

Application number/Title: 26284 - Temperatures and health - Using accelerometer data to understand experienced temperatures and their relationship to sleep, mental and physical health

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Keywords provided by the Applicant PI to describe the research project:

temperatures; vulnerability; health; buildings; sleep

Application Lay Summary:

1a: Air temperatures can pose significant health risks. Various studies have assessed typical temperatures inside homes at fixed spatial locations; however, temperatures experienced by people have received little attention even though they are the ones that pose the health risks. Biobank provides a unique resource through the temperature data recorded incidentally by the accelerometer to look at these.

Research questions:

1. What are typical and extreme temperatures experienced by participants and how do these relate to Public Health England guidelines?
2. Are experienced temperatures correlated with sleep/mental/physical health outcomes?
3. Are experienced temperatures correlated with sociodemographic and building characteristics?

1b: Experienced temperatures are an important factor related to health outcomes, as e.g. evidenced by higher winter deaths in the UK than other European countries

which is linked to poor building stock. Showing the prevalence of extreme experienced temperatures will show the magnitude of the problem. Identification of who is most vulnerable to extreme temperatures will allow then targeting those to ensure less exposure to hazardous conditions.

1c: The research consists of analyzing the temperature data, light data, and accelerometer data. As a first step, the recordings will be downsampled. We will then use statistical analysis (descriptive, correlation, regression, multi-level modelling) to show links between temperatures and sleep, mental / physical health and buildings.

1d: The subset for whom accelerometry data is available.