

Science for Environment Policy

Links between obesity, physical activity, transport and CO₂ emissions

A new UK study suggests that there are associations between obesity, physical activity, and levels of CO₂ emissions from transport. These associations seem mostly to reflect the fact that obese people tend to travel longer distances by motorised forms of travel. They may also partly reflect less 'active travel' by bicycle or walking by obese people.

It is estimated that the transport sector is responsible for nearly a quarter (23%) of the greenhouse gas (GHG) emissions from energy use. Motorised travel also has negative health impacts caused by air and noise pollution, and it may contribute to obesity levels. This is because driving may displace more active forms of transport, such as walking and cycling. As such, active travel has been promoted as a means of reducing GHG emissions, alongside producing health co-benefits.

The study was the first to examine the CO₂ implications of engaging in active travel and recreational physical activities, such as sport. Questionnaires were conducted in three areas of the UK (Cardiff, Kenilworth and Southampton), with 3643 adults. These collected data on the respondents' modes of travel (bus, car, train, bicycle, walking), distance travelled in the last week, and the engine size of each respondent's car.

Using these data, the study calculated CO₂ emissions from transport, and statistically analysed the factors behind these emissions. The questionnaires also collected data on general health, long-term illness, bodymass index and recreational physical activity.

On average, each participant had generated an estimated 18.8 kilograms of CO₂ emissions from motorised transport in the week prior to the questionnaire. Those in the top fifth of emitters contributed nearly two-thirds of the total emissions (63%), while the bottom fifth generated only 0.8%. Car driving was the largest source of emissions by far (89.8%), followed by train travel (4.4%), bus travel (3.8%) and other private or public transport (1.9%).

There was strong evidence that weight status was statistically associated with greater CO₂ emissions. Further analysis suggested that this could be because obese people tend to travel longer distances by motorised forms of travel and participate less in 'active travel' by bicycle or walking. Another contributing factor was that obese people were more likely to own vehicles with larger engines; 16% of obese participants had very large vehicles compared to 10% of non-overweight participants. Very large vehicles included sports utility vehicles, multi-purpose vehicles, vans and pick-up trucks.

Physical activity as a means of transport, i.e. cycling and walking, was associated with low CO₂ emissions. However, *recreational* walking and physical activity was associated with more motorised travel and higher CO₂ transport emissions. This may be because cars are often used as transport to the location of the leisure activity, e.g. to a tennis court or the start of a walking route.

The research demonstrated some interesting associations between health, physical activity and CO₂ emissions from transport. These support the suggestion that active travel can provide benefits to both the environment and health. The study does have some limitations, particularly because it does not prove causality between, for example, obesity and higher CO₂ transport emissions, but this could be explored through more long-term research.



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