CAGNE
Communities Against Gatwick Noise and Emissions

The umbrella aviation community and environment group for Sussex, Surrey and Kent

SoNA (sound of noise attitude) CAA CAP 2161 Aircraft Noise and Sleep Disturbance Report 2014 – released July 2021

The CAGNE summary –

The same sample of residents were used for this report as with SoNA CAP 1506 day night noise attitude study, but a smaller section of resident living at Heathrow, Gatwick and Stansted of residents were used taking into account the seasonal holiday highs at Gatwick and Stansted.

This report is disappointing but is a start in understanding the impact night flights have on communities. As it would seem the report author is not conclusive and is seeking further research to be undertaken to understand further the relationship between night aircraft noise and sleep deprivation.

How does self-reported sleep disturbance relate to exposure?
Mean disturbance score and the likelihood of being highly sleep disturbed were found to increase with increasing night-time noise exposure (LAeq,8h*). The relationship found was close to linear, though disturbance levels plateau at low and high exposure.

How do the results compare with the Miedema dose-response function?
For a given noise exposure, a higher proportion of respondents was found to be highly sleep disturbed compared with the Miedema study pre-1990 (dose-response function).

- At 45 dB LAeq,8h, 8-10% were estimated to be highly sleep disturbed compared with 5% for the Miedema curve.
- At 48 dB LAeq,8h, 10-12% were estimated to be highly sleep disturbed compared with 6% for the Miedema curve.

The SoNA 2014 night-time dose (inclusive of all concepts required) response function was, however, found to be lower than the function from the post-1990 studies.

How do measures of health and well-being relate to exposure?
Noise exposure and self-reported sleep disturbance were compared against the self-reported health rating (5-point scale) and the Short Warwick-Edinburgh Mental Wellbeing Scale (SWEMWBS), a measure of well-being.

Poorer health ratings and lower SWEMWBS scores were found to be associated with sleep disturbance, but not with noise exposure.

Recommendations for future surveys
Despite the exploratory nature of this analysis, it has been possible to identify some areas where further research would be beneficial, If the objective is to understand better the relationship between night exposure and the effect on sleep, the following recommendations are made:

- Conduct research in the summer so that attitudes and exposure are aligned;
- Respondent selection to take into account night noise exposure levels and, in particular, any dominance of arrival noise at night;
- Adequate sampling to enable further investigation of any association between self-reported night-time disturbance and single-mode LAeq,8h night exposure. Optimising respondent selection to achieve the criteria above will probably mean that it is not possible to investigate daytime annoyance with the same sample.

Key -
LAeq.8h - Equivalent continuous sound level, average summer night 11pm-7am
Miedema – previous 1990 research

https://publicapps.caa.co.uk/docs/33/SoNA%20Sleep%20Report%20(CAP2161).pdf

CAA 1506 SoNA REPORT 2014 second edition – released July 2021

CAGNE summary -

The SoNA reference time is an average summer day, from June 16th to September 15th inclusive and from 7am to 11pm.

Although, interviews took place from early October 2014 through to February 2015, respondents were asked their views on noise during summer 2014.

(8.2) 1,999 participants completed a face-to-face survey on attitudes to civil aircraft noise. 122 were not resident during summer 2014, leaving a sample of 1,877 valid responses.

Noise Metric - LAeq,16h (average noise metric) was adopted in 1990, the UK government defined three threshold levels for policy consideration: 57, 63 and 69 dB LAeq,16h representing, low, moderate and high annoyance. In the 2003 Air Transport White Paper, 57 dB LAeq,16h was defined as marking the approximate onset of significant community annoyance, and this was re-affirmed in the Government's 2013 Aviation Policy Framework6. (6.7 page 11)

The previous SoNA report has been criticised as it focused on Heathrow areas and used metrics that were felt out of date to reflect the impact of modernised airspace (PRNAV).

Additionally, it was agreed to disproportionately sample by airports, driven by the need to increase the sample size at Gatwick Airport for subset analysis purposes, and the desire to keep the proportion of addresses in the sample around airports other than Heathrow and Gatwick as near to their true proportions as possible.
(3.18 page 20)

New metrics have been introduced to illustrate the impact of noise events - N65 and N70 represent the number of aircraft events that exceed 65 dB LASmax and 70 dB LASmax respectively for an average summer day.
(3.21 page 21)

The study - Focus seems to be on middle age group, working age group, over older generation.

Wellbeing and health questions do not seem to directly relate to aircraft noise but are in general to how you would describe your wellbeing so not sure this is helpful to moving forward with the exposure to aircraft noise.

32% to 83% expected to witness increase in noise next summer from 48 to 69 dB (Page 68)

Non acoustic noise - Overall, these findings indicated that expectation after moving was the strongest non-acoustic factor affecting the likelihood of high annoyance.
(7.11 page 65)

Most respondents questioned lived in urban locations. (7.6 page 66)

This does not indicate there is not an association for urban/rural classification or double-glazing, but that one could not be identified from the survey most likely due to small sample sizes, especially in these sub-categories. (7.17 page 66)

There is merit in considering greater use of 'Number Above' metrics as supplemental indicators to help portray noise exposure but recognising that evidence-based decisions should continue to use LAeq,16h. In this context N65 is preferred over N70 as noise events in many areas are already beginning to occur at levels less than 70 dB LASmax and are forecast to reduce over time.
(8.10 page 70)

What non-acoustical factors seem to influence annoyance?

(8.19) Evidence was found that non-acoustic factors such as noise sensitivity approximated social grade and expectations – both prior to moving to an area exposed to aircraft noise and in the future – influence reported aircraft noise annoyance and these non-acoustic factors may be as important as the noise exposure level (page 72).

An indication was found that urban/rural classification may be a non-acoustic factor, however, this was confounded by approximated social grade and the presence of double-glazing. (8.21)

Recommendation is to conduct more research more frequently.

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