

Community severance: do busier roads lead to lower mental wellbeing?

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Aim

We are investigating associations between objective and self-reported measures of traffic conditions in neighbourhoods bisected by busy roads and their respective associations with the self-reported mental wellbeing of local residents.

Introduction

Community severance is the “barrier effect” of traffic and transport infrastructure on access to goods, services and people (1). There is evidence that busy roads discourage walking (2). Perceptions of the physical environment in terms of walkability show moderate correlation with objective indicators (3). A recent natural experiment showed that living near a motorway reduced mental wellbeing (4). The causal pathways of community severance have yet to be determined (5).



Recent news headlines on pollution levels in cities and evidence for links between busy roads and dementia risk.

Methods

Drawing on the multi-disciplinary expertise of our team, we developed tools to measure community severance and examine its associations with health and wellbeing. We selected three neighbourhood case studies, each bisected by a busy road, as likely exemplars of areas of community severance: Seven Sisters Road, Haringey (A); Finchley Road, Camden (B); Queensway, Southend-on-Sea (C).



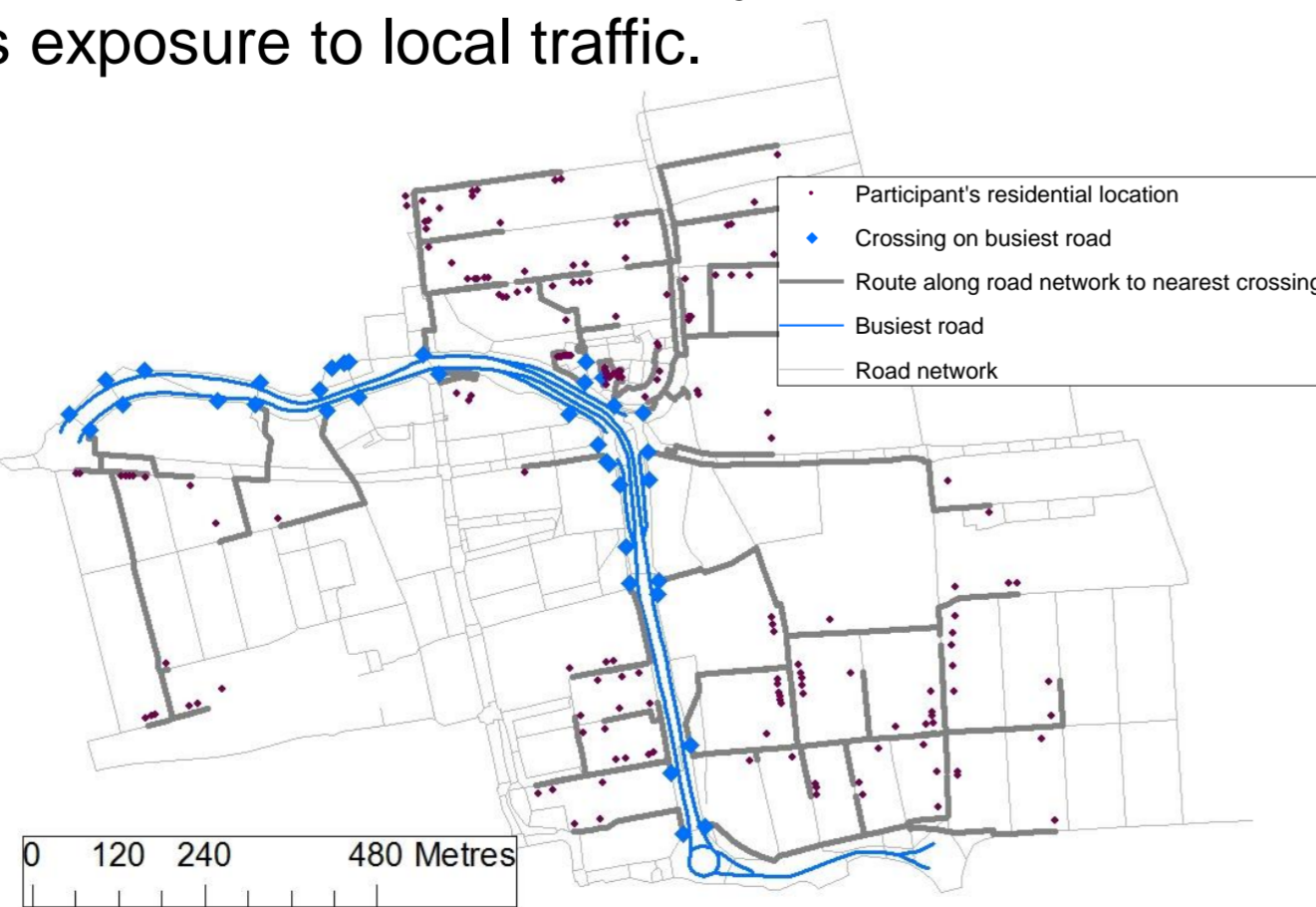
Photos taken in January 2017 (A & B) and April 2016 (C).

We used our **Health and Neighbourhood Mobility Questionnaire** to survey a random selection of residents (N=518) on their perceptions of local traffic, walking, and wellbeing, as indicated by SWEMWBS score (6)



We conducted **video surveys** to measure traffic speed and volume and pedestrian crossing times. We used actual traffic conditions at the nearest crossing point on the busiest road as objective indicators of people’s exposure to local traffic.

We **mapped** survey participants’ homes in relation to their nearest crossing on the busiest road in order to link objective traffic measures and their perceptions of traffic and wellbeing.



Mapping participants in relation to the nearest crossing point, illustrated for Southend-on-Sea using ArcGIS 10.3.

We are currently fitting a sequence of regression models to estimate the associations between objective indicators of local traffic, participants’ ratings of traffic conditions, reported barriers to walking to local places, and the SWEMWBS score (Figure 1).

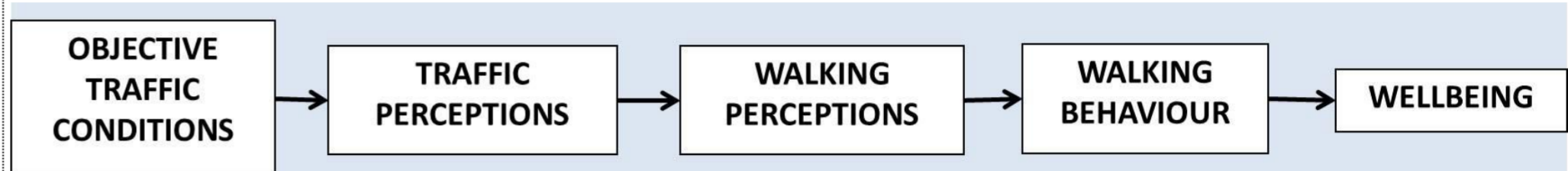
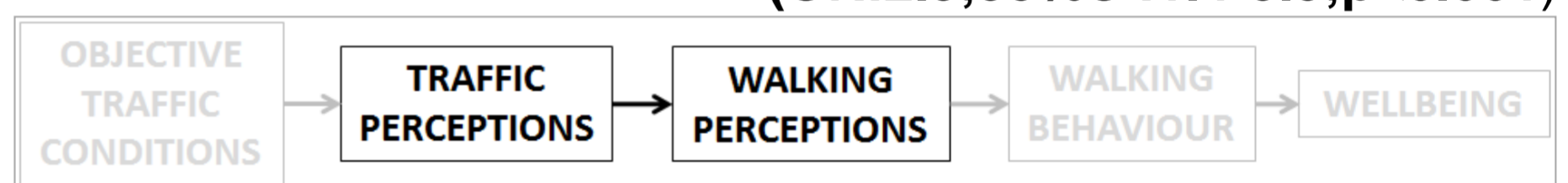


Figure 1. Framework of analysis

Results

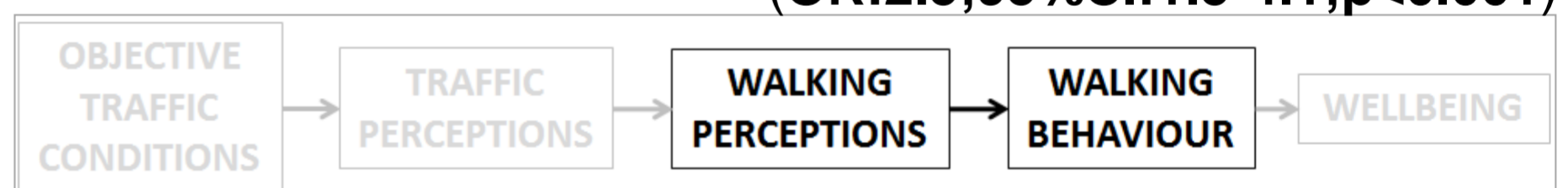
Overall, 54% of survey participants were female and 21% were aged ≥65yrs. 73% perceived traffic as heavy or fast on their busiest road whilst 65% perceived traffic volume or speed as a barrier to walking locally. 15% had low wellbeing. This was a higher proportion than the national average, possibly reflecting at least in part the location of survey participants in areas of community severance. After adjusting for age, sex and case study area, our preliminary regression results show that...

- Participants who **perceived traffic** on their busiest road as **heavy or fast** were more likely to **report traffic volume or speed as a barrier to walking locally** (OR:2.3;95%CI:1.4-3.5;p<0.001)

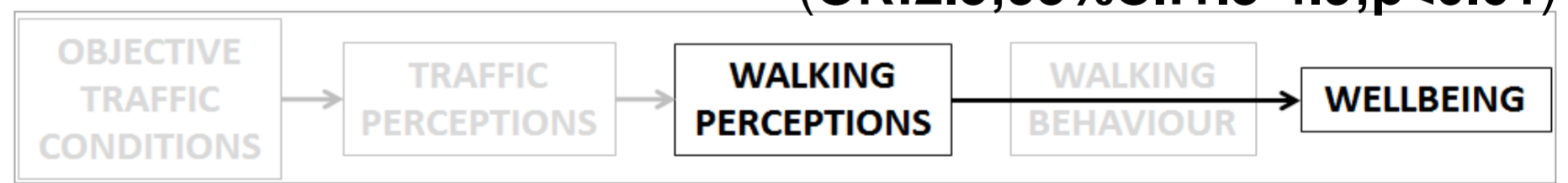


- Participants who **reported traffic volume or speed as a barrier to walking locally** were more likely to report...

- (i) **avoiding crossing the busy road** (OR:2.5;95%CI:1.5-4.1;p<0.001)



- (ii) **low mental wellbeing** (OR:2.5;95%CI:1.3-4.9;p<0.01)



Conclusion

Perceptions of traffic volume/speed are related to perceptions of barriers to walking locally, and perceptions of barriers to walking locally are related to reported walking behaviour and to mental wellbeing. The strength of associations vary by demographics and case study location. Analyses of the dataset to further characterize the pathways of community severance are ongoing.

References

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