

# TRAFFIC NOISE HEALTH EFFECTS AND THE BENEFIT OF ACCESS TO QUIET SIDE

Theo Bodin, *Lund University, Lund, Sweden*

Maria Albin, *Lund University, Lund, Sweden*

Evy Öhrström, *University of Gothenburg, Sweden*

Jonas Björk, *Lund University Hospital, Lund, Sweden*

Jonas Ardö, *Lund University, Lund, Sweden*

**Background and Aims:** Annoyance due to community noise is a growing problem in the urbanized world. Noise reduction at the source is inadequate to tackle the negative trend and other approaches must be investigated, such as of residential spaces. An earlier study in Sweden showed that access to quiet side in one's dwelling had a positive effect on noise annoyance and well-being. (Öhrström, Skanberg et al. 2006) Our aim was to confirm whether these results withstood and also whether quietness in different spaces (such as bedroom, living room and balcony) were of similar or differential importance.

**Methods:** A survey regarding noise and health was carried out in Malmö, southern Sweden in 2007. 2612 individuals aged 18-80 years participated. (response rate 54%). We used geographic information systems to assess the average road and railway noise (LAeq,24h) at the participants' residential address. Data included geometries of roads, railways, buildings, elevation data, ground types and noise barriers.

**Results:** Sleeping and concentration problems were associated to traffic noise from road, rail and the two sources combined. No significant differences were found depending on the noise source. In a logistic regression model adjusted for age, sex and noise exposure, having one's bedroom facing a large road was associated to both sleeping and concentration problems, while bedroom facing a railway mainly seemed to be associated with concentration difficulties and had no significant association to sleeping problems. Having a balcony facing large road or rail was associated to concentration difficulties but not to sleeping problems. Access to at least one quiet space in one's dwelling was strongly associated to lesser concentration difficulties and sleeping problems.

**Conclusions:** Having access to quiet places in one's dwelling was associated to less sleep and concentration-related problems. We could not conclude that bedroom location was more important than quietness in other rooms.

## References:

Öhrström, E., A. Skanberg, et al. (2006). "Effects of road traffic noise and the benefit of access to quietness." *Journal of Sound and Vibration* 295(1-2): 40-59.