



EXPOSURE TO AIRCRAFT NOISE AND OBESITY: RESULTS OF THE DEBATS LONGITUDINAL STUDY IN FRANCE

Anne-Sophie Evrard^{1*}, Abdul Boura¹, Lise Giorgis-Allemand¹, Bernard Laumon²

¹ Université Lyon, Université Gustave Eiffel, Ifsttar, Université Lyon 1, Umrestte, UMR T_9405, Bron, France

² Université Gustave Eiffel, Ifsttar, TS2, Bron, France

ABSTRACT

This study aimed to investigate the association between aircraft noise and markers of obesity using data collected in the DEBATS longitudinal study in France. In 2013, 1,244 participants living near three French major airports were included. They responded in 2013, 2015 and 2017 to a detailed face-to-face interview. Obesity was defined based on WHO recommendations. Central obesity was defined according to the recommendations of the International Diabetes Federation. Outdoor aircraft noise levels were estimated at each home address using noise maps. No significant association was found between exposure to aircraft noise and the risk of obesity. In contrast, a positive and significant association was found between this same exposure and the risk of central obesity. This study involved a large number of participants and is one of the few longitudinal studies investigating the effect of noise levels on obesity.

Keywords: *aircraft noise, obesity, epidemiology.*

1. INTRODUCTION

Obesity is a major concern because of its continuous increase in recent years. According to the World Health Organization (WHO), environmental noise causes the loss of at least one million healthy life years every year in Western Europe [1]. Epidemiological studies have previously linked long-term exposure to aircraft noise to

several health risks. To date, few epidemiological studies have focused on the effect of noise levels on different markers of obesity [2]. The objective of this study was to investigate the association between aircraft noise exposure and markers of obesity (obesity and central obesity).

2. METHODS

This study was based on data collected in the DEBATS (Discussion of the Effects of Aircraft Noise on Health) research program. The objective of DEBATS was to investigate the relationship between exposure to aircraft noise and various deleterious health events. To do this, 1244 residents of the Paris-Charles-de-Gaulle, Lyon-Saint Exupéry and Toulouse-Blagnac airports responded in 2013, 2015 and 2017 to a detailed face-to-face interview. Obesity was defined based on WHO recommendations. Central obesity was defined according to the recommendations of the International Diabetes Federation. Outdoor aircraft noise levels were estimated at each home address using noise maps.

3. RESULTS

No significant association was found between exposure to aircraft noise and the risk of obesity. In contrast, a positive and significant association was found between this same exposure and the risk of central obesity.

4. DISCUSSION

This study is one of the few longitudinal studies, involving a large number of participants, to investigate the effect of noise levels on different markers of obesity. Like most studies on this subject, the results support the hypothesis of an association of noise exposure with central obesity but not with obesity as defined by the body mass index.

*Corresponding author: anne-sophie.evrard@univ-eiffel.fr

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5. FUNDING

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6. COMPETING INTERESTS

None declared.

7. ETHICS APPROVAL

This study was approved by two national authorities in France, the French Advisory Committee for Data Processing in Health Research (CCTIRS 11-405) and the French National Commission for Data Protection and the Liberties approved this study (DR 2012-361).

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9. REFERENCES

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