007). In the 1990s and early 2000s, texting while driving was accomplished with hand-held devices with keyboards that required drivers to direct their eyes away from the road and potentially to remove their hands from the steering wheel (Hosking et al., 2009). Research on texting with hand-held devices

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in driver simulators and closed-course driving showed detrimental effects on performance, including increased eyes-off-road time, lane drift, missing of lane change cues, variability in following distance to cars ahead, missing traffic signs, and failure to process traffic sign information (Hosking et al., 2009; Owens et al., 2011). In a driving simulation study, Alosco et al. (2013) found that drivers instructed to text with either keyboard or touch-screen typing had poorer performance than a control group.

In recent years, texting while driving has been altered by options for in-vehicle systems that convert text to speech, thus eliminating the driver's need to look away from the road to type. Research on texting with this advanced technology, however, continues to show detrimental effects on safe-driving behaviors. Using closed-course driving, Owens et al. (2011) determined that audio playback of received text messages produced no more driver errors than baseline, but sending of pre-programmed text messages using vehicular controls led to more driver errors than baseline. In a major study using driving simulation and instrumented vehicles, Strayer et al. (2013) found that driver interaction with a speech-to-text system produced a higher level of cognitive distraction than listening to the radio, talking to a passenger, or using a hand-held or hands-free cell phone. They concluded that even when drivers can keep eyes on the road while they text, the cognitive demands of processing a voice-activated communication interfere with performance.

1.2. Texting and crash risk

According to the National Highway Traffic Safety Administration (2011) (NHTSA), about 1 in 6 fatal vehicle collisions resulted from distracted driving in 2008. Driver inattention and driver distraction were found to account for 58% of serious casualty crashes in Australia (Beanland et al., 2013). What percentage of distracted-driving crashes is due to texting is currently under investigation. Wilson and Stimpson (2010) estimated with statistical models that increasing texting volumes resulted in 16,000 additional road fatalities from 2001 to 2007. The texting crash relationship is most evident among younger drivers. Large-scale naturalistic driving studies conducted by Virginia Tech Transportation Institute revealed that risk or a crash of near-crash by novice drivers increased significantly if they were texting (odds ratio, 3.87) (Klauer et al., 2013). The first nationally representative telephone survey of distracted driving (National Highway Traffic Safety Administration, 2012) found that of drivers age 18–20 who were in a crash or near-crash incident in the past year, 6% were on cell phones and 2% were texting.

1.3. Driver awareness of texting risk

Research has documented a serious disconnect between perceptions of the risks of texting and the behavior of texting. In an AAA telephone survey (2008), 95% of drivers rated texting while driving as completely or somewhat unacceptable. Yet 18% admitted to have engaged in texting in the last 30 days. University students surveyed by Harrison (2011) generally agreed that texting while driving was unacceptable, dangerous, and should be illegal, although 91% had occasionally engaged in the behavior. In a study by Nemme and White (2010), young Australian respondents reported strong beliefs that texting is dangerous and the wrong thing to do, although many engaged in it regardless. Because risk assessment alone does not seem to moderate texting behavior, researchers have begun to look for explanatory factors beyond the driving situation. Bayer and Campbell (2012) (p. 2087), noting that texters' moment-to-moment motivations play out in both conscious and unconscious ways, called for "new angles of insight" from research on psychosocial factors.

1.4. Psychosocial predictors of texting while driving

To date, a limited literature on psychosocial predictors of cell phone calling and texting while driving has accumulated. Applying the theory of planned behavior (TPB), Walsh et al. (2008) found that attitudes, norms, and control factors were predictive of Australians' intentions to use a cell phone while driving and, to a modest degree, intentions to text. Expanding the TPB model, Nemme and White (2010) documented that Australian university students' intentions to text and actual texting were significantly influenced by combinations of personal attitudes, subjective norms, perceived control, reference group norms, and morality norms. In another approach, Feldman et al. (2011) established that higher levels of mindfulness, the tendency to intentionally attend to and accept present experiences, were related to less texting among a sample of university women. Schlehofer et al. (2010) found that participants' illusion of control and overestimates of competence in the driving situation were predictive of cell phone use while driving.

The social value of texting has been proposed to be a primary motivation for texting while driving. Atchley et al. (2011) suggested that texting among young adults is driven less by risk assessment than by the importance of peer-to-peer interactions for growth of social networks. Experimental procedures by Atchley and Warden (2012) revealed that persons' decisions to text now or wait for a reward were significantly influenced by their social closeness to whom was texting. Similarly, Walsh et al. (2008) concluded that the benefits of cell phone use for fulfilling the need to be connected to social groups outweigh the risks of driving errors. The social value approach was supported by Nemme and White (2010) finding that reference group norms predicted texting. In an expansion of Nemme and White's study, Bayer and Campbell (2012) also found that social norms strongly predicted texting while driving.

Another benefit of cell phones and texting is that they may fulfill a psychosocial need for constant and instantaneous communication with the outside world. Aoki and Downes (2003) identified the trait of cell phone dependence in a survey of college students who, to variable degrees, felt disconnected, lost, and upset when they did not have their cell phones. In a study of psychological and demographic predictors of problematic cell phone use, Billieux et al. (2008) documented an element of cell phone dependence among Swiss community members age 20–35. Utilizing a concept of "possession attachment", Weller et al. (2013) discovered in an on-line survey that young people who showed high cell phone dependency were more likely to use their cell phones and text on past driving trips. Harrison (2011) (p. 1518) proposed that cell phone use and texting are now such an integral part of the daily existence of college students that they allow for a "suspension of concern and consideration of consequences to ourselves and others" when driving.

1.5. The present study: gender differences in motives to text while driving

While research on psychosocial motives for texting while driving has advanced, there have been few studies of how these motives may vary by gender. The literature show that male and female drivers text at about the same frequency, with some studies showing slight differences. For example, a NHTSA telephone survey (National Highway Traffic Safety Administration, 2012) found that nearly the same percentages of men (19%) and women (17%) had ever texted while driving. Nemme and White (2010) concluded that gender did not significantly predict texting frequency. We reasoned that although men and women may text while driving at the same frequency, they may differ in their motivations to text.