DecarboN8

Place-based decarbonisation for transport

VITALISE - Visualising actIve TrAveL wIth pakiStani famiIiEs in Bradford

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Executive summary

Aims

Millions more journeys need to be walked or cycled (active travel) to meet the UK's Net Zero emissions target by 2050. However, across the UK, we do not yet walk and cycle enough short trips to make a difference. There are several reasons including many people find it difficult to get out of the habit of using a car for every journey, there are not enough safe routes for people to use for walking or cycling and lower participation within some communities. This document reports on a Photovoice (PV) based Participatory Action Research study designed to investigate barriers to active travel in Bradford's Pakistani heritage community. It is also aimed to investigate the use of PV to encourage critical consciousness of active travel (AT).

Method

The study recruited eight families from different areas of Bradford. The families were asked to reflect on everyday journeys by discussing photos they take of what matters to them in the travel environment, good and bad. Narrative data in the form of photos and interview transcripts were inductively analysed using Thematic Analysis. The analysis suggested key barriers to walking and cycling could be grouped into four main categories: personal factors, social factors and those related to the local and wider environment.

Findings

Cognitive biases and social norms are found to influence people's travel choices. People find it difficult to break the car use habit and weigh-off its benefits with short-term rewards including protection against cold weather, convenience, and the perception of saving time. For the older generation participants, lack of motivation could be an additional barrier due to their health condition. Within the community set-up, the study finds both men and women have their vulnerabilities. For women, lack of community support could be the biggest challenge where the fear of being judged could dissuade them from walking and cycling independently. On contrary, men were found not to be subjected to these judgments but are likely to adopt and invest in unsustainable active travel behaviours under peer pressure. Despite the participants' perception that the younger generation is more keen on fitness, the study found a growing concern that teenage boys will likely get into a culture of owning fancy cars. The analysis highlighted local barriers in the environment, including fly-tipping, heavy traffic and poor driving culture, and lack of active travel infrastructure, are some of the challenges which need addressing especially in low-income areas. The strategy of having cycle lanes next to car lanes is not likely to work unless these lanes are segregated from traffic. The report concludes that the Pakistani community is motivated to bring lifestyle changes and will be more receptive to walking as it is more culturally accepted compared to cycling. Based on participants' reflection and feedback, this report concludes participatory techniques like Photovoice offer an opportunity to break the status quo for those who are struggling to make a change by raising their social consciousness.

Summary of findings

The role of societal and behaviour change in meeting the UK's Net Zero emissions target by 2050 is fundamental. To achieve this, millions more journeys need to be walked or cycled (active travel). However, across the UK, we do not yet walk and cycle enough short trips to make a difference. There are several reasons including many people find it difficult to get out of the habit of using a car for every journey, there are not enough safe routes for people to use for walking or cycling and lower participation within some communities. To support the net-zero drive, the role of a place-based approach to strengthening extensive collaboration between local stakeholders is required.

This document reports on a Photovoice (PV) based Participatory Action Research study designed to investigate barriers to active travel in Bradford's Pakistani heritage community. It is also aimed to investigate the use of PV to encourage critical consciousness of active travel (AT). The study recruited eight families from different areas of Bradford. The families were asked to reflect on everyday journeys by discussing photos they take of what matters to them in the travel environment, good and bad. Hence, allowing them to speak up and voice opinions about the challenges they perceive and identify solutions which they consider can best match their social and cultural needs. Narrative data in the form of photos and interview transcripts were inductively analysed using Thematic Analysis. The analysis suggested key barriers to walking and cycling could be grouped into four main categories: personal factors, social factors and those related to the local and wider environment. These themes were interpreted with the help of Photos and extracted excerpts from interviews.

Cognitive biases and social norms are found to influence people's travel choices. People find it difficult to break the car use habit and weigh-off its benefits with short-term rewards including protection against cold weather, convenience, and the perception of saving time. For the older generation participants, lack of motivation could be an additional barrier due to their health condition. Considering the economic pressure and family and work responsibilities, opting for walking and cycling may not be considered practical unless people are incentivised for making these changes. One such incentive would be overcoming social and cultural barriers to change. Countering stereotyping through integrated inclusive awareness campaigns could prove beneficial as many of the community members may perceive cycling as an activity for healthy, fit, high-income White people. Within the community set-up, the study finds both men and women have their vulnerabilities. For women, lack of community support could be the biggest challenge where the fear of being judged could dissuade them from walking and cycling independently. On contrary, men were found not to be subjected to these judgments but are likely to adopt and invest in unsustainable active travel behaviours under peer pressure. Despite the participants' perception that the younger generation is more keen on fitness and less concerned or influenced by social judgments, it was found there is a growing concern that teenage boys will likely get into a culture of owning fancy cars. The city is famous for its massive car culture (e.g., see Telegraph, 2020; BBC, 2019; Whittaker, 2017). There is a potential of driving recklessly due to a lack of awareness and loss of other leisure activities for young boys

in Bradford. The analysis highlighted local barriers in the environment, including fly-tipping, heavy traffic and poor driving culture, and lack of active travel infrastructure, are some of the challenges which need addressing especially in low-income areas. In general, there is a perception that Bradford as a city isn't safe. Based on identified barriers, participating families are classified into two groups i.e., likely to AT and less likely to AT.

The report concludes that the Pakistani community is motivated to bring lifestyle changes and will be more receptive to walking as it is more culturally accepted compared to cycling. Hence, this report recommends transforming (low-income) neighbourhoods near the city centre has the potential to encourage people to actively travel along with introducing peer support in the form of local walking clubs and cycle training programmes. Some key suggestions include improving street lighting, stricter enforcement to control fly-tipping and introducing segregated and well-connected active travel infrastructure in the city. The strategy of having cycle lanes next to car lanes is not likely to work unless these lanes are segregated from traffic e.g., by planting to avoid traffic related air pollution. Currently, according to participants, the lanes are considered a safety risk, adding pressure to the city's traffic, and exposing people to air pollution. Segregation may also attract less confident cyclists and help address potential social barriers experienced by some groups such as women concerned about men staring. The role of peer support is fundamental to support people to make use of available facilities and enable change. The participants expressed living in proximity to White population groups influence active travel behaviours. Hence, the study's key recommendation is to design activities that foster cohesion with the White community and promote local role models. Asian activists (especially women) can play a vital role as the study found that compared to men, women are often more active and looking for opportunities to improve their and their family lifestyles.

Based on participants' reflection and feedback, this report concludes participatory techniques like Photovoice offer an opportunity to break the status quo for those who are struggling to make a change by raising their social consciousness. The technique can be usefully employed as an intervention tool to raise cognitive consciousness at an individual level. In parallel, the technique also provides a unique opportunity to its participants to rethink, examine and analyze issues at various other levels that could discourage them to walk or cycle. However, there is a need for more research about utilising PV as a widespread engagement tool at public level and its impact for sustaining change over a longer period. The findings of the study are shared with decision-makers at various dissemination events.

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1 Introduction/background

Background

The UK's progress to achieve its sixth carbon budget is far from the net-zero trajectory. With co-benefits of improving public health, the role of active travel modes as zero-carbon alternatives is identified as ten times more important than electric cars especially, in the next five years (Brand et al., 2021). The government envisioned walking and cycling (active travel[1]) to be the natural choices for shorter journeys by 2040. However, it is struggling to have a fast-enough impact despite investing in infrastructure. A recurring challenge has been the government's difficulty to engage with the Black, Asian and Minority Ethnic groups (BAME) groups in the uptake of active travel. There seems to be less utilisation of active travel infrastructure by people from the BAME backgrounds in comparison to their White counterparts. A recent report shows large unmet demand for cycling from ethnic minority and disadvantaged groups living in major UK cities and urban regions. It informs that 74 percent of people from BAME backgrounds are currently not cycling, even though 55 percent of people in these groups state that they would like to start, compares to 37% of White people (Moore, 2020; Burns et al., 2020). Despite some widely known barriers to active travel e.g., lack of confidence in skills to cycle or a lack of facilities. It is still not clear what is needed to enable and sustain interest in it.

The role of placed-based, community-centred, participatory approaches to promote AT

This project is developed on the rationale, as advised by the UK's Climate Change Committee and Public Health England, that *widespread engagement* by bringing higher levels of societal and behavioural changes is required to be on course for the net-zero goal and to meet the government's vision to make England an active travel nation.

Achievement of high Societal Readiness Levels depends upon engagement with diverse stakeholders and translation of insight into synchronised technical, regulatory, policy, and social innovation. This project is designed on these guiding principles. For direct engagement of stakeholders, the project has adopted a place-based, community-centred, Participatory Action Research approach in which academics and those for whom the research results are intended are proposed to collaborate closely in all stages of the research.

To support the net-zero drive, the role of place-based decarbonisation is recognised as vital (Marsden et al., 2020). There is a long-standing debate that motivational strategies alone are insufficient. Hence, a focus on contextual environmental issues related to targeted inactive groups could prove more beneficial (Lumsdon and Mitchell, 1999). The city of Bradford in the West Yorkshire region offers a unique opportunity to understand the BAME perspective on active travel and what is needed to be done to make change happen, mainly because:

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[1] For this research, the term *active travel* is used to describe walking/cycling only.

- Car ownership is higher than the national average ((1.9 vs 1.7) (Kilner, 2020)
- Uptake of low emission vehicles is still less than half the national average (Jagger, 2021)
- 38% of Bradford's citizens are living dangerously inactive lifestyles (PHE, 2016a; Hirst, 2020)
- Less than 5% of the population cycle at least once a week, the lowest in the country (DfT, 2018)
- Bradford is a young city (24% under 16), but many young people are not active enough (Bradford Council, 2019)
- Bradford district has 32.6% of the population from BAME backgrounds. It has the largest proportion of people of Pakistani origin (20%) in England (Bradford Council, 2017)

BAME communities are all different so, in order not to have over-generalised results in developing an effective engagement method, the project focuses on Pakistani heritage families, given the small sample size. Not only because this is the largest of Bradford's BAME communities (100,000 people) but low levels of physical activity are more pronounced among UK South Asians than the general population. For example, only 14% of Pakistani women meet the recommended physical activity levels (PHE, 2016b). hence, the project aims to assess the potential of this place-based case study approach to persuade and make local communities interested in active travel through Participatory Action Research. This is done by gauging (i) community members' perspectives and opinions about AT (or any likely objections/acceptance) towards different active travel solutions in place and (ii) informing policy makers about these results.

Participatory approaches are largely missing in the UK, especially within the domain of transport and behaviour change. One of the current biggest debates is about how to engage with stakeholders and change stories and narratives in communities and at the policy table. For example, the Government's recent Active Travel Fund, the Climate Change Committee (CCC) and the Cycling and Walking Investment Strategy all recommend understanding behaviour and engaging with (marginalised) communities. Whilst current data on diversity within AT indicates persistent inequalities across gender, age, and socio-demographic status, there is little understanding of individuals' and communities' lived experiences in this context. Hence, the project attempted to encourage participants to open up about the challenges they perceive and identify solutions which they consider can best match their social and cultural needs through Photovoice.

Photovoice (PV) is a participatory research methodology that empowers participants to document their perceptions and understandings of a particular issue using visual images. Using a family-centred engagement approach, the project has attempted to capture a multigenerational perspective. United Nations (2009) directs that children have the right to express their views and participate in matters affecting them. The project acknowledges that placing children and their families at the heart of designing and implementing any initiative has immense potential to deliver a step-change in the UK transport system. Physical activity declines with age and parenthood. Hence, the

project attempted to engage a mix of intergenerational families to explore and share their perspectives with us on issues related to active travel in their community with the help of the lens of their camera (i.e., Photovoice).

In the light of the above discussion, the purpose of the project VITALISE is to address the key question i.e. How '*widespread engagement*' (i.e., characterised by higher levels of societal and behavioural changes) can be achieved in the UK to be on course for net-zero goal on road surface transport, and to meet the government's vision to make England an active travel nation? The overall aim of the project is to integrate and evaluate the effectiveness of placed-based and community-centred research intervention to upscale Active Travel (AT) in BAME communities through participatory visual engagement activities. The specific research questions are:

- What are the barriers to walking and cycling in Bradford's Pakistani heritage community?
- Can the use of the Photovoice method encourage a critical consciousness about Active Travel (AT)?

2 Methodology

This section explains the research approach and analytical techniques adopted to investigate the research questions.

2.1 The engagement framework

To meet the research aim, active roles are assigned to key stakeholders by identifying (i) University researchers as *research activists; co-designing and implementing engagement framework*, (ii) participating community members as *partners; co-creating knowledge* (about barriers and enablers to active travel) and (iii) local, regional, and national practitioners and activists as *collaborators; co-building political and policy advocacy.* Based on these identified roles, engagement opportunities among relevant stakeholders are designed in the project as displayed in Figure *1*.
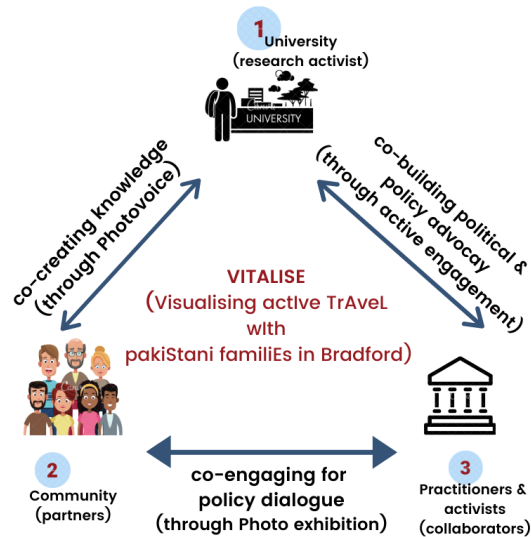
Figure 1: Participatory research approach and the roles of key stakeholders

Planning and design of the project activities are carried out with the help of *collaborators* including the City of Bradford Metropolitan District Council, Department for Transport (DfT), Transport for the North (TfN), and Capital of Cycling. The project involved *collaborators* from its early inception and took their feedback on board before submitting the project proposal, during the project to plan and design data collection activities with *partners* and reached for feedback and input at the final stage of the project. It was also proposed to co-engage *collaborators* and community *partners* in policy dialogue at the dissemination stage through a photo exhibition. However, due to COVID restrictions, this activity couldn't take place. The next section provides an overview of data collection activities with *partners*.

2.2 The research approach

The research has adopted a qualitative phenomenology research design approach. The approach allows to investigate the everyday experiences of people (Delve and Limpaecher, 2022) through *inductive, qualitative methods such as interviews, discussions and participant observation, and representing it from the perspective of the research participant* (Lester, 1999). The approach is considered particularly useful when aim of research is to study what an experience means to a particular group of people (Grossoehme, 2014) in this case Pakistani-heritage people. Hence, using a placed-based, family centred engagement approach, the study used the Photovoice technique (stage one) and semi-structured interviews (stage two) to present the perspective of Pakistani heritage families living in Bradford on walking and cycling. Both techniques complemented each other and generated broad ranging qualitative data that strengthened the understanding of barriers related to walking and cycling.

Participants

In total, eight households (17 participants) from different areas of Bradford with varying demographics (ten females and seven males; three teenagers, eleven young and middle-aged adults and three older adults) were recruited with the help of using social

media pages and establishing direct contact with local community centres. It was required to meet the following criteria.

- Should be a Pakistani family (encouraged multi-generational/young family)
- Use 'car' as the main mode of transport
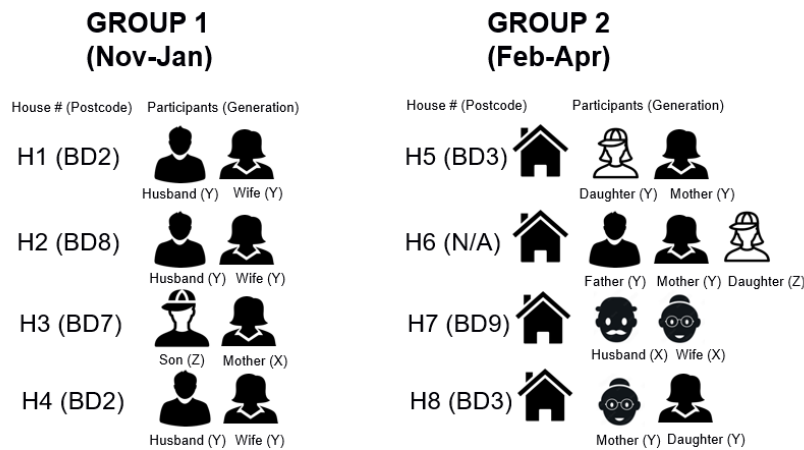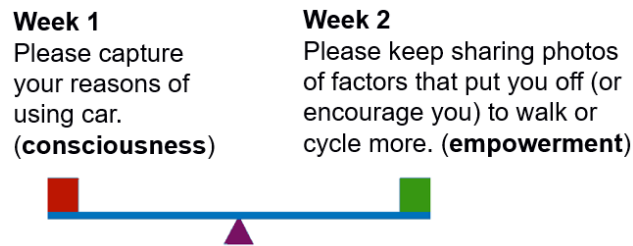- Interested in taking photos

Figure 2: Participating families recruited in the study and their composition

Those who expressed interest were contacted via email or phone. Each participating household was given a number for identification purposes. For example, House One is referred to as H1 in this report. Recruitment was completed in two phases. In phase one, four households took part in the study between November-January, and the second cohort participated from February to April Figure *2* represents the composition of participating families. Participant Information sheet and a brief about the project were given before data collection was started to allow participants to assimilate information and engaged in the project effectively. The study was reviewed and approved by the University of Leeds Research Ethics Committee. COVID19 protocols were maintained throughout data collection.

Data collection

For each participating household, data is collected in two stages. In *stage one*, participants were given two weeks to reflect on their everyday journeys by taking photos of what matters to them in the travel environment, good and bad as shown in Figure 3. The week one prompt suggested participating to capture their reasons for using a car for one whole week. The intent was to increase the critical consciousness of participants by making them think about their everyday car use. In week two, participants were further guided to look around and gain a deeper understanding of the factors that influence their walking and/or cycling decisions. The intent was to empower participants and give them an opportunity to highlight barriers to active travel. Participants shared the photos through WhatsApp.

Week 1
Please capture
your reasons of
using car.
(**consciousness**)

Week 2
Please keep sharing photos
of factors that put you off (or
encourage you) to walk or
cycle more. (**empowerment**)

Figure 3: Prompts use to capture participants' consciousness and empowerment through PV - stage one of data collection

After taking photos for two weeks, interviews were scheduled with participating families. To minimise the impact of positionality, semi-structured open-ended interviews were conducted. The technique allows participants to share their personal experiences, thoughts, and experiences that researcher may not have initially anticipated or accounted for (Berg and Lune, 2014). Six of the interviews were conducted online via TEAMS and two were arranged in-person considering participants' preferences and availability. House 5 did not consent to record the interview and a female member of House 7 didn't participate in the interview. Hence, the data generated by these participants in stage one in form of photos is only used to represent their perspective.

The interview guide was broadly directed by the social psychological models of behaviours that explain why we do what we do. According to behavioural sciences, key factors that influence people's behaviour can be identified as personal ('micro') factors, social ('meso') factors, local ('exo') and wider ('macro') environmental factors (COI, 2007). This framework is used as a guide to develop a range of open-ended interview questions. In the beginning, general shorter questions were asked to build the momentum for discussion. This was then followed by more specific 'content' questions to investigate the factors that possibly influence participants' behaviours along with photos shared by them. In the end, concluding questions were asked to broadly cover participants' recommendations to increase AT in Bradford and their feedback about the project. As the nature of the interview was semi-structured, the general approach adopted during the interview was to let the interviewee talk in any direction first. However, prompts and native language (Urdu) were used to probe participants if they struggle to respond to any questions and to facilitate smooth and exhaustive discussion. Interviews lasted between 45 to 70 minutes. Participants were also asked to complete a feedback survey after the interviews.

2.3 Data analyses

The data generated through PV and interviews are analysed collectively to explain the two above stated research questions. Participants were first asked to interpret their taken photos using the PHOTO[2] technique (for details see Hussey, 2006). The

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[2] PHOTO acronym stands for:
1. Describe your **P**icture?;
2. What is **H**appening in your picture?
3. Why did you take a picture **O**f this?
4. What does this picture **T**ell us about your life?
5. How can this picture provide **O**pportunities for us to improve life?

technique served to contextualise the taken photos and helped participants label their taken photos accordingly. Later, Thematic Analysis is performed on the data. The analysis is regarded as a typical and most suited qualitative analysis method for PV and interview data (Capous-Desyllas and Bromfield, 2018). It is described as a method of "*identifying, analyzing, and reporting patterns (themes) within data*" (Braun and Clarke, 2006). using NVIVO software, a five-step model including compiling, disassembling, reassembling, interpreting, and concluding is followed for analysis. To sort and index the data at manageable levels, interviews were first transcribed (*compiling*). The sorted data was then organised into meaningful groups with the help of In Vivo coding (*disassembling*). This coding technique "uses verbatim words or phrases from the participants' narrative to describe the unit of data" Castleberry and Nolen (2018). As the aim of the study is to co-create knowledge with the help of partners, this coding technique was considered most appropriate as it provides an opportunity to highlight participants' voices. Codes sharing similar concepts were then mapped and grouped to create superordinate themes and sub-themes (*reassembling*). Themes represent patterns in the codes. These were used to represent patterns in the code and were guided by the research questions framework. After reassembling the data, the identified themes were then interpreted with the help of extracted excerpts (*interpretation*). Photos generated through PV were also categorised into one of the identified themes and used for their empirical illustration and verification. The interpretation helped lead to an analytical conclusion to research questions (*conclusion*).

To present the findings, thematic (concept) maps and photo collages are used as visual tools. The visualisation is also used to represent hierarchies and connections between superordinate themes, sub-themes, and codes and to highlight multigenerational or gender-based differences. Hence, the identified themes are described and interpreted in relation to the background context of the participants. For quality assurance purposes, the results were shared with the researcher's mentor and collaborators. The feedback provided was used to further refine and improve the illustration of established themes.

3. Results and discussion

The analysis suggested key barriers to walking and cycling identified by the participants could be grouped into four main categories: personal factors, social factors and those related to the local and wider environment (Figure 4). In this section, the identified barriers are interpreted with the help of Photos and extracted excerpts from interviews. The analyses also suggested understanding these barriers in the context of multigeneration needs including the first generation of British Pakistanis (Baby Boomer: 1946 -1964 and Generation X: 1965-1980), Generation Y/Millennials (1981-1996) and Generation Z (1997-2012) and Generation Alpha (2010+). At the

end, the section discusses opportunities to increase walking and cycling in the community and reviews the utility of the PV method as an intervention tool.
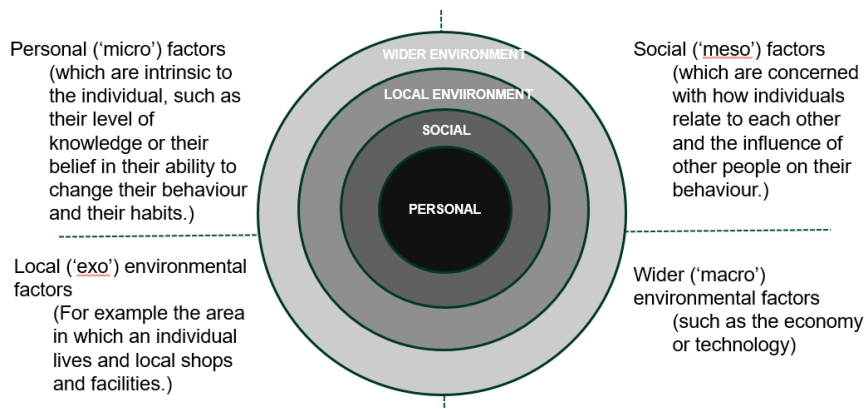

Personal ('micro') factors (which are intrinsic to the individual, such as their level of knowledge or their belief in their ability to change their behaviour and their habits.)

Local ('exo') environmental factors (For example the area in which an individual lives and local shops and facilities.)

Social ('meso') factors (which are concerned with how individuals relate to each other and the influence of other people on their behaviour.)

Wider ('macro') environmental factors (such as the economy or technology)

Figure 4: Key barriers to active travel

3.1 Personal Factors

The first level-one theme represents personal barriers to walking and cycling and car use habits. Personal factors are considered intrinsic to the individual (COI, 2007). The theme highlights seven key barriers that can hinder the community's ability to change their behaviour. These include *biases towards car use*, *attitudes and perceptions* and *past experiences* related to walking and cycling on roads. *Lack of knowledge and awareness* and a sense of *agency, self-efficacy* over walking in general and cycling along with *lack of motivation* are identified as some other key factors influencing everyday travel choices among the community. These identified barriers are discussed in the sections below. (Figure 5).
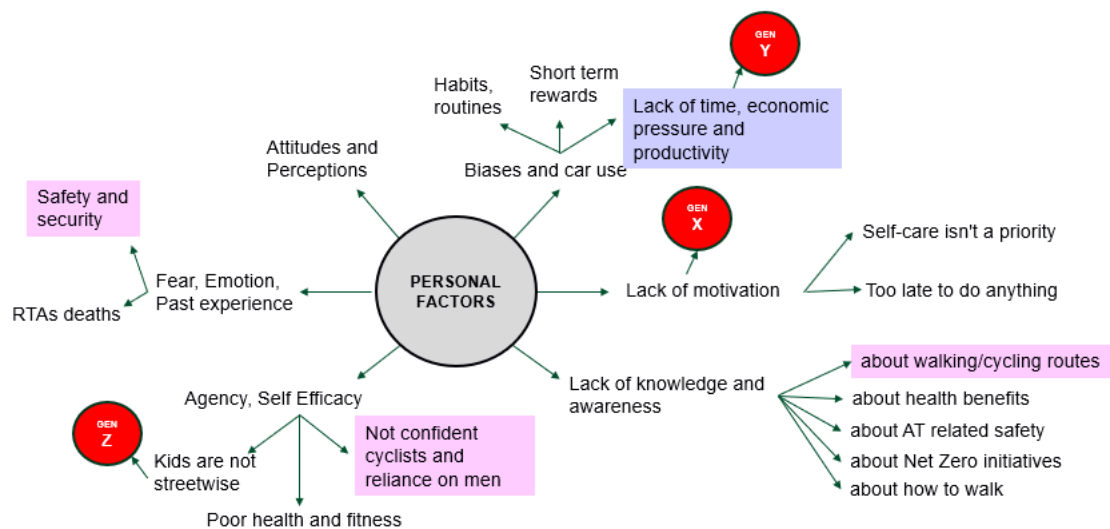

Figure 5: Personal barriers to active travel

3.1.1 Biases, perceptions, past experiences, and car use

Personal car use is reported to be the most preferred mode choice for everyday journeys by the participants. The main **biases** that explained high car use among the community are *habitual practices* that are interconnected with **attitudes *and* perceptions** and *lack of time* and *short-term rewards* car journeys can offer. The finding is in line with the current literature on 'car dependence' and 'active commuting'.

A great amount of evidence suggests that habits play a vital role in influencing transport behaviours. Hence, a transition towards sustainable behaviours could not be achieved without adequately understanding the role of habits in forming car dependence (e.g., Marechal, 2018). According to participants, cars offer them convenience and living in an economically productive country where both husbands and wife need to work, they need to make good use of time. As '*it's quicker*' (H6/GEN Y/FM) and because '*you've got two days, Saturday and Sunday, to do these things in. You can't do things at a leisure and the car is outside on the drive so it's a convenience*' (H7/GEN X/M). There is evidence in the literature that suggests busyness can lead to bad decisions (Schulte, 2019). However, the feeling of being busy may not always be true (Burkeman, 2016). This is particularly important in the context of transport related decisions.

Participants acknowledged that at times they know they could walk for shorter trips in their local areas if they wanted to. However, they preferred to take their cars simply '*out of ease and comfort*' (H4/GEN Y/FM). They said '*we have become very pampered. We have become lazy*' (H3/GEN X/FM). Hence, there is a perception that the car offers the most effective way of utilising time productively and habits, short-term rewards are the main reasons for this high dependence.

> *You know it's getting a new car, I've paid for this so I might as well use it. I'm going to drive to here. It's quicker...You'll find that you know, in everything we do, we're becoming very impatient as people...Something takes longer to load and you're like oh, it's taking so long...We're going to want to be able to do our tasks faster than normal so a car is always the quickest way to do something, and I feel that that is one of the main reasons why people will just want to get in a car and go because you're there. You've saved time, oh I don't have time for this, I need to do that. Or I want to come back and have a rest because I've got something busy later on, I'll just get in a car and go. (H1/M/GEN Y)*

Millennials are the most impacted by ***time constraints*** as they must meet both work and family responsibilities. Participants said the main reasons they don't have time to walk as '*sometimes you are rushing late in the morning for work*' (H8/GENY/FM) and as soon as they finish work, they must be in another part of Bradford to pick up their kids. Talking about daily commuting, one of the participants said, '*I live in BD8, I work in BD5 and my son's school's in BD7, three different postcodes... I don't have time for this* (H2/GEN Y/FM). Literature on active commuting highlights that neighbourhoods in the era of industrial growth are designed and built on the principles of universal car access. Hence, cutting car use, especially for school runs requires feasible commuting distances and would take much more than educating children and parents (Noonan, 2020). If more feasible commuting distances were available, families would find this useful especially larger size as parents spend a lot of time on the school run and could possibly incorporate more active travel.

The study found that millennial men, compared to women are less active physically. Female participants brought this topic several times into discussion in the context of their husbands or sons. While talking about empty cycle lanes in Bradford, one of the participants said, '*I am thinking okay, if the females are not cycling why aren't the*

males cycling? Why are they not using these erm opportunities and cycle lanes' (H8/ GEN Y/FM)? Another woman raised similar concerns and said '*They [Women] are ready to change for their health now. It's been too many years they've been battling with depression, high blood pressure, diabetes and it's come to the point where women are now taking it seriously. I mean they are ready to work…but I don't see men, I see women and I do think they are trying*' (H2/GEN Y/FM). One possible explanation for this inactivity is the severe economic pressure men found themselves in as identified in the excerpt below. One of the participants reflected on his friends, his father and his own experiences related to work and family responsibilities and how this has impacted their lifestyle choices.

> *My dad was always fit and into sports and stuff like that…and then he just says, as I got older and I had to work more, work became a priority and family became a priority and everything else took a backseat…. I was always at work…I have friends who don't have you know, such a high paid job, they work in takeaways, they're doing Uber on the side, they're doing this, they're always working for their families and when they come home they say, I just want to go to bed and on the weekend,…I've got to do this, all the things during the week that I could not do and I want some time to rest. (H1/GEN Y/M)*

Compared to millennials, for the older generation, it is reported difficult to break **habits** this group has had for many years. Talking about his parents, one participant said it is more difficult for older people '*because 'it's convenient and they don't walk, and they just feel like get in the car and go*' (H1/GEN Y/M). The study found that the first generation females are the most impacted by these habitual practices. One of the participants said that his wife would never walk, although she has been advised by a doctor to take walk due to her backache and health reasons. He said, '*if we need to visit her sister 5 minutes' walk away, she'll say we'll go on car, I say shall we walk, she'll say no we'll go in the car*' (H7/GEN X/M). Another participant reported a similar issue where she had to take her mother in a car everywhere because her mother '*can't walk as far distances [due to Health reasons] as possible even if it is local*' (H8/GEN Y/FM). Poor health and fitness also lead to a **lack of motivation** to do anything for themselves among the older generation. The theme is identified as an additional barrier governing all their travel choices. Illness and health issues like diabetes, and heart diseases are quite common among the Pakistani community. Participants suggested that the older generation has this mindset that '*…because we already got this [illness], there's no point in doing anything now*' (H1/GEN Y/FM). Self-care is not a priority, and the older generation could perceive taking out time for themselves as an act of selfishness. They would rather use their time taking care of kids, cooking or cleaning houses etc. The issue is not only relevant at the personal but social level (as discussed in section 4.2.2). The discussion about health and fitness and active travel will continue in the subsequent section.

> *You know, we look to our elders who are you know, older and you know, they're unwell, they're on a million tablets. You know, they're not really active at all. It's sat all day, whether it's because of an illness, whether it's because [of habit], it's just an excuse because they've just not done it before and they feel like, oh well, I'm at this age why should I do anything for my health. (H1/FM/GEN Y)*

Lastly, negative **past experience** on road is identified as an important factor keeping participants off from walking on local routes. One participant, who lost her sister in a car accident near her school when she was walking back home, said *'I'm born here but I'm never going to send, I'd be very cautious now to send my son on a walk on his own, you know, after what happened to my sister'* (H2/GEN Y/FM). The other said *'during the daytime, I did get mugged in Bradford on a daytime trip to the dentist and …that has influenced me as well.'* (H4/GEN Y/FM). House 6 also reported horrible death due to a car accident in their neighbourhood which made them worry to choose walking as a commuting option for their children.

3.1.2 Lack of agency, knowledge, motivation, and active travel

This section continues the discussion from above and highlights *lack of agency, self-efficacy*, *knowledge and awareness* and *motivation* are the factors that discourage people from walking and cycling. Participants reflected convenience is not the only reason for having high car dependency, but it is *'also because not relying on your own foot and what if we get too tired'* (H7/GEN X/M). They think it is because of *'weight and illness'* (H1/GEN Y/FM) which is a result of poor diet and lack of physical activity. Participants said that in the Pakistani community *'people are unhealthy because we're dependant on, for instance, transport'* (H8/GEN Y/FM). They said *'there's a direct link between walking and cycling and diet'* (H1/GEN Y/M).

People have poor diet and access to cheap fast food which consequently leads to sedentary lifestyles. Participants raised concerns about obesity and said it is on the rise everywhere. Whereas 20-30 years back, there was no obesity problem within the community. Mothers were found concerned particular for the younger generation. While having a conversation with the mother and son of House 3, the mother said, *'the kids are getting fatter'* (H3/GEN X/FM). The son replied *'No, I'm not'* (H3/GEN Z/M). They mentioned they do clash on food choices. Where mother said *'everywhere you turn there is a bloody takeaway with a free pop and burgers. Well, you know what you can make all of that at home. You know, and then he complains about me cooking'* (H3/GEN X/FM), and son responded lightly, *'she can't cook'* (H3/GEN Z/M).

> *you sit and eat a pizza, you sit and eat some junk food, you're going to feel tired.*
> *You're going to feel like you're not going to walk anyway. You'll be like I'll just sit*
> *here, I'm too tired. So, there is a direct correlation between health and diet*
> *(H1/GEN Y/M)*

While talking about Generation Z, participants said they are more into physical fitness compared to older generations. However, there is also a concern about whether encouraging children to opt for active travel is safe. Talking about the reasons, one father said, *'…nowadays kids are not as streetwise as they used to be, you know. Like we were always in the street, nowadays kids are in the house a lot more. just basically YouTube babies'* (H6/ GEN Y/M). Participants stated that this generation is inactive as they spend most of their time on social media and not outdoor. The situation has been reported to be further exacerbated due to COVID19.

Females' mobility needs and decisions are found to be significantly influenced by their lack of knowledge of local routes, awareness, and self-efficacy. The excerpt below reflects on the situation, and how women's journey and their circumstances over the

years have led to these dependencies. Compared to the first generation, participants said the females of the next generations are doing relatively better. They are changing themselves and receiving support from their spouses and families. Throughout the interviews, many examples of positive spouse influences have surfaced. For instance, one participant mentioned how his encouragement has opened up his wife to walking, '*she's more lazy than me to be fair, I'm very active. I like to think since she's obviously been here, my influence has rubbed off on her so she's enjoying her walks a lot more*' (H4/GEN Y/S). The same experience has been reported by House 1 where the wife pushed her husband into walking. However, in general, women reported to be less aware of the benefits of walking and how to start walking properly and sustain the habit. For instance, while talking about her 57 years old mother and her resistance to walking, one participant mentioned that her mother '*acts like she's 97 and she never walks*' (H1/GEN Y/FM). However, the participant mentioned if she decides to take action what '*she'll do is she'll start walking and she'll walk for 50 minutes and she'll ruin herself, she'll kill herself off for the week and that's it, it's put her off walking*' (H1/GEN Y/FM). Another participant, who regularly takes her walk, mentioned '*I just did not know the routes very well but with him[her male walking partner] because he knows the area better than me, it is safer*' (H3/GEN X/FM).

> *the women have not used this country to their advantage when they first came here. They were too busy being under the thumb of the mother in law and extended family. They never had time for themselves, they never developed. They never learnt new skills and now, later in life, now they've got their health problems, they feel depressed because they don't know English, they don't know how to get around Bradford, they are always relying on a man or a son or somebody. (H2/GEN Y/S)*

For cycling, in the case of men, physical fitness or time could be an issue but in the case of females, lack of confidence can be an additional barrier. The excerpt below is from a participant who knew how to cycle but still won't integrate it into her daily routine.

> *'...cycling I think in our Pakistani community, why the women don't do it, I think as a young child your parents never let you cycle so we are not confident cyclists. So, we are frightened with all of those cars going past ourselves so, we wouldn't cycle. Erm, but I know as a child my mum never got me a bike, to ride outside, girls don't ride bikes, that is what I would get. (H8/GEN Y/FM)*

It is also found there is no integration of AT in everyday journeys. Although some of the participants have the potential and capacity to do that. They are taking other forms of physical activities such as gym, exercise and park walks. For instance, one participant said, '*I do quite a lot of physical work too, [replacing physical activity with active travel] you know with parcels. So I get, I probably get enough exercise anyway*' (H2/GEN Y/M). Another mentioned, '*I've rode from Liverpool to Leeds on the canal*' (H6/GEN Y/M).

Apart from lack of agency, lack of knowledge and awareness have also contributed significantly to dissuading people to opt for sustainable behaviours. Some of the participants, including those who are young and part of an economically active

population, have never experienced the benefits of walking and cycling. For instance, one of the participants said, '*To be honest with you, I've never really tried public transport or even tried walking or cycling.*' (H4/ GEN Y/M). Many others have also mentioned the same thing. For instance, talking about the community, one said '*they don't see the benefit because they've not tried it*' (H1/GEN Y/FM). In general, participants reported that '*a lot of the Asian community are walking outside in the park but I don't know why they are not taking the main routes*' (H8/GEN Y/FM). It is reported that the community, in general, is not aware of net-zero initiatives and what is happening at national or local levels. For instance, when discussing Cycle to Work scheme, one participant said, '*…there's, sometimes you hear like, there's like erm, schemes for more erm, help to cycle or things like that. Why aren't we being made aware more of these sorts of schemes*' (H8/ GEN Y/FM)? While talking about the Clean Air Zone initiative in Bradford, one participant who commute to work in the same area said

> '*I saw the sign but I couldn't make it out. So I know what clean air zone is, but I didn't know the implication. So if I am coming here, what does it mean for me…I don't believe we've had a letter from the council to say that look, this is a clear air zone and it might impact your staff or service users…there should have been some information*' (H6/GEN Y/FM).

To conclude, the theme highlights multiple factors at a personal level that could dissuade people from walking and cycling including car use habits, poor health and fitness and lack of motivation. At the same time, a lack of awareness about the integration of active travel into everyday journeys and its associated benefits is also missing. The community may not be aware of facilities and schemes available locally. Figure 6 below provides a quick overview of these identified issues with the help of the photos taken by participants. It is important to mention that throughout the study, participants frequently expressed positive attitudes and intentions to walk more. They said some of the barriers at a personal level could be overcome simply by **planning better**. As '*walking is just maybe planning a little bit better. So, going forward and then getting out earlier to walk to work so we have less usage of the car*' (H8/GEN Y/FM). GEN Z, they are usually found to be aware of issues related to climate change and sustainable behaviours. However, this generation needs a lot more facilitation and education about transferring their positive attitudes into action safely. To make them streetwise and increase their awareness, one parent suggested '*we need to get out a bit more, so if there were a bit more out and about then you're a bit more comfortable with them handling themselves on the street*' (H6/GEN Y/M). The role of mothers is identified as the most important one to shape the behaviour of the entire house as reflected in the excerpt below.

> the women is the kind of centre of the home. If you tell a woman something that spreads like wildfire. If I'd had anything new, I would tell the kids, I would tell the neighbours, I would tell my mum, I would tell my sister. All those people will then tell other people. (H6/GEN Y/FM)

PERSONAL BARRIERS TO WALKING AND CYCLING

I can easily put them on but I've been working double weekends and I'm just feeling tired and lazy - I know that a walk and some fresh air will relieve the stress, maybe I'll go for a walk when my wife comes back (H1/GEN Y/M)

I was at work and drove to get my lunch instead of walking because of time and sheer laziness (H6/GEN Y/FM)

Drove into work as too early n time consuming (H4/FM/GEN Y)
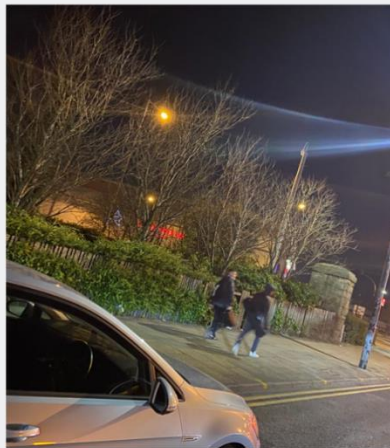
Went by car as it was dark and cold and also we rarely think to go by walking (H6/FM/GEN Z)

Morning Asda carpark shopping less than 10 minutes from home should have walked but drove. Why? Convenient bags to carry (H3/GEN X/FM)

I've had to leave my house without even picking up breakfast dishes it's a mad rush in the morning to get to school and work and I have to drive (H2/FM/GEN Y)

Went to nanos for tea it is a 15min walk but we always go in the car (H4/GEN Y/FM)
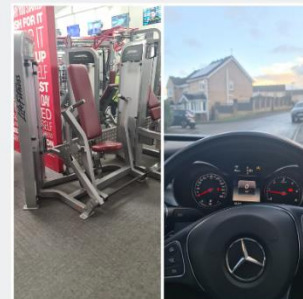
Going to the gym to do some light weights - gym is 30 mins walk away. Working from home so don't have time to gym+walk to and from gym as need to get back and carry on working (H1/GEN Y/M))

Figure 6: Photos highlighting personal barriers to active travel

3.2 Social barriers

The second level-one theme represents social barriers to walking and cycling. These factors, as described by COI (2007), are concerned with how individuals relate to each other and the influence of other people on their behaviour. The theme explains the reasons for *high car use in the community* concerning *social norms* and highlights how *cultural dimensions* and *lack of support from the community* promote this behaviour (Figure 7).
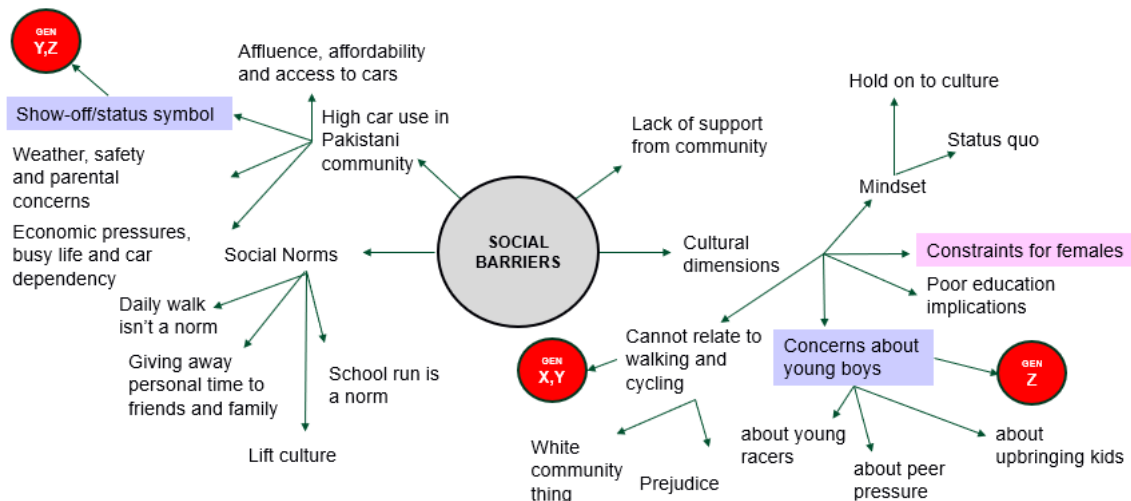

Figure 7: Social barriers to active travel

3.2.1 High car use in Pakistani community

For this project, the car is reported to be the most preferred mode for everyday journeys at both personal and community levels. Apart from busy life and lack of time, affluence and affordability are highlighted as key reasons for high car use among the community members. As noted above, in section 3.1.1, economic pressure and time constraints are one of the key reasons for **high car use in the community**. One participant explains this and said, '*everybody wants to or would like to have a conscience of the environmental impact, but the reality is that society demands people*' (H7/GEN X/M). **Excess money** is identified as an additional factor worsening the situation and making car use an obvious choice for people. Participants were of the view that the community don't really have many financial issues as *'three or four incomes coming into the house and a lot of people are no longer sending money back home. So, the people can afford the bigger houses with three or four fancy cars'* (H3/GEN X/FM). Hence, switching to active modes of travel is not a consideration. While talking about the reasons of people havie more money in Bradford compared to residents of cities like London, one of the participants said that '*there are a lot of circulation of cash [in the city] due to drug money, money laundering and because cost of living is lower…as a lot of people have got freehold properties and families support each other*' (H2/GEN Y/M). However, they have also indicated that under the current financial situation with rising fuel prices and cost of living, the access to vehicles may reduce simply because '*If you can't afford two cars then you will not have two cars*' (H7/GEN X/M).

Participants identified over the years that getting a fancy car within the community has become a **status symbol**. This is also linked to excess money. Cars are used by the

community as '*a sign of people doing well*' (H3/GEN X/FM). However, participants also indicated that the community's outlook is changing and compared to the older generation, '*the urge to have the car is not there*' among younger people. According to participants, '*the perception is changing*' (H7/GEN X/M) mainly because the younger generation is more health conscious. For first generation of Pakistanis in the UK, the ability to buy a car was found to be linked with affordability. Participants said as soon as people could afford a car, they did. The excerpt below highlights the community association with the car over a long period within this context.

they come to this country and… there's no education so firstly the kids that
they're bringing up, they don't educate them properly so they've got nothing
better to do then drive around in that car looking all flash and you know, so it's
not money from hard earned education and work, it's money that's just been
passed over to that son or daughter and they're cruising in their cars, they've got
no worry in the world (H2/GEN Y/S)

Parental concerns are identified as an important dimension linked with high car use in the community. Participants said that being parents we can be overprotective. For instance, one participant said there is '*this inbuilt thing inside us that ooh, you can't go out in the cold, you're going to get ill…if it will take me five minutes to get to school in a car, over 10 minutes walking, well I might as well just do the five minutes quick in the car, the kids won't get ill as well*' (H4/GEN Y/FM). Participants have also expressed their desire to walk more and build it young among their children. While comparing her White neighbour's walking routine, one participant said '*they [neighbour] used to take their daughter up to Morrisons before Covid and we used to say, how does a six-year-old walk all the way to Morrisons and back. Our kids don't do that because our kids are a bit like us in the sense*' (H1/GEN Y/FM). Apart from convenience, for families, it is also a matter of safety. Car is preferred even if it is about going to the corner shop as they consider it safer. One household has highlighted possible concerns related to females walking and cycling families would have including '*some men are standing on the corner, and it is making it [walking and cycling] uncomfortable*' (H8/GEN X/FM). The issue of drug use and drug selling along with men's presence especially in certain areas of Bradford dissuades people especially women from active travel. Consequently, families don't like their females to go alone. One participant explained, '*the men don't like their women going out like that. So, they rather prefer them to go in the car and come back*' (H8/GEN Y/FM). **The area** as a barrier is further discussed in section 3.3.

3.2.2 Norms, culture, and a lack of encouragement from the community
Participants consider using a car for local journeys as a **norm** within the community. Unlike White people where walking locally including dog walks is more likely to be the norm. Participants acknowledged seeing '*far more Pakistani people using the car…the majority of the people that are walking are non-Asian*' (H4/GEN Y/M). They expressed that dropping children to **school** by car is also a norm. One said, '*I run around the area, and I know they [South Asian people] live pretty local, but they still yet bring their cars and drop the children off*' (H4/GEN Y/M). Another mentioned her kids push her to take a car because for them, '*it is like I want to take a car to school like my friends do sort of thing*' (H1/GEN Y/FM). **Offering a lift** is identified as another social norm that

dissuade people from walking. One participant mentioned that her parents usually walk when they visit her. However, she is always geared up to offer them a lift. She said, '*It's a cultural thing, you know, your mother walking and you feel rude not to offer that lift*' (H6/GEN Y/FM)*. Talking about norms, **giving away personal time** to friends and family is also identified as an additional barrier that may limit people to take out time for a walk. Comparing himself to his English friends, one participant said, they invest their time in their mental and physical fitness. Contrary, '*we give time away. If I decided to go for a walk, and my son is here, my walk would take a back seat*' H7/GEN X/M).

Linked with this is not prioritising **self-care,** an issue which surfaced earlier in section 3.1. Within the community, at times it can be perceived as an act of selfishness. As discussed in section 3.1, the phenomena are more prevalent among the older generation, who would like to prioritise their work and family responsibilities and would give away their time. However, those who would like to make a change, may also experience a **lack of encouragement and support** from the community. This is particularly true for women who reported feeling resistance and unwelcoming attitudes if they would like to go alone or walk. One participant, who started her walking journey a couple of years back due to health reasons, shared her experiences of discouragement from her mother and women in the neighbourhood. On contrary, her father and husband encouraged her and supported her. She said, '*My mum would see that as a selfish act to take time out for herself, I think that's exactly in my family where it stems from. Even now like if I'm tired, I'll say like I'm going for a walk and my mum would be like, why are you going for a walk, why don't you sit and rest*' (H1/GEN Y/FM). Females participants felt that they are being judged and reported they wouldn't walk across certain streets where Asian women live as they made them feel as if they are doing something disrespectful. It is worth noting that young or middle-aged women are likely to experience this discouragement more compared to older age females as reflected in the excerpt below.

> *Well, if I was to live in a city in a much more built up Pakistani area, with the same ethnicity basically, I think that people there might feel, at times, maybe feel a bit judged and stuff, maybe that's why they don't walk. Maybe my age range, whilst the older age, so like my husband's parents both go out on daily walks, but because they're in their 50s and 60s it's seen as slightly different isn't it. Because women your age are like oh, what are they going out walking again for, and I think that's, you know, based on that area having mostly Pakistani people in there. (H4/FM/GEN Y)*

Contrary to women, men didn't report being influenced by or experiencing any such judgements. Instead, one said '*if I was to go on my bike, I don't think anyone would care*' (H1/GEN Y/M). The other said, '*I don't care about anything [being judged for walking/cycling] like that*' (H4/GEN Y/M). One participant said, '*Pakistani community does not understand. They say why girls going out why they are riding bikes. They don't understand you have to do something to spend your life meaningfully*' (H8/GEN X/FM). Another participant explained this in the context of which **area** of Bradford you are living in.

*Asian in the BD3 area erm, walking to work on a morning, they don't seem to feel
it's appropriate…some extended family just don't like, they say why are you
walking when you can just get dropped off. Erm, you don't need to walk, things
like that basically or how you are dressed. Your attire. (H8/GEN Y/FM)*

Moving away from Pakistani areas and living in a White or mixed community is identified as one strategy participants would like to adopt to be more active. Participants reported living in a White community could offer them an opportunity to find like-minded people who encourage walking. It is worth noting that all the households in the study appreciated the engagement of the White community in physical activities. Three households (H1, H3, H4), reported walking (in parks) or engaging in some form of physical activity on regular basis. They have all stated they were positively influenced by their friends, colleagues, neighbours or walking groups led by White people. The photos in Figure 8 highlight how women participants are finding walking opportunities outside Bradford and with (White) peer support. Talking about walking partners, one child said, '*I don't like going outside the house and walking by myself. Like, with my sister, I'll go to the park, but I won't go myself, and walk through the garden by myself*' (H6/GEN Z/FM). Millennials in the study suggested promoting walking and cycling as a family-based activity has a huge potential to attract people's attention as reflected in the quotation below. The first generation also acknowledged the benefits of walking as a social interaction opportunity.

*When we work in a group, we feel this is better because you drive each other on.
Otherwise it depends on that person if they're able to you know, want to do
something and willing to do something. So I think these kind of things can
improve by,…having group walks, family walk day, you know, things like that so,
that would help kind of promote… within a family as an activity to do. And so you
know, you may find initially it's just the mum and the kids turning up and then
you see the dad start turning up, so you know, it become something that you do,
you enjoy something, you'll go let's look at this, let's look at that so, I think that's
one of the things but ultimately, it's got to be the reason. The main reason is why.
So you know, you see a poster family walk day. Be like oh, we can walk on our
own, why are we doing this, what is it trying to, but if you've got various other
things you know, to explain the reasons of why you're doing this, you know
greener planet, we want the planet to be there for longer. We want to be there
and sustainable for our children…help the community, make a community spirit,
do something with your family, you know spend time with your children. (H1/GEN
Y/M)*

There is a ***cultural dimension*** attached to AT as well. Some participants mention there could be a perception that walking, and cycling is a thing White people do as reflect in the excerpt below. They considered it a result of a way of thinking that influences lifestyle choices. Participants said that the older generation of Pakistani living in Bradford didn't change compared to Pakistanis living in Pakistan or other parts of the UK. For instance, one said, '*they're not typical…I think Londoners totally think differently*' (H2/GEN Y/FM). Participants identified lack of education as a root cause of this problem '*because obviously a lot of the elders that come from back home, they probably don't have education*' (H2/GEN Y/M). They also said the older generation

was conscious as they felt '*they have got to hold on to their culture, to pass it on to their children*' (H8/GEN Y/FM).

> *I think people see people that walk as a certain way of being. Even within our own Pakistani community, I think if you take time out and walk, I think they see you as a posh person or, I don't know. They think there's a hierarchy and they think, oh, you're one of those that goes for a walk. Like it's a bad thing. (H1/FM/GEN Y)*

However, participants also acknowledged that the community is changing. One participant said, '*I'm not as young but certainly with myself and my children I feel like they are changing. Their way of thinking is changing*' (H8/GEN Y/FM). However, at the same time, participants also raised their concern for young boys and the need to change their mindset. While talking about engagement with the Pakistani community and participating in a project like VITALISE, one young participant said his friends '*would never walk they are too lazy*' (H3/GEN Z/M). His mother stresses the need to engage young boys and said, '*I could see girls doing this project more so than boys…[also] what about the White kids? They'd do it, wouldn't they?*' (H3/GEN X/FM). Another male participant also reflected on the car culture among men in the quotation below. Participants said '*loss of activities*' (H1/GEN Y/M) for boys over the years is one of the reasons they got more into driving. Another linked it with deprivation and stated, '*…when they were younger they were probably deprived of it so when they get to a certain age and they're given that chance they will take it with both hands… so as soon as they are 17 or 18 they're allowed to drive, they will drop the bikes and go onto the cars, so I think that's kind of the mentality at the moment*' (H6/FM/GEN Y).

> *'I hardly ever see men, I mean obviously youngsters are walking in the road but I mean, if a man's got a car and obviously in Bradford, you've got the culture where everyone loves their cars, you know it's the in thing. You know, everyone has to show off with it so, I mean, it's a bit crazy too you know amongst the youngsters. (H2/GEN Y/M)*

As learnt above, despite being dependent on others for walking or going anywhere at times, women are still making changes and finding walking opportunities for themselves in Bradford according to their convenience and availability. In the case of cycling, it is not clear how progressed they are. Apparently, there is still a long way to go. The excerpt below comes from a woman participant who knows how to cycle and would occasionally cycle with the support of her husband. Reflecting on social taboos attached to cycling, she said

> *I feel like they think it's a taboo to actually ride a bike, especially to see a female on one. You know the walking you know they say it doesn't seems good to go alone (H8/GEN Y/FM)*

Children, in general, reported being less interested in using their cycle. One said '*it's very squeaky and rusty, I don't really ride it that much*' (H6/GEN Z/FM). The mother responded '*it gets rusty. because if you are interested in using it, you might, you know, do something about it*' (H6/GEN Y/FM). The other teenager who participated in the study also reported stopping using his 'expensive, good conditioned' cycle and said, '*I left my bike at my grandma's, and I just haven't brought it home*' (H3/GEN Z/M). One

possible explanation for this is found to be related to peer pressure and self-image. Parents have repeatedly raised their concern over peer pressure issues and said, '*there is a lot of pressure for you guys [her son] at a certain age to start driving*' (H3/GEN X/FM). Whereas a teenager admitted that '*Wearing a helmet is definitely not cool*' (H3/GEN Z/M). Contrary to the older generation, the younger generation, although some of which is into health and fitness, respondents think '*just like a nice car and the kind of the rise of a lot of these, I think they're called PCP contracts, where you don't own the car, you rent a car*' (H1/GENY/M). It is important to note that these perceptions and attitudes are not the same everywhere and differences could be spotted across different families and at different levels. For instance, a father of four daughters said, '*I think you have different levels don't you, whereas our family's more, is fine with that, whereas some families may not be happy with you know, for example, young girls going out in the park, walking…there could be issues*' (H6/GEN Y/M).

To conclude, the theme highlights there is a social dimension attached to AT. Social and cultural norms, as well as lack of encouragement and support from community, are all the factors that are likely to affect the community's active travel related decisions. People are more likely to walk (and/or cycle) if they receive peer support in form of friends, families, colleagues and live in mixed communities. There is clear evidence in the literature that suggests diversity within neighbourhoods helps ethnic minorities better identify with the UK (Dugan, 2014). This report recommends promoting active travel as a family-centred activity and making people see it as an opportunity to spend time with each other can prove useful. Likewise, interventions delivering peer support locally could be useful to build confidence, especially for cycling.

PEER INFLUENCES AND WALKING

This is my group walking photo.
Walking with my group in Farsley (Leeds) . This is a Walking group i am a part of and attend most Thursday evenings
(H1/GEN Y/FM)

Took the kids on a walk to the park. Had time in holidays and weather was ok and park not too far [Nottingham - with mother]
(H4/GEN Y/FM)
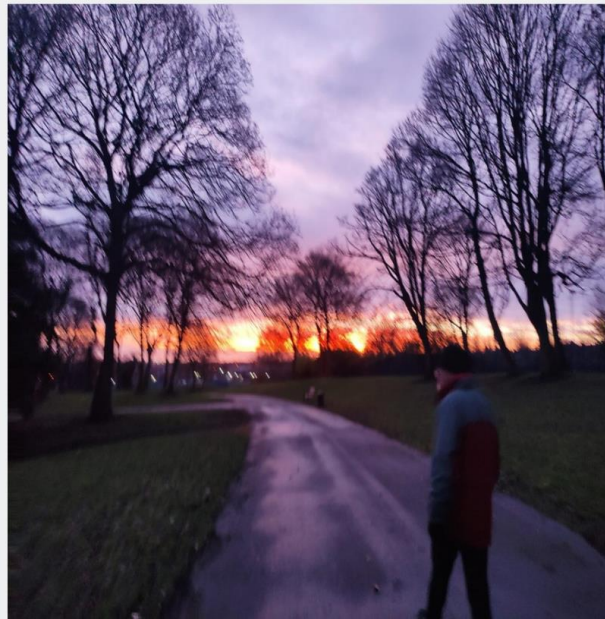
My walking partner...I Feel safe walking with a partner
(H3/GEN X/FM)

Figure 8: Photos highlighting peer support can overcome social barriers to active travel

3.3 Local barriers

The third level-one theme represents local environment related barriers to walking and cycling. The theme highlights issues related to *the area* in which participants live including the lack of local facilities to encourage active travel. The theme explains the main barriers are living in a *deprived neighbourhood*, *poor weather*, and a *lack of active travel infrastructure* and further identifies some latent *cycling related barriers* in Bradford as shown in Figure 9 and photos taken by participants in Figure 10 and Figure 11.
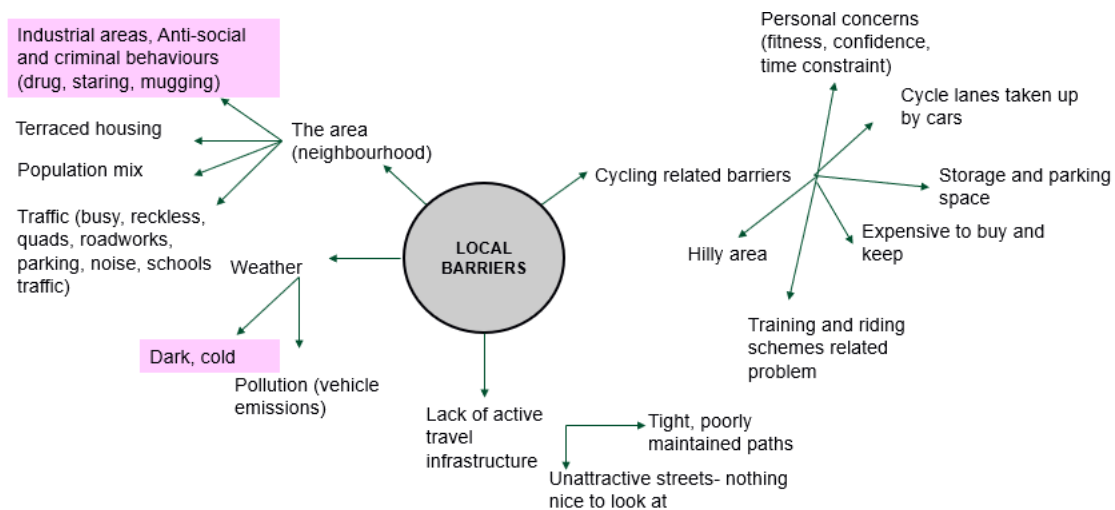
Figure 9: Local barriers to active travel

3.3.1 Neighbourhood, weather, and active travel infrastructure

SUSTRAN (2020) suggests neighbourhoods are defined by the communities who live there. Almost all participants in the study have reported being influenced by their neighbourhood. **Areas** like BD3 (Undercliffe, Barkerend, Bradford Moor), BD5 (West Bowling), BD7 (Great Horton), BD8 (Girlington, Manningham), and BD9 (Manningham Park) are identified as the most off-putting areas to walk by participants. They in particular mention the need of making roads safe (such as Leeds Road, Lumb lane, Thornbury Road, Thornton Road, Toller Lane, Torre lane). Talking about the factors that make these areas unattractive for active travel, participants mentioned several factors including issues of fly tipping, dirty, congested streets and roads, poor driving culture, densely populated areas, and noise. For instance, talking about commuting to work through Thornton Road, one participant said she will never walk on this road because, *it's full of these horrible looking mills, broken mills…there's a lot of cars coming up and down and then you've got all these buildings that look really scary because no one's in them…no offence to the people, you see weird people walking around there too'* (H2/GEN Y/FM). It is important to remember that Bradford is known for its industrial legacy (Bradford, 2022). However, many of the mills in the city are now deserted.

Linked to that, women complained about not feeling safe in certain areas of Bradford due to drug selling and men standing at the corners of the streets, drinking and smoking. The issue has earlier surfaced under parental concerns – social barriers

theme. One female participant suggested that she doesn't mind walking in the parks but not on the main road. She explained, '*everybody is walking in the park and it's a secluded, it's for families, it's not for riff raff. You do get some riffraff but not a lot*' (H8/GEN Y/FM). It is worth noting that many participants in the study have mentioned a growing trend of park walks within the Pakistani community in Bradford. One participant said, '*I think a lot more people are walking…I drive past the park and I'm shocked at the people going round. It's like the Olympics*' (H6/GEN Y/M). Participants agreed that there is a big change and realisation among people to become healthier and fitter. One participant said, not just parks but '*if you go to the gyms, gyms are full of our [Pakistani] people now…young, old, different age groups*' (H7/GEN X/M). This change could be a result of recent initiatives City of Bradford Metropolitan District Council (CBMDC) has made to enhance and regenerate some urban spaces in the city. Participants mentioned names of parks like Listers Park, Manningham Park, Peel Park and Marry shay Park as great promoters for the community. However, they also mention that not all areas and parks (e.g., Attic Park) in Bradford are well kept and the Council could do more. As a result, people are less likely to walk on the streets but will rather go to the gym or parks. It is also because, '*they see everybody going to the park so, they just go to the park*' (H8/GEN Y/FM). However, there is a concern that '*parks are really full*' (H2/GEN Y/FM) and can be off-putting for many people. For instance, a teen mentioned that she went to the park but then she left because '*it was busy*' (H6/GEN Z/FM). Participants emphasised having more greenery or green areas in the city '*where families could go*' (H2/GEN Y/M) would probably encourage people to walk. Due to the unavailability of anything local, many people have to come to big parks like Leicester Park.

While comparing cleanliness in deprived and better-off neighbourhoods of Bradford, one said, '*our area BD3 it hardly ever gets cleaned*' (H8/GEN Y/FM). For participants, it was important for areas to look visually nice and safe for walking. They mentioned that in certain areas of the city, it is very common to see poor lighting, takeaways litter, dog poo, rat infestation and **fly tipping**. There is no space to walk on the streets because '*people dump all their rubbish on the road*' (H2/GEN Y/FM). Participants think one of the reasons why fly tipping has gone through the roof is because Bradford council now charge for cleaning up waste and not everyone could afford it and are not willing to. The quotation below highlights participants' perspective on the issue while talking about the situation in her area in BD7. The UK government stats suggest that cleaning up litter costs taxpayers almost £1bn every year (Keep Britain Tidy, 2013).

> *If you have got a house and you have five or six kids lots of clothes, blah, blah, blah, £35 is a lot of money to waste. So that is why people are paying other people and dumping it round corners and making sure their names are not attached to it…I just think that we are not in the posher areas if we lived in the posher areas the council would do something…And also, I think that we should not leave it to the council, we have got to take some personal responsibility as well. (H3/GEN X/FM).*

The neighbourhoods closer to the city centre are considered unsuitable for active travel not only because of poor cleanliness but due to poor road infrastructure and **traffic** culture. Participants were of the view that the city infrastructure is not expanded

at the level to match growing population demand. Roads are congested and noisy because of heavy traffic, constant roadwork and illegal car parking on yellow lines, outside schools. Talking about Girlington (BD8), one participant said, '*everyone's congested in the area…we're all using the same roads, pavements are tiny…it's really hard to have a cycling lane*' (H2/GEN Y/FM). The excerpt below reflects on the overall situation.

> *We have literally five, six major roads the whole of Bradford has to use come on.*
> *We're all using the same roads, getting stuck in the same traffic, you know,*
> *there's no extension and then they made the streets really tight. The pavements*
> *are tiny. (H4/FM/GEN Y)*

Participants were found concerned about their safety due to the poor driving culture of the city and reported fear of bringing their kids on the roads. They complained about speeding, reckless driving and youth out driving (quad) bikes without helmets and safety measures. A demonstrative culture through the ownership and display of extravagant cars has already been raised earlier under the social barrier theme. The concern is extremely relevant in the context of poor driving practice and busy traffic in Bradford. One child said, '*I walk to the park with my sister…when we were walking back, there was a car went really fast and I was sort of scared*' (H6/GEN Z/FM). Her mother added, '*you get bad drivers everywhere, but we've driven in other cities…people will give you way…[however] in Bradford, everybody's in a rush*' (H6/GEN Y/FM). Talking about riding a bike to the park, the father said, it cannot be done as '*the driving in Bradford is very hostile, or very volatile…it would leave you uncomfortable because the way that people drive*' (H6/GEN Y/M). Reflecting on his experience of riding to school on a bike once, a teenager from another household said '*it didn't take long getting there because it was just down but there was not many cycle lanes*' (H3/GEN Z/M). Parental concerns regarding the safety and security of children are extremely relevant in the context of poor driving practice, absence of infrastructure, and busy traffic in Bradford. The project concludes that despite overcoming personal or social barriers, people will not be convinced to cycle on roads in the city unless traffic and driving related issues are dealt with. After raising these concerns, one participant said, '*Do you really think I'm going to cycle down a road*' (H2/GEN Y/FM). Participants recommended that better law enforcement, clearly labelled black and white lines, more plantation, and the introduction of safe pedestrian crossing and structured cycle lanes are some of the measures that could encourage people to opt for active travel.

The bad **weather and the hilly topography** of Bradford is identified as additional barriers to walking and cycling. While discussing personal factors, convenience has emerged as one of the main reasons explaining car use. This factor is interlinked with weather where car use offers convenience to avoid rainy, cold weather. According to participants, cold, dark, rainy weather can be off putting and '*you think I'll just get in the car, it's quicker, and you stay warmer*'. (H6/M/GEN Y). Some also consider it is not practical to bike in Bradford, as 'it is very hilly' (H3/GEN X/FM).

Compared to men, many of the women said they wouldn't walk in the dark as they '*don't feel safe…to walk in the dark*' (H2/GEN Y/FM). In general, there is a perception

that Bradford as a city isn't safe. Throughout the interviews, participants made its comparison with other cities of the UK and abroad (such as Paris). Altogether, this perception coupled with negative experience (at a personal level) and parental concerns about not sending females alone within the community (at social a level) dissuade people from walking even if they can.

> *in the daytime I would walk but night time I wouldn't feel safe anywhere [in Bradford]… The funny thing is I think I would feel safe, like when I went to my mum's over Christmas [Nottingham], me and my mum walked somewhere, we walked to our brothers and we walked back, and I felt quite safe. I walked with my niece. But here I probably just would be like, oh…It's probably, it's Bradford as a whole, probably not just any area (H4/GEN Y/FM)*

ENVIRNOMENTAL BARRIERS TO WALKING AND CYCLING

Parking on streets like this is very off putting, especially if you are out with children, and particularly if they are in a pushchair. It means you have to focus on their safety even more so and can take the pleasure out of walking with you family if you are constantly having to overcome vehicles being parked incorrectly. (H1/GEN Y/FM)

Storm need I say more (H6/GEN Z/FM)

I used my my car going to work because I don't like walking on this road as it's an industrial area called city road just of Thornton road in Bradford (H2/GEN Y/FM)

It's raining and cold so we are driving to town (H5/FM/GEN Z)

Mum doesn't like walking when there's some much traffic to cross the road., her anxiety comes on! (H8/GEN X/FM)
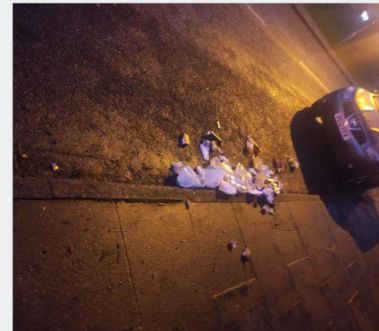
Litter outside the park falls risk (H3/GEN X/FM)

Pathways uneven and wrecked (H5/FM/GEN Z)
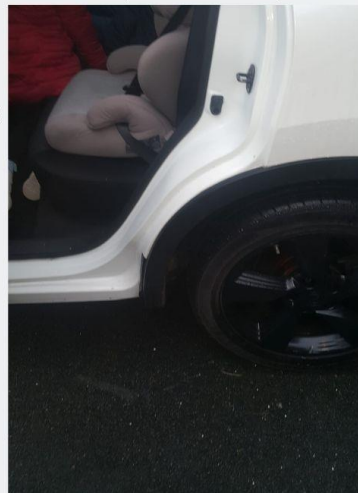
Took the kids swimming in the car. Its foggy and cold so is so much quicker in the car. (H4/GEN Y/FM)

Faeces on the walkway: A no no no! (H3/GEN X/FM)

Figure 10: Photos highlighting local barriers to active travel

3.3.2 Cycling related barriers in local environment

In addition to above mentioned local environment related barriers, including the absence of dedicated and safe, active travel infrastructure, the study has identified several other latent factors that could contribute to low cycling uptake in the Pakistani community. Participants reported that in recent years, the CBMDC is '*trying to make more cycle lane*' (H4/GENY/FM). However, they reported nobody uses these lanes as reflected in the excerpt below.

> *for many, many years, I think at least two years, there was a lot of disruption because they put in a cycle lane on the A647. A lot of disruption and when it was built and running, it looks very nice but very, very rare I saw anybody use this. So the discussion we would have at workplace was what was the purpose? And there's no benefits because people, I think I discussed that with you, here the biggest constraint is time. (H7/M/GEN X)*

Participants suggested it would not be useful to add more cycle lanes to the city's infrastructure. As '*all these cycle lanes done is increase traffic because nobody cycles in the cycle lane and then they reduce the [traffic] lanes where there's two to one and it's just promoting more pollution and traffic in those places*' (H6/GENY/FM). Another participant shared a similar view and said, '*you cycle to get fresh air. Do you really want to be cycling down a path where you've got queues of cars with their tail to tail with smoke coming out of the exhaust*' (H1/GENY/M)? Instead, participants suggested introducing '*a structured area just for cycling*' (H2/GEN Y/FM) could help promote cycling.

With the help of photos, participants have identified several reasons why cycle lanes are rarely used including proximity to traffic, poor segregation and cars taking up bike lanes (see Figure 11). Talking about the dedicated cycle lane that connects Bradford to Leeds, one participant said, '*I have seen one or two Asian people use it but predominantly White people. So, they access them, probably because they have got more awareness, knowledge of routes*' (H3/GEN X/FM). There are not many interconnected cycle lanes in the city. Those which are operational are '*quite tight*' (H2/GEN Y/FM) and have '*uneven paths and puddles*' (H3/GEN X/FM) which make these lanes unattractive. Participants also raised concerns that there is no parking and storage space for bikes as many people live in **terraced housing**. For some people, '*bike is very expensive…bike repairs, maintenance cost money*' (H1/GEN Y/M) and '*a lot of people in Bradford can't afford to buy bikes*' (H6/GEN Y/FM) or to '*put shed in our garden*' (H1/GEN Y/M). Keeping in view that Pakistani families are generally bigger, compared to an average White family, a participant said '*it is more of a cost and more of a logistical issue*' (H6/GEN Y/M). The excerpt below highlights the problem and proposes a solution to a storage problem.

> *if you live in say a terraced house, you haven't got a space to store the bike. Let's be perfectly honest. There's nowhere to put it. So you're not going to invest say 150, 200 pounds in a bike, but this way, if there was a scheme whereby it was like really cheap. Let's say if it's a pound and you put your pound in and then you get on that bike, go where you need to go and they have lots of spots everywhere, so you know if you're in town you can ride your bike to Broadway for example or to*

the park and then you drop it off there. That could maybe be done (H6/GEN Y/FM)

Participants said that bike riding schemes could help them to learn to ride a bike, build confidence and can also teach them about its maintenance. The grass root support is needed because many parents don't know how to cycle. One said '*I just never learnt to cycle, and the kids subsequently haven't learnt to cycle as well'* (H4/GEN Y/FM). However, the issue with these schemes is '*they did require us to have our own bikes which we didn't have so then we just didn't have that*' (H1/GEN Y/M).

I think there needs to be more encouragement of bike riding as well and if employers can come onboard, you know, I'd take lessons and do it as a team building, you know, that could make a difference and if you teach us about the safety of you know, riding a bike and you know, how to use a helmet. (H2/GEN Y/FM).

To conclude, the local barrier theme highlights people living in low-income neighbourhoods near the city centre are less likely to actively travel compared to those living in less deprived neighbourhoods. The finding is aligned with the TFL (2020) work which found people from the most disadvantaged communities are more likely to live in an 'obesogenic' environment which discourages walking and cycling. The study suggests providing cycling training along with dedicated, segregated cycle lanes, storage space and the option to rent bikes could build confidence among community members and encourage them to cycle in Bradford.

WHY CYCLE LANES ARE NOT IN USE IN BRADFORD?

Can't cycle here as the road works make you closer to the cars. Very off putting (H8/GEN Y/FM)

The cycle lane is on pavement I have never seen anyone use it. On Manchester road looks dangerous too (H2/GEN Y/FM)

Bike barriers making it dangerous for drivers and bikers themselves (H5/FM/GEN Z)

Cycle lane looks dangerous in Bradford (H2/GEN Y/FM)

Made for cyclists but hardly used takes up a lot of space (H5/GEN Z/FM)

Unfortunately we have nowhere to store any bikes(see back garden), I've often thought of getting my 2 boys signed up with cycling learning programs but most require you to have your own bike. In the past we have kept bikes outside and even tried using covers but the wind rips them off and the bike end up rusting or seize the breaks. (H1/GEN Y/M)

Negative safety as a woman, poor lighting in park, have been recently reported attacks in media, so having to adapt my behaviour but not stop it. Cycling cannot cycle, would like to try, not enough safe lit routes. (H3/GEN X/FM)

Fields And the park that could become a cycle pass through (H3/GEN X/FM)

Figure 11: Photos highlighting local barriers to cycling

3.4 Wider factors

The fourth and final level-one theme 'wider factors' represents macro environmental factors that can act as barriers to active travel. The theme highlights Pakistani community's *disconnect from land*, *disintegration with the White community*, *lack of inclusive promotional activities*, a shift in the *use of public transport* over time and a *lack of community preparedness* for net zero initiatives are some of the barriers that could potentially hamper the path to sustainable transport behaviours.
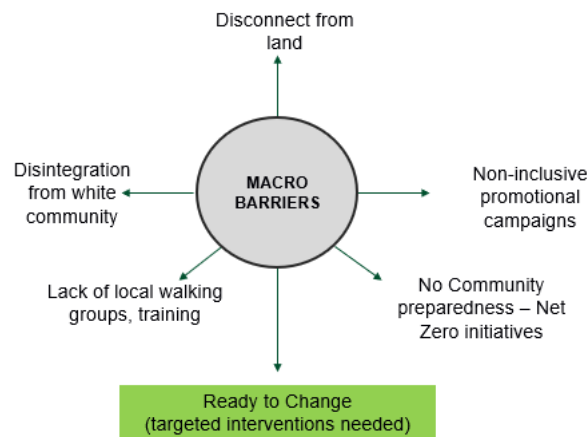
Figure 12: Macro barriers to active travel

Obesity is an issue in Bradford. However, there is a perception '*there's never any promotion of get fit*' (H1/GEN Y/M). Talking about the lack of promotional campaigns and guidance from the government, participants suggested people are unaware of walking and cycling groups in the city, if any. One participant mentioned about cycling club in Manningham, Lister Park. She said, '*I don't think there is anything like that at Marryshay or the BD3 area…But even if there was one set up I don't think that like, everybody gets to hear about things and activities that have been put on for them*' (H8/GEN Y/FM).

Participants linked this lack of awareness to community preparedness for net zero policies. One raised concern about the older generation and said, '*it's not like my mum's illiterate, she's just complete unaware of this [net-zero initiatives] happening*' (H1/GEN Y/FM). Another said, with education, confidence can be built among community members and '*if you show them how to do it [how to walk or cycle and reduce car use] they will do it*' (H3/GEN X/FM). Talking about educating people about benefits, the excerpt below highlights what is likely to work.

> *I think we should have a lot of promotion of the benefits of cycling and the benefits of exercise and the benefits of walks and the benefits of healthy eating and basically yeah, getting clubs, guided walks for different ages. For the youth, you know you start something when you're young you're going to remember it and you're going to continue it. So you start, you target young as well as old. You know, posters, things on there with different languages because you know, Bradford also just has, it's not just Pakistani, there's a lot of Polish, there's a lot of different languages in there so you know, even posters, things within schools that promote why we should do things like that. (H1/GEN Y/M)*

Along with making people aware of schemes and facilities available to them locally, participants highlighted the need for specific positive messaging for the specific communities, as suggested in the excerpt below.

The adverts you see, there's not a Pakistani person or a Punjabi sat there with a bicycle hat or anything. It's generally a middle class White man in his 30s or 40s who's very skinny and tall as a cyclist. That's it isn't it, that's the advertising, and that's what a cyclist is assumed. (H4/GEN Y/M)

Inclusion in promotional campaigns is considered highly important as explained by a participant, otherwise '*they [people] don't feel like they want to be part of it [the scheme] because you can't envisage yourself like that*' (H4/GEN Y/FM). Participants suggested now is the '*perfect time to introduce walking and cycling schemes*' (H1/GENY/M) as the community is ready to change and events like 'Tour De Yorkshire' could have been used as a strategy to encourage more inclusive cycling. As '*it has put the Yorkshire region on the map. But it was in rich White areas. You know, you didn't see many Asian faces in the crowd…I think it could bring pride to an area and we could emulate that*' (H3/GEN X/FM). Talking about her walking group in Frasley, one participant mentioned that she gets to know about the group through the Facebook page and said '*I haven't come across anything in Bradford like that*' (H1/GEN Y/M). While appreciating some areas of Bradford, like BD3 is improving, participants want the council to be more active in deprived areas of the city. One participant said, '*our council promises many things but they don't do anything. You feel let down whether they be English or Asian, they've not really done much for our youth or our community*' (H2/GEN Y/FM).

Along with inclusion, some of the participants emphasised the need for social cohesion and **integration** with White communities. Earlier in the report, the significance of White peer influences has already been established in the context of active travel. One participant shared her feelings about how community spirit in Bradford has changed over time and impacted people like her. She said, '*When I was younger, it was such a nice clean society, you know White English people used to live with us and we were very integrated and now we're just not integrated and we've become really messy and I don't know what to say*' (H2/GEN Y/FM).

An older group participant reflected on the use of ***public transport*** facilities in Bradford and said, '*when I started my working life, most of the people, probably 80% - 90% if not more used to use buses, public transport, so I remember going to work and…every 5 minutes a bus used to go past our house. It was a double decker bus and it was full and standing room only*' (H7/GEN X/M). However, affluence coupled with poorly functioned bus services has promoted a shift to car use. Talking about generational differences, and how things have changed over the time within Pakistani community living in Bradford, one participant recalled how the community got disconnected from its culture of walking. She emphasised the strong need to adopt back walking and cycling habits of our forefathers.

Considering Asian people come from agricultural backgrounds. You know, I don't know why we have become a little bit disconnected from the land. You know, that is why I am surprised about the walking, you know they have Muslim hikers and this and that. Well do you know what, search your memory, we come from agricultural backgrounds. We used to walk. We now reclaiming it, or we need to.
(H3/GEN X/FM)

3.5 Generational context and opportunities to increase walking and cycling

This report concludes that Pakistani community members with a range of barriers have expressed a desire to change towards more active travel behaviours. However, the intensity with which this change can happen may vary across different generations with the first generation of Pakistani being identified as the one that needs the most support (as reflected in the excerpt below), followed by the Millennial (Generation Y) who are *ready to change* and Generation Z as *the game changer*. Figure 13 highlights limitations as well as opportunities to increase active travel across these generations.

the third generation is getting a bit better but the first generation, they've lost themselves you know, away from their families, it's been hard for them... And they brought up their kids and they couldn't even educate them because the majority background is village so how are they going to educate their kids when their child goes to school... I mean I'm not saying, we have some very educated people Mashallah really, we've got people in very high posts in Bradford and they're very educated but it's not there, the health thing is not there, the education thing is not there. (H2/GEN Y/S)
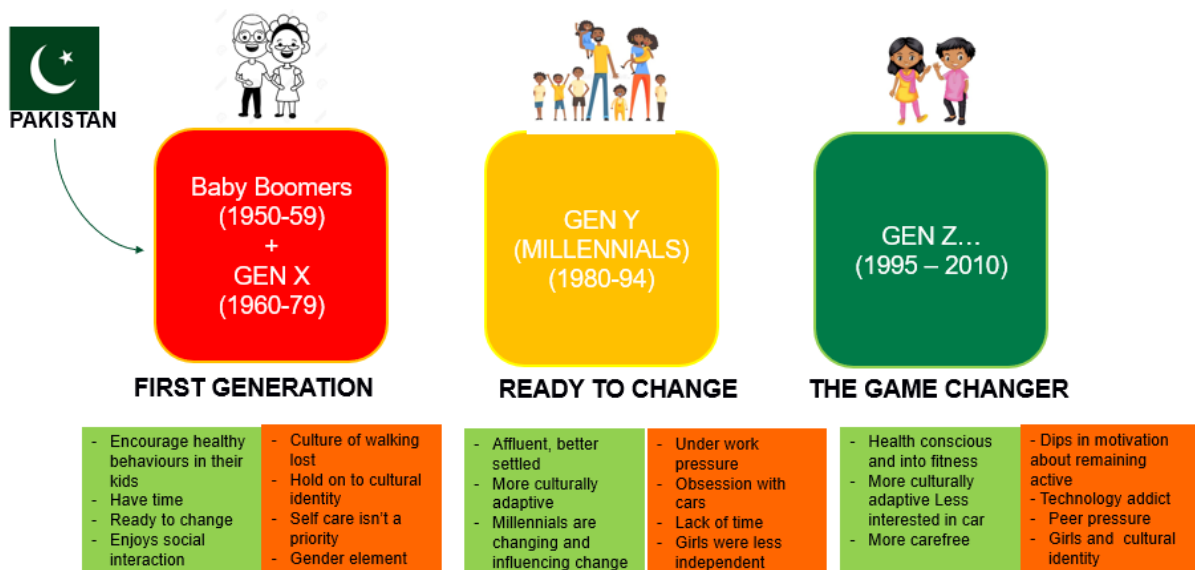
Figure 13: Generational context and opportunities to increase active travel amongst the participants (green list indicates positives and orange list indicates negative factors relevant to each generation that are likely to influence active travel behaviours)

Millennials (compared to generation X or Baby Boomers) are more likely to make this change happen and reduce car use for local trips as they are likely to have more awareness and resources compared to their parents. As discussed earlier, for the older generation, car dependence could be simply because of health reasons or lack

of awareness about local routes or lack of motivation. On contrary, for the younger generation, the dependence sometimes could be associated with social pressures, parental concerns regarding safety and security or less exposure to outdoor spaces. While millennials complained they have to use a car due to their work and family responsibilities, they have observed a shift in their children's attitudes toward cars. For instance, one of the participants said, '[unlike me] *what my children have started doing, is use public transport*' (H8/GEN Y/FM). One of the possible explanations for this shift is that '*the younger generation generally is more into fitness*' (H1/GEN Y/M). The excerpt below from the first generation Pakistani sums up the change in attitudes over the years:

> *I've seen the change where our generation [first generation] getting to a stage where they're getting old and you get ailments and you go to doctors or social services and the emphasis is on health. We tend to think if there's a pain we just take some tablets, we're okay. But the issue is that, not just us but our wider community, people are unhealthy because we're dependant on, for instance, transport. But for the last few years,… I was quite surprised. I think. Even the ladies, they go the wild hillwalking. There's been a big, big change (H7/GEN X/M)*

In the light of the above discussion, the recruited families could be classified into two groups: those who are *likely to AT* (H1/H3/H4) and those who are *less likely to AT* (H2/H5/H6/H7/H8). The classification is done based on multiple assessment criteria as shown in Table 1. The table provides a summary of this classification and provides a demographic description of the groups. The study found health conditions, peer support and neighbourhood composition are key factors that positively influence people at personal, social, and local levels respectively. Families' responses are also mapped against two behaviours including whether participants engage in any form of physical activity and whether they integrate AT into their everyday journey.

The classification can be used as a guideline to develop targeted strategies to encourage people to AT. For instance, the families *who are likely to walk* are mainly composed of millennials and generation Z, who don't have bad road experiences in the past, but are likely to be diagnosed with health conditions. It is important to note that the group is gender balanced and doesn't have more than two children. Compared to those *who are less likely to walk*, positive peer support in form of spouse, parents, friends, and colleagues is available to the group. The group unanimously reported to be positively influenced by the White community and some are taking their active journeys with their White walking partners. However, none of the participants reported receiving support from the Pakistani community except in the form of their parents or spouses. Contrary to the families who are *less likely to AT*, this group is living in a relatively better-off neighbourhoods with mixed/White communities, except for H3. Household 3 reported living in BD7. However, the mother of the house reported taking her daily walks outside her area near her workplace. The group is engaged in some forms of physical activity compared to the second group. However, none of the families in the study, except H3, has reported integrating active travel in their everyday journeys. It can be said that despite knowing the benefit of AT, Group One struggles to make this change happen due to its work or family commitments. Compared to Group One, Group Two is highly car dependent and weighs car use benefits more

than AT. The study concludes that both groups need awareness about how to integrate AT into their everyday journeys. For Group Two, it would be useful to receive awareness about the benefits of AT. Figure 14 below is a collage of some beautiful photos shared by participants showcasing their motivation to walk more.

Table 1: Classification of families based on the identified barriers and associated characteristics

	Group	Group One Likely to active travel						Group Two Less Likely to active travel										
	House no.	H1		H3		H4		H2		H5		H6			H7		H8	
	Gender	F	M	F	M	F	M	F	M	F	F	F	M	F	F	M	F	F
	Generation	Y	Y	X	Z	Y	Y	Y	Y	Y	Z	Y	Y	Z	X	X	X	Y
Groups Description & Personal Influences	More than two children	x	x	x	-	x	x	x	x	-	-	✓	✓	-	✓	✓	-	-
	Past experiences	x	x	x	x	✓	x	✓	-	-	-	✓	✓	✓	-	-	✓	-
	Health condition	✓	✓	✓	x	x	x	x	x	-	-	-	-	-	✓	✓	✓	-
Social influences	Supported/influenced by spouse	✓	✓	-	-	✓	✓	-	-	-	-	✓	✓	-	✓	x	-	✓
	Supported/influenced by parents	x	✓	-	✓	✓	-	-	-	-	-	-	✓	✓	✓	-	✓	x
	Supported/influenced by friends	✓	✓	-	x	✓	✓	-	-	-	-	-	-	-	✓	-	-	-
	Supported/influenced by colleagues	-	✓	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Supported by Pakistani community	x	-	x	x	x	-	x	-	x	x	x	x	-	-	-	x	x
	White community influence/support	✓	✓	✓	✓	✓	✓	-	-	-	-	-	-	-	✓	-	-	-
Environmental Influences	Lives with mixed (White) community	✓	✓	x	x	✓	✓	x	x	x	x	x	x	x	x	x	x	x
	Supported by local environment	✓	✓	x	x	✓	✓	x	x	x	x	x	x	x	x	x	x	x
Reported Behaviours	Do regular physical activity	✓	✓	✓	✓	✓	✓	x	x	x	x	x	x	x	x	x	x	x
	AT integration in everyday journeys	x	x	✓	✓	x	x	x	x	x	✓	x	x	x	x	x	x	x

Note: ✓ indicates 'yes', x indicates 'no', – indicates 'no discussion' or 'not applicable'

Reasons why you should walk and cycle more (in Bradford)
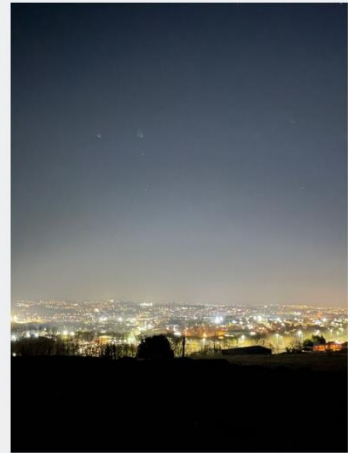
I enjoy the company and the routes …each week its something different (H1/GEN Y/FM)

I look forward to summer when the sun is shining, and can walk to the masjid.(and meet other mosque-goer along the way) (H7/GEN X/M)

U could walk and cycle avoiding traffic at busy times (H5/GEN Z/FM)

Morning views of nature makes you feel like going out all the greenery (H2/GEN X/FM)

Worth getting out of bed for (H3/GEN X/FM)

Figure 14: Photos highlighting reasons to walk and cycling more in Bradford

3.6 The utility of PV as an intervention tool

PV is used as an intervention tool to understand whether the technique can encourage a critical consciousness about Active Travel (AT) in the project. For this purpose, participating families were asked to capture their reasons for using a car for one whole week. Week 2 prompt also guided participants to look around and gain a deeper understanding of the factors that are influencing them. Collectively, the aim was to facilitate their thinking and to give them an opportunity to reflect on their everyday practices. PV method is regularly used in social research (Capous-Desyllas and Bromfield, 2018; Liebenberg, 2018; Brown et al., 2020; Macdonald et al., 2020). However, its use in transport research is somewhat limited and not much attention is given to understanding the effectiveness of the method to influence and enhance widespread engagement of the public. At the time of writing this report, studies couldn't be found that have mapped the impact of the technique on influencing attitudes and behaviours. Although, the technique is often used as a tool to give participants an opportunity to voice their opinion. This section reflects on methodological learning from the project and reviews how PV research could be performed to engage and co-produce knowledge with participants.

Throughout the data collection, participants' reflection on taking part in the study has been captured. For instance, Figure 15 shows photos sent by participants who took action as a result of participation in the study. The first photo from the bottom left is shared by a participant who always takes a car to his relative's house who lives nearby. However, on that day, the participant mentioned that he decided to walk. Likewise, the top picture is from another male participant, who doesn't walk due to limited time and work pressure. However, he also decided to take a walk at the time of participation and said the experience was refreshing for him. While talking about the photo during the interview, he said '*the picture…it was exactly that, it made me think that actually, even though I worked you know, two weekends and [wife] was out at the time, she came back and I thought you know what, I'm going to get out, I'm going to get a bit of time for me. I'm going to get some fresh air, I'm going to stretch my legs, I'm going to do this and I did. I did. I felt a lot better afterwards* (H1/GEN Y/M). A female participant from the same household shared a cycle training flyer with the researcher and said she is thinking to learn cycling. It is worth noting that all three participants are from the group classified as '*likely to AT*'.

Compared to the group, those who are *not likely to AT* also shared positive experiences. For instance, Household 6, which is highly car dependent, also took an action and one day send the message that '*last weekend we [mother and daughter] walked as this research made us think to walk*'. When asked about this message in the interview, the mother explained '*The two of us walked yesterday, everybody else went in the car. They stopped on the way and offered us a lift and we were like, no, we're walking. It's literally, we Google mapped it and it was a 14-minute walk, and the car it takes about four minutes*' (H6/GEN Y/FM).

Overall, participants gave positive feedback about the study and said they '*enjoyed it*' (H3/GEN X/FM). They found the study *useful*, *insightful* and *refreshing* for the community. One said, '*it's quite encouraging that you're looking at… I mean the study is quite amazing because you're looking at different areas, different you know,*

populations and how do they use transport and how they can help lessen pollution' (H2/GEN Y/FM). The study has also raised participants' understanding of issues in their local area. For instance, one participant said, *'it has opened my mind up to a lot more things in my area that I wasn't aware of before and what can we change and can improve'* (H8/GEN Y/FM). The same opinion is reflected in the quotation below.

> *I think it's made me question more. It's been good in terms of having to take the pictures because it's made me question more about oh am I going to use the car? Am I going to use? Why am I actually using it? It's making you think as opposed to just getting the keys and going isn't it' (H4/FM/GEN Y).*

Participants also gave suggestions to improve the study. For instance, there is one suggestion to make people understand why such studies (and AT) is beneficial. One participant raised concern that '*realistically, I think it is very good but, unfortunately, a lot of our people will not look at it that deeply, will not understand why you're doing it*' (H7/GEN X/M). Some suggested completing the study in one week would have been better. There was also a suggestion to make the prompts simple and receiving more guided directions about taking photos would have been helpful. For instance, one participant shared, *I'd probably say maybe have like more bullet points, so even though I know you told us in that first meeting, but maybe have like bullet points throughout so this is what you're doing in a photo. Just put is it factor one? Is it this reason, was it that reason? Or maybe you know, kind of have it a bit more easier labelled, like these are the two things that I want you to consider today, just so they're there on the top of your head'* (H4/GEN Y/FM). The quotation below is used to describe what potential participants may like in future studies. This suggestion could be more relevant to the group *not likely to AT*. As this was observed the group struggled in picking up issues and identifying what they would like to capture. Some examples were given to them to make a start. Overall, participants found sharing photos through WhatsApp easy and convenient and reported discussing the study with their colleagues and families.

> *at the beginning, maybe not daily, but just be like as in say to them, you need to take pictures daily but at the start of the week say, think about it, think what factors to include but then, it may seem like influencing but maybe just three or four headings and be like, so do you think it falls under this or this? Just give me a bit more definition and then you'll allow them to go, ah, actually I can put my mental thought into this category and I don't think you're leading the study in that way, you're providing more information for them to build upon it (H4/GEN Y/M)*

The photo exhibition idea could not be executed in this study due to COVID restrictions. Hence, policy dialogue exercises between the community and collaborators could not be initiated. However, researchers have presented the finding of the study to the collaborators of the project and received the invitation to present these at various events[3]. The feedback received from experts in the field was

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[3] Dissemination activities
Received invitations to present VITALISE findings at various events including 'Wales Active Travel Conference' (March 31, 2022), DecarboN8 research showcase event (May 11, 2022), Sustrans'

encouraging and many researchers and policy makers expressed interest in learning more about PV and the project outcome.

To conclude, this report suggests that the PV method has impacted, and triggered participants thought processes. It gave them an opportunity to reflect on their habits and think about their transport behaviours. It has offered participating families unique learning benefits by looking around their environment. Hence, the report concludes participatory visual research (Photovoice) has the potential to enable transport-related behaviour changes. With a well-crafted study design, the project recommends the technique has the potential to significantly impact its participants. However, it is not clear whether, in the longer run, this impact on participants would sustain. It would be worth investigating at a wider scale whether the technique can be used to break car use habits or at least make people consider introducing active travel in their daily routines. This potential of the technique can be enhanced by making families work towards a shared goal of 'breaking car use habit' as a unit. It is recommended future research targets reach the public through a photo exhibition and invite them to engage in policy dialogues with decision makers.

PHOTOVOICE AND CRITICAL CONSCIOUSNESS

Putting my name fwd for this. I dont think I would have considered if it wasn't for this project with you. Thanks 🙏🏽🙏🏽🙏🏽🙏🏽 (H1/FM/GEN Y)

Decided to take that walk - so nice getting some fresh air, feel much better. Not done this ages! (H1/M/GEN Y)

Walked to a family member's birthday party.. 10 minuts walk from my house nice weather. (H4/M/GEN Y)

Figure 15: Photos highlighting the utility of the Photovoice method as an intervention tool

4 Conclusions

VITALISE project is designed on the principle of a placed-based, community-centred engagement framework. Using a participatory visual approach, PV, the project has attempted to provide an insight into barriers to walking and cycling among Pakistani heritage people living in Bradford. It has also investigated the methodological effectiveness of using PV as an intervention tool in transport related research.

This report concludes various factors at personal, social, local, and wider levels are acting as a barrier to active travel. People find it difficult to break the car use habit and weigh off its benefits with short term rewards including protection against cold weather, convenience, and time saving. For the older generation, lack of motivation could be an additional barrier due to their health condition. Considering the economic pressure and family and work responsibilities, opting for walking and cycling may not be considered practical unless people are incentivised for making these changes. One such incentive would be overcoming social and cultural barriers to change. Countering the challenges associated with stereotyping and lack of representation through integrated inclusive awareness campaigns could prove beneficial as many of the community members may perceive cycling as an activity for healthy, fit, high-income White people. Within the community set up, the study finds both males and females have their vulnerabilities. For women, lack of community support could be the biggest challenge where the fear of being judged could dissuade them from walking and cycling independently. On contrary, men were found not to be subjected to these judgments but are likely to adopt and invest in unsustainable behaviour under peer pressure. The project recommends behavioural strategies and promotional campaigns that can attempt to overcome these challenges. For example, by employing more Pakistani-heritage female activists working on the ground in the city. The findings have shown that Pakistani families have expressed limited knowledge on what's out there. to help bridge the gap, the research recommends that current and upcoming active travel related schemes need to ensure they are reaching Pakistani families through a range of communication channels and platforms. Although there is the perception that the younger generation is more into fitness and less concerned or influenced by social judgments. The study found there is a growing concern that teenage boys will likely get into the culture of owning fancy cars and potentially driving recklessly due to a lack of awareness and loss of other leisure activities for them in Bradford.

Local barriers in the environment including fly-tipping, heavy traffic and poor driving culture, lack of active travel infrastructure are some of the challenges which need addressing especially in low-income areas. In general, there is a perception that Bradford as a city isn't safe. Women, in particular, perceive it as an unsafe city for walking. Altogether, this perception coupled with negative experience (at a personal level) and parental concerns about not sending females alone within the community (at a social level) dissuade people from walking even if they can. Based on the feedback received, this report recommends transforming (low-income) neighbourhoods near the city centre has the potential to encourage people along with introducing peer support in form of local walking clubs and cycle training programmes. Some key suggestions include improving street lighting, stricter enforcement to control

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fly-tipping and introducing segregated and well-connected active travel infrastructure in the city. Based on the views expressed in the study, the strategy of having cycle lanes next to car lanes is not likely to work unless these lanes are separated from traffic e.g., by planting to avoid traffic related air pollution. Currently, the lanes are considered a safety risk, adding pressure to the city's traffic, and exposing people to air pollution. Segregation may also attract less confident cyclists or women who are concerned about men staring.

The role of peer support is fundamental to support people to make use of available facilities and enable change. The study's key recommendation is to design activities that foster integration with the White community and promote local role models. Asian activists, especially women, can play a vital role as the study found that compared to men, females are more active and looking for opportunities to improve their and their family lifestyles. For this, participatory techniques like Photovoice offer an opportunity to break the status quo for those who are struggling to make a change by raising their social consciousness. Furthermore, designing family-centred activities could offer families learning benefits of active travel together.

The report concludes that Pakistani heritage families living in Bradford are motivated to change mainly for health reasons. There is awareness about the benefits of physical activity. However, the realisation of integrating active travel as a form of physical activity is either missing or needs encouragement through a guided framework. The motivation to change could also vary depending on which neighbourhood families are living in and what kind of community support is available to them. By introducing some of the placed-based, community centred targeted interventions mentioned above, we can capitalise on this change. The excerpt below highlights the overall community spirit to change for the better.

> *We need to talk more, you know, improve communities. Now we as a community,*
> *we're in our third generation, fourth generation, you know, we're pretty*
> *established now. We're more affluent, but we're not as adventurous so we're not*
> *as, how can I put it, you know, we still like the status quo, this is how we've*
> *always done it and this is how we'll continue to do it but we need to change our*
> *ways for the better. That's the hard part you know. (H6/GEN Y/M)*

Lastly, the project has piloted a *framework of engagement* by closely collaborating with key stakeholders active at the national and local levels. The project findings have been shared with the collaborators and disseminated at several platforms. It is hoped these engagement activities will help to co-create and disseminate policy-relevant knowledge to a wider audience. Hence, would enhance this research's impact in the future. It is also considered that the next phase of work, following this project, will be to reflect on and consider the insights from this project to develop a place-based, community-centred widespread engagement framework and toolkit. The aim is to support decarbonisation solutions by increasing social acceptance among BAME communities. Further funding will be sought to develop and deploy the toolkit to develop, implement, and evaluate active travel and decarbonised transport *engagement* activities at the individual, intergenerational family, and community levels, especially across the North of England.

5 Acknowledgment

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