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How do structural and social factors interact to influence uptake of cycle commuting?

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Active commuting is cheap, healthy and contributes to carbon zero sustainable cities. There is also evidence that cycle commuting can improve mental as well as physical health outcomes. The aim of this study was to investigate how socio-demographic (age, sex, ethnicity etc.), environmental (commute distance, family situation and caring responsibilities etc.) and structural (distance to infrastructure) factors interact to determine propensity to cycle. The study was conducted using census data from individuals aged 18–74 who lived and worked in two Scottish cities. Geospatial analysis linked individual's home address to cycling infrastructure (on and off road) to determine network distance at small-area level. A binary cycle-commute mode of $\leq/\geq 800$ m was created from census responses and regression analysis was undertaken to examine the impact of socio-demographic and environmental determi-

nants on propensity to cycle. An interaction term was used to examine if distance to cycling infrastructure had a moderating effect and whether this was homogenous across sub-populations. Propensity to cycle by decreased with (kilometer) distance from a cycle path: RR (relative-risk) 0.86(0.83–0.89) whilst age and commute-distance were non-linear. A significant variation was found by sex: female RR = 0.32(0.31–0.33), ethnicity: non-white RR = 0.53(0.48–0.58) and partnership status: cohabit RR = 1.30(1.25–1.36). A moderating effect was found for the interaction between distance to cycling infrastructure and some socio-demographic variables – most notably sex. The outcomes identified indicate the importance of cycling infrastructure when promoting active commuting – particularly to under-represented groups

