



Using Behaviour Change Techniques to encourage active travel across the Yorkshire and Humber region



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Executive Summary

Behavioural challenge

The Local Government Association (LGA) funded six local authorities from Yorkshire and Humber to form a consortium and to work alongside behavioural science experts from the Centre for Behavioural Science and Applied Psychology (CeBSAP) at Sheffield Hallam University to address a joint behaviour change challenge.

Increasing active travel (primarily walking and cycling) is an important strategy for supporting population health and has substantial environmental benefits, including reducing pollution and traffic congestion.

The six local authorities from Yorkshire and Humber identified active travel as a common behavioural challenge. They agreed to focus on:

- Short local journeys within 1 mile or 1.5 km of home
- Reducing car use for short local journeys
- Increasing the proportion of short local journeys that people walk or cycle (or other types of active travel).

All six local authorities participated in research methods workshops and participated in gathering and analysing data, supported by behavioural science experts from CeBSAP.

Our approach

It is really important that interventions match the needs of the population for the specific behavioural challenge. We needed to understand the full range of barriers to local active travel so that we could identify interventions to address those needs.

We drew on the Capability, Opportunity and Motivation – Behaviour (COM-B) model to explore the barriers and facilitators to local active travel in the relevant research literature, and in 6 focus groups conducted in each of the six local authorities. This provided us with a list of potential targets for intervention. We narrowed these down by focusing on those factors that were practical and affordable to change within the scope of a short trial, and which were likely to be acceptable and effective.

These were:

- Beliefs about the positive consequences of active travel
- Goals for active travel
- Planning for active travel

"If you're not travelling by car then that's better for the environment and you're not congesting the roads"

"I very rarely walk. Just because it will take too long and I don't have time, or I think I don't have time, I don't make time, as my mother would say"

Our solution

Our solution was to test two interventions designed to increase local active travel and to compare these to a control intervention. They were:

1. An intervention to increase motivation.

- This was achieved by asking people to select their personal reasons for wanting to increase walking and cycling from a list and asking them to consider and rank the importance of three motivational statements. This task encouraged them to fully process the statements.

2. An intervention to increase motivation plus goal setting and planning.

- This intervention replicated the motivation intervention.
- People were then asked to set a goal to swap a car journey with walking or cycling and to identify a barrier that might get in the way and to plan how to overcome this.

3. A control intervention to increase motivation for electric car purchase.

- This intervention replicated the structure of the motivation intervention but focused on electric car purchase rather than active travel.

These three interventions were tested in a randomised controlled trial conducted online across the six participating LAs in Yorkshire and Humber in January-March 2022.

Methods

All trial data were collected on an online survey platform (Qualtrics) at two time-points: baseline (the first survey) and follow-up (a second survey completed 2 – 4 weeks later).

Individuals living in Yorkshire and Humber and meeting the eligibility criteria were recruited into the trial via posts on social media, emails, and newsletters from each of the six LAs in the consortium. The recruitment messages asked participants if they would be willing to participate in a survey about car usage in their local community

and included a link to the baseline survey hosted on Qualtrics.

- In the baseline survey, we measured sample characteristics (demographics, physical activity, COVID-19 self-isolation) and active travel behaviours.
- Immediately following completion of the baseline survey, participants were randomised into one of the three intervention arms (motivation, motivation plus goal setting and planning components, or control).
- A link to the follow-up survey was sent automatically to participants using the email address they provided in the baseline survey using Qualtrics, 2 – 4 weeks later. A reminder was sent at 3 weeks.
- In the follow-up survey, we measured active travel behaviours, and qualitative data on barriers and facilitators for active travel.

At baseline and follow-up, all participants who completed the survey were entered into a prize draw to win 1 of 10 £200 vouchers.

Results

In total, 1676 participants completed baseline measures, were randomised to one of the three conditions, and provided follow-up data.

The trial showed that the interventions were effective in increasing the proportion of short local journeys that were walked or cycled compared to those using a car. We found:

- A significant increase in the percentage of active journeys at follow-up (2-4 weeks later) compared to baseline for the motivation intervention. In this group 40.0% of journeys were actively travelled at baseline compared to 45.93% at follow-up (means).
- A significant increase in the percentage of active journeys at follow-up (2-4 weeks later) compared to baseline for the motivation plus goal setting and planning intervention. In this group 41.41% of journeys were actively travelled at baseline compared to 49.60% at follow-up (means).
- No significant difference in the percentage of active journeys at baseline and follow-up (2-4 weeks later) for the control intervention. In this group at baseline 41.25% and at follow-up 43.45% were actively travelled (means).

- This difference was more pronounced when we focused just on those participants who adhered to the intervention instructions (i.e., they ranked motivational statements for interventions 1 and 3 and additionally made a goal to swap one or more car journeys for an active journey in condition 2).

Conclusion

This relatively low-cost, easy to implement, and brief intervention can have a positive impact on local active travel. Educating and persuading people to engage in active travel by getting them to think about why active travel might be beneficial for them may help increase motivation to swap one or more car journeys with a form of active travel. Supporting people to make a commitment to swap one or more car journeys and planning how to overcome barriers provides additional benefits, over motivational messaging alone. Future research should explore how long these effects last, how they can be maintained, how best these interventions should be delivered, and how these interventions could be used for different behavioural challenges.



Next steps as a consortium

Colleagues within the consortium will continue to work together, and link with other regional networks, such as the Regional Yorkshire and Humber Public Health Behavioural Science Network. We collected a large dataset from this trial and we will continue to analyse this data and share insights and learnings within the consortium and more widely, including at national conferences (e.g., Behavioural Science and Public Health Network). Regularly collaborating and sharing insights and resources with other local authorities using Microsoft Teams was helpful in getting this project completed so quickly, and this will be taken forward for the continuation of this and future behavioural science projects.

Key learnings

Active travel is a complex behaviour, and this project demonstrated the need to clearly define the behaviour at the outset (i.e., who, what, where, and how) in order to understand the barriers and facilitators for the behaviour and to design and test interventions that target those identified factors. The project was delivered in a short-time frame and so it was important to keep the project within practical boundaries (i.e., time and resources available). By working together as a consortium, alongside behavioural science experts in CeBSAP, we were able to undertake a manageable behavioural science project at scale and share resources, learnings, and insights.

Active travel trial: Main report

Background

Active travel is generally defined as walking or cycling for transport, as an alternative to travelling by car. Increasing engagement with active travel is important for supporting climate change by reducing pollution and traffic congestion¹, as well as increasing engagement in physical activity and its wider health benefits².

This project aimed to increase the proportion of local journeys taken by foot, bike, or other form of active travel, by testing interventions developed using behavioural science in a Randomised Controlled Trial (RCT).

This project was funded by the Local Government Association (LGA). It was delivered by a consortium of six local authorities (LAs) from across Yorkshire and Humber: City of Bradford Metropolitan District Council, Sheffield City Council, Rotherham Metropolitan Borough Council, Doncaster Council, North Yorkshire County Council, North East Lincolnshire Council.

The Centre for Behavioural Science and Applied Psychology (CeBSAP) at Sheffield Hallam University provided behavioural science expertise and support to design and test interventions to support active travel across the Yorkshire and Humber region. All six local authorities participated in research methods workshops and participated in gathering and analysing data, supported by behavioural science experts from CeBSAP.

Aim and research questions

The aim of the RCT was to test whether a brief intervention incorporating motivational, goal setting, and planning components, could increase 'active travel' in individuals living in Yorkshire and Humber.

We defined active travel as a journey of around 1 mile (or 1.5km) that someone could walk in around 20 minutes as an alternative to travelling by car within their local area or community across the Yorkshire and Humber region.

We wanted to test three interventions:

1. An intervention to increase motivation for active travel.
2. An intervention to increase motivation for active travel combined with setting a goal to swap a car journey for an active journey and planning to overcome barriers.
3. A control intervention to increase motivation for electric car purchase.

The key outcome variable for the trial was the proportion of short local journeys that were active.

The primary research questions were:

1. Can a brief motivational intervention increase the proportion of local journeys taken by foot, bike, or other form of active travel?
2. Can a brief motivational intervention in combination with a goal setting and planning increase the proportion of journeys taken by foot, bike, or other form of active travel, compared with a brief motivational intervention only?

1 Brand, C., Götschi, T., Dons, E., Gerike, R., Anaya-Boig, E., Avila-Palencia, I., ... & Nieuwenhuijsen, M. J. (2021). The climate change mitigation impacts of active travel: Evidence from a longitudinal panel study in seven European cities. *Global Environmental Change*, 67, 102224.

2 Sahlqvist, S., Song, Y., & Ogilvie, D. (2012). Is active travel associated with greater physical activity? The contribution of commuting and non-commuting active travel to total physical activity in adults. *Preventive medicine*, 55(3), 206-211.

Intervention 1: Motivation intervention

This intervention was designed to provide *education and persuasion* about the benefits of active travel.

Participants were asked to:

- Select reasons for walking/cycling short journeys from a list
 - Mine and/or my family's health
 - The environment/ air quality
 - Time available
- Rank three related statements in order of importance
 - E.g., 'Walking or cycling short journeys adds to my overall physical activity level – every little helps'
- Indicate their intentions to walk or cycle short journeys in the next 2 weeks (on a 5-point scale), given what they had read

Intervention 2: Motivation plus goal setting/ planning

This intervention was designed to provide *education and persuasion* about the benefits of active travel, and to enable goal setting and planning.

All participants in this intervention arm completed the motivation components of intervention 1. Participants were then asked to:

- Set a goal/ commitment
 - Participants were asked whether they would be willing to commit to walking or cycling one of the local journeys they make each week instead of using their car
 - If yes, participants were asked to specify exactly which journey they would walk or cycle and the goal was presented back to them
- Make a plan
 - Participants were asked to identify barriers to keeping that commitment, either from a list of barriers or free text
 - Participants then identified a matching solution to overcome that barrier, either from a list of potential solutions or free text
 - The plan was then presented back to them (e.g., 'If I am tempted to jump in the car then I will think about the importance of being a good role model for my children')

Intervention 3: Control intervention

This intervention was designed to replicate the structure of Intervention 1 (motivational intervention) but be unrelated to active travel and thereby serve as a control condition. The topic of this intervention was electric car use which is consistent with the focus on making local journeys.

Participants were asked to:

- Select reasons important to their decision about whether or not to purchase an electric car when they next change their car
 - The environment/ local air quality
 - Cost
- Rank 3 related statements in order of importance
 - E.g., 'Electric cars are much more environmentally friendly'
- Indicate their intentions to purchase or lease an electric car the next time they change their car (on a 5-point scale), given what they had read

Methods

Individuals³ living in Yorkshire and Humber and meeting the eligibility criteria were recruited into the trial via posts on social media, emails, and newsletters from each of the six local authorities in the consortium. Participants were asked if they would be willing to participate in a survey about car usage in their local community.

All trial data were collected on an online survey platform (Qualtrics⁴) at two time points: baseline and follow-up (a second survey completed 2-4 weeks later). The trial design is presented in Figure 1 and outlined below.

- In the baseline survey, we measured sample characteristics (demographics, physical activity (Short form Active Lives Survey⁵), COVID-19 self-isolation, and active travel behaviours.
- Immediately following completion of the baseline survey, participants were randomised into one of the three intervention arms
 - Intervention arm 1: Motivational intervention
 - Intervention arm 2: Motivation intervention plus goal setting and planning.
 - Intervention arm 3: Control intervention
- In the follow-up survey, we measured active travel behaviours, and qualitative data on barriers and facilitators for active travel.

The surveys were accessed via a link to the baseline survey in the social media posts and emails. A link to the follow-up survey was sent directly to the participant using the email address that the participant provided in the baseline survey, 2 weeks after completion of the baseline survey, with a reminder at 3 weeks. Baseline and follow-up data were linked using a unique identification code generated by Qualtrics and sent to participants in the follow-up emails that they entered into the follow-up questionnaire.

All participants who completed the baseline survey and provided their email address were entered into a prize draw to win 1 of 10 £200 Amazon e-vouchers. All participants who completed the follow-up survey and provided their email address were entered into a prize draw to win 1 of 10 £200 Amazon e-vouchers. Winners of the prize draw were notified and sent the e-voucher via the email address entered in the baseline and follow-up survey. An example recruitment message is provided below.



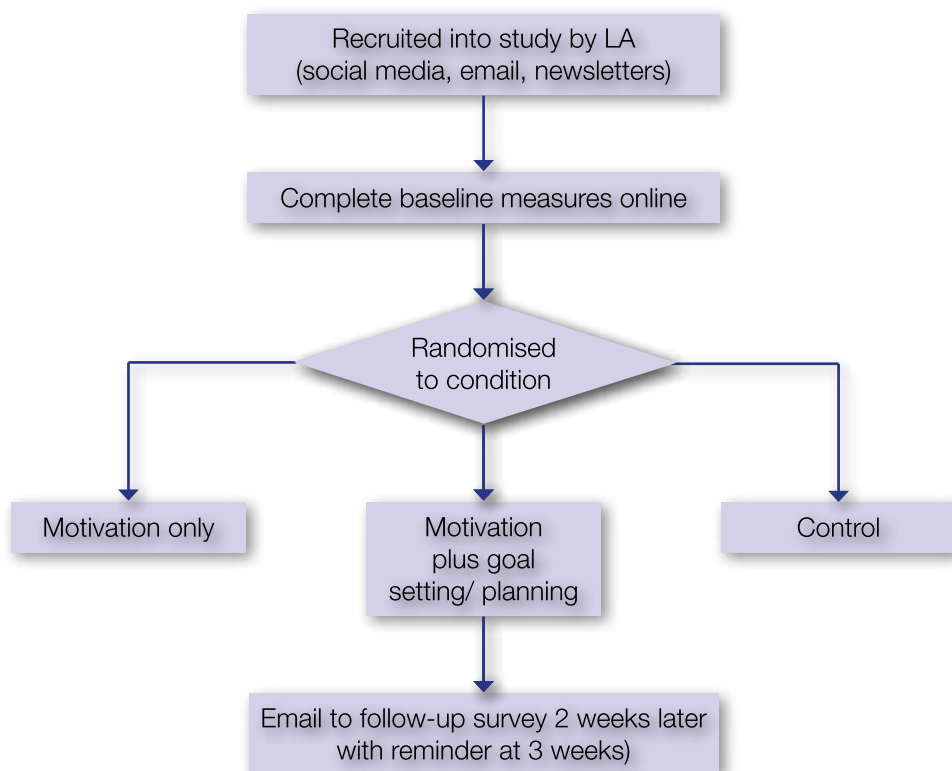
Ethical approval was obtained by CeBSAP from Sheffield Hallam University. Key documents required for ethical approval included: a participant information sheet detailing what the survey involves and how their data will be used and stored in line with GDPR requirements; a consent form; a copy of the baseline and follow-up survey and; a debrief document.

3 Eligibility criteria were: An individual living in Yorkshire and Humber; Owns or has access to a car; Sometimes/ often uses their car for short essential, social, or leisure journeys (within a 20-minute walk/cycle radius of home); Can walk for at least 20 minutes; Aged 18+ years; Willing to provide informed consent

4 <https://www.qualtrics.com/uk>

5 Milton K, Engeli A, Townsend T, Coombes E, Jones A (2017) The selection of a project level measure of physical activity. London: Sport England.

Figure 1. Trial design



Participants

Sample characteristics⁶ are presented below⁷.



Local authority area: 37% of the sample were from Sheffield, followed by North Yorkshire (19%), Doncaster (16%), Bradford (15%), North-East Lincolnshire (6%), Rotherham (5%), and other areas in the Yorkshire and Humber region (3%).



Age, gender, and ethnicity: The mean age of participants was 46.5 years (standard deviation = 14.3), ranging from 18 – 88 years. 14% were aged 18 – 30 years, 35% were aged 31 – 44 years, 39% were aged 45 – 64 years, and 13% were aged 65 years plus. In total, 65% were female and 91% were White British.



Educational level: Only 2% of the sample reported having no formal education qualifications, with 57% of the sample having a degree or postgraduate degree.



Employment: Most participants reported that they were in full-time (56%) and/or part-time (20%) employment, with 16% of the sample reporting that they were retired.



Work location: Most participants who worked from home before COVID were still working from home (94%). For those who used to work away from home before COVID, 20% were now working from home and 20% were working both from and away from home. For those who used to work *from and away from home* before COVID, the majority reported that this had remained the same (62%) or that they were now working from home only (35%).



Annual income: In total, 61.5% had an annual income \geq £30,001. Table 1 provides a breakdown of reported annual income.

⁶ Descriptive statistics for participants who consented, were eligible, and completed baseline measures, taking more than 3 minutes to do so (n = 3673).

⁷ Note that given the method of sampling we would not expect these to be representative of all adult car users in Yorkshire and Humber.

Table 1. Annual household income

Income level	%
under £10,000	2.6
£10,001 - £20,000	10.4
£20,001 - £30,000	17.2
£30,001 - £40,000	15.7
£40,001 - £50,000	12.6
£50,001 - £60,000	10.6
£60,001 - £70,000	7.6
£70,001 - £80,000	5.3
£80,001 - £90,000	3.2
£90,001 - £100,000	2.3
£100,000+	4.2
Prefer not to say	8.3
Total	100.0



Members of their household: 38% reported have children (aged ≤ 18 years) living in their household; 10% had children under the age of 4 years, 21% had children aged 4 – 11 years, and 18% had children aged 12 – 18 years living in their household.

The majority of the sample had adults aged 18 – 64 years living in their household (64%), with 14% reporting adults aged 65 years and over living in their household.



Long-term condition: 23% reported living with a long-term physical or mental health condition or illness that had lasted, or expected to last, more than 12 months, with 33% reporting that their condition impacts on their ability to do normal daily activities.

Physical activity: In total, 29% were classified as being physically inactive, 15% classified as being fairly active, and 56% classified as being physically active. The mean (SD) number of minutes spent being physically active was 335.5 (488.1), ranging from 0 - 7320.0.

Active travel: At baseline, the mean proportion of short local journeys that were actively travelled was 37% (standard deviation = 38.4), ranging from 0 – 100%.



Table 2. Mean proportion of short local journeys that were actively travelled, by local authority area

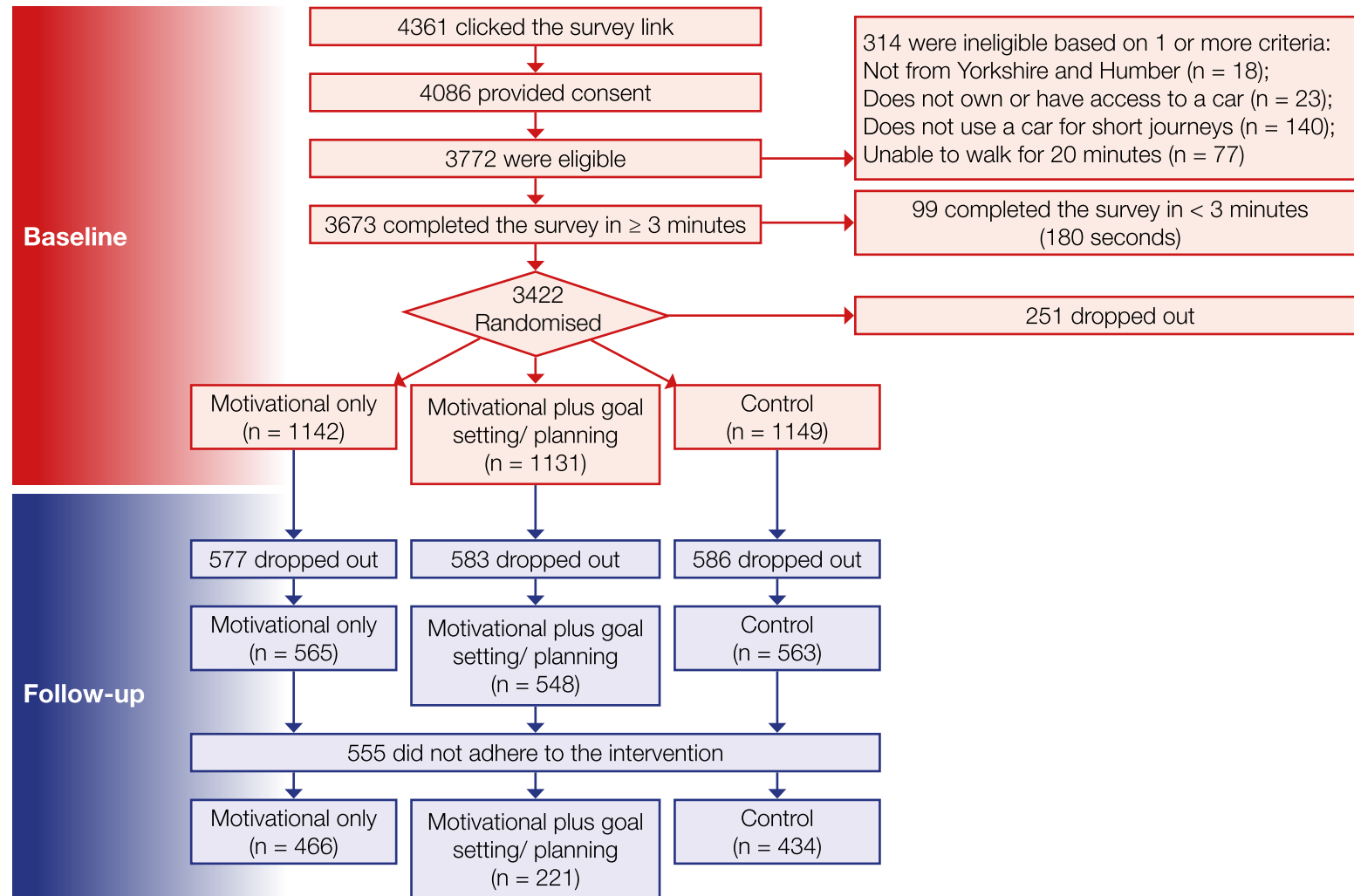
Local authority area	Mean	N	Std. Deviation
Sheffield	43.67	1192	38.31
Doncaster	29.91	489	37.02
Rotherham	29.88	152	35.84
North Yorkshire	36.79	608	38.90
North East Lincolnshire	33.80	187	36.74
Bradford	32.72	446	36.99
Other region in Yorkshire and Humber	42.61	79	44.28
Total	37.38	3153	38.37

In total, 1676⁸ participants completed baseline measures, were randomised to one of the three conditions, and provided follow-up data. Figure 2 provides further information about recruitment and drop-out.



⁸ This exceeded the calculated sample size needed to power the trial. Based on a small effect size (eta squared 0.02) with 3 conditions, we needed 1093 participants in total. Carraro, N., & Gaudreau, P. (2013). Spontaneous and experimentally induced action planning and coping planning for physical activity: A meta-analysis. *Psychology of Sport and Exercise*, 14(2), 228-248.

Figure 2. Recruitment flowchart

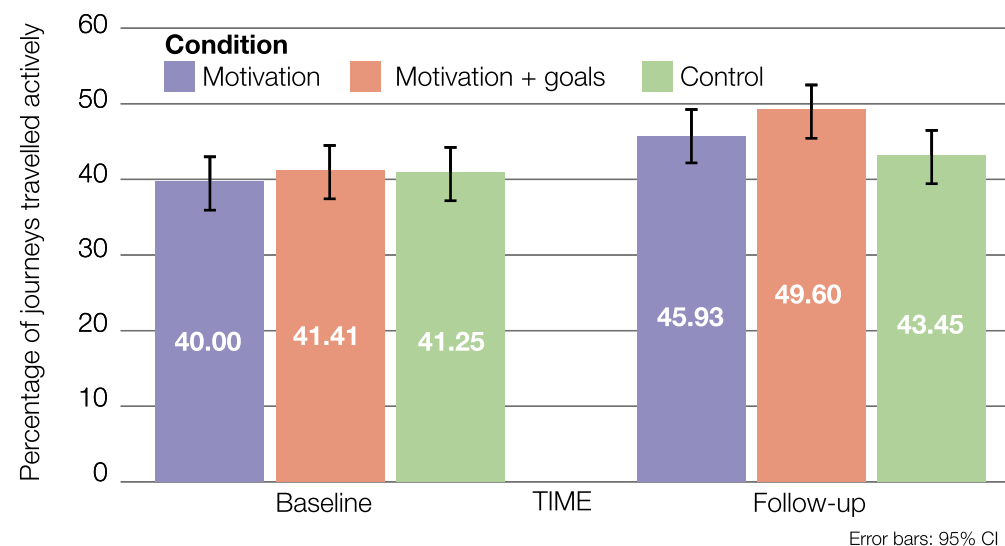


Trial findings

We analysed data for all participants who were allocated to a condition and provided follow-up data⁹ to explore whether there were differences in active travel between baseline and follow-up. This showed that overall, participants in the trial reported a higher percentage of active travel for short local journeys at follow-up compared to baseline¹⁰. However, the pattern of findings differed by condition¹¹.

- There was no significant difference in the percentage of active journeys at baseline and follow-up for the control condition¹². In this group at baseline 41.25% and at follow-up 43.45% were actively travelled (means).
- There was a significant increase in the percentage of active travel at follow-up compared with baseline for the motivation condition¹³. In this group 40.0% of journeys were actively travelled at baseline compared to 45.93% at follow-up (means).
- There was also a significant increase in the percentage of active travel at follow-up compared with baseline for the motivation with goal setting and planning condition¹⁴. In this group 41.41% of journeys were actively travelled at baseline compared to 49.60% at follow-up (means).

Figure 3. Trial analysis (all participants with follow-up data)



Adherence

The effectiveness of any intervention depends not only on its content, but also the extent to which people adhere or follow the intervention instructions. The analysis above assumed that all participants randomised to each condition adhered to the instructions to complete the intervention. A more stringent analysis is therefore to focus just on those participants who completed the intervention tasks. This reduces the size of the sample (see Table 3).

⁹ We excluded participants from the analysis who were self-isolating due to COVID-19 at either baseline or follow-up

¹⁰ $p < 0.001$

¹¹ $p < 0.05$

¹² $p > 0.05$

¹³ $p < 0.001$

¹⁴ $p < 0.001$

Table 3: Comparison of sample sizes for randomised to condition and adherent to condition

	Motivation	Motivation + goals and planning	Control
Completers randomised to intervention (condition)	565	548	563
Completers randomised and adherent to intervention (condition)	466	221	434

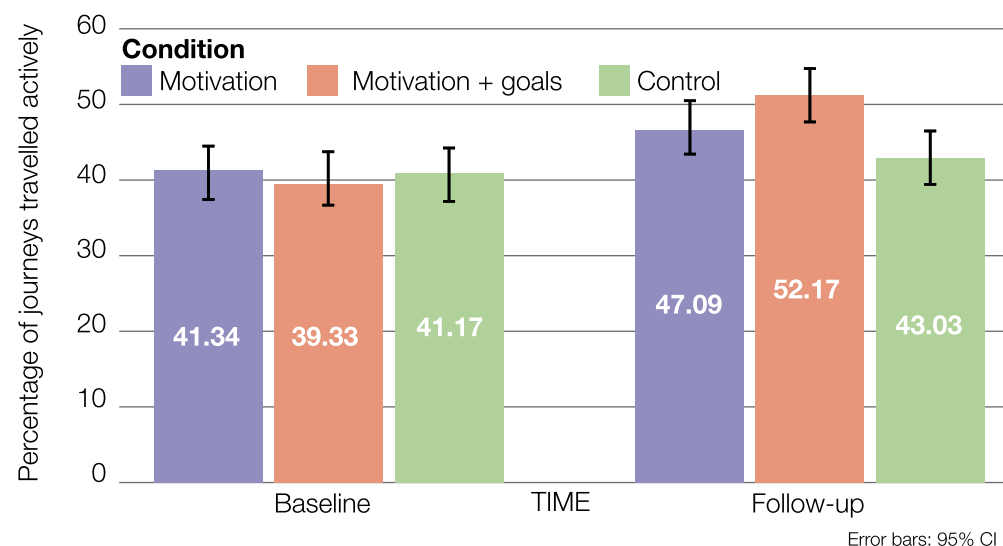
Those who were randomised to the motivation + goals and planning condition were less adherent to the intervention. This is not surprising because they were asked to do more than for the other conditions i.e., to make a goal to swap one (or more) car journey for an active journey and to make a plan for how to overcome a key barrier¹⁵.

Analysing this smaller sample showed a similar pattern i.e., overall participants in the trial reported a higher percentage of active travel for short local journeys at follow-up compared to baseline¹⁶. The pattern of findings differed by condition¹⁷.

- There was no difference in the percentage of active journeys at baseline and follow up for the control condition¹⁸. The mean percentage of active travel was 41.17% at baseline and 43.03% at follow-up.
- There was a more pronounced increase in the percentage of active travel at follow-up as a result of the intervention for the motivation condition¹⁹ and the motivation with goals and planning²⁰ conditions.

- The motivation with goals condition had a significantly higher increase in percentage active travel at follow-up than both the control and motivation only groups²¹ with 39.33% of journeys actively travelled at baseline compared to 52.17% at follow-up (means).

Figure 4. Trial analysis (participants who adhered to the intervention instructions)



¹⁵ Note that we classified them as adherent as long as they made a goal.

¹⁶ $p < 0.001$

¹⁷ $p < 0.01$

¹⁸ $p > 0.05$

¹⁹ $p < 0.01$

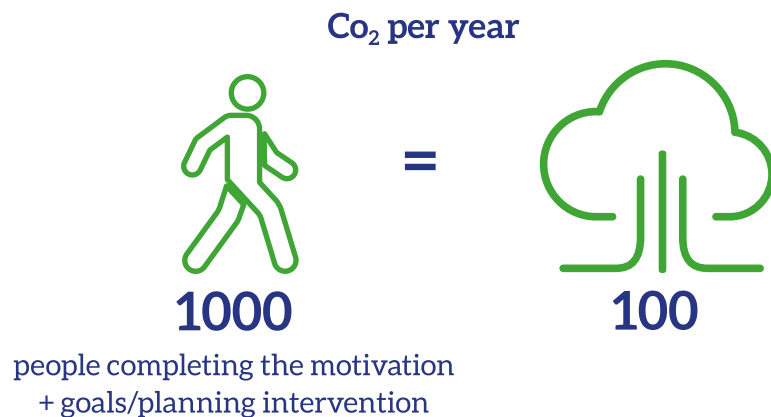
²⁰ $p < 0.001$

²¹ $p < 0.01$

We explored whether there was a difference in sample characteristics between those who did and did not complete the follow-up survey. Those who completed the follow-up survey were older (means of 48.2 years compared to 44.5 years), more physically active at baseline (351 minutes per week compared to 318 minutes per week), but there were no effects for gender or educational level.

Translating the findings into carbon savings

We calculated how the car journeys saved by the intervention would translate into carbon savings. 1000 people who completed the motivation with goals and planning intervention would travel 142 fewer local journeys by car than 1000 people in the control condition²². Over a year, this equates to 7384 fewer car journeys. Each 1-mile car journey produces 280g of CO₂²³, so this would save 2.067 tonnes of CO₂ per year²⁴, about the same as is used by 100 trees over a year²⁵.



²² Based on the difference in percentage active travel between baseline and follow-up by condition controlling for baseline variations.

²³ <https://www.carbonindependent.org/17.html>

²⁴ <https://www.metric-conversions.org/weight/grams-to-metric-tons.htm>

²⁵ <https://www.climateneutralgroup.com/en/news/what-exactly-is-1-tonne-of-co2/>

Barriers and facilitators for active travel

We searched for key text terms in the qualitative data to identify selected barriers and facilitators for active travel reported by participants at follow-up in an open-ended question²⁶. These are presented in Table 4. In total, 40% reported weather as a barrier or facilitator for active travel.



Table 4. Selected barriers and facilitators for active travel reported by participants at follow-up (n = 2072)

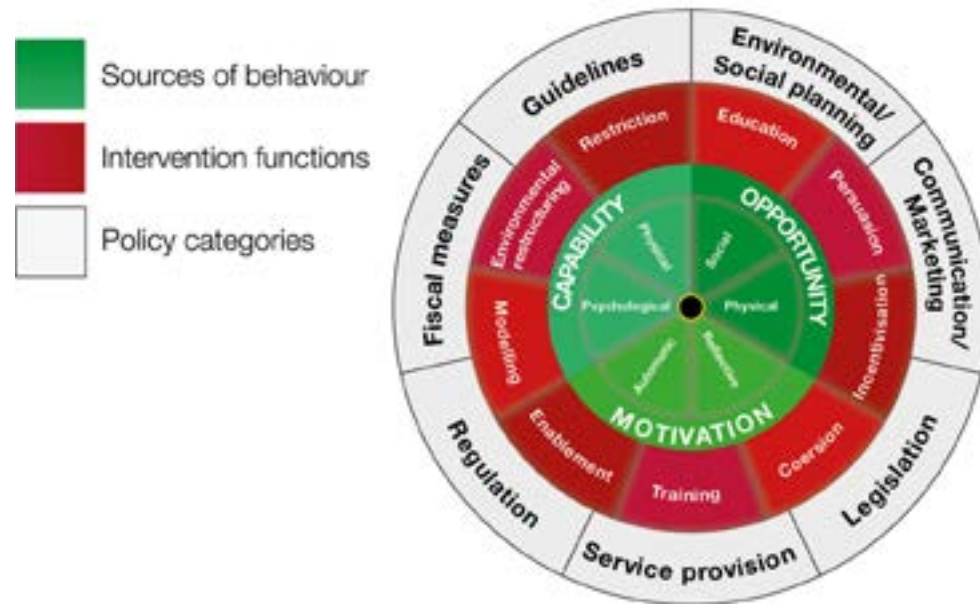
Barrier [b]/ facilitator [f]	Text search terms	n	% of 2072
weather (bad weather = B, good = F)	weather, rain, storm, snow, wind, pouring down	840	40%
time (lack of time = B, having enough time = F)	time, rush, quick	384	19%
carrying bags/items (having to carry = B, not having to carry = F)	carry, bags, items	312	15%
distance (greater distance = B, short distance = F)	distance, far	242	12%
public transport (lack of public transport = B, availability of public transport = F)	public transport, bus, train, tram	135	7%
safety concerns (walking/ cycling, inc. traffic and risk from others esp. in dark) (having safety concerns = B, feeling safe = F)	safe, safety, scare, scary, nervous, anxious, fast, speed	83	4%
children’s abilities (i.e., not able to walk as far) (having children present = B)	kids, toddler, son, daughter, children	57	3%
hills (hills present = B)	hills, hilly	51	3%
active travel infrastructure (lack of infrastructure = B, availability of infrastructure = F)	infrastructure, cycle lanes, cycle routes, pavements crossing	43	2%

26 The analysis was based on automated searching for key text terms and therefore only provides an approximation of some key barriers reported

How we used behavioural science to develop the interventions

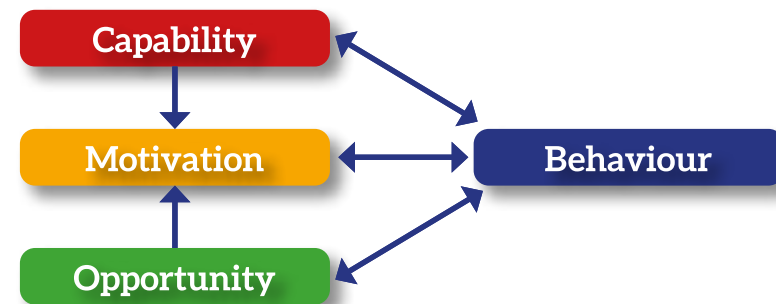
Theoretical approach

We used the Behaviour Change Wheel (BCW)²⁷ in this project. The BCW provides a comprehensive framework for intervention development.



At the centre of the BCW (green circle) sits the COM-B model. The model proposes that in order for a behaviour to occur, people need to have sufficient capability (C), opportunity (O), and motivation (M).

The BCW identifies 9 broad types of intervention functions (red circle) that can be used to target the COM factors underpinning the behaviour, as well as policy options (grey circle) that can help to deliver those interventions.



In the context of active travel, Capability refers to whether the individual has the *psychological capability* and the *physical capability* to do active travel behaviours, which includes having the necessary knowledge and skills; Opportunity refers to whether the *physical* and *social* environment makes active travel possible or prompt its and; Motivation refers to all the *reflective* and *automatic* brain processes that directs active travel behaviours, including habitual processes as well as conscious decision-making.

The Theoretical Domains Framework (TDF) identifies 14 key domains, each of which describes a construct that influences COM²⁸ and behaviour. Based on a synthesis of key domains from 33 different behaviour change theories, the TDF details 14 key domains that influence capability, opportunity, or motivation.

- The TDF domains that influence Capability include: Knowledge (i.e., awareness); Skills (i.e., ability); Memory, Attention, and Decision (i.e., ability to remember and focus) and; Behavioural Regulation (i.e., ability to monitor and amend behaviour).
- The TDF domains that influence Opportunity include: Environmental Context and Resources (i.e., situational, or environmental factors that influence behaviour); and Social Influences (i.e., interpersonal influences on behaviour).

²⁷ Michie, S., Van Stralen, M. M., & West, R. (2011). The behaviour change wheel: a new method for characterising and designing behaviour change interventions. *Implementation science*, 6(1), 1-12.

²⁸ Cane, J., O'Connor, D., & Michie, S. (2012). Validation of the theoretical domains framework for use in behaviour change and implementation research. *Implementation science*, 7(1), 1-17

- The TDF domains that influence Motivation include: Social/ Professional Role and Identity (i.e., personal qualities and behaviours that influence action); Beliefs about Capabilities (i.e., self-efficacy and perceived behavioural control); Optimism (i.e., confidence in achieving the goals); Intentions (i.e., decision to engage in action); Goals (i.e., priorities and targets); Beliefs about Consequences (i.e., expected outcomes); Reinforcement (i.e., rewards or punishments); Emotion (i.e., emotional response towards the action).

Behaviour Change Techniques (BCTs) are the 'active ingredients' of the intervention, with the BCT taxonomy V1²⁹ comprising of 93 intervention components that may have the potential to change behaviour. They describe different ways in which we can deliver the intervention functions (i.e., how we can educate, persuade, etc.)

The BCW provides a systematic framework for designing interventions and was used throughout this project. We:

- Defined active travel in behavioural terms (i.e., who needs to do what differently, and when and how they should do it)
- Identified what needs to change to increase active travel, by identifying the barriers and facilitators for active travel
- Identified the types of intervention that are likely to be effective in targeting the barriers and facilitators for active travel
- Identified the content of the intervention in terms of its BCTs and how the intervention should be delivered.
- Given time and budget constraints and the need to design and deliver an intervention that met the needs and priorities for all six LAs, we drew upon the APEASE evaluation criteria during each stage of the intervention development process. The APEASE criteria provides a useful tool for judging the practicality and feasibility of interventions for both the end-user, as well as intervention deliverers and wider stakeholders.

- The criteria are:
- **A**ceptability (Is the intervention acceptable?)
- **P**racticability (Is the intervention practical and feasible?)
- Effectiveness/ cost effectiveness (How far will it reach the target group and how large an effect will it have?)
- **A**ffordability (Can we afford to deliver the intervention?)
- **S**ide-effects (What are the chances it will lead to unintended negative consequences?)
- **E**quity (How far will it increase or decrease differences between population sub-groups?)

We also drew upon the EAST framework³⁰ to develop the intervention content, which suggests behaviour change is more likely to occur if it is **E**asy, **A**tttractive, **S**ocial, and **T**imely.



29 Michie, S., Richardson, M., Johnston, M., Abraham, C., Francis, J., Hardeman, W., ... & Wood, C. E. (2013). The behavior change technique taxonomy (v1) of 93 hierarchically clustered techniques: building an international consensus for the reporting of behavior change interventions. *Annals of behavioral medicine*, 46(1), 81-95.

30 The Behavioural Insights Team. EAST: Four Simple Ways to Apply Behavioural Insights; Behavioural Insights Team: London, UK, 2014

Scoping review

A scoping review was carried out at the outset of the project to explore the barriers and facilitators of active travel. We drew upon published literature, as well as insight data from across the six LAs. Potential barriers and facilitators were categorised using the COM-B model. Key COM factors are presented below in Table 5.

Table 5. Barriers and facilitators of active travel

	Barrier	Facilitator
Capability	<ul style="list-style-type: none"> • Health concerns, illness or disability⁸ • Being unable to ride a bike⁸ • Heavy school bags¹ • Lack of knowledge about walking opportunities⁸ 	<ul style="list-style-type: none"> • Knowledge of cycle routes⁸
Opportunity	<ul style="list-style-type: none"> • Inclement weather^{1, 8} • Greater travel distance¹⁻³ • Intermittent pavement, uneven surfaces, paths being in poor condition⁸ • Unclean walking routes (litter, full bins, dog fouling)⁸ • Cars parked on pavements⁸ • Car ownership² • Lack of access to a bike⁸ • Time constraints^{1, 8} • Distance to travel⁸ 	<ul style="list-style-type: none"> • Active travel infrastructure²⁻⁴ • More cycle paths⁸ • Better weather⁸ • Walkability¹⁻⁵ • Less/slower traffic⁸ • Resources about walking opportunities⁸ • Social norms/ incentives (competition)⁸ • Neighbourhood social interactions²
Motivation	<ul style="list-style-type: none"> • Safety concerns^{1, 6} • Perception of roads as unsafe for cycling/ danger from traffic⁸ • Perception of pavements and walking environment as unsafe for walking⁸ • Lacking confidence on a bike⁸ • Perception of inconvenience⁸ • Preference for car travel⁷ 	<ul style="list-style-type: none"> • Perception of safety^{2,3} • Wanting to keep fit and healthy⁸ • Belief in individual responsibility for greener transport choices⁸ • Preference for active travel⁷ • Perception of convenience⁸ • Perception of cost-effectiveness⁸ • Enjoying active travel⁸

References in Table 5: (1) Costa J, Adamakis M, O'Brien W, Martins J. A scoping review of children and adolescents' active travel in Ireland. *International Journal of Environmental Research and Public Health* 2020;17(6):2016; (2) Ikeda E, Hinckson E, Witten K, Smith M. Associations of children's active school travel with perceptions of the physical environment and characteristics of the social environment: A systematic review. *Health & Place* 2018;54:118-131; (3) Panter JR, Jones AP, van Sluijs EM. Environmental determinants of active travel in youth: A review and framework for future research. *The International Journal of Behavioral Nutrition and Physical Activity* 2008;5(1):34; (4) Panter JR, Jones A. Attitudes and the Environment as Determinants of Active Travel in Adults: What Do and Don't We Know? *Journal of Physical Activity & Health* 2010;7(4):551-561; (5) Ikeda E, Stewart T, Garrett N, Egli V, Mandic S, Hosking J, et al. Built environment associates of active school travel in New Zealand children and youth: A systematic meta-analysis using individual participant data. *Journal of Transport & Health* 2018;9:117-131; (6) Lester L, Howard R. Associations between perceptions of road safety and active travel for school children and their parents - a health needs assessment. *International Journal of Sustainable Society* 2019;11(2):94-107; (7) Haybatollahi M, Czepkiewicz M, Laatikainen T, Kytä M. Neighbourhood preferences, active travel behaviour, and built environment: An exploratory study. *Transportation Research. Part F, Traffic Psychology and Behaviour* 2015;29:57-69; (8) factor identified in LAs insight work.

We also conducted a scoping review of the effectiveness of active travel interventions. We found that:

- Providing **individualised advice** or marketing tended to have positive effects on active travel behaviour^{31,32}
- Combining **information provision** and **behavioural regulation** techniques (i.e., strategies for monitoring and managing behaviour) was associated with greater efficacy³³.
- The most frequently used BCTs in interventions that found a significant effect on active travel behaviour³⁴ are shown in Table 6.

Table 6. Behaviour Change Techniques used in effective active travel interventions

Behaviour Change Technique (BCT)	Definition
Prompt self-monitoring of behaviour	The person is asked to keep a record of specified behaviour(s) (e.g., in a diary).
Prompt intention formation	Encouraging the person to decide to act or set a general goal, for example, “I will take more exercise next week”.
Provide information on consequences	Information about the benefits and costs of action/inaction, focusing on what will happen if the person does/does not act.
Provide general encouragement	Praising or rewarding the person for trying/making a change in the desired direction (regardless of the result).
Provide instruction	Telling the person how to do the behaviour and/or preparatory behaviours.
Prompt specific goal setting	Involves detailed planning of what the person will do, including where, when, how, or with whom.

Based on this scoping work, we identified a range of potential capability (i.e., physical ability and skills, knowledge), opportunity (i.e., environment, infrastructure, resources, social influences), and motivation (i.e., beliefs, feelings, confidence) factors to active travel. BCTs that aim to *educate* and *persuade* people about active travel and its benefits (i.e., providing information on consequences), as well as *enable* people to increase their means or reduce barriers to active travel (i.e., goal setting) may help increase active travel. However, we identified a lack of research exploring in-depth the barriers and facilitators for active travel across the Yorkshire and Humber region, using the COM-B model.

The first phase of this project was therefore to define active travel in behavioural terms (i.e., who needs to do what differently, and when and how they should do it), and identify what needs to change to increase active travel, by identifying the barriers and facilitators for active travel across Yorkshire and Humber using the COM-B model.

31 Ogilvie D, Foster CE, Rothnie H, Cavill N, Hamilton V, Fitzsimons CF, et al. Interventions to promote walking: systematic review. *BMJ* 2007;334(7605).
32 Yang L, Sahlqvist S, McMinn A, Griffin SJ, Ogilvie D. Interventions to promote cycling: systematic review. *BMJ* 2010;341(7778):67.
33 Arnott B, Rehackova L, Errington L, Sniehotta FF, Roberts J, Araujo-Soares V. Efficacy of behavioural interventions for transport behaviour change: systematic review, meta-analysis and intervention coding. *The International Journal of Behavioral Nutrition and Physical Activity* 2014;11(1):133.
34 Bird E, Baker G, Mutrie N, Ogilvie D, Sahlqvist S, Powell J, et al. Behavior change techniques used to promote walking and cycling: A systematic review. *Health Psychology* 2013;32(8):829-838.

Defining and measuring active travel

We agreed to define active travel as the following:

What

- To walk, cycle, or use another form of active travel (i.e., scooters, roller skates, jogging), rather than use a car (either as a driver or passenger) for short local journeys of around 1 mile (or 1.5km).



Who

- Adults aged 18 years and over who can walk a short local journey of around 1 mile (or 1.5km) that someone could walk in around 20 minutes.



When

- Short local journey of around 1 mile (or 1.5km) for local social, leisure, and essential destinations.



We measured active travel via self-report, as this was the most practical and feasible method of measurement for all six LAs. Participants were asked to think back to the last 7 days (week) and specify how many short local journeys they made³⁵.

Participants were asked to:

- Specify how many short local journeys they made in the last 7 weeks for each of the following destinations:
 - Local leisure destinations (e.g., to the gym or other sport facility, or to the park or other green spaces)
 - Local social destination (e.g., to restaurants, bars, pubs, or visiting friends or relatives who live locally)
 - Everyday, local, and essential destinations (e.g., local shops or post office, or to schools or local workplaces, or to local libraries or community centres)
 - Health-related, local and essential destinations (e.g., to a GP, nurse, pharmacy)
- Specify how they travelled each of those short local journeys:
 - Used a car (either as a driver or passenger)
 - Walked
 - Cycled
 - Walked to a type of public transport for onward journey
 - Cycled to a type of public transport for onward journey
 - Other form of active travel (e.g., jogging)
 - Other form of non-active travel (e.g., motorcycle)

We calculated the total number of local journeys made in the last 7 days and the total number of active journeys.

Active travel was therefore measured as the **proportion** (%) of short local journeys made in the last 7 days that were taken by foot, bike, or other form of active travel.

³⁵ The measure was an adapted version of the Sobell, L.C., Sobell, M.B. (1992). Timeline Follow-Back. In: Litten, R.Z., Allen, J.P. (eds) Measuring Alcohol Consumption. Humana Press, Totowa, NJ. https://doi.org/10.1007/978-1-4612-0357-5_3

Identifying what needs to change

After defining active travel in behavioural terms and identifying how to measure the behaviour, we then identified what needs to change to increase active travel, by exploring the barriers and facilitators for active travel using the COM-B model.

Methods

We conducted six 2-hour online focus groups with residents from each of the six LA areas.

A focus group topic guide (see appendices) was developed which was framed by the COM-B model, to explore the capability, opportunity, and motivation barriers for engaging in the active travel.

We identified the sampling quotas to be used in each focus group, which were broadly representative of the target population in each local authority and had appropriate consideration of equality and diversity (e.g., SES, ethnicity, disability). Qa Research, a market research company, identified, recruited, and incentivised a total of 24 participants for the focus groups. Ethical approval was obtained by CeBSAP from Sheffield Hallam University.

Demographics for participants (all focus groups) are reported in Table 7.

Table 7. Demographics (all focus groups, N= 24)

Demographic Characteristics		
Gender	Male	N = 11
	Female	N = 13
Age	18-15	N = 5
	26-40	N = 9
	41-64	N = 8
	65+	N = 2
Ethnicity	White	N = 15
	BAME	N = 9



Findings

This section reports some of the key capability, opportunity, and motivational factors associated with active travel that were identified from the focus groups.

Capability

- Knowledge about the benefits of active travel
- Knowledge about available resources/facilities (i.e., cycling courses, walking/cycling routes)
- Ability to ride a cycle/cycle in traffic
- Health conditions/issues that impacted on active travel
- Planning for active travel
- Planning to overcome barriers

"...we know the benefits for walking, it's good for our mental health, physically it's good for you, good for the environment..."

"...if we do go somewhere it's normally planned, ... going to work on Fridays... I park on the outskirts, go in..."

Opportunity

- Social norms for car use
- Social norms for active travel
- Sense of community
- Weather, hills, dark evenings/nights
- Time available
- Having access to a cycle
- Safe spaces/walkability/cyclability/access to public transport
- Facilities/places to go nearby

"So, I think where we live everybody seems to use cars"

"We have no facilities, we have no shops, or chippies, or takeaways, or whatever to walk to"

Motivation

- Perceived benefits of active travel (i.e., health and well-being, environment)
- Concerns about personal safety
- Perceived (in)convenience
- Confidence in ability to walk or cycle/confidence in personal safety
- Goals to be active
- Past (positive or negative) experiences of active travel

"...on my own, when it's dark, when I could just go in the car and it's just going to be much safer?"

"It's fantastic isn't it, it's fantastic to get outdoors and get a bit, get motivated more and that's how I want my kids to be as well."

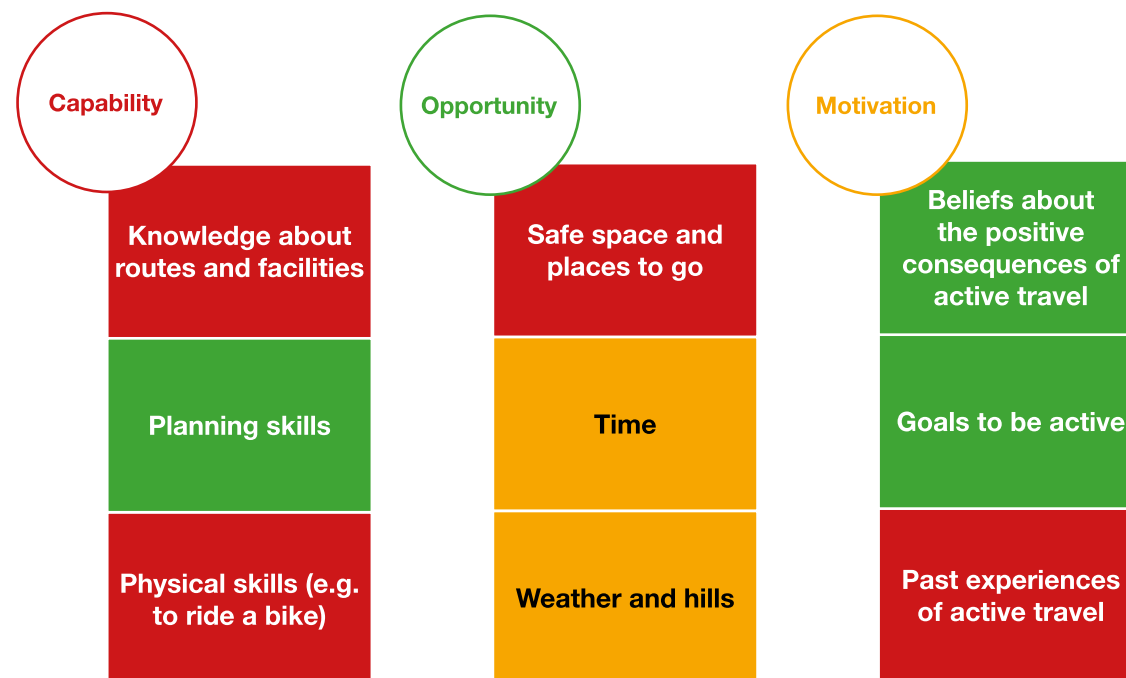
Selecting targets for intervention

We identified a range of capability, opportunity, and motivational factors associated with active travel. We drew upon the APEASE criteria to select targets for the intervention that would be practical and feasible to target in a RCT, given budget and time constraints and the need for an intervention to be suitable for the general population across Yorkshire and Humber.

Figure 5 outlines some of the key capability, opportunity, and motivation factors we identified from our focus groups.

- There was agreement that the factors in the red boxes (knowledge about routes and facilities, physical skills, safe space and places to go, past experiences of active travel) would not be possible to address in the RCT, because (i) infrastructure changes were outside the scope of the trial and, (ii) it would not be feasible to provide tailored local information/support for individuals based on their specific location across Yorkshire and Humber or past experiences of active travel.
- There was agreement that the factors in the green boxes (planning skills, beliefs about the positive consequences of active travel, goals to be active) would be feasible and practical to address in the RCT.
- There was agreement that it would not be possible to *directly* address the factors in the orange boxes (time, weather, and hills), however targeting the key capability and motivation factors in the green boxes may help individuals to overcome those opportunity barriers.

Figure 5. Selecting targets for intervention

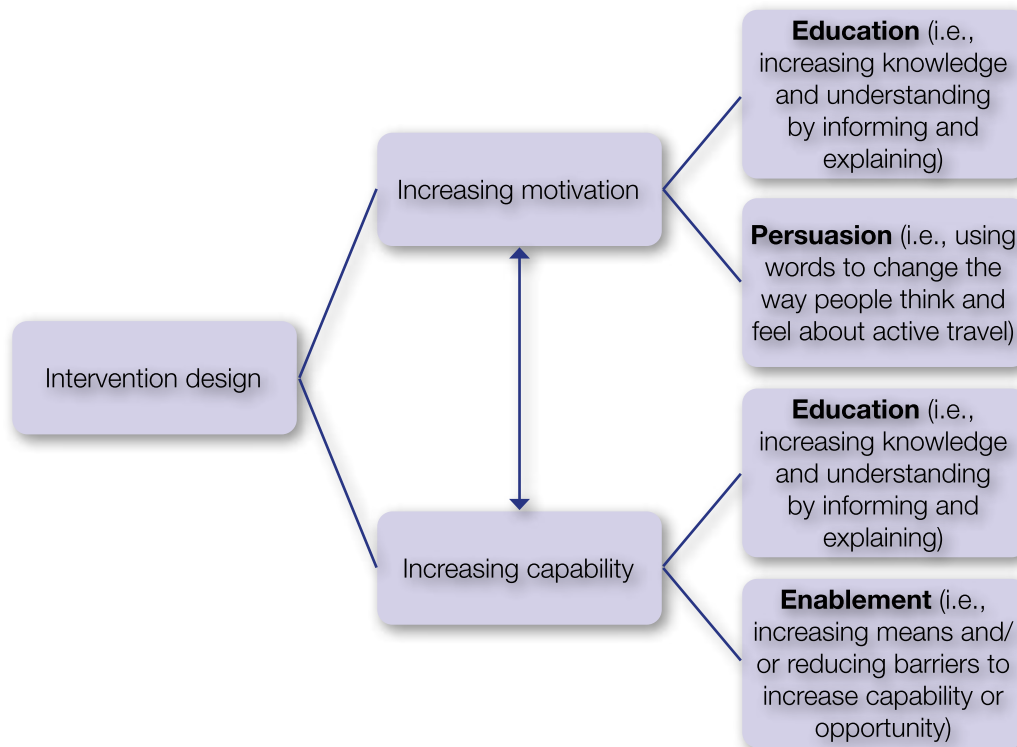


Identifying the type of intervention, its content, and mode of delivery

We then explored the types of intervention design that are likely to be effective in addressing those key barriers and facilitators.

Using the BCW, we judged three intervention functions to be the most practical, feasible, and appropriate for addressing those barriers and facilitators (Figure 6).

Figure 6. Selected intervention functions to target the identified barriers and facilitators



We then identified the content of the intervention in more detail. We used the Theory and Technique Tool³⁶ to identify which BCTs are most likely to be effective in addressing capability and motivation. Key BCTs identified as most likely to be effective, as well as practical and feasible to use in an RCT, were:

- **Information about health consequences** (e.g., providing information about the health consequences of active travel)
- **Information about social and environmental consequences** (e.g., providing information about the social and environmental consequences of active travel)
- **Salience of consequences** (e.g., using methods to make the consequences of active travel more memorable)
- **Goal setting (behaviour)** (e.g., setting a goal designed in terms of the active travel behaviour to the achieved, such as setting the goal of walking three local journeys per week)
- **Behaviour substitution** (e.g., prompting substitution of car driving with active travel for one or more short local journeys)
- **Action planning** (e.g., prompting detailed planning of active travel behaviours, such as planning the performance of a particular active travel behaviour at a particular time on certain days of the week)
- **Problem solving** (e.g., prompting the person to analyse factors that influence their active travel behaviour, and generating /selecting strategies that include overcoming those barriers and/or increasing facilitators)

There was consensus that given time and budget constraints, and the need for an intervention to be deliverable to the general population living across the Yorkshire and Humber regions at speed, that the trial should be delivered using an online platform.

Conclusions and recommendations

We have demonstrated that a relatively low-cost, easy to implement, brief intervention informed by behavioural science can have a positive impact on active travel among individuals living in Yorkshire and Humber.

We have shown that increasing motivation, by encouraging people to think about why active travel might be beneficial for them, can increase the number of short local journeys taken by foot, bike, or other form of active travel.

Importantly, our findings suggest that alongside motivational messages that aim to educate and persuade people about the benefits of active travel for themselves, it is also important that, where possible, we help support and enable people to make a commitment to swap one or more journeys and plan how to overcome any barriers or obstacles that may get in the way of them achieving that goal.

The effectiveness of any intervention depends not only on its content, but also on the way it is delivered and engaged with. We have shown that the motivational and goal setting/ planning intervention had the most impact on active travel among those who adhered to the intervention instructions. This emphasises the importance of not only ensuring that the *content* of the intervention addresses the identified barriers and enablers for the target behaviour, but also ensuring that the intervention *reaches* the target groups and that individuals *engage* with it.

Although the trial was delivered online, the intervention content could be delivered through one or more alternative methods, include face-to-face discussion, printed materials, online (website, social media) or via an app. It is likely that different population groups may prefer different modes of delivery.

The trial was run over a short time period, so it is not known how long these positive effects might last. Further research should explore the longevity of these effects and whether the initial intervention could be supplemented by boosters or by other behavioural-science informed intervention techniques (e.g., rewards). Further research should also explore the needs and preferences of different population groups so the intervention and its mode of delivery can be appropriately adapted.



Limitations and recommendations for future research

There were some limitations to this trial, including: a short follow-up time period and the use of self-report measures, including a self-report measure to assess active travel. However, while self-report measures can overestimate physical activity³⁷ this would have likely impacted participants in all three conditions.

The vast majority of the sample were of white ethnicity, with more than half of the sample educated to degree level or above, in full-time employment, and having an annual income \geq £30,000 which likely resulted from the methods of recruitment³⁸. We recommend that future research should explore the specific barriers and facilitators for active travel among different population or community groups to ensure that interventions are developed to meet their needs and priorities.

This trial was run over a short time period and therefore it is unknown how long these positive effects on active travel last. Future research should explore the longevity of these effects. Indeed, a meta-analysis of 155 studies showed that goal setting is effective in the short-medium term, but more studies are needed to look at the longevity of effects more than 12 months later³⁹. One potential strategy to increase the longevity of effects are booster interventions; a study in fruit and vegetable consumption found that making a plan to increase fruit and vegetable consumption worked for 3-months but not at 6-months, unless there was a second intervention to encourage planning at 3-months which meant that the effect was longer lasting and boosted⁴⁰.

One factor that predicts the longevity of behavioural changes is the satisfaction that people have with the outcomes⁴¹. Hopefully people enjoyed their active travel journeys and this might encourage them to continue, but other BCTs such as rewards could be used to help – for example small rewards for journeys that are active – and there are a number of smartphone apps that do this – whether its virtual badges or points that can be collected up for vouchers to buy a beverage or similar.

One of the reasons we delivered this intervention online was the practicality of delivering a trial in a short-time period of time, but these BCTs could be delivered in other ways (on paper, via a website or smartphone app or through face-to-face coaching) and would likely be equally effective and this may enable the interventions to be accessed by different populations.



37 Dyrstad, S. M., Hansen, B. H., Holme, I. M., & Anderssen, S. A. (2014). Comparison of self-reported versus accelerometer-measured physical activity. *Med Sci Sports Exerc*, 46(1), 99-106.

38 Benedict, C., Hahn, A. L., Diefenbach, M. A., & Ford, J. S. (2019). Recruitment via social media: advantages and potential biases. *Digital health*, 5, 2055207619867223.

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40 Chapman, J., & Armitage, C. J. (2010). Evidence that boosters augment the long-term impact of implementation intentions on fruit and vegetable intake. *Psychology and Health*, 25(3), 365-381.

41 Kwasnicka, D., Dombrowski, S. U., White, M., & Sniehotta, F. (2016). Theoretical explanations for maintenance of behaviour change: a systematic review of behaviour theories. *Health psychology review*, 10(3), 277-296.

How the findings will be used

The findings will be used across the six local authorities to support the application of behavioural science to increase active travel. This includes:

- Working with local stakeholders to target the identified barriers and facilitators for active travel and to use the insights to inform and shape ongoing projects to support active travel across the Yorkshire and Humber regions. For example:
 - In Bradford, Doncaster, North East Lincolnshire, Sheffield, and Rotherham, the insights and learnings will be shared with Active Travel and Active Environments Stakeholder groups for them to consider how and where the data may be useful. This includes ongoing work on Climate Change and Transport Planning.
 - In Bradford, the findings will feed into and add value to the three existing Active Travel Neighbourhoods (ATNs) as well as three further ATNs in the early stages of development
 - In Sheffield, the findings will be used to add value to ongoing schemes to develop active travel infrastructure and low traffic neighbourhoods and where relevant, initiatives to promote active school journeys.
- Using the findings to support future bids, inform current projects, and guide commissioning for wider behavioural research studies. This includes exploring how motivational messaging and individualised goal setting/ planning can be integrated into existing interventions and projects for other behaviour change challenges. For example:
 - In Bradford, they will be exploring how they can add individualised goal setting to their existing wellbeing platforms (e.g., their Living Well website⁴²).

- Share learnings with colleagues within the councils. For example:
 - Bradford, Sheffield, and Rotherham have plans to set up learning sessions within the councils to discuss the methodology used in this trial. This will help more public health colleagues and colleagues working on active travel or wider climate change work, to have the confidence and build their capability to use behavioural science within their work.



42 <https://mylivingwell.co.uk>

Next steps as a consortium

An important outcome from this project was building and supporting capacity within local authorities to undertake behavioural science research using appropriate methodologies. The wider learnings from this trial, including the importance of specifying and operationalising the target behaviour, using the COM-B model to identify the barriers and facilitators for the target behaviour, and using behavioural science to design and test interventions that address those identified barriers and facilitators, will be taken forward within the local authorities for supporting active travel as well as other behaviour change challenges. We plan to continue working with colleagues across the consortium in order to build on the network that was created. We will do this by:

- Continuing to work together within this network and to link it to our other networks, such as the Regional Yorkshire and Humber Public Health Behavioural Science Network and Hub⁴³ and wider, via our links with the national Behavioural Science and Public Health Network⁴⁴.
- To continue carrying out work using Microsoft Teams. Meeting, planning, and carrying out the trial this way has been hugely helpful in getting this project completed so quickly. It allowed us to regularly meet with colleagues from other areas in order to share insight, learning, and resources.
- We collected a rich dataset, and we will continue analysing the data to find out how we can help improve and encourage active travel for our residents, as well as apply these insights to our work on climate change and transport. We plan to continue working together on this and other relevant pieces of work, in order to use behavioural science in other projects to achieve more accurate and relevant results.
- We would encourage other Councils to get involved in this form of consortium approach – it not only offers the opportunity to undertake a large-scale behavioural science project – but also provides an opportunity to build capacity within local authorities to undertake behavioural science research and to share learnings and resources with other local authorities.



⁴³ <https://www.yhphnetwork.co.uk/links-and-resources/behavioural-science-hub-yh>

⁴⁴ <https://www.bsphn.org.uk>

Reflections, learnings, and challenges

Importance of clearly defining the target behaviour

There are a range of behaviours involved in active travel and this project emphasised the importance of clearly defining the problem in behavioural terms. This included defining what needs to change in whom, where, when, and for how long. Having a clear definition of the behaviour we wanted to change meant that we were able to measure the target behaviour, identify barriers and facilitators associated with the target behaviour, and identify evidence-based techniques and solutions that have the potential to address those identified barriers and facilitators. This systematic approach also helped ensure that the project kept within scope and remained focused on the identified behavioural challenge. It was also important to have a clear definition of the target behaviour that was relevant and applicable to all six local authorities, so that it aligned with each of their current active travel priorities and activities.

Importance of keeping project within practical boundaries

We drew upon the APEASE criteria throughout this project to ensure that the barriers and facilitators would be feasible and practical to address within this project, given time, resource, and project constraints, and that the planned intervention content and mode of delivery would be feasible, practical, and acceptable to deliver across all of the six local authorities. This approach was invaluable to ensuring the project remained on time and to budget, whilst meeting all project outcomes and requirements.

Impact of COVID-19

One of the key challenges faced by this project was the impact of COVID-19. We know that people have changed the way they travel as a result of COVID-19, with public transport usage reduced throughout the pandemic as well as the wider impact of lockdowns, safety concerns, and working from home on people's travel-related behaviour. In December 2021 we were faced with the Omicron wave and introduction of Plan B restrictions (i.e., people who could were advised to work from home), which did not end until the end of January 2022. Furthermore, some people completing the trial may have been self-isolating, so we had to carefully plan and shape the trial around these challenges. This included delivering the trial online and including questions measuring recent/ current self-isolation. However, delivering the trial online was a useful learning outcome for local authorities, as it demonstrated what is possible using this mode of delivery and suggested possible wider uses of this type of intervention.



Collaboration with local authorities and need for specialist expertise

Designing, delivering, and reporting a trial within a 6-month time period was a major challenge, and limited capacity meant it was difficult for all stakeholders to engage in the study fully. It was important to ensure that all colleagues involved in the project were involved from the start and fully aware of the ask and timescales, including colleagues from the wider team such as communication officers who were key people to support participant recruitment. It was easier to engage stakeholders if local authorities already had an established active travel group and thus had existing relationships with stakeholders.

It was important to have regular and inclusive collaboration meetings on Microsoft Teams where the group (and any other relevant stakeholders) have the opportunity to discuss ideas, share insights, and map resources across the consortium.

The consortium approach provided an opportunity for local authorities to create a regional approach to a shared behavioural challenge and to provide regular networking and collaboration on a focused topic.

Working with behavioural science experts provided an opportunity to learn more about research methods and behavioural science, as well as help build and shape the capacity of local authorities and wider stakeholders to undertake behavioural science projects in the future. For example, Rotherham are planning to use the training documents and videos provided by CeBSAP to assist their colleagues with future behavioural science projects.

Timescale

The 6-month timescale was challenging, and it was difficult to plan, deliver, and collate the findings in a short space of time. A longer timescale would have allowed more time for targeted work to engage with and recruit particular demographic groups currently under-represented in the samples recruited.



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