

Sustainability | Individual communication

IC - (21108) - USING WEARABLE SENSORS FOR HEALTHY ROUTING CHOICES

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Background and objectives

Environmental stressors such as air pollution, noise pollution, and heat stress affect people in urban traffic and can have detrimental health impacts. This field experiment (N = 206) tested an intervention to promote healthy routing choices for cyclists and pedestrians.

Process and methods (for empirical research)

The experimental group carried wearable devices to measure their exposure to particulate matter, noise, and heat on their everyday routes through the city. Afterwards they received an individualized feedback about their exposure to these environmental stressors. The control group did not carry the devices. Questionnaires, capturing components of Protection Motivation Theory, were used at four time points during the intervention, including a follow-up measurement.

Main results (or main arguments in the case of critical reviews)

Mixed model analysis showed that participants in the experimental condition, who reported low levels of habit of their travel behaviour, had increased intentions to choose less polluted trajectories right after carrying the measurement device. Particularly participants with medium (but not high or low) previous knowledge about environmental stressors showed changes in their self-protecting intentions. Coping appraisals were not affected by the intervention. However, threat appraisal for particulate matter exposure increased over time. Collective action intentions (e.g. demonstrating for less polluting urban traffic) decreased in reaction to carrying the measurement devices. Only highly identified cyclists were not demotivated to show collective action.

Implications for research and practice/policy | Importance and originality of the contribution

This may indicate that interventions focused on individual exposure are more suited to motivate individual health-behaviour rather than collective activism. The use of wearable sensors to monitor individual pollution exposure is on the rise and this study offers initial insights into their psychological effects.

Palavras-chave : wearables, air quality, risk perception, route choices, heat, noise