Climate Change and Health: Adapting to Mental, Physical and Societal Challenges (CHAMPS)

The research consortium CHAMPS studies the potential impacts of climate change on health, with a focus on three interrelated topics. The first relates to mental health impacts associated with seasonal fluctuations in the intensity of daylight and modifying weather effects such as cloudiness and snow cover. The second concerns health impacts of thermal stress, both heat and cold, and the influence of social vulnerability and exposure of the population on the severity of impacts. The third considers the implications of these varied health impacts for occupational health and work productivity.

Mental disorders are the leading as well as an increasing cause of illness and work disability in Finland. Surveys have shown that 40% of Finns experience winter blues during dark winter periods. With winter cloudiness projected to increase and snow cover to decline with changing climate, the resulting darker conditions may worsen these symptoms and make seasonal affective disorders more common. However, while the cause of these disorders can be due to diverse factors, the role of light exposure is still poorly understood. One focus of CHAMPS research is on sleeping problems, which are known to predispose individuals to depressive, anxiety and substance use disorders and are easily affected by the amount, timing and physical characteristics of daylight.

Severe weather events such as heatwaves and cold snaps are strongly associated with increased illness and death rates in Finland. This is especially true of vulnerable groups such as the elderly, the very young as well as certain categories of employees in the workforce. By matching health-related impacts to information on population structure and on socioeconomic, occupational and pre-existing health status, CHAMPS studies those populations which are particularly disadvantaged and exposed to extreme weather events. The work, which includes a study of Helsinki, is mapping areas most at risk of adverse impacts

under a range of future scenarios and exploring strategies for adapting to such changing conditions.

Objective assessments of worker productivity such as sickness absence and their related costs due to climate change have been largely lacking. Not only outdoor workers, but also specific occupational groups such as home care workers as well as employees with chronic disease may suffer in extreme weather events from ailments such as heat exposure. With more frequent extremes anticipated, CHAMPS is examining how employees may benefit from proactive countermeasures against health-related impacts of the changing climate.

Awareness in Finland of weather and climate impacts on health (especially mental health) is currently very low, so CHAMPS research is being carried out in close co-operation with stakeholders and decision-makers. For all three topics, CHAMPS is investigating relationships between weather variables and observed mental, behavioural and physical health effects, to better understand the causes of adverse health impacts, and to describe the spatial and temporal distributions of these effects. Novel results are anticipated on impacts of climate change on seasonal mental health via solar radiation, relevant also to other high-latitude regions, and on actions needed to reduce risks of climate change by targeting social inequality, in the Helsinki case study. It is hoped that analyses on issues such as sickness absence will extend understanding of climate change impacts beyond direct health effects to wider societal costs, productivity and quality of life.

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