

Comparing national road safety culture among bus drivers in Norway and Ghana

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Background I:

- 1.4 million people die every year on the world's roads, and between 20 and 50 million people are injured
- 93% of deaths occur in low and middle income countries
- Several factors influencing road safety culture are national (e.g. traffic rules, police enforcement of the rules, driving licenses and driver training).
- We may therefore expect different road safety cultures to exist in different countries

Background II:

- Norway has had the world's best traffic safety for the past seven years (17 deaths per million inhabitants in 2020).
- Ghana has 88 people killed per million inhabitants, which is five times higher.
- Based on this, we may assume that there are differences in national road safety culture in the two countries.
- We define traffic safety culture as shared norms about what is "normal" in traffic and what we expect others to do.

Aims and methods:

- 1) Examine the influence of national safety culture, on the safety behaviours of bus drivers, compared with other explanatory variables (e.g. age, type of transport)
- 2) Examine the influence of safety behaviours and other factors (e.g. age, mileage, type of transport) on self-reported crash involvement.

Method: Surveys to bus drivers in Ghana and Norway.

The surveys are based on previous studies:

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Safety culture among bus drivers in Norway and Greece

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ABSTRACT

The aims of the present paper are to: (1) Examine the influence of national safety culture, sector safety focus and organizational safety culture on the safety behaviours of professional drivers, compared with other explanatory variables (e.g. age, type of transport, working conditions), and to (2) Examine the influence of safety behaviours and other factors (e.g. age, mileage, type of transport) on self-reported crash involvement. A survey was conducted, including 215 bus drivers in Norway and Greece. Our study provides four main results. First, more bus drivers in Greece than in Norway report being involved in more aggressive violations in traffic (e.g. become angered by other drivers and indicate hostility, sound their horn). Second, aggressive violations were predicted by national road safety culture, specified as descriptive norms ("violations") and values/attitudes (individual freedom to take risk in traffic). Third, Greek bus drivers' aggressive violations in traffic predicted their self-reported crash involvement, although reports on "work related variables" (e.g. experienced work pressure) were more strongly correlated with their crash involvement than their self-reported aggressive violations. Fourth, organizational safety culture contributed negatively to aggressive road safety behaviours, meaning that a positive organizational safety culture may reduce (the negative impact of national road safety culture on) aggressive violations in traffic. Although more research is needed, our study indicates a relationship between national road safety culture, road safety behaviour and crash involvement, that could be developed further to help explain differences in national road safety records.

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The role of values in road safety culture: Examining the valuation of freedom to take risk, risk taking and accident involvement in three countries

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Preliminary results from the survey:

Descriptive variables of bus drivers in Ghana and Norway.

	Ghana <i>n</i> = 281	Norway <i>n</i> = 285
Male	99.6%	91.6%
Age	45	54
Bus driving experience, years	17	19
Distance driven last 2 years	93k km (65.7)	71k km (69.5)
Work hours per day	11 (2.9)	8 (1.6)
Company size	6 (14)	1083 (1944)
Share of company size = 1	49%	1%
Self-owned bus	35%	0.35%

Overview of the employment status:

Overview of the employment status between bus drivers.

Employment status	Ghana $n = 281$	Norway $n = 285$
Full-time employee	46%	86%
Part-time employee	12%	13%
Self-employed	28%	0%
Work and pay	14%	0%
Other	0%	1%

Overview of bus types:

Overview of the type of bus driving between bus drivers.

Type of bus transport	Ghana $n = 281$	Norway $n = 285$
City bus (intra city)	29%	27%
Regional bus (<u>inter city</u>)	46%	27%
School bus	14%	13%
Long distance bus (<u>inter city</u>)	10%	5%
Express bus	1%	6%
<u>Air port</u> express bus	0%	2%
Tour bus	0%	3%
Several different types	1%	15%
Other	0%	2%

Overview of wage arrangements:

Wage arrangement	Ghana <i>n</i> = 281	Norway <i>n</i> = 145
Fixed pay	49%	89%
Fixed pay combined with bonus arrangements	37%	3%
Pay per assignment only	6%	5%
Other	8%	3%

Hypotheses:

- 1) We hypothesize differences in national road safety culture in the two countries, due to different road safety levels and national infl. factors (Hypothesis 1).
- 2) Based on previous research, we expect a relationship between road safety culture and road safety behaviours (Hypothesis 2)
- 3) And between road safety behaviours and accident involvement (Hypothesis 3).

When driving in my country, I expect the following behaviour from other drivers:

- That they become angered by a certain type of driver and indicate their hostility by whatever means they can
- That they sound their horn to indicate their annoyance to another road user
- That they disregard the speed limit on a motor way road
- That they overtake a slow driver on the inside
- That they drive when they suspect they might be over the legal blood alcohol limit
- That they drive without using a seatbelt
- That they disregard the speed limit on a residential road
- That they run red lights

Answer alternative 1 (none/very few to 5 all/almost all). We made a sum-score index measuring national RS culture (min: 8, max: 40)

Results: Hypothesis 1:

We find significantly higher score on the national RS-culture index in the Ghana sample.

This indicates that bus drivers in Ghana expect more violations from other drivers in traffic than bus drivers in Norway do.

In accordance with Hypothesis 1.

Road safety behaviours among Ghanaian and Norwegian bus drivers:

For every tenth time you drive a bus, approx. how often do you do the following (1: never, 7: always):

- 1) Become angered by a certain type of driver and indicate your hostility by whatever means you can
- 2) Sound your horn to indicate your annoyance to another road user
- 3) Pull out of a junction so far that the driver with right of way has to stop and let you out
- 4) Drive when you suspect you might be over the legal blood alcohol limit
- 5) Drive without using a seat belt

Sum score index (min: 5, max: 35 points, CA: .688).

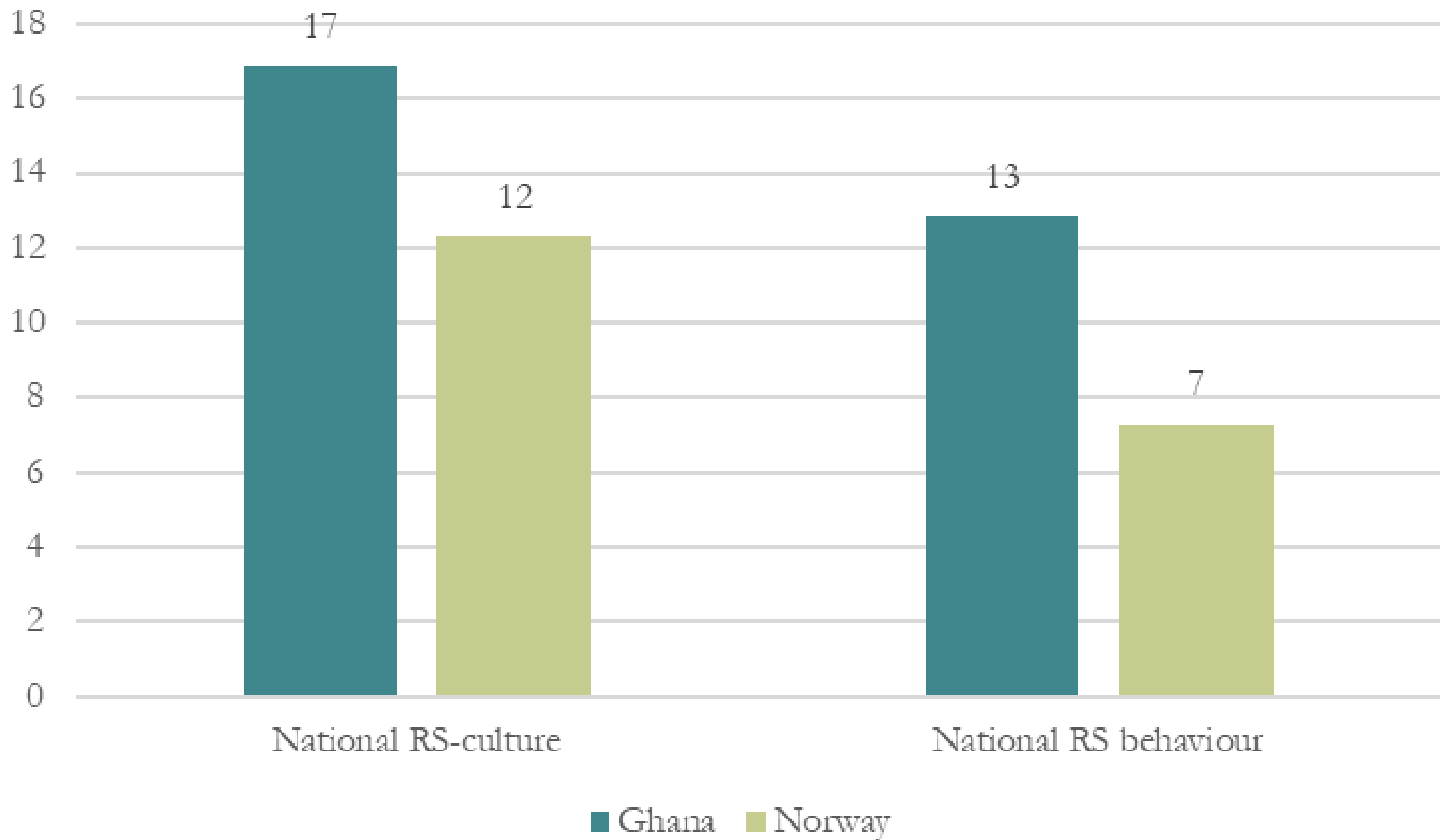
Mean: NO: 7.3, GH: 12.8 points.

The relationship between road safety behaviours and national road safety culture:

Based on previous research, we expect a relationship between road safety culture and road safety behavior (hypothesis 2)

The background is that descriptive norms create a "mild social pressure" to do as the others do.

National road safety culture concerns what we think of as "normal". (What we don't react to, vs. What we react to.)



Results Hypothesis 2:

We find a significant relationship between national culture and road safety behaviour.

The following variables influence road safety behavior (about 40%):

- National road safety culture index
- Dangerous situations due buses poorly adapted to the route
- Dangerous situations due to poorly adapted intersections and bus stops
- Experience of stress and pressure (3 statements).
- The Safety ladder index

Results Hypothesis 3:

We expect a relationship between road safety behaviors and accident involvement (Hypothesis 3).

We find such a relationship:

Accident involvement among drivers in Ghana was twice as high as in Norway (40% vs. 20%).

Accident involvement is predicted by: road safety behaviours, stress/pressure and dangerous situations due to dangerous intersections and stops

Conclusion: what can we do with this knowledge?

Which factors influence national road safety culture?

- Police enforcement
- Infrastructure
- Interaction with other drivers
- Training of drivers
- The composition of drivers (demographics)