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RESEARCH



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# **Fatigue among HGV drivers in Norway and Greece: examining the influence of national road safety culture**

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# Background

- Fatigue is a risk factor involved in **10-25%** of all road crashes.
- Between 36 and 64 % of **professional** drivers report having fallen asleep behind the wheel one time or another.
- Sleep-related crashes are on the average **more serious** than crashes caused by other factors, due to the fact that they often occur under conditions of relatively **high speed** (e.g., rural roads with little traffic).



# Concept of the Study

- Some traffic safety cultures may be more **exhaustive** to drive in than others, e.g. due to the nature of the interaction between road users.
- Studies comparing road safety behaviours in northern and southern European countries have found higher prevalence of **aggressive violations** in the southern European countries.
- It is examined whether an RSC with a high level of **aggression** and conflicts among drivers is more **exhaustive** to drive in, creating a higher level of fatigue.





# Factors Influencing Fatigue

- Age
- Sleep history
- Type of transport (and road environment)
- Work pressure and working conditions
- National Road Safety Culture (RSC)  
*RSC is defined as shared patterns of behaviour, shared norms prescribing certain road safety behaviours, and thus, shared expectations regarding the behaviours of others.*



# Qualitative Interviews

- Ten HGV drivers from **Greece** and eight HGV drivers from **Norway**.
- **Purpose**: to provide additional and contextual information about national road safety culture, road user interaction, fatigue, working conditions, and work pressure.
- Semi **structured interview guide** used.
- **Comparison of drivers' statements** on different themes within and across countries, to look for common patterns.





# Quantitative Survey (1/2)

## ➤ Sample

**Professional HGV drivers** from 7 companies in Norway (and a group of drivers from unknown companies) and 2 companies in Greece (N=201)

### Recruitment criteria:

- 1) Minimum 90% of HGV drivers in each company should be of the main **nationality** (Norwegian or Greek),
- 2) Recruited drivers should include a mixture of drivers involved in **long distance** transport and **distribution** transport.



# Quantitative Survey (2/2)

## ➤ Survey themes

- ✓ Working conditions with safety implications
- ✓ Safety behaviours
- ✓ National RSC index
- ✓ Sector transport safety culture
- ✓ Fatigue
- ✓ Accident involvement

## ➤ Analysis

- ✓ One-way Anova tests to compare mean scores of different groups
- ✓ Hierarchical, logistic regression analyses



# Qualitative Interviews Results

- Greek HGV drivers mentioned that it is common in Greece to signal **anger** and **irritation** in traffic.
- All Greek drivers reported the occurrence of **incidents**, sometimes on a daily basis.
- **None** of the Norwegian HGV drivers expected other drivers to be rude or angry in general, like the Greek HGV drivers.
- Most of the Norwegian HGV drivers also admitted getting **irritated** or **angry** when driving HGVs.





# Fatigue and Factors Influencing Fatigue

- *«In the course of the last three months, have you fallen asleep (or dozed off for a moment) while driving a heavy vehicle at work?».*
- ✓ 6% of the Norwegian HGV drivers and 24% of the Greek HGV drivers answered yes.
- ✓ HGV drivers who report to be involved in more aggressive violations (i.e. signaling irritation and annoyance to other drivers), have higher odds of falling asleep behind the wheel.



# Fatigue and Factors Influencing Fatigue

- ✓ HGV drivers who **attribute** higher levels of **aggression** and **violations** to other drivers in their country have higher odds of **falling asleep** behind the wheel.
- ✓ **Norwegian** HGV drivers have **lower** odds of falling asleep behind the wheel than the Greek drivers.
- ✓ HGV drivers who do **not drive long distance** have **lower odds** of falling asleep behind the wheel than those who drive long distance.





# Fatigue and Factors Influencing Fatigue

- ✓ HGV drivers who **attribute** higher levels of **aggression** and **violations** to other drivers in their country have higher odds of **falling asleep** behind the wheel.
- ✓ Surprisingly, none of the **work-related variables** (work pressure, working hours, or commission pay) contributes significantly.
- ✓ No statistically significant relationship between **organisational** safety culture and fatigue, or **self-employed** driver and fatigue was found either.





# Discussion

- Four times higher levels of fatigue among **Greek** HGV drivers
- The national RSC in Greece is characterized by higher levels of **aggression/violations**
- The national RSC in Greece is related to higher levels of **fatigue**
- **Work-related** variables do not contribute significantly to fatigue





# Future Research

- Examine the existing culture of **accepting fatigue** among professional drivers, at least previously in Greece.
- Examine whether high levels of fatigue may increase **aggressive violations** among drivers.
- Examine further the same themes, including **larger samples** of HGV drivers.
- Ensure that the sample is **represents** the sector and complement the quantitative data with rich **qualitative** interview data.
- Use more similar **national samples**.





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