

methylation profiles.

Associations between urban green and blue space access and mild cognitive impairment in the Northern Ireland Cohort of Longitudinal Ageing (NICOLA) cohort: epigenome-wide based analysis

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## Introduction

The majority of the global population currently live in urban areas (1), resulting in chronic exposure to characteristics of the urban environment.

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The urban environment contains numerous pollutants such as air and noise pollution which can have negative implications on human health including brain health and increase the risk of mild cognitive impairment (2).

Issues can therefore arise in urban areas when populations are exposed to pollutants combined with a lack of access to or development of urban green and blue spaces (UGBS).

UGBS enhance both the environment and our health in numerous ways outlined in Figure 1 and have been evidenced to enhanced cognitive function (3).

In SPACE, we have written numerous review articles concerning UGBS impacts on cognitive function including systematically reviewing the literature for mechanistic pathways and highlighting the potential for UGBS to be epigenetically influential.

We now aim to perform analysis in the NICOLA cohort to identify if and how UGBS is impacting the older adult population in Northern Ireland.

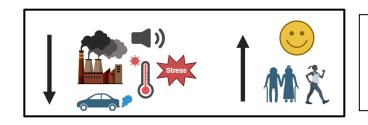
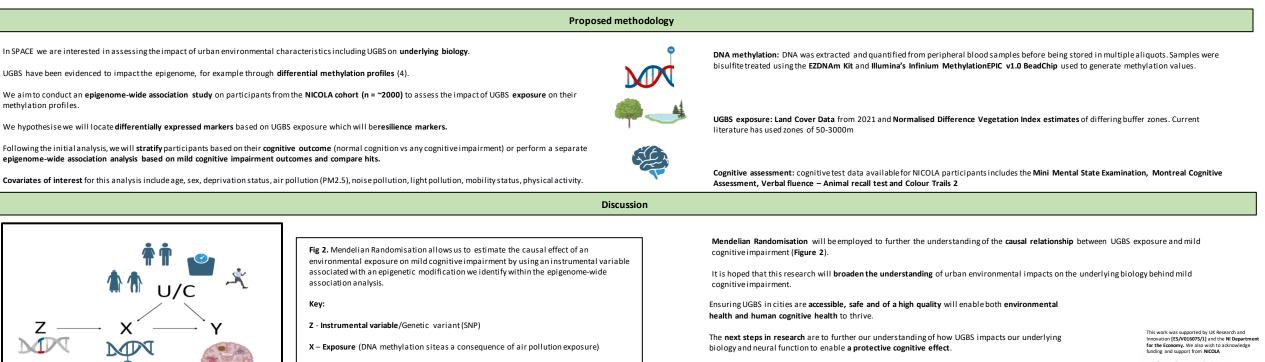


Fig 1. Urban green and blue spaces (UGBS): • reduce the levels of pollution in the urban area, namely air and noise pollution • decrease the temperature of urban areas via the heat island effect • reduce levels of stress and overall improve mental health and well-being. · are places which encourage both physical and social activity



Y - Outcome (cognitive impairment or dementia)

U/C - Unmeasured and measured confounders (sex, age, weight, physical activity)

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