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Patterns of distracted driving behaviors among young adult drivers: Exploring relationships with personality variables

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ABSTRACT

The current study sought to identify naturally occurring profiles of distracted driving behaviors; to distinguish personality traits associated with these profiles; and lastly to examine relationships between distracted driving behaviors and perception of risk. Self-reported information on distracted driving behaviors (i.e., frequency of engagement and perceived level of distraction) and personality characteristics were collected online from 266 young adult drivers from two academic institutions. The most commonly reported distracting behaviors were talking with passengers, programming music, eating or drinking, and using navigation. Latent profile analysis revealed 3 profile classes of distracted driving, with the personality trait of extraversion emerging as a consistent predictive indicator of level of distracted driving, including in high-risk situations such as inclement weather and in free-flowing, high speed traffic. In terms of level of perceived risk, the profile class with the lowest engagement in distracted driving behavior tended to rate the behaviors at most distracting, relative to higher-engagement groups. The profile class that engaged in the highest level of distracted driving reported such behaviors as moderately distracting, despite engaging in them. This class also yielded the highest levels of extraversion, suggesting that this personality trait may relate to consistently higher levels of distracted driving behaviors, despite perceiving them as risky. This information may be useful for identifying young adults at highest risk of engaging in distracted driving, as well as for tailoring initiatives to decrease rates of distracted driving, potentially cutting down incidents in this high-risk population.

1. Introduction

In the United States, young drivers have disproportionately high numbers of motor vehicle crash deaths relative to the number of miles they drive, compared with other age groups (Insurance Institute for Highway Safety [IIHS], 2013). In fact motor vehicle crashes are the leading cause of death among young adults ages 16–30 (National Center for Injury Prevention & Control, 2015). Coupled with the finding that young drivers are more likely than older drivers to talk or text on cell phones when driving (IIHS, 2015), distracted driving, particularly among young drivers, has garnered much attention.

A 2010 national telephone survey of over 6000 drivers ages 18 and older found that among drivers in the youngest age group (18–35), the most frequently reported distracting behaviors including talking with passengers, adjusting the radio,

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using a navigation system or phone for directions, using a portable music player, eating or drinking, and making and answering phone calls (Tison, Chaudhary, & Cosgrove, 2011). However, most research on distracted driving has focused primarily on driver cell phone use.

Among drivers of all ages, cell phone use when driving is high. In a national online survey of over 2700 drivers ages 16 and older, more than 69% of drivers reported talking on a cell phone while driving during the past month. Moreover, the percentage is higher among younger drivers. Among drivers ages 19–24, 72% reported talking on cell phones when driving during the past month; 50% reported reading texts or e-mails, and 41% reported typing or sending texts or e-mails (AAA Foundation for Traffic Safety, 2015). Results from another national survey of over 1,200 drivers suggest that drivers ages 25–29 were most likely to talk daily on a cell phone when driving (39%), compared with 20% among drivers ages 18–24 and 24% among those ages 30–59 (Braitman & McCartt, 2010).

Higher rates of distracted driving among young drivers are confirmed with observational studies as well. For example, in a 2014 national observational study of drivers observed while stopped at intersections, 5.8% of drivers ages 16–24 were observed talking on hand-held phones. This compares with 4.3% of drivers ages 25–69, and 0.8% of drivers ages 70 and older. Nearly 5% of drivers ages 16–24 were observed manipulating their phone, compared with 2% of drivers ages 25–69. Data were not sufficient to provide estimates for drivers 70 and older manipulating phones (National Highway Traffic Safety Administration, 2015).

These increased rates of phone use by young adults are potentially problematic. Studies have revealed an increased crash risk from interacting with phones while driving. Two epidemiological studies found a four-fold risk of injury or property-damage crash for drivers talking on phones (McEvoy et al., 2005). Farmer, Braitman, and Lund (2010) used this estimated crash risk (McEvoy et al., 2005; Redelmeier & Tibshirani, 1997), paired with a national survey of over 1,200 drivers, to examine population attributable risk for driver cell phone use. It was estimated that driver phone use may account for 22% of all police-reported crashes.

More recent research, however, suggests that risk may be lower than estimated by these studies. A naturalistic study of 105 drivers over a one year-period took a detailed look at cell phone use. Findings revealed a 17% increase in crash- or near-crash-risk when using a phone, although most of the increase was attributable to dialing, answering, or reaching for the phone (Farmer, Klauer, McClafferty, & Guo, 2015).

How cell phone use and other distracting behaviors directly translate into crash risk has been explored in driving simulator research with young drivers. For example, Pradhan et al. (2005) documented that younger drivers are worse at acquiring relevant information during high-risk driving scenarios, leading to fewer mitigating actions for those risks. Eye movements indicated younger drivers scan risk-relevant elements (e.g., a hedge near a crosswalk) less often than older drivers, and engage in behaviors indicating recognition of the potential risk (e.g., stopping prior to the crosswalk in case a pedestrian emerges from behind the hedge) less often as well. Another simulator study found that texting while driving leads to substantial driving impairments, including more time looking away from the road, increased cognitive workload, and decrements in speed monitoring, regardless of phone type (Young, Rudin-Brown, Patten, Ceci, & Lenné, 2014). Even when using hands-free phones for conversations, eye movements indicate drivers reduced their attention from the visual scene and had delayed reactions to vehicles braking in front of them (Strayer, Drews, & Johnston, 2003). It appears there may be multiple mechanisms at play contributing to increased crash risk for distracted driving.

Although it is challenging to identify the precise role of distracted driving in crashes, it is clear from research that there is an increased crash risk with distraction, and that young drivers are particularly vulnerable, given their higher cell phone use rates (AAA Foundation for Traffic Safety, 2015; National Highway Traffic Safety Administration, 2015, coupled with their increased risk of police-reported and fatal crash rates per mile driven, relative to older drivers (IIHS, 2013).

While rates of cell phone-related distracted driving are higher among young adult drivers, it is clear not all young adult drivers engage in these behaviors. Further, although cell phone use is the primary focus of many distraction studies, there is some evidence that other forms of distraction may more prevalent (Tison et al., 2011). A better understanding of the most common types of young driver distractions, as well as the personality characteristics of young drivers who actively engage in distracted driving may lead to more effective countermeasures for reducing or curbing such behaviors.

Surprisingly, there is little research specifically on the relationship between personality variables and distracted driving. One such study reported that attachment to one's phone correlated with self-reported distracted driving behaviors (Weller, Shackelford, Dieckmann, & Slovic, 2013). Bone and Mowen (2006) examined personality traits of self-reported distracted driving among college students. Need for arousal was positively correlated with distracted driving behavior, whereas negative relationships were observed for conscientiousness, need for learning, and health motivation.

Given the paucity of research identifying all relevant distracted driving behaviors as well as who is most susceptible to these behaviors, the current study explored self-reported distracted driving behaviors among college students, particularly in relation to personality variables – namely, the "Big Five" personality dimensions, a widely accepted and comprehensive taxonomy of personality, which includes traits of neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness (McCrae & Costa, 2008). In particular we hypothesized that conscientiousness would negatively correlate with distracted driving behaviors. There is some preliminary evidence that conscientiousness is associated with a reduction in risky or aggressive driving behaviors (e.g., Bone & Mowen, 2006; Schwebel, Severson, Ball, & Rizzo, 2006), as well as other unsafe health behaviors, such as smoking (Hampson, Andrews, Barckley, Lightenstein, & Lee, 2000).

Accordingly, the current study sought to identify naturally occurring profiles of distracted driving behaviors (aim 1) as well as to identify risk or protective factors (i.e., personality traits) associated with these profiles (aim 2). Lastly, we sought