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# The effects of annoyance due to aircraft noise on psychological distress: Results of the DEBATS study in France

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## Background

Many studies have evidenced **adverse effects of exposure to aircraft noise on health**: altered cognitive performance, annoyance, sleep disturbance, hypertension and cardiovascular diseases [1]–[5].

Some studies support the hypothesis that psychological aspects such as noise annoyance play an important role in the association between environmental noise and adverse effects on health [6].

The effects of annoyance due to aircraft noise on psychological distress have rarely been evaluated. No study has been carried out in France [7].

## Methods

### Study Population

**1,244 participants** living in the vicinity of Paris-Charles-de-Gaulle, Lyon-Saint-Exupéry and Toulouse-Blagnac airports in 2013.



### Outcome variables: psychological distress

Face-to-face interviews at the place of residence of the participants.

#### ➤ Psychological ill-health:

The 12-item version of the General Health Questionnaire (GHQ-12)

#### ➤ Feeling of depression:

“During the past 12 months, did you feel sad or depressed ?”

⇒ Extremely/very versus moderately/slightly/not at all

### Factor of interest: annoyance due to aircraft noise

“Thinking about the last 12 months, when you are at home, how much does aircraft noise annoy you?”

⇒ Extremely, very, moderately, slightly or not at all ?

### Statistical Analysis

GHQ-score dichotomized with a 2/3 threshold on a bimodal scale.

**Logistic regression models** adjusted for age, gender, occupational activity, native country, alcohol consumption, smoking habits, sleep duration, number of stressful life events, education, income, and antidepressant use.

### References

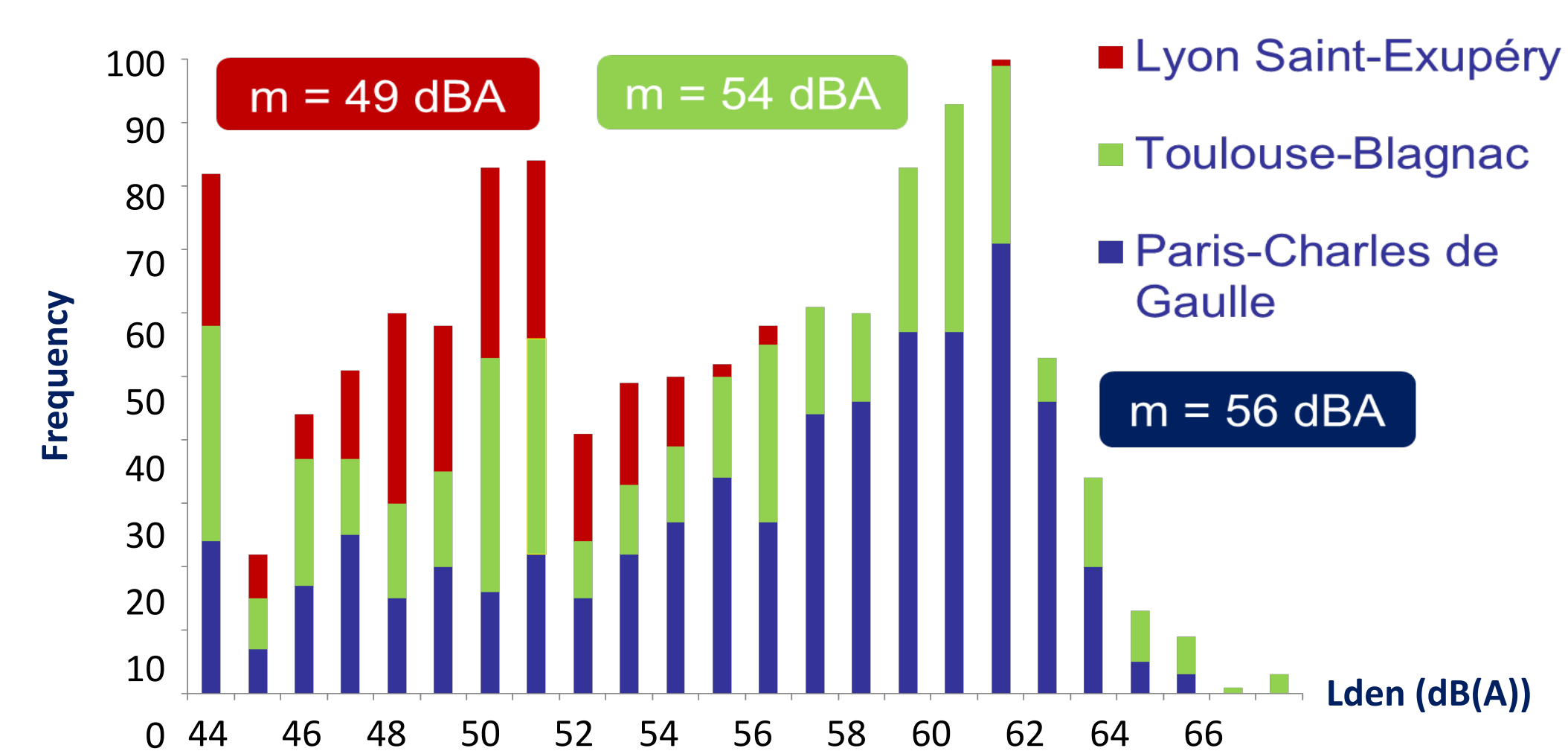
- [1] S. A. Stansfeld et al., « Aircraft and road traffic noise and children's cognition and health: a cross-national study », *Lancet Lond. Engl.*, 2005.
- [2] W. Babisch et al., « Annoyance due to aircraft noise has increased over the years--results of the HYENA study », *Environ. Int.*, 2009.
- [3] A. L. Hansell et al., « Aircraft noise and cardiovascular disease near Heathrow airport in London: small area study », *BMJ*, 2013.
- [4] S. J. Kim et al., « Exposure-Response Relationship Between Aircraft Noise and Sleep Quality: A Community-based Cross-sectional Study », *Osong Public Health Res. Perspect.*, 2014.
- [5] A.-S. Evrard et al., « Does aircraft noise exposure increase the risk of hypertension in the population living near airports in France? », *Occup. Environ. Med.*, 2017.
- [6] M. Kroesen et al., « Determining the direction of causality between psychological factors and aircraft noise annoyance », *Noise Health*, 2010.
- [7] I. van Kamp, et al., « Environmental noise and mental health: evidence from the Schiphol monitoring program. », *Internoise Proc. Istanbul*, 2007.

## Objectives

One of the objectives of the DEBATS study (Discussion on the health effects of aircraft noise) was **to investigate the association between annoyance due to aircraft noise and psychological distress** among people living in the vicinity of airports in France.

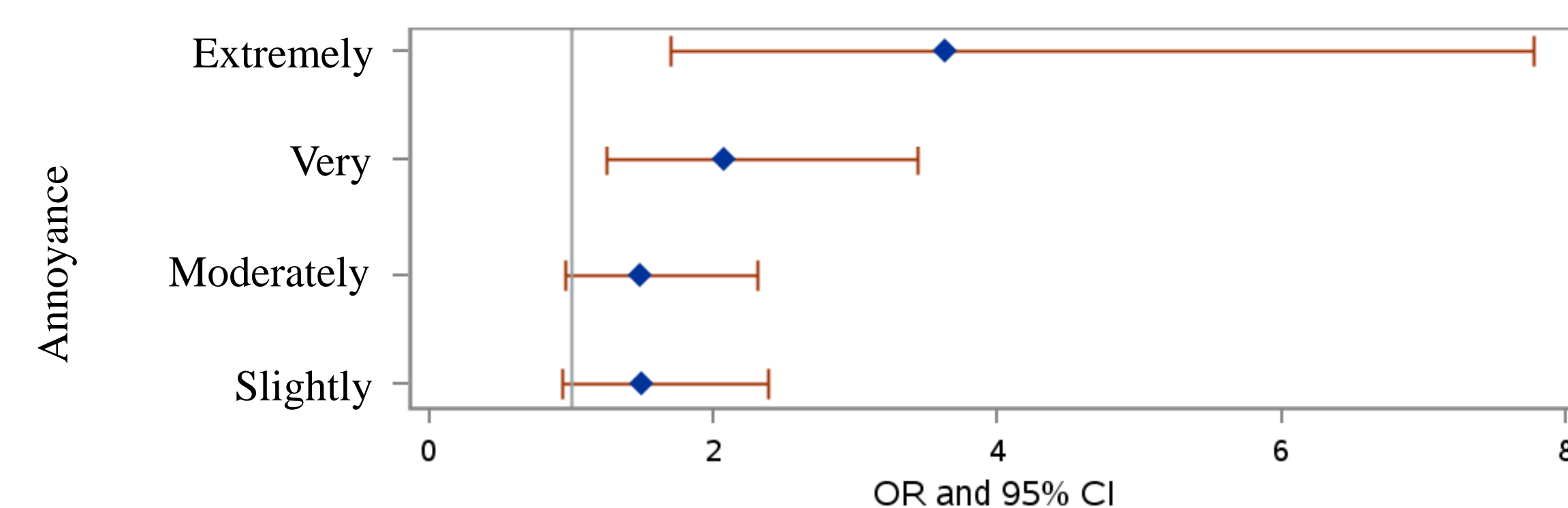
## Results

### Distribution of aircraft noise exposure in the three airports

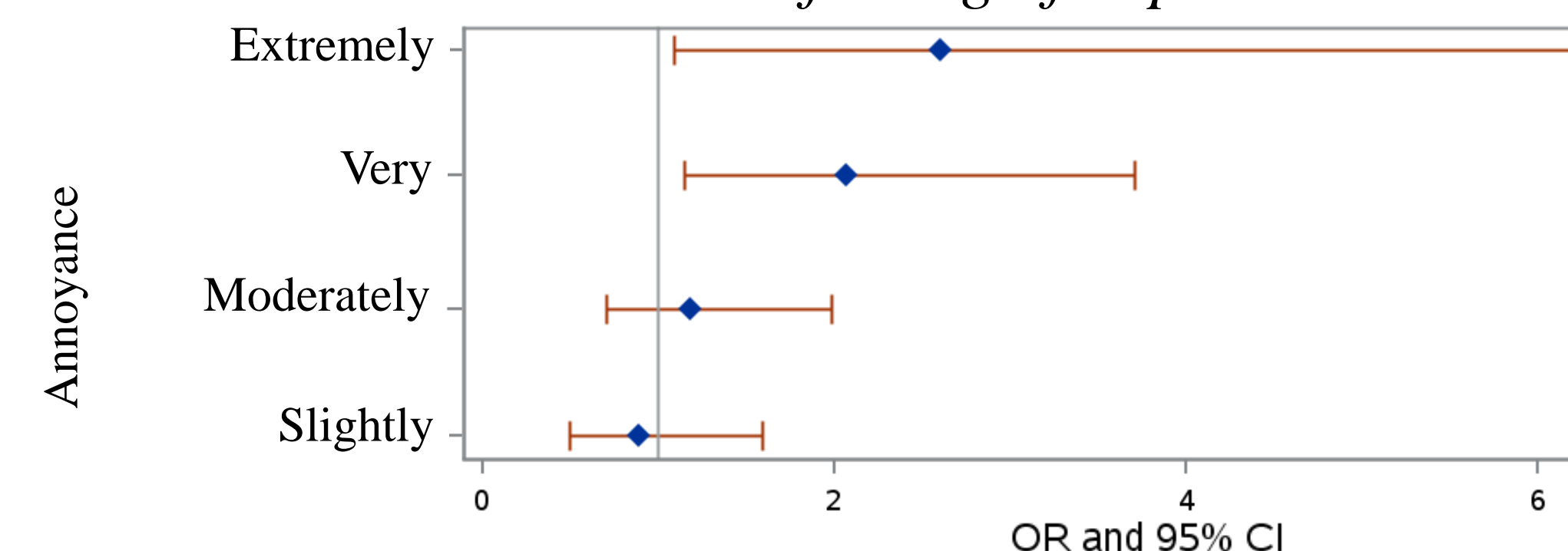


### Psychological distress was significantly associated with annoyance due to aircraft noise

Odds ratios (ORs) for the association between aircraft noise annoyance and psychological ill-health (GHQ-12)



Odds ratios (ORs) for the association between aircraft noise annoyance and feeling of depression



## Conclusions

The present study suggests that **annoyance due to aircraft noise is significantly associated with psychological distress**, both evaluated with a single question on feeling of depression, and with a validated questionnaire (GHQ-12). It confirms the findings of *van Kamp et al.* [7].

However, the direction of the association can be questioned: extremely annoyed people might be more at risk to have psychological distress, or people with psychological distress might be more at risk to be annoyed.

Residual confounding or declaration bias cannot be excluded in the present study. Further studies are necessary in order to explain these results.

### Acknowledgments

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