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Nordic citizens' views on traffic safety

Susanne Gustafsson[a,*], Nils Petter Gregersen[a]

[a]*Swedish National Road and Transport Research Institute, VTI, SE-581 95 Linköping, Sweden and National Society for Road Safety, NTF, Solna, Sweden*

Abstract

Even though traffic safety is very high in the Nordic countries, there are still too many people who die or are severely injured. The Nordic Road Safety Council conducted a questionnaire survey with the purpose to find differences between member countries in inhabitants' behavior and attitudes in relevant traffic safety fields. The survey focused on speed, driving under the influence of alcohol, use of safety belt, mobile phone use, fatigue, use of bicycle helmets and child restraint systems. Around 5000 people aged 18-74 years old answered the questionnaire. Some of the similarities and differences that were found between the countries are presented. This paper focuses on behavior and attitudes towards speed, drunk driving, and safety belt use.

Keywords: Traffic safety; Nordic countries; questionnaire; behavior; attitude; speed; drunk driving; safety belt

1. Introduction

The Nordic Road Safety Council is an umbrella organization for the Nordic NGO road safety organizations; Central Organization for Traffic Safety in Finland, The Danish Road Safety Council, The Swedish National Society for Road Safety, The Norwegian Council for Road Safety, The Road Traffic Directorate in Iceland and The Faroese Road Safety Council.

The Nordic countries are among the best in the world regarding road safety. In spite of that, too many road users are killed and injured on the Nordic roads. Even if the Nordic countries have many similarities, there are also large differences, not least when it comes to road safety culture, strategies and measures. These differences may be used to support each other in defining best practice and develop new

* Corresponding author. Tel.: +46(0)13204132; fax: +46(0)13141436.
E-mail address: susanne.gustafsson@vti.se

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countermeasures. The first step in the ambitions from The Nordic Road Safety Council to increase this cooperation was to measure similarities and differences in Nordic citizens' attitudes, behavior and their general views on road safety and road safety measures. This type of comparison between the Nordic countries has not been carried out earlier, which means that there are no well-founded hypotheses to be made from earlier knowledge in the road safety area.

What we know, however, concerning road safety in the Nordic countries is that the development of fatalities looks fairly similar over the years. Statistics shows that all the countries, even if the absolute levels differ, have had a downward trend of fatalities since the beginning of the seventies (figure 1). The development is similar, but the strategies and measures behind differ much between the countries.

An example of both similar and different thinking is the implementation of Vision Zero (Tingvall, 2005) as a strategy for road safety priorities. All Nordic countries use the concept, but the definition of what Vision Zero means varies much between the countries.

Cross cultural studies on people´s perception of road safety are fairly scarce and the studies that have been carried out are focusing on different areas. There are some studies on comparison of accident risks based on register data (e.g. Luoma and Sivak 1992; Hayakawa et al., 2000) and studies comparing surveillance data between countries (e.g. Assum and Glad, 1988). There are also survey studies with varying focus, such as a questionnaire study comparing perception of driver´s speed choice in Sweden and Turkey (Wallén Warner et al., 2009), an interview comparison between different language groups in Sydney with regard to parental risk perception of childhood pedestrian road safety (Lam, 2005) and a questionnaire comparison between Ghana and Denmark of people´s judgement of traffic risks, attitudes and behaviors towards traffic safety among vulnerable road users (Agyemang and Jörgensen, 2010).

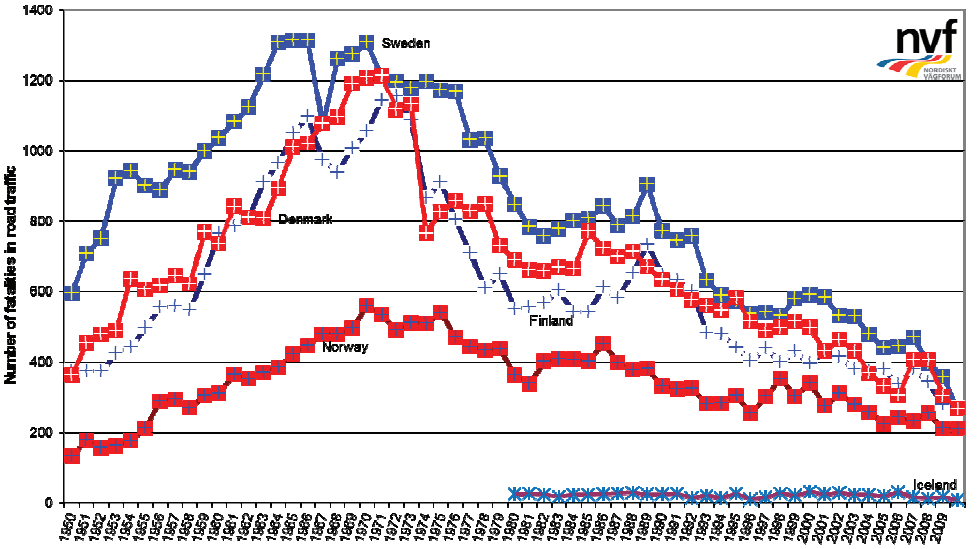

Fig. 1. Development of number of killed persons in road traffic in the Nordic countries 1950-2010 (NVF, 2011). Figures from the Faroe Islands are not shown, but only very few persons are killed there in road traffic each year.

The results of these specific comparisons all show, without going into details, that there are important differences between countries or cultures that need to be taken into account when planning for road safety measures. Wallen Warner et al. concludes that there is a relation between positive attitudes towards speed compliance and lower national fatality risk, which explains some of the differences between the road

safety in the countries of their study and supports the need to study attitudes in cross cultural studies. Agyemang and Jörgensen also showed that the attitudes may differ between countries in different directions such as being more positive towards drinking and driving in one country but more positive towards other risky behavior in another.

There is, however, a lack of comparative studies where all the Nordic countries are studied. There is a questionnaire study among 15 years old road users in the Nordic countries (Gustafsson and Gregersen, 2010) showing that there are many differences between the countries. In this study the differences between boys and girls were also analyzed and it was found that these differences often were larger than between countries. As example of country difference, the attitudes towards drinking and driving are more positive in Denmark. Girls are found to be more positive towards most safety measures and are behaving more safely than boys in most situations.

The results from earlier SARTRE-studies (SARTRE-Consortium, 2004), comparing EU-countries, including Sweden, Denmark and Finland, identified several differences, such as attitudes towards drinking and driving where Danish drivers were less negative. Danes were also more positive towards speeding and Fins more positive towards speed cameras. The SARTRE-studies also showed that Danes more seldom gave way to pedestrians and Swedes more often drove through amber light. Also the Eurobarometer study from 2006 on use of intelligent systems in vehicles shows great differences of attitudes between countries. A common pattern for the Nordic countries in these results is that Swedes and Danes are generally more positive towards support systems than Fins (Eurobarometer, 2006). These are just examples of differences in behavior and attitudes towards road safety, supporting the need to make more systematic comparisons between all the Nordic countries.

The purpose of the present study was thus to investigate and compare attitudes and behavior in a selection of relevant road safety areas and to use these results for further discussions on road safety measures and as a foundation for sharing best practice between the countries. The complete report of the study is available in Swedish (NRSC, 2010).

2. Method

The survey was carried out during the spring 2010 and administered through a mailed questionnaire. Not all six Nordic countries participated in the study; Iceland chose not to accomplish the survey. The samples were drawn randomly from each country population. The sample size of those who received the questionnaire in Sweden, Denmark and Norway was 2000 each, while in the Faroe Islands the sample size was 1000. In Finland the questionnaire was administered by a survey company who collected 2000 answers, also randomly selected.

The questionnaire was developed in cooperation between the Nordic organizations. The Swedish organization had the main responsibility for the final version, which then was translated into each of the languages. Some of the questions were modified in accordance with national legislation and statistics.

The areas covered in the questionnaire were:

- Knowledge of accident patterns
- Travel habits
- Speed
- Alcohol and other drugs
- Seat belts
- Mobile phone
- Fatigue
- Child restraints in cars
- Bicycle helmets

- Reflexes
- Road safety education

Two reminders were used, the first as a postcard and the second as a new questionnaire. The analyses of the data were done in SPSS (PASW Statistics 18).

This paper focuses on behavior and attitudes towards speed, drunk driving, and safety belt use.

3. Results

A total of 5197 persons answered the questionnaire (table 1). The proportions of answers were between 38 per cent in Faroe Islands and 51 per cent in Sweden. In Denmark and Norway it was about 44 per cent. Finland used a special sampling method in the study and the response rate is reported to be at least 80 per cent.

In Finland and in the Faroe Islands no difference in response rate was found between men and women. In Norway and Sweden 55 per cent of the answers came from women, but in Denmark the proportion of men were higher than the proportion of women, 65 per cent.

In the attitude questions the responses were given on a five grade scale. The proportion shown in the attitude graphs (figures 6, 7, 10, 11, 13 and 14) is the respondents who agreed to a statement, which means they have ticked 1 or 2 on the scale.

3.1. Behavior and attitudes towards speed

Concerning speed adjustment, a large share, 30–56 per cent of the respondents regarded it acceptable to drive above a speed limit of 50 km/h (figure 2). In Finland the normal urban speed limit is 40 km/h and more than half of the respondents (56 per cent) considered it acceptable to drive faster. However, 72 per cent reported that they actually drove faster than 40 km/h in Finland (figure 3). In all the countries, the respondents normally had a higher self-reported speed than they regarded as acceptable.

Compared to the speed limit of 50 km/h, a larger proportion of the respondents, with exception of Finland, regarded it acceptable to drive above the speed limit of 90 or 80 km/h. Around 40 per cent regarded this as acceptable. In the Faroe Islands driving too fast was even more acceptable (figure 4). There was a lower percentage of the respondents that followed the higher speed limits compared to what they regarded as acceptable (figure 5). Drivers from the Faroe Islands had the largest share of speeders, 60 per cent, while in Norway the share was around 50 per cent.

Table 1. Number of male and female respondents in each country. Sex was unknown for totally 52 respondents.

Country	Men	Women	Total incl. unknown sex
Denmark	554	302	882
Finland	1028	1042	2070
Faroe Islands	183	192	378
Norway	384	463	856
Sweden	442	555	1011
Total	2591	2554	5197

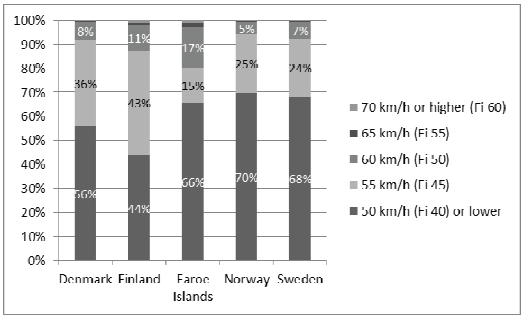

Fig. 2. Acceptable speed when the speed limit is 50 km/h (40 km/h in Finland).

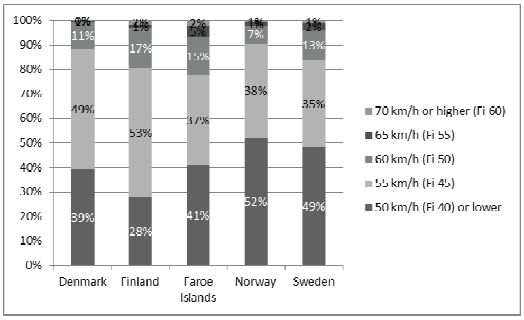

Fig. 3. How fast the respondents normally drive on a road with a speed limit of 50 km/h (Finland 40 km/h) when the traffic volume is low and it is possible to choose speed.

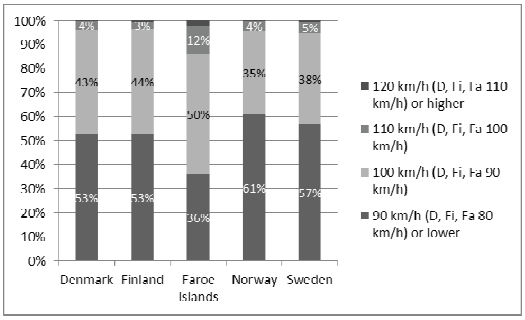

Fig. 4. Acceptable speed when the speed limit is 90 km/h (Denmark, Finland and Faroe Islands 80 km/h).

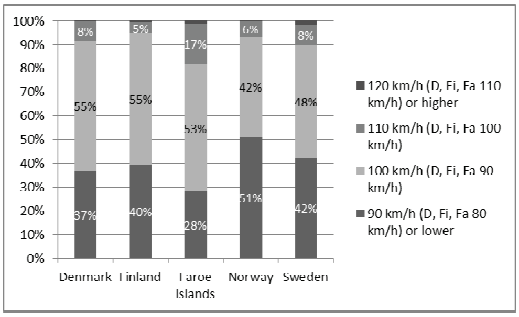

Fig. 5. How fast the respondents normally drive on a road with a speed limit of 90 km/h (Denmark, Finland and Faroe Islands 80 km/h) when the traffic volume is low and it is possible to choose speed.

The following two figures are examples of attitudes towards speed reducing measures. In both figures the results show a more positive attitude among women compared to men. In the first (figure 6), the results are similar between the countries. Around 20 per cent agrees with lowering the speed limits. Concerning speed cameras (figure 7), the acceptance is much larger, between 35 and 65 per cent. The acceptance of increased use of cameras is lowest in Sweden, among women as well as among men.

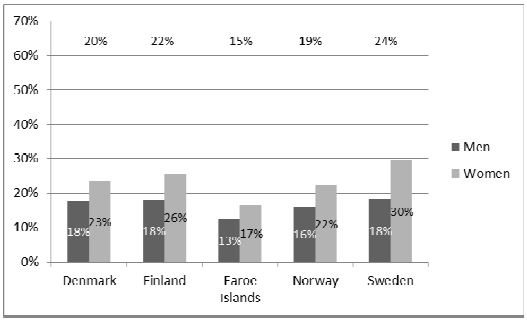

Fig. 6. Proportion that agrees to reducing the speed limits for the sake of road safety (total proportion is shown with the figures above the bars).

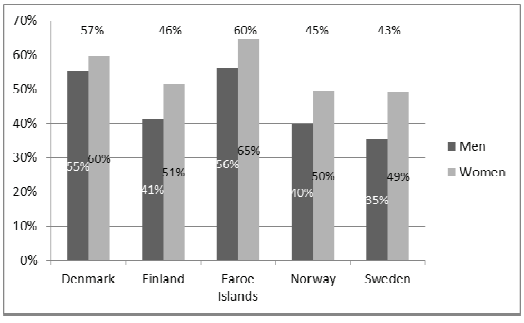

Fig. 7. Proportion that agrees to use more speed cameras in order to increase the speed adjustment (total proportion is shown with the figures above the bars).

3.2. Behavior and attitudes towards drunk driving

In the following section, self-reported drunk driving behavior and examples of attitudes towards countermeasures are presented. In the behavior questions the responses were given on a five grade scale. The proportion shown in the graphs is the respondents who have ticked any other grade than "No, never". Both figures (figure 8 and 9) show that driving after consuming too much alcohol and driving the morning after, is much more common among men in all the investigated countries. The first figure (figure 8) shows that there is a difference between countries. More drivers from Denmark, Finland and Faroe Islands have been driving after too much alcohol consumption. The pattern for those who have been driving the morning after is, however, similar between the countries (figure 9). Around 10 per cent of the women and 20 per cent of the men reports this behavior.

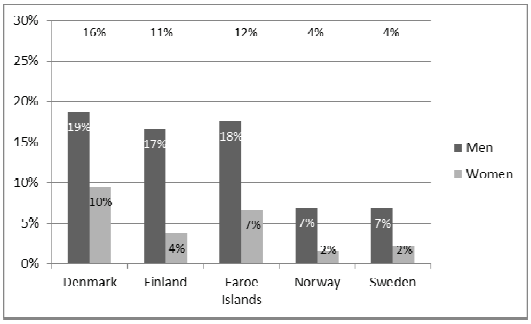

Fig. 8. Proportion that has driven a car after they suspected that they had drunk too much alcohol (total proportion is shown with the figures above the bars).

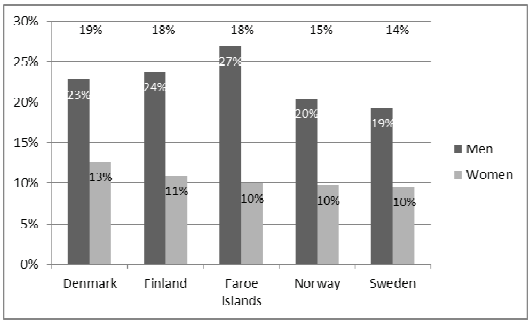

Fig. 9. Proportion that has driven a car in the morning when suspecting that they had drunk too much alcohol the evening before (total proportion is shown with the figures above the bars)

As examples of attitudes towards countermeasures, the results of two questions are shown. In both cases (figure 10 and 11), punishment for drinking and driving and introduction of alco-locks, women are more positive than men. In general, the attitudes towards these measures are positive. With exception of Finnish men's attitudes towards alco-locks, more than 50 per cent are positive towards both measures. This indicates a more positive attitude than towards measures to reduce speeding.

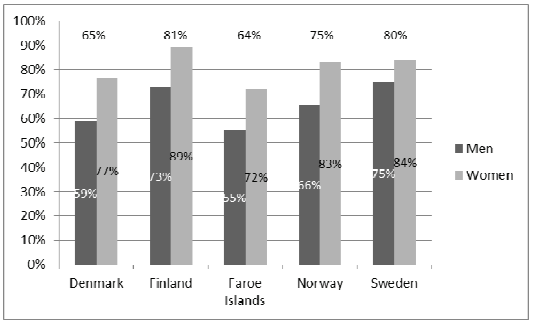

Fig. 10. Proportion that agrees to increase the punishment for drinking and driving (total proportion is shown with the figures above the bars)

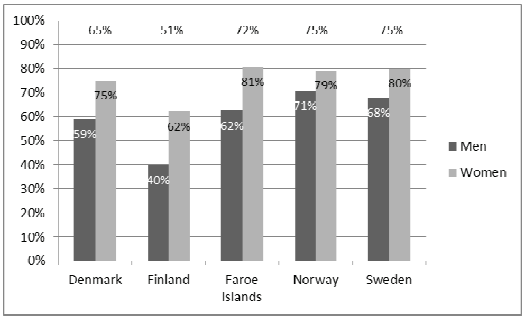

Fig. 11. Proportion that wants cars to have an alco-lock function, so it is impossible to drive by an impaired driver (total proportion is shown with the figures above the bars)

3.3. Behavior and attitudes towards safety belt use

Also for seat belt use the results consists of two parts, one for self-reported behavior and one for attitudes towards countermeasures. Again women show a more safe behavior. Figure 12 shows the proportion always using seat belt in different locations in the car and when going by bus. There are only small differences between the countries where the Faroe Islands respondents report lower rates. The results also show that there are very few that never use seat belt in the car, less than 1 per cent in the front seat and less than 5 per cent in the rear seat. As bus passengers there is, however a substantially higher proportion of never-users, between 14 and 38 per cent where the Faroe Islands have the highest proportion and Finland the lowest.

Two items of attitudes show that women again have more positive attitudes towards road safety measures. For increasing the punishment for non-users (figure 13) around 40 per cent are positive. For the introduction of seat belt reminders (figure 14) the proportion that agrees is around 50 per cent.

Introducing seat belt reminders is more acceptable in Denmark and Norway while increased punishment is more acceptable in Finland.

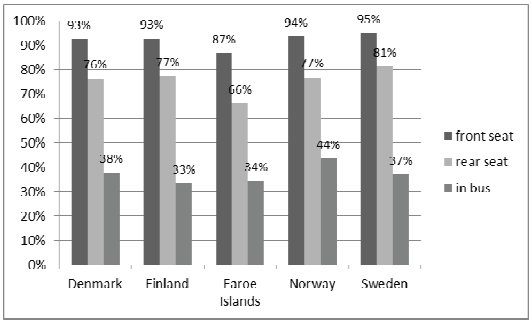

Fig. 12. Proportion that always uses safety belt when sitting in the front seat, in the rear seat and when travelling by bus equipped with safety belts.

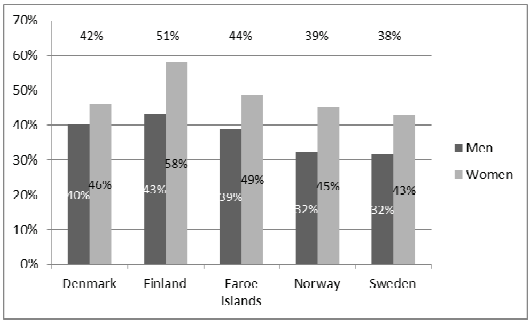

Fig. 13. Proportion that agrees to increase punishment for non-users of seat belts (total proportion is shown with the figures above the bars)

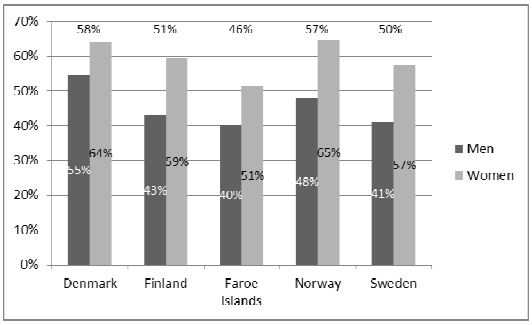

Fig. 14. Proportion that agrees to install seat belt reminders in cars (total proportion is shown with the figures above the bars)

4. Discussion

4.1. Discussion of methods

In the study, mailed questionnaires were used as data collection method. Even if two reminders were used, the repose rate was not very high. A possible consequence of this is more extreme answers, both positive and negative, since persons with clear opinions may be more inclined to answer. In Denmark the sex distribution was poor with an overweight of 65 per cent men. No thorough dropout analysis was done except comparing the age and sex distribution in each country with the respondents. The result of this comparison shows that the youngest are underrepresented in all countries except for Swedish girls. The older are instead overrepresented in Denmark, Sweden and Norway. Largest problems with representativity were found for the Danish responses.

4.2. Discussion of results

The most common speed limits were not the same in all countries. Finland had 40 km/h instead of 50 in urban areas. Finland had a lower proportion, compared to other countries, regarding 40 km/h as an acceptable speed at that speed limit. In Finland the majority also preferred to drive 5 km/h above the speed limit. In Denmark, Finland and Faroe Islands, the higher speed limit was 80 km/h instead of 90. Compared to Norway and Sweden there was a lower proportion regarding 80 km/h as an acceptable speed at the speed limit 80 km/h. Especially in the Faroe Islands there was an opinion that 90 km/h was a more acceptable speed. The majority in all countries, except in Norway, preferred to drive at least 10 km/h above the posted speed limit.

Also concerning the legal BAC limits there are differences between the countries. In Norway and Sweden the limit is 0.2 per mille while in the other countries it is 0.5 per mille. It may be the case that drivers in Sweden and Norway abstain from drinking and driving because of the lower limit since there is more uncertainty of how much one can drink before 0.2 per mille is reached.

For seat belt use there is mandatory use in car as well as in buses in all the Nordic countries. In spite of this, the use rate in buses is very low in all countries. The use in the rear seat in cars is at least 15 per cent lower than in the front seat. The difference is smallest in Sweden. There is, thus a need to increase the seat belt use in all countries.

5. Conclusion

This investigation of road safety in the five Nordic countries has shown similarities as well as differences in attitudes and self-reported behavior in traffic. The results will be used in forthcoming cooperation between road safety authorities and organizations with the purpose of increasing road safety. The results will be used as indicators of country specific needs for measures and as a fundament for inspiration through sharing best practice from countries performing well in an area to countries performing poorer.

Acknowledgements

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