Traffic Psychology

ORAL PRESENTATION

3352
To be better than others or not to be a bad driver: Achievement goals in driving and driver skills

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Driving is a complex task involving both style-related and performance-related aspects (Elander et al., 1993). Recently driving is identified as an achievement context, since personal competence is implicated and assessed while driving, consequences depend on the driver, and success is uncertain and socially rewarded (Mascret et al., 2020). From this premise, Achievement Goal Questionnaire in Driving (AGQ-D) was developed and its association with unsafe driver behaviors and other negative consequences in driving were investigated. Specifically, it is found that ordinary violations, aggressive violations, accidents, and emergency maneuvers were associated with different dimensions of achievement goals in driving (Mascret et al., 2020; Mascret et al., 2021). However, achievement goals in driving and its relationship with style-related aspects of driving, which is driving skills, was not investigated previously. This research aims to fill this gap in the literature. Data was collected from 403 drivers (182 females, 221 males) aged between 18 and 70 ($M = 37.59$, $SD = 15.81$). They completed a demographic information form, the Driver Skill Inventory, and the Achievement Goal Questionnaire in Driving. According to the results of the Pearson correlation analysis, safety skill was positively correlated with mastery approach and mastery avoidance goals, while it was negatively correlated with performance approach goal. Perceptual-motor skill was positively correlated with performance approach, mastery avoidance, and performance avoidance goals. Results of the regression analyses show that when age is accounted for, mastery avoidance has a positive association with safety skills; performance approach has a positive association with perceptual-motor skills. Results suggest that avoiding performing badly may be the underlying aim in reliance on safety skills, whereas outperforming others may be the underlying aim in reliance on perceptual-motor skills.

3288
"Why were you speeding?": A self-confrontation study on awareness and reasons for speeding behaviour

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Despite extensive prevention efforts, excessive speeding largely contributes to traffic casualties (Breen et al., 2020). While speeding has been associated with demographic specificities (e.g., being male and young, Høye, 2020) or specific motivations (e.g., driving for fun, Ahie et al., 2015), a better understanding of drivers' awareness and their subjective reasons for speeding could enhance intervention strategies. To investigate these two topics, a self-confrontation study (see Mollo & Falzon, 2004) was conducted: 25 participants recorded one of their usual drives, using GoPro cameras, capturing both the road view and their speed. Selected video segments were later reviewed with participants, focusing on their awareness of speed behaviour, either within the limits or above, and the underlying reasons for their speed choice. The study also explored general attitudes towards speeding, perceptions of its problematic nature, the acceptability of exceeding speed limits, and decision-making in speed choice. The study revealed that most drivers who exceed speed limits are aware of their behaviour, often attributing it to habitual driving patterns, perceived safety, or the need to match the flow of traffic. The majority of observed speeding instances were less than 10% above the limit, often rationalized by drivers as 'normal' in comparison to the behaviour of other road users. Conversely, drivers who adhered to speed limits typically cited a straightforward preference for rule-following, without further justification. The study observed a spectrum of behaviours, from dangerous excessive speeding to strict adherence to speed limits. However, the most prevalent pattern was 'normal' speeding, defined as exceeding the limit by a few kilometres per hour. This behaviour suggests the existence of a 'normal illegal' zone (Amalberti et al., 2006) in driver perceptions of speeding, which is crucial for understanding and improving the effectiveness of road safety interventions.

2735
Development and testing of the Driver Situational Reflection Scale (DSRS)

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Understanding car drivers' behavior should move beyond describing aspects of individual drivers' behavior. This article proposes that cognitive representations of the interaction between drivers in terms of imagining other road users' mental pictures of a certain road situation as well as the situation itself play an important role in reducing risky driving behavior. Consequently, the authors have developed a new method for measuring the degree to which drivers reflect on situations and take others' perspectives in a traffic flow – the Driver Situational Reflection Scale (DSRS). The final version of the scale consists of two factors (dimensions): Caution, and Perspective-taking. These two factors showed good predictive validity in predicting positive and aberrant driving, as well as prosocial and aggressive driving (Studies 1A and 1B) and driving skills (Study 2).

1732
Are you in control? Investigating the associations of locus of control and pedestrian behaviour

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The World Health Organization's report on road safety reveals one key result: 23% of road traffic accident deaths are pedestrians, constituting the second largest group of road deaths (WHO, 2023). Therefore, understanding pedestrians' risk behaviour is crucial when following global endeavours to minimise traffic accidents (e.g. Vision Zero; Johansson, 2009). While previous studies established traffic behaviour's dependence on individual difference variables, there is a gap in explaining pedestrians' behaviour and its link to different forms of agency (Herrero-Fernández et al., 2016). In order to fill this gap, the current study aims to investigate pedestrians' risk behaviour in traffic and its associations with locus of control (LOC). LOC is a widely studied individual difference variable in driver behaviour context; however, its relationship with pedestrian behaviour has not been explored previously. For the purposes of the study, 250 individuals (67% female) with a mean age of 25.33 years ($SD = 9.92$) completed a survey battery including demographic information, Levenson's Multidimensional LOC Scale (Levenson, 1974), and the Pedestrian Behavior Scale (Granié et al., 2013). A correlational analysis and a set of moderated hierarchical regression analyses were conducted to test the relationship between LOC and pedestrian behaviours. The main effect of chance was significantly associated with transgressions ($\beta = .15$, $p = .042$), aggressive violations ($\beta = .16$, $p = .048$), and positive behaviours ($\beta = -.17$, $p = .035$). Interaction effects were not significant for any of the pedestrian behaviours. The present results contribute to prior research findings about pedestrian behaviour that hypothesis it to be socially reactive rather than reasoned actions (Demir et al., 2019). Since chanceful attributions of actions, which depend more on situational cues, were found to be associated with different types of pedestrian behaviour, it can be inferred

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that LOC plays an important role in pedestrian risk behaviour.

1498
Mindfulness and driver behavior: Considering the mediator role self-regulation

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Mindfulness constitutes a novel concept associated with traffic safety. It has been anticipated that mindfulness exerts a significant impact on road users' attentional processes and distracted driving behaviors. The underlying mechanism of these relationships is postulated to lie in the self-regulatory skills of road users. Numerous studies explaining the relationship between mindfulness and self-regulation have confirmed the accuracy of these ideas. However, there are still gaps in studies investigating the role of mindfulness on drivers' aberrant behaviors. Therefore, this study addresses these gaps by examining the relationship between mindfulness and driver behaviors, with a focus on the mediating role of the self-regulatory capacity of drivers in this relationship. Driver Behavior Questionnaire, Five Facets Mindfulness Questionnaire, and a short version of the Self-Regulation Questionnaire were used. Hayes' PROCESS macro was utilized to analyze the mediator role of self-regulation. The results showed that mindfulness revealed direct or indirect effects on each driver's behavior through self-regulation. "Describe," a facet of mindfulness, is found to increase the drivers' self-regulation capacity, and as a result, violations, errors, and lapses decrease while positive behaviors increase. Similarly, "Observe" and "No Judge" facets were found to increase positive driver behaviors directly or by increasing the self-regulatory capacity of drivers. Finally, it was revealed that the facet of "Acting with Awareness" decreases errors and lapses by increasing the self-regulatory capacity of drivers. To sum up, this study showed that mindfulness has an important relation not only to drivers' attention but also to their behaviors. Even though mindfulness has been found to affect driver behaviors directly in some cases, its effect through self-regulation was more explanatory.

1118
Understanding driving vengeance from the scope of basic individual values

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The main aim of the present study is to investigate the relationship between human's basic values and driving related vengeance within the traffic setting. Based on the postulates of Refined Theory of Basic Individual Values (Schwarts et al., 2012), this study expected specific relationships among human's value orientations, value prioritizations and driving vengeance. A total of 226 participants have taken an online survey to measure self-reports of driving vengeance and value importance and driver-relevant demographics. The results of the regression analysis revealed that Self-Enhancement values of Power-Dominance and Achievement were positively; Security value of Conformity-Rules were negatively related to driving vengeance. Moreover, contrast analysis has revealed how value orientations of males can play a role in the manifestation of socially aberrant driving behaviors that are based on taking retribution. The findings of the study have provided an understanding with regards to the value dynamics that took place within the traffic setting. Specifically, it has been indicated that the value trade-off between Self-Enhancement values Security values were prominent in determination of traffic related behaviors. Based on this, value-based interventions that target early education of individuals and future drivers may reduce the occurrence of driving related aggression. Consequently, this might lead to improved road safety and a healthier driving environment.

941
Anxiety-related thoughts and their effects in traffic

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Anxiety is a dominant emotion and has been relatively understudied or studied just in limited clinical groups in traffic safety literature. However, anxiety is an emotion that we experience constantly in our lives and it affects our behavior as drivers and the worries and thoughts brought on by anxiety also shape people's behavior. In this context, this study investigates the relationship between anxious thoughts that people experience while driving. A questionnaire battery consisting of demographic questions Driving Cognition Questionnaire (DCQ), Driving Behavior Surveys (DBS) and Driver Behavior Questionnaire (DBQ) was collected from 622 people living in rural and urban areas of Turkey. Firstly, the validity and reliability of the DCQ and DBQ were tested for the first time for this population and the factor structure was tested and validated. According to the main results of the study, social concerns (related to general life conditions) and accident-panic related concerns (related to traffic environment) positively predicted hostile-aggressive driving behaviors, exaggerated safety behaviors in traffic, and errors and lapses while driving. According to the study results, it has been found that anxious thoughts experienced in traffic can shape individuals' driving behaviors as unsafe and aberrant actions, similar to other dominant emotional states. This pervasive feeling can manifest in various ways, from heightened nervousness and cautious driving to more aggressive or reckless behavior behind the wheel. Further research on this topic could potentially contribute to enhancing overall traffic safety for all road user groups rather than avoidant and clinical samples.

865
Do emotions affect driving? Exploring the effects of emotional states on driving behaviour

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The present study explores how emotions, specifically pleasant, neutral and unpleasant, influence road accidents. It is based on the premise that driving is a skill that requires continuous monitoring and adjustment, even as it becomes more automatic with practice. Emotions can affect decision-making, and negative emotions can potentially lead to risky driving behaviour and impact driving performance. The present study hypothesized that the frequency of accidents will vary significantly across different emotional states and that negative emotions will lead to more accidents than neutral or positive ones. Selected images from the International Affective Picture System (IAPS) were used to induce different emotions in 95 young drivers. These drivers then encountered demanding scenarios in a driving simulator, such as navigating sudden pedestrian crossings or executing a right turn (considered a critical manoeuvre in India because of left-hand driving) while accepting a suitable gap between oncoming traffic on a major road. The results revealed that in a repeated measures ANOVA, emotions were found to significantly affect the number of accidents, with a very low p-value (<.001) and a moderate effect size ($\eta^2 = 0.155$). Furthermore, post-hoc tests revealed no significant difference between pleasant and neutral emotional states but significant differences between pleasant versus unpleasant and neutral versus unpleasant states, indicating that unpleasant emotions led to more accidents. The findings align with the study's initial hypotheses, indicating that participants were more prone to accidents when experiencing negative emotions as compared to neutral or positive emotional states. However, the lack of significant differences in the rate of accidents between pleasant and neutral emotional states is probably due to limitations associated with the method used to induce emotions. Overall, the study emphasises the importance of the effect of emotions on road safety.

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Human factor in teleoperators of remotely operated road vehicles: A qualitative study

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Teleoperated road vehicles gradually increase their importance. While teleoperated drones and robots have been on the market, several companies develop remotely controlled cars and other road vehicles currently. However, we don't know enough about the safety challenges brought by these vehicles to roads. We conducted 11 semi-structured interviews in two companies developing technologies for road vehicle teleoperation. Thematic analysis revealed four main themes concerning traffic safety. Interviewees mentioned problems connected to vision. It might be hard to adjust to the fact that images slightly overlap between the neighboring screens. Cameras are based on the top of the vehicle, so the view differs from a view of a driver sitting inside the vehicle. Another set of problems is that remote drivers cannot feel the speed of the car and the slope of the road. However, experienced teleoperators learnt how to notice this from the periphery vision of side screens. Huge safety challenge comes with worsening quality of signal transmission. This might lead to state when images from the car to the screens and commands from the teleoperator to the car might arrive as late as 1 s. The second company developed an indicator of worsening signal quality, which is a huge help to teleoperators who might stop the car as soon as the signal worsens. Fourth theme which emerged are problems faced by beginning teleoperators. They need to adapt to a different style of driving and learn how to copy with the possibility of worse signal quality. The drunk-driver-like riding during long latency in signal transmission is the main sign of lack of experience with teleoperation.

POSTER PRESENTATION

3080

Perception of traffic hazards, personality, situational awareness, and perspective taking

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The ability to timely predict hazards on the road is related to lower car crash involvement. At the core of this study, we wanted to examine if hazard perception is related to self-reported measures of personality, individual differences in situational awareness and perspective-taking, as well as patterns of aberrant car driving. A total of 51 car drivers participated in the study. Respondents were shown 21 videos of traffic situations (with or without hazards) using virtual reality glasses (Varjo). Network analysis showed that there is a meaningful pattern between hazard ratings, caution, perspective-taking, traffic accidents, traffic fines, violations, errors, and lapses. These results will be discussed in the light of improving traffic safety.

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Effects of brief intervention to promote safe pedestrian behaviour among parents of preschoolers

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To reduce the risk of child pedestrian injuries, parents are advised to serve as role models and teach safe pedestrian practices to their children. Notably, previous studies have indicated that many parents who accompany their children when crossing the street miss opportunities to do so. We have, therefore, developed a brief educational intervention lasting 2 h, tailored for parents of preschoolers, aimed at encouraging them to regard themselves as role models. Specifically, we have developed a discussion-based intervention addressing the potentially negative impact of parents' unintentional, unsafe behaviours on their children by using short videos depicting near-miss incidents involving child pedestrians as an introduction to the group discussions. This study aimed to investigate the effectiveness of the intervention by examining changes in parental risk perception and self-reported unsafe pedestrian behaviour. A total of 70 parents of children aged 5–6 years were assigned to either the experimental group (16 males, 18 females), which participated in the intervention, or the control group (18 males, 18 females), which was asked to watch only the near-miss videos. Participants completed a web-based questionnaire 1-5 days before, immediately after, and 1 month after the intervention. Both groups showed significant increases in risk perception or their own unsafe pedestrian behaviours immediately after the interventions. Notably, only the experimental group's risk perception remained high one month after the intervention. The frequency of seeking information and engaging in discussions with family members about road safety increased only within the experimental group. The frequency of safe road crossing behaviour increased only among mothers in the experimental group. However, the frequency of teaching children about pedestrian safety remained unchanged in both groups. The intervention needs improvements to further encourage parents to teach their children about road safety and to encourage safe pedestrian behaviours, particularly among fathers.

1751

Driving skills and self-regulation of driving in older people: A systematic review and meta-analysis

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Objective. Appropriate self-regulation of driving shows promise as a strategy for extending safe driving in older people (Molnar et al., 2013). Therefore, it is not surprising that research focused on the factors determining self-regulatory behaviors. It has been proposed (e.g., Horswill et al., 2011) that it is the driving skills that determine the extent to which driving is regulated. However, while research interest in the theme has increased, the literature is dispersed and poorly integrated. With this in mind, the current study aimed at summarizing the existing evidence and determining the relationship between driving skills and self-regulation of driving in the sample of older people. Methods. A literature search was limited to references published up to December, 2023. The following databases were used to search for scientific papers: ISI WoS, Scopus, ScienceDirect, APA PsycArticles and Academic Search Ultimate. The 100 first searches from Google Scholar were also included. Key terms used in the search were the following: "self-regulation of driving", "driving skills" and "older drivers"; their synonyms were also included when searching for the studies. The relevance of the papers was determined by screening their titles, abstracts and full texts. The predefined selection criteria were applied as guidance. Results. The search generated 550 citations. Following the full screening process, 5 papers were eligible for inclusion. The results of both systematic review and meta-analytic calculations showed that poor driving skills in older people are related to increased self-regulation of driving. This relationship was confirmed to be stronger for women relative to men. Conclusion. The current study suggests that older drivers generally show self-judgment of changes in their driving skills and manage their driving behaviors accordingly. It also provides evidence for self-regulation occurring in response to deficits in driving ability.

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Sexual harassment on public transportation and its impact on Pakistani women's mental health

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Sexual harassment on public transport puts women at risk of mental health problems, apart from disrupting their lives and the harmful social consequences. This is especially the case for Pakistani women, for whom sexual harassment has been on the rise for the past decade.

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The study was designed to explore how Pakistani women use strategies to cope with sexual harassment when using public transport and its mediating role in their issues with mental health. Given that the data collection task on such a culturally sensitive topic was crucial, a mobile application for anonymized data collection was employed, which appeared to be an effective strategy. Using the mobile application, 1054 women who use public transport submitted their responses; however, the analysis is based on 250 usable responses. Their experience of harassment was measured using the Experience Questionnaire (SHEQ), their mental health using the Depression Anxiety Stress Scales (DASS), and their coping strategies by the Brief Cope Inventory. The results indicate that adaptive coping is a significant negative mediator between sexual harassment and mental well-being, while maladaptive coping is non-significant. Adaptive coping, i.e., "Acceptance" to admit the reality that the problem exists with all, and "Religion" to seek help spiritually to deal with the problem. Unfortunately, the findings show no suitable coping means to deal with the impact of sexual harassment on women who travel on public transport. We also illustrate that using the right technologies can encourage participants to submit responses for culturally sensitive topics.

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