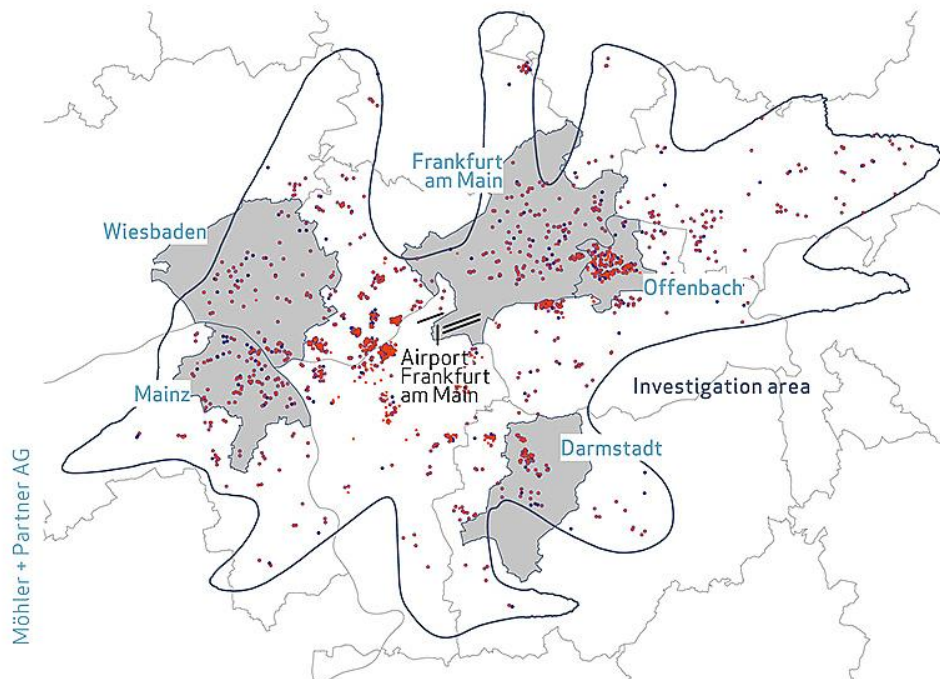


## Selection of the study participants



The aim of the NORAH scientists was to recruit a sample of adults in the environs of Frankfurt Airport who are exposed to an air traffic noise level of more than 40 decibels at their residential address.

## SELECTION OF THE STUDY PARTICIPANTS



*The map shows the distribution of the participants of the two observation periods (OP) within an area in which the daytime or night-time continuous sound level is over 40 decibels.*

The contact data of the possible participants were established with the aid of the resident registration authorities. The participants for the Blood Pressure Study were then contacted in close collaboration with the scientific team of the NORAH Quality of Life Study. Persons who had taken part in the Quality of Life Study were able to give their consent there that they could also be contacted by the scientists working on the Blood Pressure Study. People who, according to their own information, had been diagnosed by a doctor with hypertension before the start of the study were excluded from participation. The study concept provided for the investigation solely of persons who were healthy in terms of their blood pressure. Any long-standing hypertension due to other causes was not to be included in the study. In addition to this, hypertension sufferers usually take drugs to lower their blood pressure, so that their measurement values cannot be readily compared with those of other persons. Nonetheless, some people with hypertension were ultimately also investigated, i.e. those who were unaware of it at the start of the study. A special correction procedure was developed for persons who were taking medication to reduce blood pressure.

### How large was the sample?

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Persons who took part in the Quality of Life Study were able to give their consent there to being contacted by the scientists of the Blood Pressure Study. This amounted to 1,824 persons and thus just few more than was originally planned for final participation in the study design. As it could not be expected that all of the persons contacted would participate, the NORAH scientists decided to recruit further participants with two different procedures. Due to the different procedures in the recruitment, the two new participant groups differed too widely in terms of decisive parameters, however, from the first group. This is why a joint evaluation for this research question would not have been methodologically appropriate. In agreement with the Scientific Advisory Board for Quality Assurance (WBQ), the scientists thus decided to restrict the evaluation to answer the study questions to the originally provided sample. A total 844 persons aged from 19 to 86 were included in the evaluations, including 493 women (58.4 %) and 351 men (41.6 %). A statistical analysis showed that, with this size of sample, noise-related blood pressure changes of 1 mmHg per 10 dB increase in noise can be verified. Over the whole range of the level values in the investigation area - around 45 dB - changes of 4.5 mmHg could thus be statistically verified with sufficient test strength. This is entirely sufficient for the NORAH research question.

## How was it ensured that the data were correctly registered?

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Before the measurements started, the members of the NORAH team visited the study participants at home to show them how to operate the blood pressure measurement devices. The devices were connected via Bluetooth with a mobile phone which transferred the data automatically and in encoded form to a server of the NORAH team. The data included the time at which the measurement was taken, the blood pressure values (systolic and diastolic) and the heart rate. In addition to this, the participants also wrote down their values in a table. In order to ensure that the values were correctly registered, the NORAH scientists then compared the automatically transferred data with the values recorded by the participants.

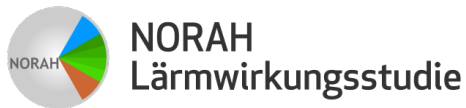
## What happened to the data of people who were already suffering from hypertension?

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People with constantly elevated blood pressure were actually excluded from the study in the course of the participant recruitment. Nonetheless, after looking at the data, it was found that some of the participants were, in fact, suffering from hypertension. This amounted to around 5 percent of all participants. Their data were nonetheless evaluated. Most of them were not aware of their disorder at the start of the study. If they were taking medication when the measurements were being carried out, this was taken into consideration accordingly (see following paragraph).

## Which other factors that influence blood pressure were considered?

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Within the framework of the survey at the start of the study, the participants were asked about underlying health issues, lifestyle and personal factors such as age or gender which are relevant for cardiovascular diseases.

The main ones were:

- social status
- waist and hip circumference
- tobacco and alcohol consumption
- sporting activity

These factors were always used for the statistic model if they played a role in the analysis of the influence of transportation noise on blood pressure. Various types of drugs can have an effect on blood pressure - not only those which are specifically prescribed by a doctor for hypertension.

Whenever participants stated they were taking medication with the primary or secondary effect of reducing blood pressure, the measured blood pressure values were corrected upwards by 10 mmHg.

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## Do you have any questions?

Icon Kontakt Lärmstudie

Get in touch with us

Gemeinnützige Umwelthaus GmbH

Rüsselsheimer Str. 100

65451 Kelsterbach

Germany

Tel. +49 6107 98868-0

Fax +49 6107 98868-19

[norah@umwelthaus.org](mailto:norah@umwelthaus.org)