Journal of Anxiety Disorders 25 (2011) 592–598

Contents lists available at ScienceDirect

Journal of Anxiety Disorders

Factors contributing to anxious driving behavior: The role of stress history and accident severity

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ARTICLE INFO

Article history:
Received 7 October 2010
Received in revised form 24 January 2011
Accepted 24 January 2011

Keywords:
Driving anxiety
Driving behavior
Life stress
Motor vehicle accidents

ABSTRACT

Although fear and travel avoidance among anxious drivers are well documented, relatively little is known about the behavior of anxious individuals who continue to drive. Previous research has identified three broad domains of anxious driving behavior: exaggerated safety/caution behaviors, anxiety-based performance deficits, and hostile/aggressive driving behaviors. In an effort to explicate factors associated with the development of anxious driving behavior, associations with objective accident severity, accident-related distress, and life stress history were explored among individuals reporting accident involvement ($N = 317$). Interactive effects of accident distress and self-reported stress history were noted across all three domains of anxious driving behavior. Examination of these effects indicates unique associations between accident distress and anxious behavior only in those reporting more severe life stress. Consistent with contemporary models of anxiety, these data suggest stress history may serve as a general vulnerability factor for development of anxious driving behavior following accident involvement.

Published by Elsevier Ltd.

Anxious drivers have been shown to engage in a variety of fear-related behaviors that may be considered reckless, inappropriate, or dangerous (e.g., Matthews et al., 1998; Taylor, Deane, & Podd, 2007). In an effort to quantify the occurrence of anxiety-related driving behaviors, Clapp et al. (2011) identified three distinct dimensions of problematic behavior – exaggerated safety/caution, anxiety-based performance deficits, and hostile/aggressive behaviors. These behaviors are believed to contribute to negative driving outcomes and poor response to anxiety-oriented treatments, but factors associated with the development of anxious driving behavior remain unexplored. Given evidence that aversive driving experiences such as traffic accidents may contribute to the development of driving anxiety in some individuals (e.g., Mayou, Simkin, & Threlfall, 1991), the current report explores the association of accident severity, accident-related distress, and general stress history on anxious driving behavior among individuals reporting a history of accident involvement.

Recent evidence suggests that driving anxiety may be more pervasive than previously recognized (Taylor & Deane, 2000; Taylor, Deane, & Podd, 2002). As a result, a number of studies have begun to specifically examine the behavior of those individuals who continue to drive despite feeling anxious (Clapp et al., 2011; Taylor et al., 2007). Anxious driving behavior has been broadly conceptualized as an increase, decrease, or general disorganization of behavior as a consequence of anxiety during the operation of a motor vehicle (Clapp et al., 2011). Although reported fear among these individuals may not reach formal criteria for any specific diagnosis, the influence of subjective anxiety on overt driving behavior can result in negative consequences for both the driver and other motorists. To date, three general domains of anxious driving behavior have been identified.

The first domain involves exaggerated safety and/or excessively cautious behavior. Long noted within the driving anxiety literature, these behaviors (e.g., maintaining excessive distances from other motorists, driving far below the posted speed limit, reducing speed before progressing through an intersection) typically are conceptualized as a coping response, decreasing immediate anxiety by increasing perceptions of safety and control (Mayou et al., 1991; Taylor & Koch, 1995). Although effective in reducing immediate distress, theoretical models predict that safety/caution behaviors ultimately maintain anxious response by disrupting processes associated with natural fear extinction (Clark, 1999; Salkovskis, 1991). Unrecognized, persistence of exaggerated safety/caution behavior may negatively impact the efficacy of exposure-based

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0887-6185/$ – see front matter. Published by Elsevier Ltd.
doi:10.1016/j.janxdis.2011.01.008

interventions for those seeking assistance with driving-related anxiety. Exaggerated safety/caution behaviors also may be functionally detrimental to the extent that they violate accepted traffic norms. Ironically, attempts to increase safety may inadvertently place the driver and other motorists at increased risk.

Performance deficits represent a second domain of anxious behavior. Research from the traffic safety literature postulates that driving-related worry may interfere with immediate, task-related demands, contributing to impaired driving performance and overall reductions in safety (Matthews et al., 1998). Whereas research examining the association between nonspecific anxiety and driving performance is mixed (see Taylor, Deane, & Podd, 2008 for a review), functional impairment is commonly noted in studies examining the specific impact of driving-related anxiety. For example, Taylor et al. (2007) noted that anxious drivers committed a greater number of performance errors (e.g., using the incorrect lane; making inappropriate adjustments in speed) than did non-anxious controls during an experimenter-rated driving task. Similarly, Matthews et al. (1998) observed that reported dislike for driving was associated with reduced control and more frequent errors within a driving simulation task. Data from the self-report literature provide additional support for a unique association between driving anxiety and impaired driving performance (e.g., Kontogiannis, 2006).

Hostility and overt aggression is a third domain of anxious driving behavior. In a recent examination of the behavioral consequences of driving anxiety, Clapp et al. (2011) observed a number of anxiety-related hostile/aggressive behaviors (e.g., yelling, honking, aggressive gesturing) within three samples of college-aged drivers. Research exploring driving outcomes among Norwegian motorists also indicates that anxiety-related driving aggression is functionally detrimental (Ulleberg, 2002). Individuals identified as anxious-aggressive drivers in this research evidenced low ratings of perceived driving skill, greater endorsement of risky driving behavior, and high levels of accident involvement. General models of driving anger postulate that elevated trait anxiety may decrease the threshold for aggressive response to stressful traffic conditions (Deffenbacher, Huff, Lynch, Oetting, & Salvatore, 2000; Deffenbacher, Lynch, Filetti, Dahlen, & Oetting, 2003); however, driving-specific anxiety may be particularly relevant to the conceptualization of driving anger within a subset of the population.

Exaggerated safety/caution, performance deficits, and hostile/aggressive behaviors can be problematic, but specific factors contributing to the expression of these reactions are unclear. Consistent with early learning models of anxiety (e.g., Mowrer, 1960), aversive driving experiences such as accident involvement commonly are identified as a source of driving related fear (Ehlers, Hofmann, Herda, & Roth, 1994; Mayou et al., 1991; Munjack, 1984; Taylor & Deane, 1999). Evidence from this literature demonstrates that aversive driving experiences likely contribute to anxiety within a subset of individuals; however, it is also clear that the simple occurrence of an aversive event is insufficient to explain individual variability in the acquisition and maintenance of driving anxiety. Building on classic learning theories, contemporary behavioral models such as Mineka and Zinbarg's (1995) stress-in-dynamic context model propose that contextual factors surrounding aversive, fear-related events – intensity of exposure, subjective fear, perceptions of controllability – are more relevant for conveying risk for prolonged anxiety than the simple presence of an aversive event (Craske, 1999; Mineka & Zinbarg, 1995). As predicted by these models, accident-related distress (e.g., perceptions of fear, threat, controllability) demonstrates robust associations with anxiety-related outcomes such as driving phobia and PTSD (e.g., Blanchard & Hickling, 2004; Ehlers, Mayou, & Bryant, 1998; Mayou, Bryant, & Ehlers, 2001). Indices of objective accident severity (e.g., extent of injury, vehicle damage) also demonstrate associations with anxiety-related difficulties although evidence supporting this relationship has been less consistent (e.g., Bryant & Harvey, 1996; Shalev, Freedman, Peri, Brandes, & Sahar, 1998). Generalization of this literature suggests that both accident-related distress and objective accident severity may contribute to anxious driving behavior among individuals reporting a history of traffic collisions.

Individual difference factors also are believed to contribute to fear acquisition (Craske, 1999; Mineka & Zinbarg, 1995). Craske (1999) notes that stressful life events may contribute to anxiety pathology, but the specific nature of this relationship remains unclear. Some evidence suggests that life stress may confer risk directly as evidenced through unique associations with anxiety-based pathology such as panic disorder, generalized anxiety disorder, and PTSD (e.g., Blazer, Hughes, & George, 1987; Bremner, Southwick, Johnson, Yehuda, & Charney, 1993; Faravelli & Pallanti, 1989). Alternatively, stress history may interact with contextual factors, conferring risk by strengthening relationships between aversive experiences and subsequent fear (e.g., Brewin, Andrews, & Valentine, 2000; Mineka & Zinbarg, 1995). With respect to driving anxiety, direct associations with stress history have been noted among individuals reporting serious accident involvement (Blanchard & Hickling, 2004). Interactive effects of early stressors have been noted in the trauma literature (King, King, Foy, & Gudanowski, 1996), but little research has examined interactive effects of life stress within the context of driving anxiety or anxiety-related driving behaviors.

The current project examines influence of life stress history and accident-related contextual factors – objective accident severity and associated distress – on anxious driving behaviors among individuals reporting a history of traffic collisions. Hierarchical regression models were used to examine the direct and interactive associations of predictors on three domains of anxious behavior: exaggerated safety/caution, anxiety-related performance deficits, and hostile/aggressive driving behaviors. Gender effects also were explored given evidence that women endorse higher levels of driving anxiety than men (e.g., Ehlers et al., 1994; Taylor & Deane, 1999; Taylor & Paki, 2008). Within the current data, objective accident severity and accident-related distress were expected to demonstrate interactive associations with stress history across all three domains of anxious driving behavior. In keeping with contemporary models of anxiety, associations between contextual factors and anxious driving behavior were hypothesized to increase as a function of stress history.

1. Methods

1.1. Participants

Participants included 356 college undergraduates recruited across two universities. Students were eligible for participation if they reported involvement in at least one traffic collision and identified as a current driver (i.e., driving at least once every few months).[1] No a priori assumptions were made regarding accident severity or severity of driving-related anxiety. Given that anxious driving behavior is conceptualized to exist on a continuum (ranging from mild, infrequent reactions to frequent, disruptive behavior), inclusion of a general sample of drivers was intended to capture both a range of accident severity and anxious behavior. Participants enrolled in the study provided informed consent and completed assessment measures online. All students received course credit for their participation. Complete data were obtained

[1] Inclusion criteria did not require the participant to be the driver in the reported accident.