Effects of altruism and burnout on driving behavior of bus drivers

Xia Shi,a,b,c, Liang Zhang,a,b,*

*a CAS Key Laboratory of Behavioral Science, Institute of Psychology, Beijing, China
b University of Chinese Academy of Sciences, Beijing, China
c Tianjin University of Technology and Education, Tianjin, China

A R T I C L E   I N F O

Article history:
Received 25 October 2016
Received in revised form 24 February 2017
Accepted 25 February 2017

Keywords:
Bus drivers
Altruism
Burnout
Aberrant driving behaviors

A B S T R A C T

Personality traits predict driving behaviors. However, the mechanism underlying this relationship has not been adequately investigated in professional drivers. The current study investigated the relationship between altruistic personality and aberrant driving behaviors, and the potential role of burnout. A total of 194 bus drivers completed questionnaires including measures of altruism, burnout and aberrant driving behaviors (aggressive violations, ordinary violations, errors, and lapses). The results showed that altruism was negatively correlated with burnout, and with all the four subcategories of aberrant driving behavior. Burnout fully mediated the relationship between altruism and aggressive violations, and partially mediated the relationship between altruism and lapses. These findings can be applied in the bus drivers’ selection and interventions for burnout in order to improve the safety of public transport.

© 2017 Elsevier Ltd. All rights reserved.

1. Introduction

Bus and coach are the most popular means of transportation in many countries. In most European countries, public transport (coaches, buses and trolleys) account for 10.0% to 30.0% of inland passenger transport (Eurostat, 2016). In China, nearly 48905 bus routes account for more than 76.54 billion passenger rides – covering a total of 894300 km in 2015 (Prc, 2015). The driving behaviors of bus drivers are critical for public safety including the safety of drivers and pedestrians, as well as passengers. A large number of studies have explored the risk of driving by private drivers. However, more focused research is needed on the risk factors of professional bus drivers.

Personality trait is one of the most important factors in predicting driving behaviors (Sümü, 2003). Previous studies reported that personality traits, such as the Big Five personality factors, are involved in traffic accidents (Dahlen et al., 2005; Classen et al., 2011; Delhomme et al., 2012; Gadbois and Dugan, 2015). The majority of studies investigated the role of personality among private drivers. However, few studies explored the relationship between personality and driving behavior among professional drivers. Altruism is a highly valued trait in drivers with the public transport system (Tse et al., 2006). Individuals with a high score on the altruism scale tend to be cooperative and willing to help others. By contrast, low scores on this scale tend to be self-centered and competitive (Lee and Lee, 2010). Compared with private drivers, the bus drivers must consider the needs of passengers and serve the public. Altruism is particularly important for bus drivers (Tse et al., 2006). Nevertheless, the relationship between altruism and risky driving is not fully established. Chen (2009) indicated that low levels of altruism were associated with aggressive driving behaviors. Benfield et al. (2007) also suggested that altruism was negatively related to aggressive behaviors while driving. Machin and Sankey (2008) showed that altruism was positively related to aversion to risk taking and negatively related to the likelihood of accidents and speeding. However, according to Dahlen and White (2006), the predictive utility of altruism is less clear, as they failed to determine the relationship with driving behavior. It is worth noting that these results were all derived from the private drivers or motorcyclists. To date, only a single study investigated the link between altruism and driving behavior among bus drivers (Malilia et al., 2015) and reported that altruism affected driving behavior in terms of attitude toward traffic safety. However, they found no direct effect of altruism on driving behaviors (Malilia et al., 2015).

Bus driving is a repetitive and highly strenuous task (Jones et al., 2014). Compared with private and other professional drivers, the working environment of bus drivers is characterized by increased stress. Most of the bus drivers operate on regular routes every day and often work long hours (Bhatt and Seema, 2012), which increases the risk of burnout (Maslach et al., 2001).

---

* Corresponding author at: Key Laboratory of Behavioral Science, Institute of Psychology, Chinese Academy of Sciences, 16, Lincui Road, Chaoyang District, Beijing, China.

E-mail address: zhangli@psych.ac.cn (L. Zhang).

http://dx.doi.org/10.1016/j.aap.2017.02.025
0001-4575/© 2017 Elsevier Ltd. All rights reserved.
(2011) examined the occupational differences in burnout profiles and found that bus drivers reported higher levels of exhaustion and disengagement compared with other occupational groups. Chen and Cunradi (2008) found that job burnout was associated with increased risk for alcohol-related problems among urban transit operators. However, few studies examined the relationship between job burnout and driving outcomes among professional drivers. To our knowledge, Chen’s study alone explored the relationship between burnout and driving behavior among bus drivers indicating that burnout had a significantly positive relationship with both health problems and aberrant driving behaviors (Chen and Kao, 2013).

Based on the cognitive-affective personality system, Mischel and Shoda (1995) proposed that behavior is not associated with specific personality traits. Instead, it is related to individual psychological response to external stimuli, their affective responses, and their self-regulatory strategies. Burnout may serve as a psychological response to pressure at work. Therefore, burnout may be predicted by personality traits and serve as a mediator of personality–behavior relationships. For instance, Swider and Zimmerman (2010) used meta-analytic path modeling and found that burnout partially mediated the relationship between personality traits and job performance. Bus drivers with high degree of altruism are more likely to adapt to their job resulting in low burnout, which minimizes the risk of aberrant driving.

The present study aimed to explore the effect of altruism on driving behavior among professional bus drivers. More importantly, we investigated the mediating effect of burnout on the relationship between altruism and driving behaviors. We expected that bus drivers with higher altruism or low burnout scores show less aberrant driving behavior. Moreover, the relationship between altruism and risky driving was mediated by burnout.

2. Material and methods

2.1. Participants and procedure

A total of 250 bus drivers from public transport companies of Tianjin and Haikou were recruited in this study. The participants were not asked to disclose their names on the questionnaires to reduce the possibility of socially desirable answers. They also ensured confidentiality of their data. Each bus driver received monetary compensation after completing the questionnaire. The final sample consisted of 194 valid replies, and the response rate was 77.6%. Male bus drivers accounted for most of the sample (87.1%), consistent with the fact that the majority of bus drivers in China were men. The average of final sample was 38.55 years (SD = 7.44, range: 21–58). The average number of driving years was 10.5 ± 6.64 years (range: 1–33). This study was approved by the Institutional Review Board of the Institute of Psychology, Chinese Academy of Sciences.

2.2. Measures

2.2.1. Altruism

The altruism scale derived from the International Personality Item Pool (IPIP, for the English version of the questionnaire, see http://ipip.ori.org) was used in the present study. The IPIP has been translated into many languages and used frequently to measure personality traits (Gow et al., 2005; Goldberg et al., 2006). We used the Chinese version, which demonstrated adequate reliability and validity (Yang et al., 2013; for the Chinese version of the questionnaire, see Yang, 2013). The scale measuring altruism consisted of 10 items (e.g., “Make people feel welcome” and “Love to help others”). The participants were asked to rate on a Likert scale from 1 (“strongly disagree”) to 5 (“strongly agree”). Higher scores in this scale indicated greater altruism.

2.2.2. Burnout

The Maslach Burnout Inventory is one of the most widely used measures of burnout utilized by researchers and organizations (Langballe, 2006). The Chinese version of Maslach Burnout Inventory-General Survey (MBI-GS) was adapted to measure burnout among bus drivers (Li and Shi, 2003; for the Chinese version of the questionnaire, see Wang, 2005). The MBI-GS is a 15-item self-reported measure of exhaustion (5 items, e.g., “I feel emotionally drained from my work” and “I feel used up at the end of the workday”), cynicism (4 items, e.g., “I have become less enthusiastic about my work” and “I doubt that my work contributes anything of significance”) and reduced personal accomplishment (6 items, e.g., “I can effectively solve the problems that arise in my work” and “I have accomplished many worthwhile things in this job”). Participants responded to all the items on a 7-point Likert-type scale ranging from 0 to 6 (0–6: never, a few times a year or less, once a month or less, a few times a month, once a week, a few times a week, and every day). The total score is computed by summing the scores on all the items after recording reversed items. Higher scores reflect higher levels of burnout.

2.2.3. Driving behavior questionnaire

The driving behavior questionnaire (DBQ) is a valid and reliable tool to investigate drivers’ aberrant behaviors (Lawton et al., 1997). This tool has been widely used in road safety studies in many countries and among special groups (Lajunen et al., 2004; Ozkan et al., 2006a, 2006b; For the English version of the questionnaire, see Lajunen et al., 2004). The present study used the DBQ which was translated from English into Chinese by Yang et al. (2013) (For the Chinese version of the questionnaire, see Yang, 2013). The DBQ consists of 28 self-reported items and four subscales including scales of aggressive violations, ordinary violations, lapses and errors. Aggressive violations refer to intention to deviate from safe driving based on interpersonal aggressive motivation (3 items, e.g., “Sound your horn to indicate your annoyance to another road user” and “Become angered by a certain type of driver and indicate your hostility by whatever means you can”), Ordinary violations refer to traffic safety violations without an aggressive intention (9 items, e.g., “Disregard the speed limit on a residential road” and “Race away from traffic lights with the intention of beating the driver next to you”). Errors include observation failures and misjudgments (8 items, e.g., “Brake too quickly on a slippery road, or steer the wrong way in a skid” and “Underestimate the speed on an oncoming vehicle when overtaking”). Lapses include mistakes due to attention and memory failures (8 items, e.g., “Hit something when reversing that you had not previously seen” and “Misread the signs and exit from a roundabout on the wrong road”) (Parker et al., 1998). The participants were asked to respond on a five-point Likert scale (1 = “never”, 5 = “always”) according to the frequency of 28 behaviors. The mean score of each sub-scale and the mean DBQ score were calculated. Higher scores correspond to a greater number of aberrant driving behaviors.

2.2.4. Demographic questionnaire

Socio-demographic data were collected from bus drivers, including age, gender, level of education and household members. Additional data pertaining to driving experience were collected, including driving years and number of accidents over the last three years, penalties or fines during the past year.
دریافت فوری متن کامل مقاله

امکان دانلود نسخه تمام متن مقالات انگلیسی
امکان دانلود نسخه ترجمه شده مقالات
پذیرش سفارش ترجمه تخصصی
امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
امکان دانلود رایگان ۲ صفحه اول هر مقاله
امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
دانلود فوری مقاله پس از پرداخت آنلاین
پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات