

Can we still count on Safety in Numbers?

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Background

The Safety in Numbers (SIN) effect have for years been discussed in the safety research community, and been addressed several times at the International Cycling Safety Conferences. Although most studies conclude that accidents and injuries increase less than the increase in traffic, the mechanism behind the SIN-effect is still not fully understood.

There are controversies about the causality assumed in the concept, and some maintain that the mechanism at work is that improved safety (infrastructure) attracts more cyclists – thus it is not “numbers” that is important for the effect. Moreover, recent research has documented that there is a similar SIN-effect also with respect to single accidents, which is hard to explain by the mechanism most often advocated, that car drivers become more alert when there are many cyclists in traffic.

According to the Copenhagen index, Oslo is placed as number seven among the most bicycle friendly cities in the world. This is a result of a massive commitment to developing the city as bicycle friendly with a clear goals of increased bicycle use. The plans are backed by clear policy decisions; reduced car parking, car-free city centre areas and massive investment in bicycle infrastructure.

These efforts have resulted in a massive increase in bicycling. From 2014 to 2019 bicycle traffic (number of trips) in Oslo increased by 30%. A pertinent question is how this traffic increase affects bicycle accidents, and if there is a SIN effect at play.

Most studies about SIN effects for cyclists utilize police registered accident data (official accident statistics). It is well documented that the official data on bicycle accidents and injuries only cover a very small fraction of the true number of accidents and injuries. In Oslo only 10 per cent of the true number of bicycle accidents are registered by the police and included in the official accident statistic. The same is true in most countries, implying that many studies about SIN are based on a very small fraction of the actual accident number.

In Oslo the Emergency Unit of Oslo University Hospital registered in detail all bicycle accidents and injuries taking place in 2014. More than 2000 injuries were recorded. In 2019 the Emergency Unit has repeated this detailed registration procedure, making it possible to compare in detail total bicycle accident figures in Oslo in 2014 and 2019.

Aim

The main aim of the study is to study if there is a SIN effect in Oslo when comparing bicycle traffic and bicycle accident data from 2014 to 2019. The secondary aim is to study in detail the characteristics about accidents and injuries, i.e. what types of accidents and injuries change the most, and is there particular tendencies with respect to bicycle types, age groups, gender etc.

Method

Bicycle traffic data are systematically collected by use of cycle traffic counts at more than 20 locations in Oslo. The count data have been thoroughly checked for errors and a yearly bicycle traffic index, based on error-free count data, has been developed.

People injured in accidents in Oslo are normally being treated at the emergency unit of Oslo University Hospital. In 2014 the unit recorded in detail all cyclist injuries over the whole year. The registrations were repeated in 2019. Accident numbers from 2014 are available and data from 2019 will be available during May/June 2020.

Data will be analysed by use of traditional table analysis, including the normal statistics (Chi-square tests), and multivariate analyses.

Results expected

The study will reveal how bicycle accidents and injuries have developed in Oslo from 2014 to 2019 by use of detailed cyclist injury data from Oslo Hospital Emergency Unit and will give a unique contribution to the SIN research literature by utilizing hospital data which cover nearly all bicycle injuries. The study will also provide important insights into the mechanisms producing SIN effects by detailed analyses of accident and injury patterns.

Conclusions

Time-series data from Oslo will provide results revealing the magnitude of SIN effects and important insights into the mechanisms at work.