

## Evaluating Self-Reported and Attitudinal Indicators as Proxies for Observed Road Safety Behaviour

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### Objective

- Study on experimental KPIs: self-reported behaviour and attitudinal dimensions within the Trendline project (2022-2025)
- Assess whether self-reported and attitudinal indicators can proxy observed behaviour (KPIs)
- Compare country rankings across:
  - Self-reported behaviour & attitudinal indicators
  - Observed behaviour KPIs
- Focus on 4 road safety topics: speeding, distraction, drink driving, use of protective equipment
- Exploratory study (limited sample: 5-10 countries)

### Overall Insights

- Results show some strong cross-country correlations, but those vary by topic
- Self-reported ≠ observed (measure different concepts):
  - Self-reported → who engages in risky behaviour
  - Observed → how often risky behaviour occurs
- Attitudinal indicators help to predict behaviour, but do not measure it directly

### Limitations & Future Research

- Small country sample → exploratory only
- The analysis should be extended using updated data from Trendline and ESRA3/4
- Further in-depth research on national differences in traffic safety culture to understand the differences across countries

### Methodology

- Data sources:
  - ESRA2 (2018): self-reported behaviour and attitudinal dimensions (32 countries)
  - Baseline project: observed road safety KPIs (5-10 countries)
- Methods:
  - Cross-country correlation and simple regression analysis ( $R^2$ ) between observed behaviour (Baseline KPIs) and self-reported behaviour and attitudinal dimensions (ESRA2) at national level
  - Visual inspection of scatterplots for potential outliers or atypical national patterns
- Topics analysed:
  - Speeding, distraction, drink driving, protective equipment
- Limitation:
  - Small sample size → preliminary explorative findings

### Conclusions & Recommendations

- Self-reported behaviour & attitudinal indicators are useful complements to the Trendline framework, but cannot replace observed KPIs
- They add cultural & psychological depth to road safety monitoring by providing deeper insight into:
  - Drivers' behaviour
  - Drivers' demographics, perceptions and motivations
- Requirements:
  - Standardisation
  - Careful interpretation
  - Integration with KPIs
- Best used alongside observed KPIs, with standardized questionnaire applied across countries (e.g. ESRA items)

### Key Results

Comparing observed behaviour (Baseline KPIs) with self-reported behaviour and attitudinal dimensions (ESRA2):

#### Speeding

- Self-reported behaviour:
  - Moderate to strong correlation on rural roads & motorways ( $R^2=0.55$  and  $0.87$ )
  - No correlation in urban areas
- Attitudinal dimensions:
  - Significant correlations for all dimensions: attitudes, norms, perceived behavioural control, habits, intentions ( $R^2$  from 0.17 for attitudes to 0.78 for personal norms)

#### Distraction (mobile phone use)

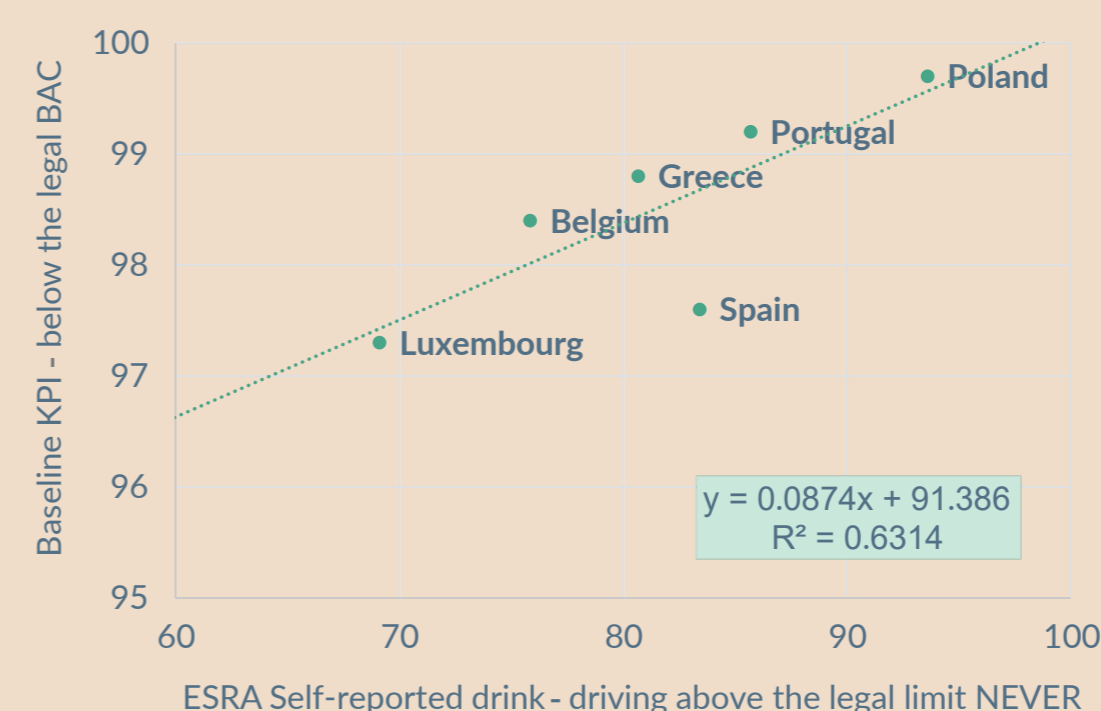
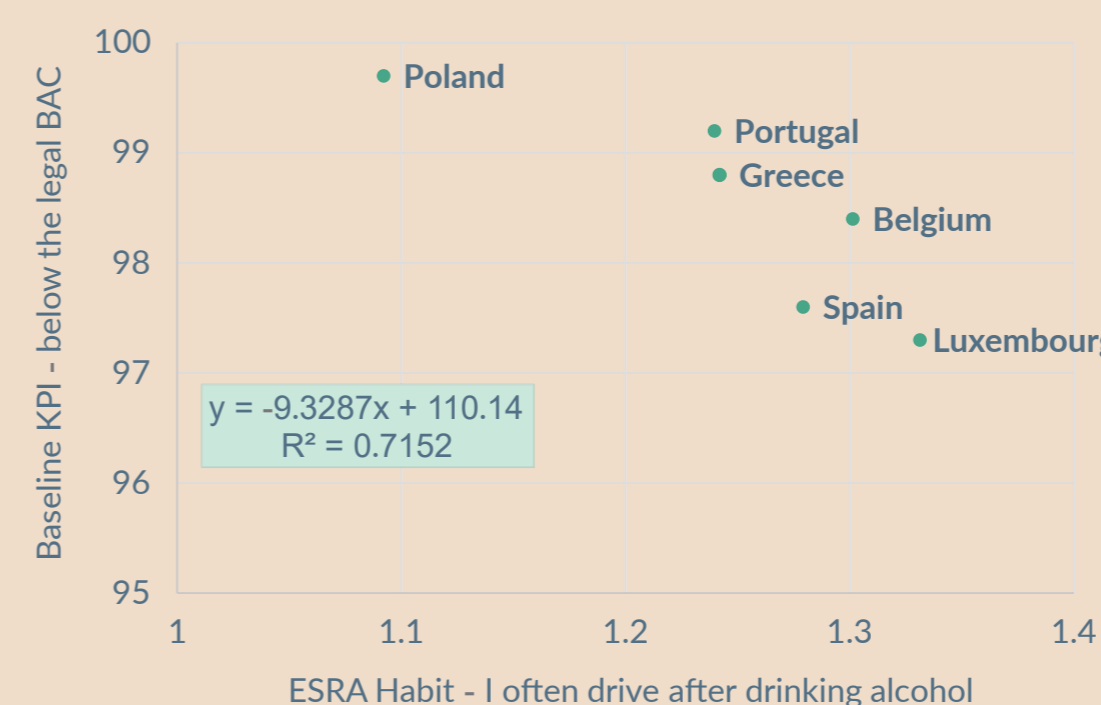
- Self-reported behaviour:
  - Moderate to strong correlation ( $R^2=0.54$ )
- Attitudinal dimensions:
  - Social norms = strongest predictor ( $R^2$  up to 0.66); stronger than personal norm
  - Weak or inconsistent correlations for habits, intentions, perceived behavioural control

#### Drink driving

- Self-reported behaviour:
  - Strong correlation ( $R^2=0.63$ )
- Attitudinal dimensions:
  - Strongest predictors: habits ( $R^2$  up to 0.72) and perceived behavioural control ( $R^2$  up to 0.56)

#### Protective equipment

- Self-reported behaviour:
  - Seatbelt: moderate correlation ( $R^2=0.40$ )
  - Helmet (PTW & cyclists): strong correlation ( $R^2=0.60$  and  $0.63$ )
- Attitudinal dimensions:
  - Social norms strongest correlation ( $R^2=0.66$ )
  - Personal norms = weak predictor



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#### More Information

Silverans, P., Meesmann, U., Wardenier, N., Mondésir, H., Salathé, M., Heffernan, S., Gonzalez Hernandez, B., Damiani, F., Nikolaou, D., & Naydenov, N. (2025). Experimental KPI Self-reported behaviour and attitudes. Summary results of pilot trials. Report produced as part of the Trendline project, supported by the European Union.



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