

Fatigue among bus drivers in Norway and Ghana: Examining the influence of working conditions and national road safety culture

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Background

Fatigue has been identified as a significant contributing factor to a considerable number of accidents involving professional drivers in road transport. Studies have reported that fatigue poses a risk factor in approximately 10-25% of all crashes. International research indicates that between 36 and 64% of professional drivers admit to having fallen asleep behind the wheel at some point. The prevalence of this issue is higher among professional drivers compared to private drivers (23-52%) due to the former's longer driving distances. To effectively implement measures to control this critical risk factor, it is crucial to develop a comprehensive understanding of the factors influencing driver fatigue.

Aim

The aim of the present study is to examine the factors influencing fatigue among professional drivers in Norway and Ghana, focusing on the role of national road safety culture and work pressure. Norway and Ghana were selected for comparison since the road safety record of the two countries differs significantly. The road fatality rate of Norway was the lowest in the world in the last seven years (17 fatalities per million population in 2020), the fatality rate in Ghana has been more than 4 times higher (77 fatalities per million population). Based on previous research of professional drivers in countries with differencing national road safety culture we hypothesise that 1) individual factors like driver age and years of experience to influence fatigue, 2) work-related variables such as work pressure, working hours or commission pay contributed significantly to bus driver fatigue, 3) a relationship between national road safety culture and fatigue. The assumed relationship between culture and fatigue is that bus drivers are more fatigued by a more aggressive national road safety culture, i.e. with higher levels of aggressive violations.

Method

In this study, we interviewed and distributed surveys to Ghanaian (n = 281) and Norwegian (n = 285) bus drivers, examine the factors influencing fatigue among professional drivers in Norway and Ghana, focusing on the role of national road safety culture and work pressure. In the survey we measure national road safety culture as descriptive norms, reflecting bus drivers' perceptions of what other drivers in their country do. We included items to measure aggressive driving culture, stress and pressure on the job, safety management and safety culture in the bus companies. Fatigue was measured by means of the question: "Have you in the past three months experienced falling asleep (or drowsed for a short moment) driving a bus?". To examine the factors influencing whether respondents had fallen asleep or dozed off, we employed hierarchical logistic regression analyses.

Results

We found that Norwegian bus drivers report considerably fewer incidents of dozing off or falling asleep during the past 3 months compared to the Ghanaian bus drivers. In Ghana, drivers affirmatively answered this question nearly five times as often as Norwegian drivers. The analysis revealed that aggressive driving culture, longer working hours, and having fixed pay were associated with increased fatigue, but these associations disappeared when accounting for the country of residence. Amongst drivers that are not self-employed, stress and pressure also played a considerable role in fatigue, while a higher company safety culture was associated with reduced fatigue.

Conclusions

- There are notable differences between Ghanaian and Norwegian bus drivers. These include including a higher incidence of dozing off or falling asleep among Ghanaian drivers, more older drivers in Norway, longer weekly driving distances and longer working hours for Ghanaian drivers.
- The analysis revealed that aggressive driving culture, longer working hours, and having fixed pay were associated with increased fatigue, but these associations disappeared when accounting for the country of residence.
- Ultimately, the country of residence had the most significant influence on the likelihood of drivers falling asleep or dozing off, with Norwegian drivers being considerably less likely to experience this.