

Framework conditions, driving style, and passenger falls among bus drivers in Ghana and Norway

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Background

In Norwegian, EU, and US bus transport, passenger falls are the main source of passenger injuries in bus transport. Given that passenger injuries from falls in buses are the type of incident with the highest number of injuries and the highest degree of severity, we want to examine factors associated with passenger falls, to discuss measures to prevent passenger falls in bus transport. Based on previous studies on safety in bus transport in general, we hypothesize that passenger falls are influenced by a complex set of factors related to: 1) type of bus transport, 2) rules and enforcement, 3) economy and competition, 4) other road users, 5) the road and the road infrastructure, 6) passengers, 7) the bus companies, 8) working conditions, 9) the bus, 10) the driver. We can refer to the first six factors as framework conditions, while 7) and 8) relate to organisational factors, 9) technology and 10) the individual (driver).

Aim

The aim of the study is to examine factors influencing passenger falls in bus transport in Ghana and Norway, focusing especially on the role of bus drivers' aggressive driving style and how it is influenced by different framework conditions of bus transport in Norway and Ghana. Ghana and Norway 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).

Method

We have collected data through quantitative surveys among bus drivers in each country, Ghana (n=281) and Norway (n=285) and through semi-structured, qualitative interviews with bus drivers from various bus companies and regions in Norway (n=10) and in Ghana (n=19). To show different sets of factors associated with passenger falls, we performed logistic regression analyses.

Results

We found that Norwegian drivers report considerably fewer passenger falls than Ghanaian drivers (6% vs 27% at least once in the last two years). We examined factors influencing passenger falls in bus transport in Ghana and Norway, controlling for country. We conducted two analyses. First, we conducted a logistic regression analysis of factors predicting passenger falls. Country contributed significantly. Bus drivers' reported stress and time pressure was the strongest predictor of bus drivers' reports of passenger falls. Distance driven in the last two years also contributed significantly. The same did the variable "I am often stressed by passengers in ways that can be negative to traffic safety." However, bus drivers' aggressive driving style did not contribute significantly, when we controlled for country. Neither did the variable: "I often have to brake suddenly to avoid dangerous situations with pedestrians, cyclists, motorists and others." The number of dangerous intersections and stops is also a predictor of passenger falls, but not when stress is accounted for. Based on the great importance of bus drivers' reported stress and time pressure for passenger falls, we conducted a second, linear regression analysis of factors predicting bus drivers' experienced stress and time pressure. In this analysis, bonus payment contributed significantly. Qualitative interviews indicate that the most important framework condition for bus drivers in Ghana is type of employer (commercial or institutional), which influence whether drivers have bonus wage arrangements (which lead to speeding, driving while tired), rest rules, vehicle standard etc.

Conclusions

We have found that the following framework conditions contribute to passenger falls in bus transport: bus drivers' reported stress and time pressure (partly induced by bonus payment), passenger induced stress that may compromise traffic safety. These factors were more important than factors related to road and infrastructure and other road users.