

Chapter 8: cycling beyond your sixties: the role of cycling in later life and how it can be supported and promoted

Tim Jones*, Kiron Chatterjee**, Ben Spencer* and Heather Jones**

*School of the Built Environment

Oxford Brookes University

01865 483436

tjones@brookes.ac.uk

bspencer@brookes.ac.uk

**Department of Geography and Environmental Management

University of the West of England (UWE)

Kiron.Chatterjee@uwe.ac.uk

Key points

Decision makers and authorities largely ignore cycling when conceptualising and developing programmes to support older mobility and therefore, unsurprisingly, levels of cycling in the UK are low compared to other northern European nations.

Cycling has the potential to play an important role in the active ageing agenda and provide older citizens with a form of independent mobility that enhances personal health & wellbeing.

The chapter provides evidence of the important role cycling does and could play in older people's mobility and outlines ways in which older cycling could be supported and promoted.

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1. Introduction

The population across Europe is ageing as people are living longer and the birth rate is falling. People in later life are the segment of the population who stand to gain most from engaging in physical activity because of relatively higher risk of developing disease related to inactivity (Woodcock et al. 2014). Policy makers are looking at systematic approaches to removing barriers from staying active longer as this could help reduce end of life morbidity and the wider societal impact and ‘burden’ on national health services. Conceptions of ageing are also changing and are now thought of, not only in a biological or medical sense, but also more holistically to emphasizing autonomy, participation and wellbeing (Bryant, 2001). Mobility and independence are important constituents of wellbeing in later life as they allow older people to engage in meaningful activities outside their home and to gain a sense of control over the places they visit which in turn can help foster social engagement and a sense of belonging in the world (as highlighted by Schwanen in Chapter 2 and Stahl in Chapter 3).

Walking and cycling (‘active mobility’) can play an important role in promoting moderate physical activity as part of daily travel routines, delaying biological ageing and age-related conditions and improving overall health and wellbeing (WHO, 2002; Saelens et al., 2003). Walking is the most common form of achieving physical activity amongst older people with cycling less prevalent because of fear of injury and concern about safety (LifeCycle, 2010; ELTIS, undated; WHO, 2002). Nevertheless, there is still huge potential for cycling to be incorporated in older people’s everyday routines both for travel and recreation, particularly if these concerns are addressed.

Losing car-based mobility because of age-related disability can have a significant effect on older people’s wellbeing (Rosenbloom, 2004; Davey, 2007). Cycling could play an important role in helping older people maintain their independence and range of activities, and in so doing, promote wellbeing, for example, by acting as a mobility aid for people who are no longer able to drive or who are unable to walk very far. Cycling can also offer flexible travel vis-à-vis public transport and enable the transportation of items that may otherwise be difficult to transport on foot or by bus.

The market growth and availability of electric bicycles (‘e-bikes’) is also providing opportunities for older people to (re)engage with cycling. This is because riding an e-bike requires less physical effort than a conventional pedal cycle - although the e-bike market in the UK is less mature than in Germany and the Netherlands it is forecast to grow.¹ E-bikes can also provide positive health benefits and support people

¹ A total of 30,000 e-bikes were sold in the UK in 2012 roughly equating to 0.5 sales per 1000 population and 0.8% of total cycle sales (COLIBI/COLIPED 2013).

who are not able to ride a pedal cycle because of health issues (AENEAS, 2011; Hendriksen et al., 2012; Murphy, 2012; Jones et al., 2016). Moreover, ‘e-biking’ has the potential to support an increasingly suburbanized and car dependent ‘baby boom’ generation in maintaining independence and mobility because of its ability to cover greater distance with less effort.

As noted by Musselwhite in Chapter 1, transport systems are largely geared around a younger population and this is particularly apparent in the case of cycling. Cycling in the UK tends to be dominated by young, white, professional males (Steinbach et al., 2011) or what has been described as a ‘velomobile elite’ (Horton and Jones, 2015). Meanwhile, the conceptualisation of ‘older mobility’ remains narrow - cycling is simply not seen as something older people do or want to do. Older citizens are constructed as people who lack interest in cycling or the capacity to cycle despite the contribution that cycling could (and to some extent already does) play in active ageing. However, as people age they adapt to changing physical circumstances (Rowles, 1978) and a small but significant minority are able to continue to cycle into older age in some form or another. The majority of those who do not cycle may contemplate cycling if towns, cities and rural areas in which they live were more supportive of cycling. The result is a general absence of discourse on the potential for older cycling and therefore lack of guidance on ways that the environment and technology can be adapted to support older people’s cycling needs. For example, *Lifetime Neighbourhoods* (DCLG, 2011) promotes the design of walkable neighbourhoods for older people but completely ignores cycling.

In this chapter we set out to challenge this perception and suggests ways that older cycling could be brought to the fore in policy making. We begin by examining older cycling trends in the UK before briefly outlining strategies and policies that could, and are, beginning to provide a framework for supporting and promoting older cycling. We then introduce **cycle BOOM**, a 3-year study (2013-2016) led by Oxford Brookes University, that aimed to develop a better understanding of the experience of existing older cyclists. Using a selection of data from participants who already engaged in some form of cycling, and also from those who have recently re-engaged with cycling, we suggest ways in which older cycling can be supported and promoted as part of a broader age friendly cities agenda.

2. Older cycling in the UK

Levels of cycling in the UK among the older (and younger) population are low compared to neighbouring northern European countries that have historically devoted more resources towards implementing cycling infrastructure. Cycling accounts for only 1 per cent of all journeys made by people aged 65 and older in the UK compared to 23 per cent in the Netherlands, 15 per cent in Denmark and 9 per cent in Germany (Pucher & Buehler, 2012). Data specifically for England shows that there is a sharp decline in cycling among the population by the age of 50 (figure 1). This is contrary to the situation in Germany, Denmark and the Netherlands where the decline in cycling among the older population is much less pronounced (Pucher and Buehler, 2008).

<<Insert>> *Figure 1: Average distance travelled by bicycle (miles) by different age groups in England in 2013 (source: Department for Transport, 2014)*

The low rate of cycling in England is also set against a backdrop of declining health among adults aged between 65 and 74 with around half of this age group failing to meet physical activity guidelines (HSCIC, 2014). There is potential for cycling to contribute to reversing this trend owing to the fact that around 40 per cent of people age 50-59 and nearly 30 per cent of people age 60-69 in England own a bicycle but only 3 per cent use them (figure 2). Cycling could clearly play a role in providing the older population with an opportunity to take part in healthy recreational activity and as a means of everyday mobility.

<<Insert>> *Figure 2: Bicycle ownership and use in Great Britain 2008-10 (source: Department for Transport, 2016a)*

It is notable that gender, class and ethnic identity are more likely to shape levels of engagement with cycling in the UK compared to Germany, Denmark and the Netherlands (Steinbach et al. 2012; Horton and Jones, 2015). Those people among the older population who own a bicycle and report using them are more likely to be wealthier white males. There is also a difference in likelihood in cycling based on where older people live with around three times the rate of cycling among older people living in rural areas than in metropolitan areas (Table 1).

Table 1: Characteristics of older cyclists (60-69 years of age) in Great Britain in 2008-10 (source: Department for Transport, 2016a)

Characteristic	Own bike (%)	Report bike trip (%)
Across all aged 60-69	27	3.0
Female Male	20 34	1.9 4.3
Non-white White	7 28	1.6 3.1
Highest Lowest income quintile	41 22	3.6 3.7
Live in purpose-built flat detached home	12 37	2.9 3.5
Live in metro area rural area	16 38	1.0 3.5
Own no cars 2 cars	14 36	3.5 2.9

Data on attitudes to cycling highlights that a high proportion of people age 60 and above lack confidence to cycle on roads and feel that it is unsafe to do so. This coupled with higher likelihood of disability or health condition means that a high proportion of the older population would rather use public transport than cycle (Table 2) - concessionary bus fares may also be a significant incentive to use public transport over other modes including cycling. In the next section we visit the policies and programmes that could help reverse this trend and shape older engagement with cycling in the future.

Table 2: Attitudes to cycling among different age groups in England in 2009-10 (source: Department for Transport, 2011)

Agree with statement	Age 16-59	Age 60+
Disability/health making it difficult to cycle	6%	43%
Not kind of person who rides bicycle	30%	48%
Confident cycling on roads	41%	22%
Too dangerous for me to cycle on roads	57%	72%
Cycle (more) if more dedicated cycle paths	55%	42%
Rather cycle than use public transport	40%	18%
I (would) enjoy cycling as a leisure activity	72%	45%

3. Cycling policy in the context of active ageing and ageing cities agenda

Government support for cycling in the UK has been inconsistent in comparison with the sustained support over the past half century in other northern European countries such as the Netherlands, Denmark and Germany (Pucher and Buehler, 2008). It was not until 1996 that the UK National Cycling Strategy was launched and cycling was recognized for the contribution it could make to improving public health and supporting environmental sustainability. Successive governments have since built on this strategy and developed and implemented cycling policies with varying degrees of success. However, it has been the role of local councils and third sector partners (e.g. Sustrans) to implement infrastructure, cycle training and behavioural change programmes through a competitive ‘bidding’ process for finite, and many would argue, insufficient, resources (Aldred, 2012).

Two decades after the launch of the National Cycling Strategy, the UK government consulted on a Draft Walking and Cycling Investment Strategy (DfT, 2016b) which was meant to herald renewed impetus and

a period of significant and sustained investment in cycling. Whilst, the draft strategy was widely criticized by cycling advocacy groups for not committing the level of investment that is required to produce the step change in infrastructure provision on a par with Northern European neighbours² the launch of the final strategy in April 2017 (DfT, 2017) was broadly welcomed as being the first legislation of its kind in England to bind the government with legal commitments to invest in cycling and walking provision.

Policies to promote cycling (and walking) are set within the context of broader moves towards creating age friendly cities. The Global Age-Friendly Cities project by the World Health Organisation calls for understanding and attention to the needs of those most vulnerable people in society (i.e. older adults and children) in order to increase the number of people who become or remain physically active (p. 16). The *Global Age Friendly Cities* guide (WHO, 2007; p19) specifically identifies cycle paths separated from motor traffic as one of the key features of age friendly places. The document has since informed many initiatives across the global age-friendly network of over 200 cities and communities.

In response, advocacy groups have emerged such as *8-80 Cities* dedicated to ‘transforming cities into places where all people can walk, bike, access public transit and visit vibrant parks, streets and other public places’ (see www.880cities.org). From its roots in Bogota, Colombia, the campaign has flourished and its impact in shaping more democratic approaches to cycling provision has been far reaching, for example, in cities such as Seville in Spain (see <http://www.cycleboom.org/outputs/videos/>). Meanwhile in the UK, 12 cities have established the UK Network of Age Friendly Cities. This network has arguably helped to shape city cycling strategies in London (TfL 2013), Manchester (TfGM 2014) and Bristol (BCC 2015) that are now beginning to place more emphasis on normalising cycling and providing supportive ‘intergenerational space’ (Jones & Spencer, 2016) for people whether age 8 or 80. In response to the call to understand and give attention to the needs of those most vulnerable people in society, the following section introduces the **cycle BOOM** study. The study aimed to understand the contemporary experience of cycling among existing and potential older cyclists and provide advice to decision makers on how older cycling could be promoted and supported among the ageing UK population.

² The All Parliamentary Cycling Group report ‘Get Britain Cycling’ (published April 2013) called for investment in cycling of at least £10 per person annually, rising to £20, in order to boost cycle use to 10% of trips by 2025, and to 25% by 2050. Critics argue that the draft Cycling and Walking Investment Strategy provides central government funding of £300m over the period 2015-2020, amounting to £1.39 per person outside London. See - <https://allpartycycling.org/>

4. cycle BOOM study of older cycling mobility

cycle BOOM was a 3-year study (completed September 2016) to understand older cycling. It involved over 250 participants aged 50 and over living in the Oxford, Reading, Cardiff and Bristol areas of the UK – more details available at www.cycleboom.org. Participants were a mix of people who were no longer cycling and had no intention of doing so; people who were no longer cycling (or had greatly reduced their cycling) but wished to restart; and people who had managed to continue to cycle.

All study participants took part in biographical interviews which aimed to elicit personal narrative accounts of changes and continuities in cycling throughout the lifecourse - an approach well established and used in previous studies on travel behaviour and cycling (Lanzendorf, 2010; Chatterjee et al. 2013). The advantage of the biographical interview approach was that it enabled an understanding of how people engaged with cycling over their lives and how this was shaped by broader developments in their lives (such as changes in family, residential, career and health circumstances). Participants completed a life history calendar detailing key events in their life course (i.e. changes in housing location, education, work, mobility, etc.) and engagement with cycling prior to undertaking an interview with the researcher. This allowed the researchers to familiarise themselves with details of the participant's life history and cycling engagement and also primed the participant to think about how their cycling unfolded, prior to the interview. The calendar was also used in the semi-structured interview as a visual aid to discuss past, present and anticipated future engagement with cycling.

Following the biographical interview, those people who did not cycle took no further part in the study. Participants who currently cycled were invited to take part in a mobile observation. This involved a researcher shadowing them while they made a pre-specified regular cycle journey of their choice. The journey was also caught on video using handlebar mounted action cameras - one forward facing camera mounted on the researcher's cycle and another on the participant's cycle to provide both rider and researcher perspectives. After the journey the video footage was played back to the participant as part of a video elicitation interview (VEI). This involved the researcher watching the video with the participant and using it as a prompt to elicit the strategies and tactics the participant employed when performing their journey. The footage was also used as a prompt to try to identify the perceived positive and negative aspects of the journey experience and the feelings generated in response.

Participants who wished to start to cycle again after a hiatus were invited to take part in an 8-week cycling trial. This involved, first undertaking a cycle assessment/training with an accredited cycling instructor, then using either a loaned electric bike (e-bike) supplied by the project, or their own pedal cycle, three times a week for a minimum of 30 minutes over an 8-week period for any purpose.

Participants were supplied with a Diary of Cycling Experience ('DoCE') and were asked to keep a record of their cycle journeys and activities and also to '...record reflections on your experience at the end of each week', in particular, their feelings and mood over the course of the trial³.

All data was processed in Transana software – www.transana.org - to allow computer-assisted-qualitative-data-analysis (coding and retrieval) of multiple data sources (i.e. text, audio and video). Timecoded 'case summary' transcripts were produced 'gisting' (i.e. summarising) biographical interviews, video elicitation interviews and diaries and linking this to the original audio from the interview (Dempster & Woods, 2011). Excerpts from the transcripts (i.e. synchronised with audio and video data) were 'clipped and coded' into thematic collections to allow easy retrieval and repeat analysis.

The biographical interviews revealed a diversity in the cycling histories of the participants but we were able to distinguish three main groups of participants according to their engagement in cycling (or cycling trajectories) in the last five years. *Resilient riders* were participants who engaged with cycling throughout mid to late adulthood and were still cycling at the time of our study. *Re-engaged riders* were participants who started cycling again after a period of five years when cycling was either absent or had significantly diminished. *Reluctant riders* were participants whose cycling had been curtailed or absent in the last five years and who stated that they had no intention of resuming cycling. The following section refers to a selection of *Resilient riders* and *Re-engaged riders* to illustrate motivations for cycling in older age as well as the relative opportunities and constraints. In the final section we draw on this combined data for discussion on the implications for supporting and promoting older cycling.

³ Participants of the trial also undertook a pre and post-trial survey of wellbeing and tests of cognitive ability.

5. Cycling vignettes

Case summaries of participants in each of the three cycling trajectory groups were explored to identify themes that were common, and that also differed, across the three groups. For example, we found that cycling to work featured in the cycling histories of most *Resilient Riders*. In the following section we focus on six exemplar cases from across the Bristol and Oxford areas - three *Resilient Riders* and three *Re-engaged* riders - that illustrate many of the recurrent themes. The selected *Resilient Riders* elucidate how they, against the trends already outlined above, have managed to continue to cycle. For these participants we also draw attention to the strategies and tactics they employed when taking part in mobile observations and video elicitation interviews and highlight the aspects that add to and detract from their personal wellbeing when cycling. We then turn to the experiences of three *Re-engaging Riders* (two of which took part in the 8-week cycling and wellbeing trial) to exhibit both the barriers and potential to re-engage the older population in cycling.

5.1. Resilient Riders - Rona, Alfie & Janice

Rona's story (Bristol) - Rona, 71, was a retired teacher who had spent most of her adult life living in a central neighbourhood of Bristol. She lived in a ground floor flat of a 19th century building. Her cycle use had been continuous since her 30s, in the 1970s, when she lived in a shared house as a single parent. Despite gaining a driving licence she explained how her environmental consciousness and inability to afford a car meant her travel, often accompanied with children, was accomplished on foot, by bike, the bus and with occasional lifts from friends. She later trained as a teacher and accessed various work locations with her bike. She had also ridden some leisure routes in the UK and had cycle holidays abroad.

Later in working life Rona gained weight and developed problems with her knees which made cycling up hills more of a struggle. Conscious that staying active was important she acquired her first second-hand e-bike. Eventually she had an operation on her knees but was still able to cycle. When she moved out of regular employment towards retirement she continued to cycle, making regular journeys to visit friends across the city and using her bike for social, cultural and sporting activities. She felt her opportunities to cycle had diminished as various friends had died, moved away or had themselves given up cycling through the onset of health problems and their loss of confidence. Rona was also making more use of her concessionary bus pass.

"In the summer when the weather is good I use it [her bike] about 5 or 6 times a week, often to go swimming...in the winter it's perhaps only 3 times a week....and I do use the buses now because I have bus pass which makes a difference."

Rona still had a variety of pedal cycles but now exclusively used her e-bike. This was her third e-bike and the battery range was declining and Rona voiced some uncertainty about whether she would replace it. The bike was stored in her hallway because this was easier than taking it down to the garden shed but reaching the road outside the door of her terraced home was still the cause of some frustration.

“I hate this business of getting out of the narrow door, I wish I had a garage... it’s a heavy bike...and usually you have to push it out between cars [to reach the road outside front door].”

Rona reflected on her desire to continue to cycle into her eighties but the challenges she faced since her operation and how she had adapted her cycling:

“I used to be able to put my foot on my left pedal and swing my leg over but since my operation I can't do that anymore....I don't want to risk falling off...I'm probably slightly slower than I used to be but I do still like to take risks.”

Alfie’s story (Bristol) - Alfie, 70, was a retired engineer who lived with his wife in an outer suburb of Bristol. They had lived in the same 1960s townhouse for over thirty years. Their house had a driveway and was situated on a residential road at the top of a steep hill on one of Bristol’s designated cycle routes. Alfie had almost exclusively cycled to work throughout his working life, apart from a gap of 5 years in his 20s when he was forced to stop cycling due to a back problem. His residential and employment situations were constant for the most part and he recalled some efforts to improve cycling facilities in the workplace prior to his retirement.

“...the last several years they [the company] encouraged it a lot more, putting in showers and things, but there were always people who cycled to work and some a much greater distance than me.”

Alfie had also taken part in different forms of recreational cycling, including mountain biking, and had been on cycling holidays abroad, both alone and in the company of others. Alfie noted how he had continued to cycle after retirement by cycling up to 3 miles to the place where he was volunteering and to reach the various activities that he was involved with.

“I started doing other activities right away, I started volunteering at a place in Bishopston so that was 2.5 miles to get to that. They [cycle journeys] just changed a bit, I stopped doing that journey into [work] and did other journeys instead but they were similar, within the bounds of Bristol, just different journeys, not better or worse.”

Alfie’s cycling was contingent on whether he was travelling alone or with his wife and also on his own physical limitations forcing him to adapt to the circumstances. His wife’s cycling was now limited to off-road paths for leisure because he was no longer confident cycling on the road, so most

everyday journeys together were by car or public transport. Although Alfie was generally unperturbed by cycling on busy roads within the city he was aware that his physical stamina had diminished. He linked this to a respiratory illness a few years earlier which had reduced his lung capacity and he therefore had to get off his bike on some hills to walk up. To compensate Alfie had altered his route into the city:

“Henbury Hill...I used to look upon it as a sort of fitness challenge...now I tend to push up or avoid it by taking a slightly different route, more of a gentle climb part of which is a designated cycle route...so I can cycle up that.”

Despite these limitations, Alfie expected to continue cycling for the foreseeable future and contemplated his strategy to maintain cycling when his health had reached the point where cycling was difficult or no longer possible:

“I can't see it changing in the next 5 years, unless my health rapidly deteriorates ...I might have to think about getting an electric bike. I've resisted getting one up until now. I'll walk up some hills, pushing the bike. Well, so what? It's still exercise! I think I will leave it [getting an electric bike] to when I can't actually face it, cycling... it will be my health that will curtail my cycling”

Janice's story (Oxford) - Janice, 65, retired as a social worker in 2010. She had lived with her husband in an end-of-terrace house in central Oxford for 12 years. Janice learned to ride by the age of 5 when living in south-west London. She did limited cycling while away at boarding school but went on cycling adventures from home in the holidays. Her cycling declined after she got a car aged 17. Working as a social worker in London she chose to drive and walk for personal safety, cycling a little with her young son on a bike seat for leisure. She met her husband, a keen cyclist, when they were both aged 35 and they moved to a small village in Oxfordshire where their son was born. Initially they both had poor quality bikes and did not use them very much, apart from the odd leisure journey with their children. Janice and her husband each had a car and used those for commuting and most of their other journeys.

In 2003 Janice and her family moved to Oxford city. Janice described the effect this had on her mobility:

“Huge... [for] the first time in my life a bike became my main form of transport and I loved it... quick, no parking problems... small city, short distances, not hilly”.

They continued with two cars for about 5 years which Janice reflected on as ‘crazy’ because her driving had now greatly reduced and she was frequently cycling from her home to her workplace in the centre of Oxford and also to travel around the city. She and her husband also went on local leisure rides along the city's riverside paths. This meant that Janice's car use had become limited with almost

all of her mobility being conducted by bike, except for the occasional bus journey. She put this down to speed, time availability and described herself as *'totally cycle-orientated'* and, together with her husband, she had developed knowledge of lots of short cuts for cycling within the city.

At the age of 55, after moving to Oxford, Janice had received a hip replacement because of the onset of arthritis. This meant that cycling had also substituted walking and she described how, as she was getting older, she still found cycling a much easier way to move around the city than walking. Janice felt her cycling was not going to change in the near future unless she lost confidence or cycling became more physically challenging. For Janice, cycling was a key component of her wellbeing, stating that she would be, *'miserable if I didn't cycle'*. Cycling for both transport and recreation provided her with the opportunity to experience fresh air and social contact and a feeling of being part of the wider community, as she put it, *'on a bike you are there, you are part of the place you are in'*.

Despite, cycling being a key component of Janice's life she was critical of the conditions for cycling in Oxford. She thought that traffic had become more hostile and facilities to support cycling were inadequate and was critical of the, *'...disproportionate amount of road given to cars'*. During the interview, after the mobile observation of her ride through the city centre, she gave an example of this on one section of road where she pointed out that the space available was, *'wholly inadequate for wobbly bicycles, you can see the amount allocated to me [advisory lane]... look at the speed people are overtaking, you know, they are doing 30mph... If I wobble what do they do!'* In summarizing, Janice reflected on her own cycling capability and experience and what it might mean for someone less capable attempting the same route:

"You've seen a very good example of how crap Oxford can be... the only thing that makes it do-able is that I'm entirely used to it, I mean somebody new negotiating Oxford, Jesus! What a nightmare that would be! They'd probably get off and walk, it is just too dangerous... I don't think the city planners have ANY IDEA what it is like on a bicycle'."

5.2 Re-engaged Riders - Brian, Gill and Wilfred

Brian's Story (Oxford - e-bike trial) - Brian, 83, lived in Abingdon, a market town around 5 miles south of the city of Oxford. Brian was born and grew up in Oxford and cycled extensively when younger for transport and sport. He worked for the County Council as an architect, mostly commuting by bike until retiring in 1990. Brian's cycling had been curtailed in the last five years because of a knee problem which made cycling painful and greatly reduced his capacity to use his bike for family activities and the many sporting activities he was engaged in with his partner. This meant that he was beginning to use his car more. Brian loaned an e-bike for the duration of trial and this also prompted

his partner to buy an e-bike to share the experience with him. During the trial Brian cycled locally for shopping trips and he and his partner made a variety of regular local rides together for pleasure and for transport, often travelling up to 12 miles on cycle paths.

Brian described how the e-bike had allowed him to reconnect with cycling and had made cycling enjoyable again. Brian found riding the e-bike comfortable and thrillingly fast and felt that it allowed him to perform physical activity without suffering from the knee pain that was previously haunting him.

“The great thing is I enjoy cycling again more, it is terribly difficult to get the bike out knowing that you are going to have pain in the knee and that you are going to be very slow doing the cycling... It makes life a lot easier, it’s comfortable to ride, I don’t have to put in as much effort with the cycling... it keeps me fit at the same time... you still have to pedal with it... I am also cycling faster which gives me great joy, actually, to be able to do quite a speed at times!”

The e-bike also allowed Brian to replace short journeys that he would have otherwise made by car and was able to cycle again with his partner (who had recently purchased an e-bike). Together they ventured further afield and revisited old haunts and discovered new places, safe in the knowledge that the power assisted bicycles would help them get home if either one of them felt tired.

“With [partner’s] broken bone declared mended we were able to use the e-bikes for journeys we would not normally have undertaken or where we would have used a car... It is so easy to get the car out instead [of his pedal bike] and do even short journeys of about a mile or so than thinking about suffering on the bike... You can go out somewhere, 12 miles, maybe 14 miles away and you have got that knowledge that the battery is there to help you if you need it.”

Brian and his partner described how cycling together was more enjoyable than walking since Brian is unable to move around on his feet as he once did since his knee problem. Overall the e-bike had encouraged Brian to maintain and increase his participation in cycling - he managed to clock up over 500 miles during the 8-week loan of the e-bike. Brian reflected positively on his achievement:

“I would never have achieved this [total distance] on my pushbike not even contemplated doing the journeys I have done. There was always consolation in the thought that if one became weary there was always help from the motor to get you home, albeit with pedalling.”

Despite this achievement there were several aspects that had detracted from Brian’s positive experience and which were conveyed in his diary. This was related to the poor quality and maintenance of physical infrastructure.

“I have been very conscious of the poor state of some roads and cycle ways. One gets a severe jolting in spite of sprung forks and saddle... I have been on cycle lanes narrower than my handlebars, both way cycle paths where it would be impossible for two opposing cyclists to pass without dismounting and paths overgrown by hedges necessitating riding inches from the kerb feet away from oncoming traffic.”

Brian had also found the weight and manoeuvrability of the e-bike difficult and he experienced one incident where he and the e-bike had toppled over.

“Due to the heaviness of the bike and high centre of gravity due to battery and saddlebag one must be careful not to lean the bike too far when stationary. I was caught unawares and the e-bike toppled over and took me with it. No damage to either but I am more aware now and being more careful.”

This had also hindered recreational journeys with his partner to locations further afield by combining e-bikes with car or rail travel. Either the e-bike was too difficult to lift into the car or local rail station access was poor and involved carrying the bike up and down staircases. Local journeys were also sometimes problematic and Brian often found his routes inhibited by access barriers and situations that required dismounting and manoeuvring the bike. Recounting one of those episodes in his diary:

“Heaviness of e-bike detrimental as unable to access a lane due to gate (locked) and narrow opening. Had offer of help to lift the bike but declined as could have been trapped with gate at far end of lane.”

Nevertheless, Brian’s overall experience of was positive. Brian reflected on the impact the e-bike trial had on his personal wellbeing.

“I have regained interest and fighting spirit which was absent during most of the trial period and before.”

This was a view shared by his partner who had also indirectly benefited from the joy of sharing the experience with Brian and witnessing the positive impact the e-bike had on him.

“I have been delighted to cycle along with Brian and share his enjoyment. We have both enjoyed cycling in the past but it had really become quite a struggle... Brian had slowed down more than me and all told our cycling trips were only to the nearest shop... I think Brian became a happier person altogether and more positive as a result of his bike trials.” [Brian’s partner]

Brian’s account exemplifies the potential role of e-bikes in not only prolonging and supporting older people’s healthy mobility but also contributing to personal wellbeing and reducing car miles.

Gill’s Story (Oxford - pedal cycle trial) - Gill, 61, purchased a new bike to take part in the pedal cycle wellbeing trial. She had lived on her own in Barton, on the Eastern edge of Oxford for 11 years, doing

very little cycling during this time. Gill had grown up in East Oxford and had used a bike extensively during her 20s for work doing postal deliveries and for transport. She had cycled with her second child when he was younger and used a bike for social visits until giving up on cycling when moving closer to her family. Suffering from agoraphobia Gill hadn't used public transport for many years and had relied on taxis for the last decade. After hospitalisation with a serious health issue within the last two years Gill had been encouraged to use a static bike to build up her muscle strength again. She was now doing voluntary work at a local Health and Wellbeing Centre. Gill smoked and her other exercise was housework and walking in her local neighbourhood.

Gill talked about re-discovering the joys of cycling and its many benefits, comparing being out and about on a bike with an exercise bike indoors.

"I had a lot of trouble with muscle weakness and I had a pretend [exercise] bicycle at home [laughs] which I never used. It stood in the corner and I kept thinking 'yeah, ten minutes each day' but I never did but when I got my cycle that gave me the motivation because I knew I was going somewhere and that has helped me tremendously. My legs are better, I feel better.... you get everything all-in-one with a bicycle. It keeps me fit, I bake lovely cakes and then I cycle... to make it go away!"

In addition to fitness benefits Gill explained how cycling provided a sense of connection, independence and freedom.

"It's just been... a good experience all round for me because it has opened my eyes, when I was getting a lift before, you don't see anything, with my bicycle I have been managing to see the roadsides, all the lovely flowers..."

"It has given me an awful lot more independence, the independence is the important piece because before I was waiting for lifts, now I just jump on my bike, it's lovely."

"It's give me my freedom... I can go anywhere now, I can cycle to my friends, I can go to the shops when I need to instead of asking others... a new way of life.... the independence and freedom it's... wonderful."

Despite her newfound freedom, Gill explained that her main obstacle to cycling was the weather, especially the wind, but that she could use buses and taxis in these circumstances. Moving the bike from its secure storage in a shed in her back garden to the road at the front of the house was also a challenge, as she had to manoeuvre it over several steps.

With her detailed knowledge and previous experience of cycling locally she had easily identified a route to her voluntary work which she felt was acceptably safe and comfortable, mostly using an off-road cycle track along the ring road. However, this involved negotiating a large roundabout on the

ring-road which required her to dismount and wheel her bike through underpasses. The ring road also acted as a barrier on another key route for her to access the local shopping centre, necessitating use of another underpass. Gill's perception was that there were very few people using cycles on her estate and reliance on cars, particularly for transporting children to school, caused congestion. She thought that the attitude of motorists towards cyclists had worsened considerably compared to when she used her bike to commute to and from work in the 1970s.

'[I have a] right to be on that road and those drivers had a right to respect me... I think why shouldn't I be able to ride peacefully without being honked at or abused'.

Gill explained that her strategy when she felt unsafe was to ride on pavement but she believed that more road space needed to be allocated specifically for cyclists.

Wilfred's story (Bristol) - Wilfred (64) lived in a neighbourhood in the north fringe of Bristol with his wife Chloe. Wilfred had retired 7 years ago having run a small retail business for 25 years. Wilfred did not cycle for most of his working life and considered his opportunities to cycle had been limited because of the nature of his work - he often worked seven days a week and had to use a van for transporting stock. Wilfred had regarded himself as a sporty person, playing football and squash regularly for decades in adulthood until he was forced to stop due to deterioration of his knees. His wife however took up cycling for fitness and charity fundraising in her 40s. As he approached retirement Wilfred required successive knee operations and his wife and daughters bought him a bike to try to encourage him to cycle with them.

"I didn't really cycle until it would have been about 2008, the kids bought me a bike 'cos [partner] was biking plus I already had my bad knees - I'd already had a half replacement in my left one. They bought me a bike and I started just doing a little bit of biking cos I was working still, just out with the kids and that ..."

Despite, Wilfred's use of the bike being fairly limited at first, this increased in the years following his retirement at 57 mainly through cycling holidays with friends as he explained:

"Well I was cycling before I had the second one done (knee operation), because it was low pressure on the knees, so I could do it and we had friends who were cycling, so we decided to start going on cycle holidays... we were just doing holidays and the odd bit of cycling with the kids"

Wilfred thought that his engagement with cycling was due to a combination of encouragement by his wife and the access they enjoyed to the many off-road cycle paths near their home in the northern fringe of Bristol. Together they had established a routine of two rides a week of between 10 -20 miles for recreation, mainly sticking to these paths.

5.3 Summary of the vignettes

This chapter has provided some insights into the lifeworld of older people either continuing to cycle or attempting to re-engage with cycling in later life. Through the six vignettes presented we have demonstrated how cycling fits into ideals of active ageing and promotion of wellbeing. However, we have also highlighted the challenges that older cyclists face in trying to accomplish cycling against a backdrop of changing physical capability and unsupportive infrastructure - even in two relatively supportive cycling cities in the UK: Oxford and Bristol. We also revealed that older cycling is often contingent on the support of friends and other family members.

The profiles of the three *Resilient Riders* shows how they had developed strong identities associated with cycling and were resourceful in adapting their cycling to their changing physical capabilities as they got older. Rona had used a bicycle as her main means of mobility since her 30s and had acquired e-bikes in recent years to help her continue cycling. Alfie was similar, cycling for most of his local travel and was continuing to use a pedal bike, despite his loss of strength, by adapting his routes. While Rona and Alfie mostly cycled alone, Janice cycled frequently with her partner and her cycling had increased substantially on moving to Oxford due to shorter journey distances and flatter terrain. She was critical of provision for cycling in Oxford - a city with higher rates of cycling relative to other UK cities - and recognised the skills she had developed to cope with what she regarded as conditions that were far from ideal. All three resilient riders recognised the precarity of their cycling due to their declining abilities and the challenging local environment.

For the *Re-engaged* riders the motivation to become active was strong in each case but the circumstances were quite different. Wilfred in North Bristol was bought a bicycle by his family and encouraged by his wife to go on cycle rides for leisure and exercise, highlighting the importance of the social support of significant others. Brian from Abingdon (near Oxford), the oldest participant at 83, found the opportunity to use an e-bike enabled him to cycle again where pedal cycling had proven too difficult due to his bad knee. He also was encouraged by his partner. Gillian from East Oxford had limited mobility prior to joining the pedal bike trial and found her new bicycle gave her greater opportunity to be active in the community. All of the re-engaged riders were critical of conditions for cycling and the challenges they faced and had adapted their riding accordingly to avoid them.

6. Policies and programmes to support and promote older cycling

The six vignettes we have provided are for a group of people who have a positive attitude antecedent towards cycling. From the trends outlined in section 2 it is clear that these case examples are the exception and not the rule. Despite the barriers that have been identified, these participants have

managed to continue to cycle or re-engage with cycling seemingly ‘against the odds’ and we have highlighted the circumstances under which they have continued to do so. Older cycling is largely contingent on physical capability, spatial opportunities and many older people adapt their cycling to avoid difficult (e.g. hills) or threatening scenarios (e.g. heavily traffic roads). We argue, therefore, that, promoting and prolonging cycling as part of an Age Friendly City agenda will require more substantial measures that accommodate a wider range of cycling capability.

The overwhelming desire, perhaps not surprisingly, is for better quality cycle provision that is safe and comfortable to use. This will require investment in dedicated cycle tracks separated from motor traffic and pedestrians on all busy roads. This might apply, for example, on arterial routes in and between towns and cities along which many activities are located and people require access. This will need to be sufficiently wide to cater for all abilities and to support more sedate, social side-by-side cycling. Along these routes, the aim should also be to ensure that the momentum of cycling is maintained so that cyclists do not waste energy through continual start-stopping. Separated routes will also need to be coupled with the widespread roll-out of 20mph/30kph zones (and below) in urban areas and smaller settlements. This is necessary, not only from a road safety perspective, but also to foster less frenetic, less harried conditions in public space where ‘less speedy’ (e.g. older) cyclists do not feel pressured and threatened by motor traffic and other cyclists. However, more sophisticated methods of enforcing vehicle speed will be necessary rather than focusing on vertical deflections as a panacea because this can be uncomfortable for older or ailing cycling bodies. Urban spaces will also need to be designed so that it is clear where cyclists are ‘meant to be’, that is, they should be clearly signposted and legible on the ground. It is important that there is consistency in surface quality and colour - we would go as far as to say that this should be consistent nationally. This infrastructure for cycling needs to be well maintained so that surfaces are free of potholes, clear of debris and smooth and flush - time and time again our participants spoke of poor and deteriorating surfaces, uncleared debris and overhanging vegetation that added to their discomfort and fear of falling off.

New/re-development provides the opportunity to ‘start-from-scratch’ and it is imperative that this includes high quality cycle paths linked to existing facilities in order to enhance a fine-grained network of cycle routes. New-build housing and residential homes should include generous and secure storage space at or near frontages to allow convenient and easy access to the street.

Consideration should also be given to siting housing in areas with less challenging topography and routes should seek to avoid unnecessary gradients. Opportunities for recreational cycling should be supported and promoted by provision of links to traffic-free routes along green and blue spaces.

The potential of e-bikes and assistive technology in encouraging, prolonging and extending cycling among older and reluctant cycle users also needs to be recognised and supported. This could be

through specific e-bike training modules as part of national Bikeability training schemes offered to older people, opportunities to try-out e-bikes, the provision of charging points at shopping areas and hubs, and public e-bike schemes so would-be users are not inhibited by the initial financial outlay of purchasing an e-bike. Finally, older people (age 60+) should be regarded an ‘indicator species’ in national government and local authority cycling targets (i.e. setting of targets for proportion of older cycling) so that policies and programmes can be monitored. Together these measures could allow older cycling to flourish and ensure that cycling plays an essential part of the healthy ageing and Age Friendly City agenda.

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