



EXTERNAL EVALUATION

of

London Marathon Foundation

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Cycle Sisters Capacity Building

Project

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Introduction

Cycle Sisters is a registered charity started in 2016 that aims to inspire and enable Muslim women to cycle. The organisation is London-based and has community cycle groups in 10 boroughs (Ealing, Hackney, Haringey, Hounslow, Newham, Lambeth/Wandsworth, Redbridge, Tower Hamlets and Waltham Forest) as well as a London-wide Road Cycling Club.

Cycle Sisters aims to address the inequality between the number of Muslim women who cycle in comparison to those from other backgrounds and was set up in response to a lack of culturally suitable cycling opportunities for Muslim women. There are two main strands of activity:

1) A model of volunteer and locally run cycle groups for Muslim women. Groups offer regular (often weekly) social led rides with trained volunteer Ride Leaders from within the Muslim community. They also train community-based cycle instructors to deliver lessons to complement the rides. The rides are also open to non-Muslim women.

2) Media and representation work to increase the visibility of Muslim women in mainstream cycling and ensure there are cycling role models for Muslim women to identify with.

In April 2021 Cycle Sisters received a 2-year grant for £70,000 from London Marathon Foundation (LMF) towards the development of organisational infrastructure and the set-up of new community cycle groups in 4 London boroughs. The project aimed to increase engagement in physical activity by groups and communities least likely to be active and most likely to have been adversely affected by Covid-19. This research was funded through this project as an external evaluation of Cycle Sisters' work.

This external evaluation used a mixed-methods approach, including a longitudinal survey, interviews, and focus groups.

This document summarises the results obtained in the evaluation. It is structured thematically, and reports about the different aspects that were agreed to be relevant for this project. Decisions were taken in conversations between the external evaluator and the Cycle Sisters team and were discussed in three committee meetings involving the donor, London Marathon Foundation, and representatives of related charitable organisations Cycling UK, British Cycling and Sustrans.

I would like to thank all people involved in this evaluation and wish that this information is useful both for the London Marathon Foundation, and for the Cycle Sisters, to advance in their mission, with concrete knowledge about the important and comprehensive benefits of the rides.

Conceptual framework

At the beginning of this evaluation, a knowledge review was undertaken. The conceptual framework that stood up was the Motility framework.

"Motility" is a term borrowed from biology that means "capable of moving". The word is often used by biologists and is borrowed by social scientists. Motility is the set of factors that allow us to be mobile (Kaufmann, Bergman & Joye, 2004). When we want to move, we call upon a variety of specific characteristics, related to these three dimensions:

- **Access:** the degree of access to transport and communication networks. In the context of the Cycle Sisters rides, this refers, for example, to having access to a bicycle (to be able to use it in the rides).
- **Competence:** the skills and abilities that may be important for mobility. The main example, in our case, relates to the physical ability to cycle. Other aspects like knowing the regulations or wayfinding are also relevant.
- **Appropriation:** the degree of actual use of a cycle in everyday activities. During the cognitive process of appropriation individuals evaluate their representations and perceptions of mobility alternatives in relation to their strategies, motives, values and habits. Appropriation has to do with agency and empowerment, one of the impacts of the Cycle Sisters rides.

Previous studies (Hamidi, 2021; Thigpen, 2018; van der Kloof, Bastiaanssen & Martens, 2014) have shown how the application of the Motility framework to cycling deepens our understanding of the factors shaping individuals' cycling potentials and practices, and offers valuable insights into the development of successful cycling interventions that create material and nonmaterial infrastructure - such is the case of the Cycle Sisters rides.

Motility refers to the way in which an individual appropriates what is possible in terms of mobility and uses this potential for their activities (van der Kloof et al., 2014).

The Motility framework has proved very useful for the evaluation of cycling interventions that are not just about built infrastructure. In this evaluation, the three elements of access, competence and appropriation have been measured with the surveys and discussed profusely in the interviews and focus groups.

Other elements of health and well-being, like social connection and isolation, and behavioural science constructs, like the concept of self-efficacy, have been added to capture the specificities of the impact of the Cycle Sisters rides in its participants and volunteers.

Methodology

The evaluation includes three different methods, that have retrieved both quantitative and qualitative data about the Cycle Sisters rides. This report will present the results thematically, using the qualitative data from interviews and focus groups to help interpret and expand the quantitative information from the surveys.

Longitudinal survey

Longitudinal surveys are used to assess the impact of an intervention – in this case, the Cycle Sisters rides. In other words, their aim is to measure any changes that occur because of an intervention by gathering data from before and after the intervention happens. In the case of the Cycle Sisters rides, this was more complex, as there were participants who were already participating in the rides, as well as there were new participants. This created two groups of participants to look at, with different baseline levels and different quality of the impacts.

In order to assess a before and after, two questionnaires were designed: a Baseline and a Follow-up questionnaire.

The baseline questionnaire was distributed through the platform PlayWaze, the platform that is used to register to the rides. The implementation of this platform within Cycle Sisters was funded by the London Marathon Foundation. The baseline questionnaire will also be referred to as the registration questionnaire. This means that every person wanting to participate in the rides needs to fill in the questionnaire first, which has retrieved systematic data of all participants of the rides during the evaluation timescale March 2022 – December 2022.

The Follow-up questionnaire was sent to those participants of the Registration questionnaire who agreed to be contacted for this matter during November and December 2022. The platform used for this second questionnaire was Google Forms. As it is common in these cases, this meant that not everyone answered that second questionnaire. The Follow-up questionnaire, unlike the Registration one, has open questions that have generated qualitative data.

Both questionnaires are slightly different, as there are some themes that are best to be asked once, only at the beginning or only at the end. Whereas there are some other aspects we need to measure both at the beginning and the end. See table below for a summary of the themes that were asked in each of the questionnaires.

REGISTRATION QUESTIONNAIRE	FOLLOW-UP QUESTIONNAIRE
Socio-demographics	
Residential location	-
Date of birth	-
Gender	-
Ethnicity	-
Religion	-
Employment status	-
Household Income	-
Disability and use of non-standard cycles	-
Activity participation	
Access to a bicycle	Access to a bicycle
Perception of cycling competence	Perception of cycling competence
Cycling and overall physical activity levels	
Frequency of cycling	Frequency of cycling
Levels of Physical Activity	Levels of Physical Activity
Well-being	
Self-Efficacy	Self-Efficacy
Life Satisfaction	Life Satisfaction
Isolation	Isolation
After joining Cycle Sisters rides....	
-	Safety
-	Impact on others
-	Reach new or further places
-	Reduction of travel time or costs
-	Social connection

Table 1. Questionnaire contents

The sample of the questionnaires was – these are complete cases, after cleaning the raw data:

- Baseline (Playwaze) registration questionnaire, n=445
 - First Timers, n=234 (52.6%)
 - Repeaters, n=211 (47.4%)

- Follow-up (Google Forms) questionnaire: n=89

Interviews

There has been nine interviews of ride leaders and coordinators. Interviews have provided complementary data to help understand the results of the surveys and the different and inter-related impacts of the cycle rides.

A participant information sheet and consent form were used.

These were on-line interviews, via Zoom, that were recorded, and then transcribed and coded using the software MAXQDA.

The questions of the interviews included the following themes:

- A selection of socio-demographic questions, similar to the ones in the questionnaire
- Relationship with the Cycle Sisters
- Well-being of participants and of volunteers, in terms of Physical and Mental health and wider well-being (financial savings, time savings, etc)
- Inclusion / Barriers in the access to the rides
- Gender and faith, cultural background
- Taking stock and suggestions for the future

Focus groups

Three focus groups were organised between ride leaders and coordinators.

They were on-line, on Zoom, and like the interviews, participants agreed with the consent form.

They were also recorded, transcribed, and coded using MAXQDA.

Focus groups took place in March 2023, and participants of the focus groups watched a presentation with the results of the survey. Participants were prompted to discuss issues around:

1. Impact on well-being
2. Barriers to the rides
3. Barriers to becoming an everyday cyclist or to cycle more often

Ride participants – who is joining the rides?

The rides are open to non-Muslim women, but they are only for participants who identify as women. It's important to note that this means that all the population we are analysing falls under an

intersectional approach to gender, that is, when there are several levels of social discrimination linked to multiple characteristics of the women.

These different characteristics of women are very intertwined, as the quotes from the interviews will show, mentioning several of them in the same sentence.

The qualitative data reveals that the combination of only women, majority of the same faith, creates a synergy and amplifies the feelings of comfort, connection, and safety, and thus, the impact of the rides.

The following sections describe the results obtain from the evaluation in different aspects of the socio-demographic profiles of the participants. The data comes from the registration questionnaire and the interviews and focus groups.

Women only

The fact that the groups are not gender-mixed and there are only women in them, helps the sisters feel more comfortable and safer. This is expressed in the interviews, especially in relation to clothing and, in general, because of not feeling exposed to the “male gaze” within the group while the ladies are riding.

Because we're a women's only group, we feel more comfortable with what we're wearing. Because if we had males in the group, then you're thinking, "Is he looking at my bottom right now?" – Interview.

Also, the Cycle Sisters create a safe space for some women who, at the moment, don't feel they would be able to cycle independently.

I've observed that there's not a massive mentality of women doing things by themselves at all, no matter what it is, never mind cycling, just like “you don't go out and do stuff on your own”. And so I think that's quite a big, a big barrier, like S. said, yeah, they will come out, and maybe they've been supported at home to come out because we're a group. But I don't think they would be supported to go out and do that by themselves. Focus Groups.

Age

There is a nice mix of young, middle aged and mature women in the rides.

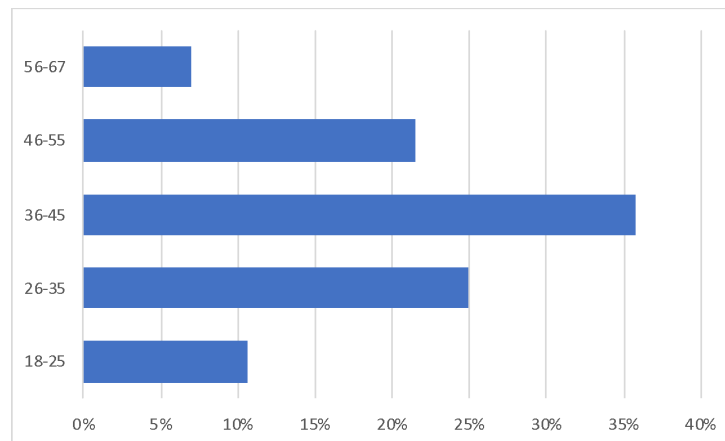


Figure 1. Number of participants by age range. Data from the Registration Questionnaire.

This inter-generational context seems to be very beneficial in terms of social connection:

We get a mixture of people that are in their 50s, 40s to like 18-year-olds, people in their 20s. And you learn so much about each other and the different lessons, the different trials we've gone through in life, and what we learned from it. And these women, they come with so much history and they've got so much to offer in terms of advice and knowledge. – Interview.

It seems that certain aspects of the impact of the cycle rides might be more beneficial for women in their older age.

There's another lady who came back to cycling, she's 70 and she did the ride on Sunday, and seeing how these Queen ages are just coming into cycling, you know, whether they're a complete beginner or they cycled as a child. So I call them the Lampton Park ladies. And it's made a huge difference to their lives, their health, their outlook and prioritizing. Yes, they prioritize their family when needed, but they're also saying it's my time, it's me time. Obviously, the family will always come first, but they are now juggling their lives around fitting cycling in, which is really, really, really good. And especially in certain communities where family comes first over everything else. And then now their families are going, what do you need, me time? off you go. We'll hold the fort. So now the families are, mum's really happy cycling, or grandma, and the grandchildren are now looking up and thinking, "My nana, my nani, she cycles." You know, so it's really good in that way. – Focus Groups.

Some of the older Muslim women attending the rides seem to get bigger benefits from the from physical activity and social contact coming with the rides, since they could be having less access to these resources in their situation:

I think, you know, once you get to a certain age as well, then there'll be a fear about doing things by yourself because you've not been used to it. And you've

not been supported to do it, and you've not been empowered to do it, and you've not been told that you can, you know, it's not just expected of you to do things by yourself. – Focus Groups.

Ethnicity

There is a majority of Asian ethnicities in the Cycle Sisters rides, something that the charity managers are already aware of, and there are programs in place at the moment to attract Muslim women of diverse backgrounds, like the Somali Project in Tower Hamlets. In this project, a local Somali woman is acting as champion creating engagement within her community, being present in the rides and cycle training sessions, and helping with translation.

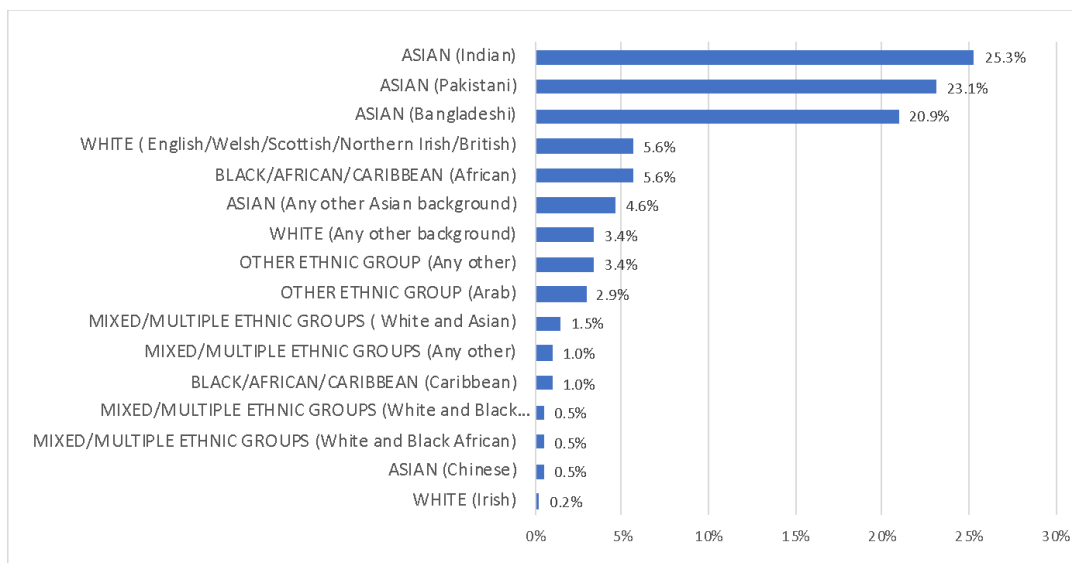


Figure 2. Ethnicity. Data from the Registration Questionnaire.

The over-representation of Asian Muslim women seems to be related to population statistics, but also to the way in which dissemination and outreach has worked so far, based on word-of-mouth, and thus concentrating the recruitment in certain communities.

These are the key areas to work towards increasing diversity in the rides, together with helping potential participants overcome the usual barriers, for example, offering cycle lessons and accompanying women cycling in these under-represented communities.

So through word of mouth outreach, that's the communities that have tended to join the rides. And, you know, probably they also represent the majority of the Muslim communities in the boroughs that we work in. But the numbers of women, for example, from like, black African communities is lower; Arab communities is lower as well. - Interview.

Faith

Most women who participate in the rides are Muslim, although the groups are open to other faith and no faith women.

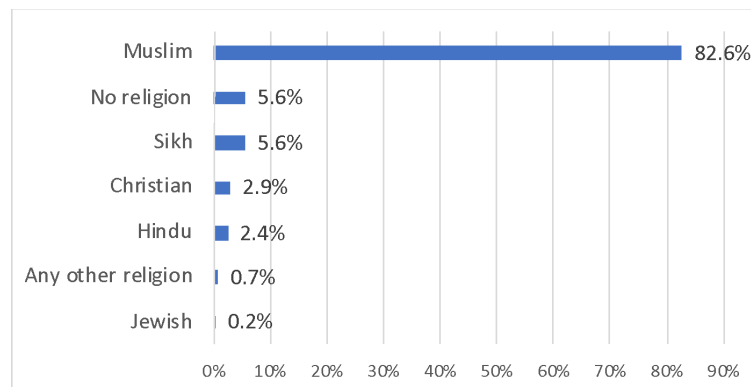


Figure 3. Faith groups. Data from the Registration Questionnaire.

The impact of the rides on women's well-being is influenced by their faith and culture. In certain Muslim communities, cycling is not highly regarded, which leads Muslim women to perceive it as potentially stigmatizing. This perception creates a barrier that women feel they need to overcome in order to participate in the rides or simply be seen cycling. This double barrier arises from the belief among some that women in Islam should not cycle, combined with a patriarchal culture that discourages women from engaging in activities outside of their family responsibilities.

There's nothing un-Islamic about it. I think a lot of us South Asian women grew up in cultures where a woman was not allowed to be out on the road playing. That was a boy's thing. And a lot of women my age, back in the 80s, grew up in homes where they were taught how to cook, clean, look after the kids. And that was the role they were taught to do, nothing else. It's almost as if leisure was not something they were allowed to do. Leisure doesn't exist. And I feel that finding something like this, which keeps you physically fit, mentally fit, gets you out to meet other people. It's a huge, huge thing. – Interview.

Being in a group of Islamic majority helps women feel that they belong, that their faith needs will be understood and respected, especially for those women who are not so young:

It is open to everyone. It does help, well it helped me in a sense that I didn't struggle fitting in like usually I'd be conscious of what am I gonna wear, how will I fit in, will prayer times clash... But being in a Muslim group, I didn't have that worry. Yeah. But then I would understand, like, usually if I was going to any group session and I saw majority of the people were of a different ethnicity, I'd feel, it would feel a bit difficult to blend in. Interview.

It will vary within the age groups of the people who are joining as well. I think the older generation feel more comfortable within a group where the younger generation are more adventurous. Interview.

However, there is a recognition that there are still cultural barriers and stigma to overcome in Muslim communities and families. And the way to do it, is perceived to be from the inside:

I think it's all well and good that we're trying to promote the cycling, but I think in some families it is still not acceptable for women to cycle and I think we need to change the mindset that yes girls can cycle and it's not just for when you are children and you take the children to the park and cycle and that's it. It has to continue. The mindset is just not there within our own communities. Yeah, I mean the women are very confident and brave enough to come out to break that circle, that cycle of that you're not allowed to cycle. But yeah, it has to start in the homes. - Focus Groups.

And representation – seeing “people like me” cycling – is the other barrier-breaker, commonly mentioned in both interviews and focus groups:

A lot of the women were saying that when we was growing up we was told girls shouldn't be cycling, girls shouldn't be playing football. So, I think that barrier needs to be broken first and when they see other women like themselves cycling, it almost gives them a sort of encouragement, okay, if they can do it, why can't we? So it brings them towards it. Interview.

There is a shared view that changes in culture take time, but the view from the inside of Cycle Sisters volunteer community is hopeful:

If you think of the bigger picture, I think this generation we might have like those hiccups and stuff, but I definitely believe the next generation, you know, these women that are holding themselves back, you know, there's hope that they wouldn't want the same for their children, because I'm sure at the back of their mind, they know that there is those restrictions that are pulling them back. But who knows? I mean, you can only hope, right? – Focus Group.

The rides provide a positive image of the Muslim community for people of other groups observing the activity:

It's been very good in terms of interfaith activity, because people always smile at us, they want to talk to us, so it's been a nice thing in terms of bringing all peoples together, you know, as well. Interview.

The Cycle Sisters rides are open and inclusive to women of other faiths too, who feel welcome in the groups:

We do say we're a Muslim-led group, but all women are welcome to come. And that hasn't discouraged any women from other faith groups to join, faith or no faith. They've been really feeling themselves really quite comfortable. We've got two ride leaders who are non-Muslim in our group, one of them is the most active ride leader in our group, and they felt quite included. And you

know, other riders met her (the non-Muslim ride leader), and as a result of that have felt comfortable to join the group. Yeah, so people often ask, “can I come?” and they just join in, we welcome them just the same, but we don't shy away from who we are, and we don't shy away from what we're trying to achieve here. And yeah, it's been, I think it's been quite accessible – Interview.

Disability

It was a conscious decision to explore disabilities in this evaluation. Although Cycle Sisters have only access to standard bicycles, it is important to explore whether this was a barrier for participants or volunteers. However, it is hard to find out, since women with disabilities might not approach the rides, if they need a non-standard cycle and they realise there aren't any available for the rides, unless they bring theirs. It seems obvious that there were no participants of the questionnaire that identified themselves as having a disability that didn't allow them to use a standard cycle. However, 3.6% identified as having a disability, and able to use a standard bicycle. A slightly higher percentage of 4.9% preferred not to say and the rest identified as not having a disability.

In the interviews, there was one ride leader that did disclose a cardiovascular disease that had led her to use an e-bike, and she knew other women with similar issues who could not join the rides:

I've got a heart condition so for me having an electric bike really helps and I know people who have got arthritis and who are wanting to cycle who don't have that access to an electric bike and I know people with other disabilities who would like to have an accessible bike like a trike or something like that but cannot join in because the bikes are not suitable for their disabilities. So, there is still quite a bit to go when it comes to accessing with different needs yeah. – Interview.

This same person has children with disabilities. For this reason, she found the time spent with Cycle Sisters especially beneficial, as providing her with a respite out of her caring duties, to care for herself:

Having special needs children is quite isolating because you don't get to meet other parents at the school gates like you would if you have a mainstream child because the children go on buses. So, it's different ways you need to meet other people and I have a group of friends who do have special needs children, but I wanted to come away from that because I didn't want it all to be about disability, my children and me being a parent of disabled children. Yeah, taking a break from that role, being escaped from that reality. – Interview.

This volunteer suggested, as a potential solution to access non-standard cycles (that are very costly), to request the boroughs to offer a broader range of non-standard cycles within the cargo

bikes hire schemes that some of them have. This would not only help people with disabilities, but also by women with small children.

This is a case in which Cycle Sisters could explore partnerships with organisations that work with people with disabilities like Wheels for Wellbeing, or the boroughs, to have access to non-standard cycles.

Employment status

The employment status of the participants in the rides is varied, and not so different from the London general population. There is a slightly higher rate of part-timers compared to the general population but there are more women full-time workers than expected, almost the same percentage as in the general London women’s population.

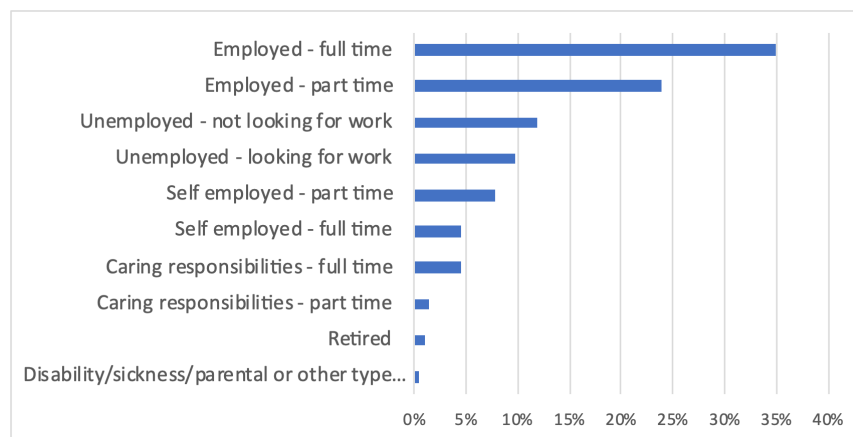


Figure 4. Employment status. Data from the Registration Questionnaire.

Cycle Sisters rides are a break for women in which they can relax, they don’t need to think about anything else and, thanks to feeling safe, they can then connect socially to others. The benefits for mental health of this “time out” is very valuable for participants.

This is expressed by participants who feel stressed at their jobs:

I remember one of the riders telling me that another rider had said, you know, to them over the coffee break that you don't know what I have to deal with at work each week. And I just look forward to Saturday to blow off steam. And it's really really humbling when you hear things like that, that it makes such a difference. - Focus Group.

The comments about sisters with caring responsibilities who find a respite have been exemplified by a quote in the Disability section above.

And also participants who have difficult situations in their families, due to health issues.

There's a rider who would come on beginner rides would borrow a bike um and we hadn't seen her for a little while. And it turned out that her mother was actually in hospital for quite a long period of time. She goes, "I am so happy to be able to be on a ride where I can be myself and I don't have to think, and I don't have any responsibilities and I can just ride with Cycle Sisters. And she was like "I've probably missed the rides more than you guys have missed me because for this long chunk of time that I haven't seen you I feel like I haven't had my own space to breathe in yeah whereas now that I'm here it's like nice to have this time for myself". Yeah, I think that space for themselves to take care of themselves and that aspect of not having to worry about anything because you're taken care of, that's a very valuable feeling for the participants. Interview.

Household income

It is usual in income questions to have a significant percentage of participants who prefer not to disclose this information. In our survey this was 38%, similar to what is normally expected.

The income category with the lowest range is particularly noteworthy, as it comprises 35% of all responses. Excluding the "Prefer not to say" responses, these account for 56% of the total.

There is a very high proportion of participants who come from lower income communities. This is the type of population who are more exposed to all health risks (physical and mental health) and have the lowest levels of well-being. Therefore, this is the population group that can benefit the most of programmes like the Cycle Sisters rides, that have a positive impact on all these areas.

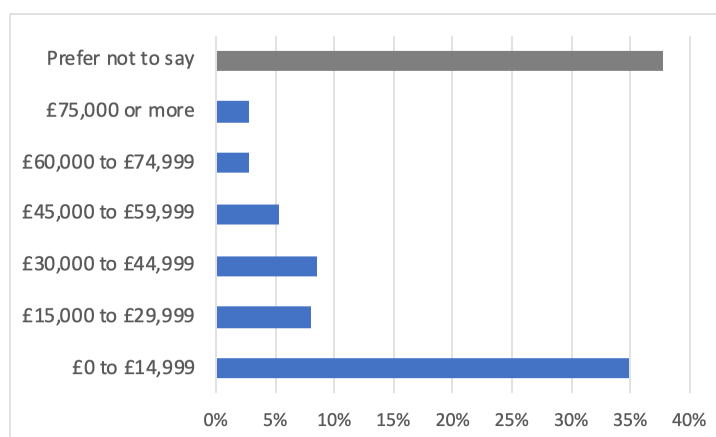


Figure 5. Household income. Data from the Registration Questionnaire.

Sisters that start joining the rides without owning a bicycle get stuck on using the bicycle only within the rides due to financial barriers or lack of parking space. Others join with a “rusty” bicycle taken from their sheds and then want to fix or upgrade their bicycle and get new gear after joining the rides, which also implies that they would like to spend money on that.

Yeah, because she doesn't own a bike, she's borrowing a bike so that makes a difference and some people do find it difficult getting out alone so knowing that there's a service provided free of charge available it's an opportunity. So, it's also accessibility in financial terms. Some people might not have the money to buy their own bicycles – Interview.

Activity participation

Individuals engage in activities such as work, chores, personal care, caring for others, shopping, sports, and leisure to meet their basic needs and preferences. An increase in motility (or the potential to move) will provide an increase in activity participation, as similar studies have shown (van der Kloof, Bastiaanssen & Martens, 2014).

In the case of cycling, to be able to participate in activities by using a bicycle implies, among other aspects, having access to a bicycle and feeling capable of using it safely – that is, perception of competence.

This section will use data about access to a bicycle and perception of competence from the Registration questionnaire and the Follow-up questionnaire. To illustrate these issues, quotes from interviews and focus groups will be added.

Results from the Registration questionnaire are disaggregated between First timers and Repeaters of the rides, to be able to observe the differences between those participants who join the rides for the first time, and those who have joined previously.

As the data show, there are differences between first timers and those who have been participating for a while.

Access to a bicycle/cycle

As shown in the graph, access to a cycle in working order increases the more rides the participants join: only 38% of the first timers have access to a cycle in working order, compared to 57% of the participants who have done any other ride(s) and to 65% of the participants in the follow-up questionnaire. It seems that it takes some time and practice for participants to be able to access their own cycles and given that the follow-up questionnaire was sent eight months after the registration questionnaire was open, the percentage might increase even more as participants join more rides over time.

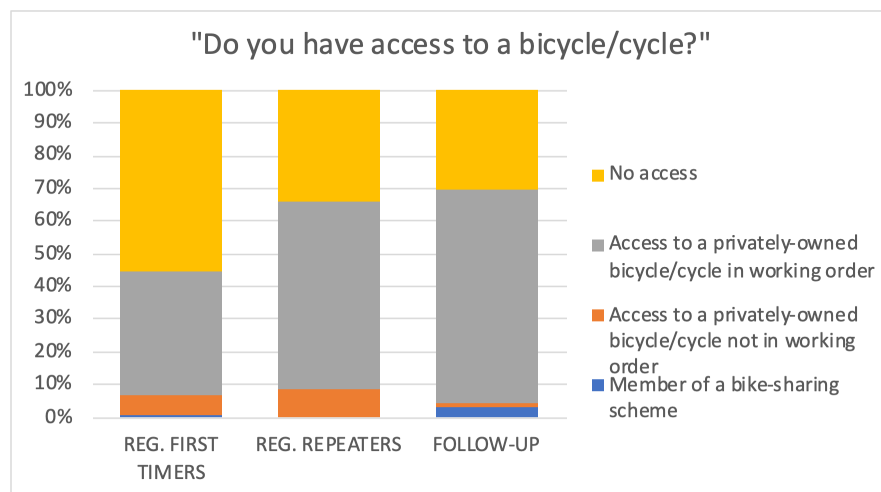


Figure 6. Access to a bicycle/cycle. Data from the Registration and the Follow-up questionnaires.

Participants try to access a cycle in different ways. Some of them, rescue their old bicycles from their sheds, put them in working order, and start using them. Some others do not own a bicycle (see the quote in Household income section), which means, they need to borrow one of the bicycles available for the rides. The bicycles available to borrow for the rides are a limited resource, this comes up consistently as an issue in almost all the boroughs in which the interviewees volunteer. This also limits the number of participants without a bicycle that can join the rides, often leaving some of the demand uncovered.

A lot of people who have just learned how to ride a bike want to join the group. And sometimes we can only offer four places where we'll have a waiting list of, you know, six or seven or maybe even more. We can only offer four people out of all of them. Most of the beginners will not have their own bicycle to start on. It's a limiting factor for them. – Interview.

Given that the majority of participants come from lower income backgrounds, it is crucial to provide access to bicycles for both group rides and individual ownership, ensuring that all women who want to join the rides can do so.

For those who don't own a cycle, together with financial cost of buying a bicycle, storage and parking have come up as important barriers.

In terms of barriers, I think, obviously, the cost of buying a bike. But, even if it's affordable using the various schemes, it's where to store a bike as well. They don't always have the space in the house or can't afford one of those metal storage, you know, things for the front garden or don't have a front garden or whatever. So storage is an issue and where people have approached the council for those arch shaped bike storage things for the street, they quite often find they're already full. Focus Group.

Having access to a bicycle – or daring to use it if they already have it – can make a big change, it is linked to cycle outside the rides and even get others into cycling as well. This is the element of appropriation, using the bicycle in everyday life, according to the Motility framework:

I had a bike and it was just sitting in the shed. I didn't do anything about it for many, many years and only after coming on a few sessions with the cycle sisters, even then I was still reluctant to bring the bike by myself along the roads all the way to Newham. I'd prefer to come on the tube, get there and then borrow a bike. And then it was just after quite a few sessions, one of the cycle sisters, the leaders, said, just bring your bike and get Nigel (a bicycle mechanic) to have a look at it because it's all rusty, it's probably for the bin. And it was only encouragement from her that I actually brought the bike to Nigel, and he did an amazing job of fixing it up I thought it was fit for the bin actually but actually it's actually a really good bike. So now, you know, I'm now commuting to work and back. And my husband even said, "you wouldn't even venture out on the pavement, let alone the road and you're doing like miles, like nobody's business". And then he went and got a bike as well afterwards. He's like, oh, I'm gonna go and get one. But it's that impact that it has on somebody's life. It is actually quite dramatic, and it is life-changing, and it is freedom that you get that you didn't know existed. Focus group.

Perception of cycling competence

Similar to the access to a bicycle, the perception of competence increases in groups with any history of attending the cycle rides. The two answers that participants who feel capable of riding on the road goes from 53% for First timers to 88% in the follow-up questionnaire.

This clearly shows the ability for the led rides to build cycling.

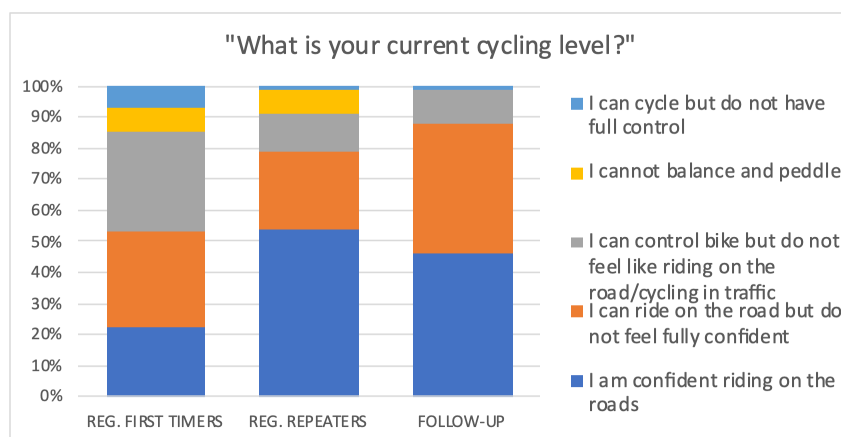


Figure 7. Perception of competence. Data from the Registration and the Follow-up questionnaires.

One of the differences between First timers and is **their level of self-confidence**, and the ride leaders help riders build it by **encouraging** them, and giving them positive, constructive feedback.

With the first timers, you know, you can tell that some of them are really rusty still. Although they're peddling and they're steering, they're still a little bit wobbly, nervous and what have you. And it's just that gentle support. I never give negative, I'm always positive. So, it's always like, just sit nice and upright like queens on your thrones. You just need to kind of just encourage them, and remember looking around, and just gently make conversation and stuff. I think that makes them feel so much more relaxed. And they find that they're more capable of doing more than they thought that they could, even though they started off wobbly. But it's just that bit of encouragement and stuff. And they then want to do more cycling. They then want to get their bikes, you know, so yeah. - Focus Group.

Riders also build their confidence by being **inspired by the achievements of other riders** and the **sense of belonging to a supporting community**:

Having these same sisters that regularly meet up on a Saturday, it kind of becomes like a family for them, regular faces that they see. And you see the interactions between them and how they actually, the riders, obviously the ride leaders as well, but within the riders how they encourage each other; how they celebrate each other's progress, how they look forward to meeting each other and supporting each other with other unrelated things such as housing or

*medical issues or social issues, how they kind of look out for each other. -
Focus group.*

As shown in the Figure above, the perception of competence increases with practice, the more rides the participants join, the more they feel competent to cycle.

Competence is the cycling level, the skills a person think they have. Skills can be improved by training, and, in some boroughs, there are cycle training schemes. However, cycle training in the boroughs was limited during the time of this evaluation due to budget cuts resulting from the pandemic. Cycle Sisters has supported a number of women to train as Bikeability instructors. In those places where training is available, this has provided access to those women who did not have the basic skills to join the rides.

*I know quite a few ladies who would like to join but they don't know how to ride so once we've got more you know instructors here that would be great. -
Focus Group.*

*Competence seems to improve by both **training and practice** (joining the rides regularly).*

Competence is a slightly different concept from **self-efficacy**, which is defined as an individual's belief in their capacity to act in the ways necessary to reach specific goals (in this case, either join the cycle rides or, more broadly cycle for leisure or in broader everyday life). Self-efficacy is therefore the level in which people believe in themselves, their self-confidence.

The level of self-efficacy or self-confidence of the participants is influenced by the encouragement of the ride leaders and other riders, and the motivation they get from the rewards of social connection and being amongst people "like them" (representation). All of this in turn creates a sense of safety and belonging to a group, from which the individual feels supported, protected, and capable of more.

The interesting thing is that, when individuals progress in the levels of self-confidence in one specific field, they do it across other fields in the life as well.

We have sisters who come on our ride. And then, you know, and then when they finish, they say, "Oh, I'm so glad I came." You know, kind of thing. And it's that satisfaction of seeing women achieve something and then feel really grateful for it. And it could have just been one ride and they sort of say, "Do you remember that ride I did with you? It was that ride that built my confidence. And then I went on and did this and did that and did this and did that." – Interview.

When they realise that they are more competent, some of them start using the bicycle in their everyday lives.

I was just thinking of all the ladies who've joined cycle sisters and are now independently cycling. One of them is cycling to work, one of them cycles when she can, but when her brother visited from Sri Lanka, he was blown away at her ability to do Richmond Park and do elevations and do all the safety on every tricky junction there is around the Hounslow borough and it's definitely impacted these ladies' lives and changed them, their lives so much. - Focus Group.

Some of them even start “leading” others, taking the children to school, doing the rides in their spare time with their husbands and families, or even becoming a ride leader.

But road safety is an important barrier and many women avoid the road until they are confident enough, thanks to regular attendance to the rides:

There is one lady who cycles in the park just in the park with her husband and children and she says she takes the bike in the car and then goes to the park and puts it back in the bike in the in the car because that's the only thing she's confident with. And I asked her, would you like to be confident so you can go to the park on your bike and come back on your bike? She said yes that's the goal and she feels coming enough times to the ride will help her achieve that. - Interview.

Getting to the meeting point for the start of the ride can be something many women interested in the rides don't feel capable of. This barrier keeps many of them “observing at a distance”, they stay in the Whatsapp groups but never get to sign up for a ride. If detected, some ride leaders have offered their time -when they can- to accompany them until they get more confident:

I've actually said to some of the riders, like if they know someone who's struggling to leave their home, they've got a bicycle, but they're scared to cycle on the road by themselves. On the day that I'm not leading, that I'm not meant to be leading and I have a day off and I'm free. I'm happy to actually collect them, cycle with them to their venue and then do my own thing and when the ride ends then cycle back with them so they can get home safely. I'm happy to

do that once or twice until they get a bit of confidence because I know that is a barrier. – Interview.

Cycling and overall physical activity levels

In this section, data from participants in both the Registration and the Follow-up questionnaire shows the evolution in the frequency of cycling and the levels of physical activity of the riders.

Frequency of cycling

The data clearly shows a substantial increase in the intensity of cycling of the participants in the rides over time.

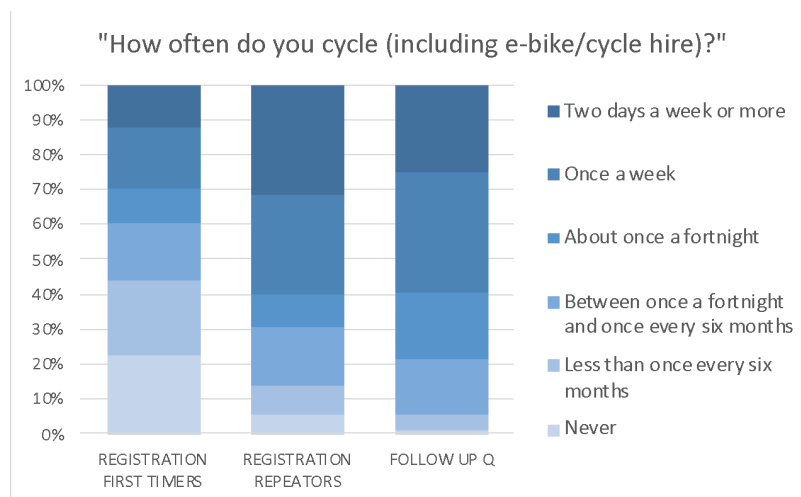


Figure 8. Frequency of cycling. Data from the Registration and the Follow-up questionnaires.

The graphic shows a decrease in the lower frequencies of cycling in repeaters in the participants of the follow-up questionnaire. The “Never” cycling option almost disappears for the follow-up sample. At the same time, there is a clear increase for the highest frequencies of once a week or more (adding up “Two days a week or more” and “Once a week”), in those who are not first-timers: from 30% of the first timers to 60% of repeaters and follow up participants.

Empowering women to feel confident enough and to cycle independently is one of the outcomes of the Cycle Sisters rides.

It looks like the support from their family and other people is crucial for women participating in the rides to increase their levels of cycling, and feel able to cycle more independently, beyond the group rides.

Just to **have company** when they cycle seems to be very helpful:

But they still won't ride alone. Yeah. So it's like they want someone with them just for that moral support. And in fact, one of them said, you know, what would I need to do to be able to commute to work, you know, feeling like she wouldn't have that, she wouldn't be able to make the leap from our sorts of rides to being able to commute for herself to work.– Focus Groups.

Some women start to cycle outside the rides with their own families, to feel accompanied by their husbands, or to take their children to school.

Also the confidence. So to have enough confidence on the bike to then be the ride leader quote unquote for your family. So a lot of the sisters or participants have since joining Cycle Sisters now do the school run on bikes with their little ones. So there was a participant with Hackney and then was confident enough to do the school run with her kids. And then was confident enough to say, to apply to be a ride leader. It was really nice to see that confidence grow of first I'm just comfortable riding my bike and being told what to do. To then be confident enough to do that with her children, which is a completely different kettle of fish to like ride lead children is completely different to ride leading adults. So, it's really amazing. Interview.

Levels of Physical Activity

For health and well-being, WHO recommends at least 150 to 300 minutes of moderate aerobic activity per week for all adults. This physical activity can be done as part of work, sport and leisure or transport (walking and cycling) (World Health Organization, 2020). In terms of the question in our survey, this means that only participants who selected five or more days would be fulfilling the minimum levels of physical activity recommended by the WHO. Although there might be some under reporting (and some women doing some moderate physical activity by performing their household chores, for example), these levels are generally quite low and there is room for improvement in the majority of the population.

In England, data is recorded for 3 groups:

- physically active – people who do 150 minutes or more a week (5 times 30 minutes per day)
- fairly active – people who do between 30 and 149 minutes a week (1 to 4 times 30 minutes per day)
- physically inactive – people who do less than 30 minutes a week

The percentage of people aged 16 years and over who were physically active was 61.4%. For the Asian population, that figure goes down to 50.4%.

In our data, the percentage of physically active women has a slight increase, whereas those physically inactive decrease. This is one instance in which the data of the Follow-up might be affected by seasonal change, as this questionnaire was open during the winter months.

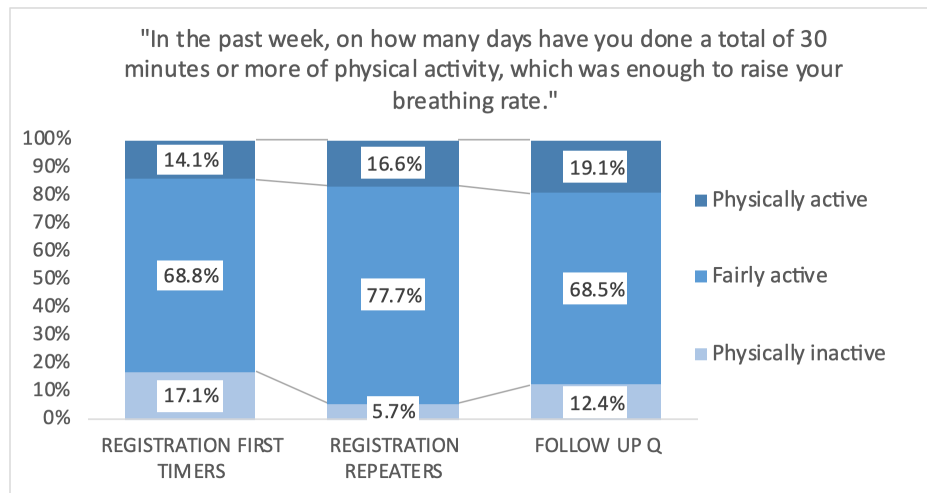


Figure 10. Levels of Physical Activity. Data from the Registration and the Follow-up questionnaires.

The increases in physical activity capture by the survey might seem small, especially because they might take a longer time than that of the survey scope 8 months. But they do happen, as documented with the qualitative data. The most obvious increase in physical activity that can be directly attributed to the rides are the first steps of the participants cycling outside the rides.

The first steps for cycling outside the rides seem to have a lot to do with keeping safe by cycling in the parks, or following routes from rides they've already done, and to be accompanied by others they know.

People have actually joined their own subgroup now from the group. So, people who have formed friendship, they often meet on Thursday now, they hide their own bags in the park and do their own mini rides, which was grown from the group itself. – Interview.

The confidence in their bodies that they've built by joining the rides allows them to be more confident in other sports:

So when they are sort of confident and they trust their body that they can do it, they're able to, I've usually seen them do more than one sport, so after

cycling I've seen them go into hiking or running or some kind of extra badminton as well, I've seen a couple of ladies doing badminton. So, they go on further to do more sports. - Focus Group.

And then when they have enough confidence, they can start commuting, as shown in previous quotes.

Well-being

The following three elements are indicators of wider well-being, not necessarily linked to cycling. By measuring them in participants over a period of time, it can be evidenced the impact of rides beyond their use of the bicycle.

This section will use data from the Registration questionnaire and the Follow-up questionnaire.

Self-Efficacy

The impact of the rides in general self-efficacy, that is, how capable we see ourselves to achieve our goals in life, appears modest in the survey data modest but still can be observed.

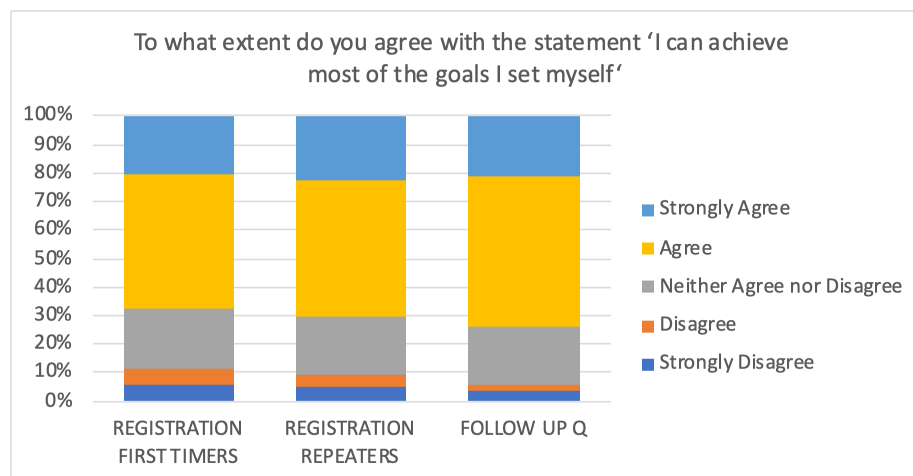


Figure 11. Self-efficacy.

There are hints in the qualitative data, though, that describe this effect.

There are multiple examples of participants using the self-confidence acquired by joining the rides to achieve other goals in their lives.

Here is an insight about how the self-confidence gained in the rides extend to other aspects in life from one of the interviews:

We think we're only capable of certain things until someone tells us that actually we're capable of more or shows us that we're capable of more. So that's what I'm noticing that they're able to see and myself as well. So yeah, you break those barriers that you have in your mind, and you become more, you feel more empowered, not just in cycling, but in other aspects of your life as well. – Interview, R.

One of the ride leaders felt that the confidence boost was the most important impact of the Cycle Sisters rides on their participants:

So number one is they definitely get confident, not only on the road, also in themselves, so they can, they trust their bodies, they are able to achieve something, they're able to do, you know, a short distance, then longer, and then it goes longer, and then they can go up that hill, you know, and then go on a higher hill, a longer hill, so it's the confidence that they gain. - Focus Group.

Lack of self-confidence affects the overall well-being in different ways, in this case, it caused isolation to one of the participants who used the rides to help her rebuild their confidence:

we've had people who have you know, felt very isolated before through various reasons, through losing a job, through health issues where they were confident in their working life before, confident as a person, but then lost their confidence, and an individual actually said to us that they wanted to use us as a way of rebuilding their confidence. So, we realized it wasn't just about cycling, you know, it was, she lost her confidence even in cycling and she felt she's very anxious, very nervous, so we had to position her in the group so that she was close to us, so that you know one of us, so that we can support her. And in fact, that day we had three ride leaders, so one ride leader was allocated to just supporting her because you know in terms of managing her anxiety, in terms of her cycling and making her feel safe and everything. And after a while you know, you know, you realize that she was using cycling as a way to reinsert herself into society. So, I was quite shocked actually, I kind of felt that I'd underestimated what we were doing, you know, and it really humbled me. – Interview.

One of the areas where sisters use the confidence, they've gained through the rides is to improve their employment status, which can make a considerable difference in their lives:

One lady in one of our groups suffers from a lot of different illnesses and mental health challenges. And she wasn't working, and she didn't feel that she could work. But through Cycle Sisters, she became a ride leader and through just getting some confidence and developing some skills as well through that,

she then got to a point where she felt ready to work again and she has now got a job and she's working for a long time. - Interview.

Life Satisfaction

The increase in life satisfaction can be observed in the survey data, especially in the Follow-up questionnaire data, but already in repeaters of the rides. As a starting point, 64% of the first timers are satisfied or very satisfied, in repeaters this percentage go up to 68% but it's as high as 81% for the participants in the follow-up.

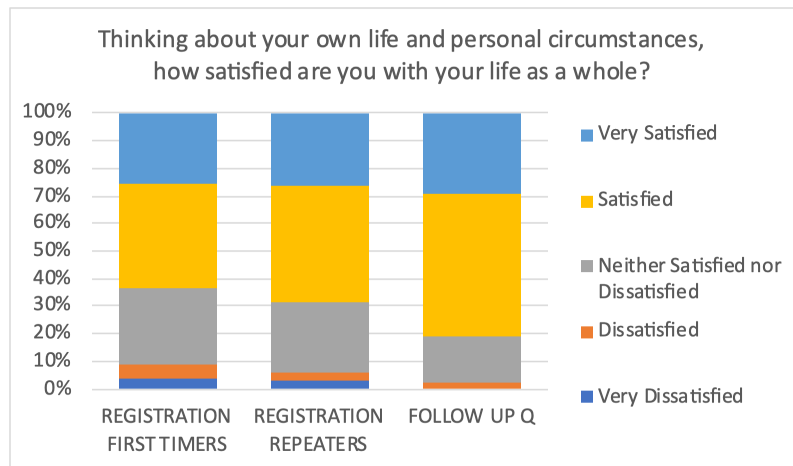


Figure 12. Life Satisfaction.

It is clear that the impact of the rides affect participant's lives, beyond just the half-a-day a week in which they actually are doing the ride.

That kind of knowledge that there's something each week that's going to motivate you and make you feel positive and happy and give you a sense of achievement, I think is really good for their mental well-being. – Interview.

Multiple stories show the impact on mental health and general improvement of participants quality of life, and even the lives of those around them:

One of our ladies, Afghani refugee, moved out of the hotel that she was in for a long time, moved to Harrow. She has continued her cycling, but before she left, she divulged that she was having CBT, cognitive behavioural therapy, because she realized she was in such a bad place mentally. And her teenage son said, "Mom, why are you always shouting at us? And she realized, and then she reached out for some help. And then by joining, after learning to cycle, now it has given her such an outlet. She said, "It's my time, my space, time to be away

from." And she, I follow her on Strava and she's amazing. And yes, she's highly intelligent. So she's obviously got a very busy brain and she's involved with various things. And I know she's a happier mom, happier wife because of this, the cycling she's got in her life. And it's really made a huge difference for her to be out of her, you know, away from whatever. Now fortunately they've got her a home in Harrow. But yeah, so that's, really very rewarding to know that, saved someone. - Focus Group.

Isolation

Social contact is the most important predictor of well-being for us human beings, this is how our neurology works. A ride leader explains it in this way:

Some of us are less sociable than others and we need time out but generally even the people who are introverts need some social interactions. And so all of us, besides wanting to improve our riding skills, we also want to make those connections with people in our community and actually have deep, meaningful relationships, not the relationships where we just talk to one another, and we want it to be quite deep and meaningful. And I think that's what some of them are getting, especially when they're seeing each other regularly, they might then meet outside of the rides, and we encourage it. – Interview.

Social connection can even be more important than the activity itself.

They feel really motivated to keep trying especially because they've got the support of the rest of the riders and the ride leaders as well. So just doing that exercise and having a social aspect to the exercise encourages them to come back because often we will take a break at a cafe and we get to know one another so they really enjoy that as well so it doesn't just feel like hard work for them. – Interview.

Even when it's the social aspect what's important for some women, they get the benefits of the cycling as well, and they have cycling as a tool for whenever they feel like doing it:

Most women they're coming for the social aspect, they like it, they like the chit chat, the coffee shop and then just a bit of exercise, a bit of riding here and there. So they have no plan to ride other than that but hopefully as they build their confidence they may be, you know, if they wanted to they can. – Focus Group.

The data is not so conclusive in this sense, although the proportion of participants that often feel isolated is lower in the Follow-up questionnaire.

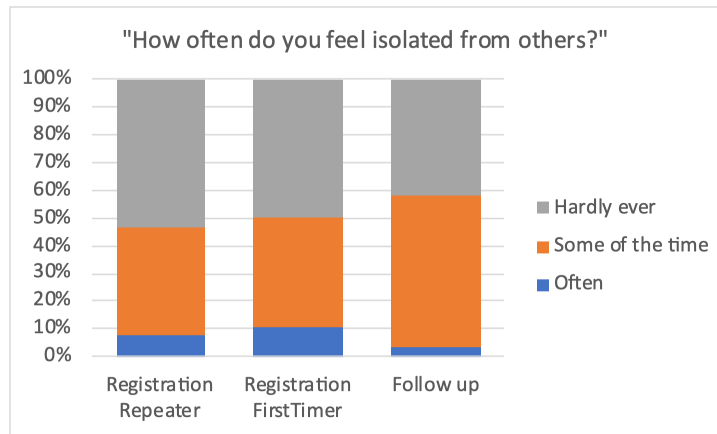


Figure 13. Isolation.

Ride leaders, however, have a sense that some of the participants start to come to the rides with a feeling of isolation and overtime, they can witness how these participants open up and form friendship bonds that provide them with a social network that they didn't have before.

Some of the riders that I know are quite isolated socially. They're not attached to a family necessarily, or they've had to live away from their families for various reasons, so they're quite isolated. And having these same sisters that regularly meet up on a Saturday, it kind of becomes like a family for them, regular faces that they see. And you see the interactions between them, the riders, but obviously the ride leaders as well, but within the riders, how they encourage each other, how they celebrate each other's progress, how they look forward to meeting each other and supporting each other with other unrelated things such as housing or medical issues or social issues, how they kind of look out for each other. - Focus Group.

It is very important for our well-being to feel part of a community, and to feel that the community can support us if we need it. Some participants gain this important sense of community by attending the Cycle Sisters rides.

After joining Cycle Sisters rides....

This section includes a series of questions that were only asked in the Follow-up questionnaire, to assess the impact of the rides in retrospective, that is, in comparison with "Before joining the Cycle Sisters rides".

After joining Cycle Sisters rides....	Agree	Neutral	Disagree
I feel safer when I'm cycling	76%	5%	13%
I have inspired members of my family and/or friends to start cycling or cycle more	64%	16%	20%
I can reach new or further away places when I cycle	64%	18%	18%
My travel time or costs have reduced	27%	46%	27%
My social life (with existing or new) family and friends has improved	46%	38%	16%

Table 2. Impacts of the rides in different aspects of participants' lives. Data from the Follow-up questionnaire.

Safety

Safety is the aspect that improves the most for the participants of the rides and this is very relevant, taking into account that women feel more unsafe cycling (and in general, in the public realm) than men.

But it's the women also who are very scared to go out, aren't they? We've got to get the women out somehow. I mean we do beginners rides, and they are only in the parks, but it's so difficult to even convince them that you will be safe in the parks. I think the safety is a major issue, isn't it, on the roads? - Focus Group.

The ride leaders create a safe space for the riders, who don't need to worry about it and can just enjoy the ride:

I don't have to worry about my safety because there are leaders worrying about my safety. I literally just have to be on the bike and ride. Interview.

Learning safety tips and being encouraged by others make participants feel more self-confident, and this helps them develop a sense of safety.

Again it's "the road is too dangerous; I don't want to go on the road" kind of thing. So, it's just encouraging them and building their confidence with the rides that they go on, knowing that we're there to support you. They're going to show you a few things that you can probably pick up, and just those tips and just keep that in your head. And when you're cycling, you can just put that into practice, and you'd be so confident. – Focus group.

Inspiring others to cycle

A significant proportion of participants report having inspired others to cycle.

They benefit so much from the rides, that want their loved ones to have that experience, too:

It's that snowball effect that R. mentioned within a family that other people end up buying bikes and commuting and all of those people that are impacted that we don't necessarily know about but that have been so um yeah, it's really exciting. Focus Group.

When riders become confident, they start involving family and friends to cycle with them.

And what we also found is that a lot of women have said to us that through coming on these rides, they are now taking their families out on bike rides. And a lot of the women have said that we normally, where the husbands would take the lead, they are taking the lead. Yeah, and using some of the same routes that we do. So, we let them have the routes afterwards, you know, so that they can go and either they become familiar with it and then they can try it again on their own should they wish to, you know, if they're confident enough. – Interview.

Reach new or further places

The data confirms that an improvement in motility increases the area that women are reaching.

Feeling safer makes women move more independently.

This has been expressed as women taking longer, more difficult rides:

They definitely get confident, not only on the road, also in themselves, so they can, they trust their bodies, they are able to achieve something, they're able to do, you know, a short distance, then longer, and then it goes longer, and then

they can go up that hill, you know, and then go on a higher hill, a longer hill, so it's the confidence that they gain. - Focus Group.

One of the ride leaders shared the story one of the participant's impressive achievements:

One of the stories that we were often proud of is one of our ride leaders M. She started with us August last year and she knew how to ride but she hasn't ridden for years so she's been coming to our rides and loved it. She loved it so much and then bought her first bike. One of the ride leaders went to the shop with her to buy her first bike and then helped her with the route for her to commute to work. So she's been commuting to work in this new bike that she bought. Got trained as a ride leader in our second cohort back in December last year. Not this December, but the December 2021. And then, and now she's been doing like, she's been unstoppable. Like she rode to Amsterdam, she, she, she did Ride London, London to Essex, she, she did London to Brighton a couple of times, she's been quite remarkable. She leads our informal road club cycling group. So she's, you know, and the impact that has on her confidence, resilience, her agency has been phenomenal and not only like she's just bringing herself up but she's been bringing other people up to like to you know ride further, get stronger. – Interview.

Trying to reach new or further places can be challenging in terms of wayfinding, and it was recognised that certain tools could help participants to overcome this barrier:

But one thing that might help them is to show them how to use cycle streets to plan a basic route and convert that to Komoot. because I find that the riders, our riders who have branched out into being independent, have been very curious about how we use Komute and we've had that dialogue about cycle streets and things like that and if we did a little video showing them how to do a basic route, just you know a couple of miles and how to convert it, then they can play around themselves and build it into their own lives in terms of journeys they need to do. Yeah because not knowing where to cycle and how to get around this massive barrier. – Focus Group.

Discovering new places in the neighbourhood was something of great value for many participants, the parks and the coffee shops that they visited during the rides were then added to their personal list of places available for them to enjoy on their own or taking others.

That's the other thing, you know, you find all these new coffee shops that you didn't know existed. And again, I'll bring my family to this and you encourage other people to come along with you as well. So I think it again, that I think has a positive health impact as well because you're seeing new places, new things to do and explore things where you may not have normally visited this place or area and you didn't know existed and actually receiving the rides to these various areas I think is brilliant. - Interview.

Reduction of travel costs

The data about financial savings is quite neutral. The reflection that this ride leader shared points out to the fact that people who take up cycling need to make an initial expenditure:

I think the financial benefit is a bit of a fallacy, because you think you're saving money, but then you end up spending more on the bike and the accessories and all of that. So it turns into a nice enjoyable thing for sure. But overall, I don't think you're saving any money as opposed to going on a bike. It's still a good way of spending the money. - Interview.

However, at a medium and longer term, cycling does save money for the sisters that use it for their everyday mobility:

Individuals being able to commute to work and save money, that is very relevant. And I know that was their hope of a lot of our riders when they joined, and a number of them have reached that stage. And there are some who are very close to that stage now, where they feel that they they're almost at the point where they could commute to work, and for us that is brilliant. I know some individuals who are now routinely commuting to work who don't actually attend us, the Cycle Sister rides, regularly anymore. – Interview.

Improvement of social life

Social life improvement is a considerable effect, although not as substantial as safety, inspiring others to cycle or reach new and further places. The Cycle Sisters rides are about cycling but also about social contact, and some participants can find the latter even more important than the former:

We might have a good time cycling, but if we don't like the people we're cycling with, are we going to come back? If we haven't made a friend, are we going to come back? We're gonna try and find somewhere else to go and cycle or join another group. So it's a combination. They have to enjoy the experience of cycling or like, even if they don't enjoy this experience of cycling, if they can make those friends and have this human interaction, that's gonna keep bringing them back. – Interview.

The participants' social network extends beyond the rides, and they meet with friends they've made in the rides to do other activities.

It's like this sense of like sisterhood and a social aspect yeah and it was really like I just overheard the conversation I wasn't even part of it, but it's one that kind of just makes you smile a little bit on the inside, just to know that they're making friends outside of the cycle sisters bubble, and in things that are not cycling related, like it was a book club, it had nothing to do with organizing a ride. – Interview.

Linking with the cultural aspect, finding a community provides some Muslim women with the space they were lacking. The positive social experience in the rides gives them the strength to request time for themselves, away from their caring responsibilities.

Doing something for themselves and getting out and doing something for themselves is a big deal. And it's the same for me, I mean, going out and doing something, which doesn't involve my family, which doesn't involve the kids, which doesn't involve me, and people all want to be with. it's important for me. I said this to my husband, he said oh god, not cycling again. I said "well it's part of my life now. If you don't want to join me, do something else. I found this wonderful community. I want to be part of it and I want to stay there and it's my enjoyment, it's my time". - Interview.

Impact on the volunteers

The semi-structured interviews to ride leaders and coordinators included a question on their own well-being, additionally to providing their insights on the participants' well-being.

The level of motivation and commitment of the volunteers is incredibly high. Some of them had previously been a participant and the experience of the beneficial impact on themselves boosted their confidence so much that they progressed to be trained as a ride leader. For some others, their level of cycling competence and confidence allowed them to enter the Cycle Sisters directly as a ride leader and be able to contribute to an activity that is rewarding for them in multiple ways (more information about this below).

The impact for the volunteers is for their physical health, their mental health, and beyond, generate employability and transferable skills, for example. In terms of physical health, volunteers mention that regularly acting as a ride leader keeps their motivation high and contributes to their levels of exercise and fitness. For their mental health, assuming responsibilities and challenges is making them grow and develop skills and self-confidence. They feel motivated because others depend on them to be able to access the activity, and they have observed how much participants enjoy and benefit from the rides.

Ride leaders were asked specifically which aspects of their volunteering they find rewarding and which others they find challenging, and how they think they could be supported overcoming these challenges.

Rewards

Helping others

One of the most important rewards the ride leaders talk about is realising they are **helping other people**, and to realise that they are making these other people thrive and have a better life:

I find it so nice to have new participants come on and they ask questions, they're a bit scared... and then to reassure them that, you know, "you'll be fine, come a few weeks, give it a go" and to see them grow, to see them thrive it really gives me a sense of accomplishment. I like that and see them smiling just like "yes, I've done it, I achieved it!" you know? to see that kind of reaction, I really like that. – Interview.

This ride leader recognises that she started leading rides for herself, but what keeps her going is realising their role in contributing to other people's well-being:

I came into cycle leading thinking "I can't get on a bike because it's very limited spaces. If I'm on as a ride leader, I get to go every week". That was all. That's what it was all about. (...) And you sort of hear these stories that women talk about, and you sort of think, it's just something I was just doing for me, because it's me out as well. But at the same time, the difference it makes to the lives of other people is what really motivates me to do what I'm doing. – Interview.

Contributing to something bigger

Also, the feeling that they are **contributing to something bigger**, to a better future:

And we've had sisters who've talked about their mental well-being, physical well-being, and all sorts of things. It's so heart-warming to hear these stories. And I think that's what keeps me where I am. It's a lot of time on my head, on my body too. I'm not paying for anything, but what can I say? I just love what I do as a volunteer. And I feel it's just something I'm giving back to women that in the future, they would pass on to other women. – Interview.

Receiving appreciation

Ride leaders particularly value the **appreciation** they receive from the participants:

Week in week out you see how other ladies are benefiting and that feels really good. Part of that you may not be directly responsible, but you are part of that process of helping somebody else. All the time. That's very important. The way people thank you at the end or the way they message you afterwards to thank you for what you've done. You know it's genuine. You know they've really. I really appreciate that. And they and they show it. And that has an impact on you as a volunteer. – Interview.

Feeling supported

One of the strengths that Cycle Sisters have created is to make volunteers **feel prepared**, thanks to their training programme, and **fully supported** by the Cycle Sisters organisation:

I think it's all quite rewarding and Cycle Sisters as a group is very supportive so if any problems occur, we just we have our contacts which we contact each other and we sort of help each other through any issues that we have so yeah, it's all rewarding although I don't think there's anything I don't like about it. – Interview.

Social connection

Ride leaders also get to socialise and make meaningful **social connections**:

I am getting to be a leader of a group where I can socialize, I can talk to them, I can make friends and I have made friends. Like just today I was with my daughter outside and one of the participants saw me and she came up to me and she said, "I was looking to see if that's you because you look so different without your helmet" and then I felt it was really nice that she remembered me and she took her time out of whatever she was doing to come and say hello. I thought that was really nice. - Interview.

Challenges – and suggestions

Some of the issues that have been mentioned by the ride leaders have to do with the following aspects:

Operational aspects

Ride leaders, share some general issues about **planning** the rides. Depending on their borough, they may find it hard to find a balance between the number of beginners and intermediate rides. In some groups, there is more demand of weekday rides, or of weekend rides, and the possibility of offering more rides, which depends on the availability of ride leaders. These are issues that each group discuss with the managers and try to find the best solution or put in place any supporting actions.

Some ride leaders would like to take more **training on cycling mechanics**, or get refreshers if they've already been training, since they find it difficult to feel they're competent on these skills if they don't have chances to practice them.

Timekeeping is also mentioned as an operational challenge. Punctuality in starting and finishing the rides seem to be challenging sometimes for the leaders, especially if the participants don't arrive on time – which happens in some instances. Ride leaders reflect on this and how they have tackled it in their communication style, stressing the importance of arriving on time to generate the most positive experience for everyone involved.

Support for route planning: For some ride leaders, doing the routes and the recce are challenging tasks, others love it, although all agree that it takes quite a bit of time. Some suggestions would be to encourage volunteers to do it in pairs or groups, so that the tasks feel more doable and fun, and if possible, to leave these tasks for those who feel more attracted to it.

Having more people to plan routes would be helpful. I see no one's really interested in planning routes, but then everyone's getting bored of the same routes. - Interview.

I actually quite enjoyed doing the route planning, because it gave me a sense of freedom. It made the challenge of, well, we always start at this green space. Let's find another green space out there somewhere and let's see how I can get to that in the safest possible way, but not necessarily dodging every challenge either, because you want them to have an appropriate level of challenge as well, depending on the level of ride you're trying to do. So that was an interesting personal challenge for me. – Interview.

Resources

Lack of bicycles for the rides

This issue is already pointed out in the section Access to a bicycle/cycle, and it is of vital importance not only to ensure accessibility for women who need it but also to improve the volunteers experience, since they feel frustrated when they cannot support some of the participants who don't get to access the rides because of unavailable bicycles:

We're lacking bikes for beginners and this issue comes up over and over again. When there are bikes, they're not suitable, they need repairs... so we can't offer as many places for a ride especially for beginners because the beginners are the ones who wouldn't have their own bikes. A lot of people end up missing out on rides because of this issue. - Interview.

Some volunteers do not own the technology to be able to lead the ride. This is an example about power banks or specific device to use for directions during the rides, but there are more details in the section Recommendations for the Cycle Sisters Rides:

If maybe portable chargers could be available, things like this, that would help because the worry is your charge depletes very quickly. This tension that I'm going to be in the middle of somewhere and I'll have no charge and I won't know where to go because even if you've done that route a few times things could change on the day. So, it is handy having that map in front of you. – Interview.

Cycle training and coaching: the possibility to offer cycle training to those who need it to be able to join the rides or increase their competence is a key issue. Ideally, the ride leaders would be able to refer participants (or potential participants) to take some training or coaching. This could potentially break the mental barriers of those who feel they lack competence/skills or self-confidence:

There are cases where we have someone who says they used to ride loads, but actually haven't ridden in years, maybe even decades, and who think they'll just pick it up again. And they will, but they need a few tries on the bike before they pick up, and that muscle memory kicks in again. And so, in cases like this, we're able to signpost to cycle lessons and cycle confident lessons because we have a coach in our group. I'm not sure if every group does have a coach and is able to signpost. But I think in this case, we are able to signpost. – Interview.

Mental health support

An important aspect that ride leaders mention is that some they feel they do quite a bit of psychological and **emotional support** for the rest of the sisters, and they endure the tensions of keeping everyone safe, so that can be tiring. This aspect is important, as the evidence show how important it is for the participants to receive that emotional and psychological support from the ride leaders, the positive feedback, the encouragement. A suggestion to support ride leaders for them to support participants emotionally and psychologically could be integrating in the training the tools to be able to do that confidently and without depleting or burning themselves out. This could be similar to a “prevention of burn out in educational settings” toolbox, with psychological tools adapted to the situation.

we've had sisters break down during rides because of things that are happening in their life and you're dealing with that as well and sometimes it can be become overwhelming by the amount of things you're having to deal with, not just their safety, not just starting the rides on time, not just addressing the issues that they bring with them but also your own issues that you're bringing with you as well, and these opportunities for some sisters are like a time where they can get things off their shoulders and it's great alhamdulillah but if when you're constantly having to deal with this and it's a build-up of it then it can also affect your mental health too. So as a ride leader I've actually had to take time off because of all the responsibilities that surround doing my job properly. – Focus Group.

Another mental health aspect is the stress some of them experience because of unexpected difficulties or changes on the day. They get trained to lead cycling groups and their peers support

them, but this reflection from a ride leader seem to suggest that they would benefit of learning some **stress management** techniques in their training:

It's more of a mental thing that I need to work on and become more confident in. Because there's so many things to look at and you just need to kind of keep an eye on those and it's whether I can do that. So, one of the things the marshal does is helps you manoeuvre on the traffic lights or roundabouts or what not, and that I find a little bit stressful, and I think it's stressful because I think I'm going to make a mistake. That's more of a personal thing. I am getting better at it and it's just one of those things hopefully with experience we'll get will improve. – Interview.

Some of them use interesting tools to help the participants approach the rides in a more relax and open way, which also suggests that teaching ride leaders to teach relaxing exercises might be helpful:

I try and encourage them to do like little shoulder rolls and little neck rolls as well and that kind of, you know, relaxes them and stuff because sometimes some of them are a bit nervous at first but they generally, they then relax and, you know, and they see things differently when they're on the bike as well. - Focus Group.

Strengths of the Cycle Sisters model

Cycle Sisters have created a model that is impacting positively in local communities. The following points seem to have contributed to the conditions conducive to the positive impacts that have been documented in this evaluation.

- Knowledge about the needs of Muslim women and other women in the local communities. This knowledge has shaped the Cycle Sisters activities:
 - Providing a much-needed service to the Muslim community and broader women's communities in local boroughs.
 - Creating a safe and supportive space for Muslim women and other women to practice cycling.
 - Promoting intergenerational connection.
- Commitment to diversity and inclusion.
 - The representation of Muslim women cycling, and their visibility during the rides, contributes to change attitudes towards Muslim women cycling, both amongst the Muslim community and the general public.
 - The project is designing ways to reach out to underrepresented communities of Muslim women.

- Knowledge about how to run a charitable organisation: the expertise and motivation of the managerial board has allowed a highly organised and efficient operation of the rides.
- Having a motivated and committed team of volunteers.
 - Participants are encouraged to become ride leaders. And many ride leaders have previously been participants, this means they have had a direct experience of how the rides can impact positively on their well-being and the process of becoming more cycle-confident is fresh in their memories, which helps them relate to the participants they then lead and support them effectively.
 - Thanks to the complete and well-developed training that they receive, the volunteers feel fully supported and confident to do their tasks.
 - Communicating and creating a sense of community within their own volunteers has helped create a sense of community and belonging amongst the volunteers, which resonates in the safe spaces they create for the participants. The social programme for the volunteers and any events that allow connection between them contribute to this strength.
- Getting resources:
 - Liaising with other organisations (boroughs, other cycling organisations) that can provide the resources needed to organise the rides (bicycles, storage for them, maintenance service) with the minimum costs.
 - Collaboration with other cycling organisations to get training for the ride leaders.
 - Funding, thanks to knowledge existing within the managerial team and board of trustees.
- Flexibility and locality: their ability to adapt to the different needs of each of the Cycle Sisters groups and develop different plans for each Borough.

Recommendations for the Cycle Sisters Rides

Some of these recommendations have already been mentioned along the different sections of the report, especially in the Challenges – and suggestions section of the Impact on the volunteers. In the cases where these recommendations have been already mentioned, there will be a cross-reference. Thanks to specific questions and prompts in the interviews and focus groups, some of the suggestions are illustrated with quotes from the data.

These are just suggestions, based on challenges or needs that have been detected when analysing the data of this evaluation, to be considered by the Cycle Sisters managerial team and board of trustees.

Enhancing the positive impacts of the rides

Promoting 'participant loyalty'

The data show how the beneficial impacts of the rides increase when participants join repeatedly. In this regard, promoting 'participant loyalty' could be a good way to increase the impacts of the rides in the community. A ride leader comes up with a system of rewards for participants. These systems, as the ride leader acknowledges, can create discomfort if made public, but an alternative could be to send the acknowledgement privately and individually – like a WhatsApp message or an email congratulating the participants for their achievements. This requires time from the coordinators but can be very motivating for the participants.

Everybody likes to be sort of acknowledged that they've actually improved. Some might be a bit shy about being put out there and having praise, but I think as the Cycle Sisters group, maybe we can, I don't know, on the WhatsApp group saying, you know, "so well done to Ms (Name), who's done so well, she's now on the challenge ride, she's not just doing the steady rides" or something that it's sort of, I don't know, some sort of award rolling system. I don't know if that's allowed or... (not). – Focus Group.

Role models

Given that the participants feel inspired by stories of other participants who have become cycle-confident enough to ride independently and progress to harder challenges, a suggestion could be to invite them to join the coffee breaks – something that some of them do spontaneously already.

Raise awareness amongst families and communities

Social support seems to be key to help Muslim women overcome barriers to cycling. This suggests that Cycle Sisters could advertise and outreach within broader Muslim communities, especially families and faith and cultural hubs (see for example quotes in the Faith section).

Support for ride leaders

Some points that have been already discussed in the Impact on the volunteers sections, like:

- Share participants appreciation and success stories with the ride leaders to make their contribution visible and contribute to their motivation. See section Receiving appreciation.
- Provide ride leaders with a mental health/psychological toolbox as part of their training. See section Mental health support.

Maintenance training and resources

Provide access to bicycle mechanics and workshops for refreshers. This can also be a peer-to-peer support in which ride leaders with more experience can share resources and/or organise regular workshops for their peers.

I've also taken some courses but when things happen you realise you've forgotten everything. Yeah, you're not doing it, you know, in a way. There are some mechanic guys here in the borough that we have a good relationship with. So, I think one of my plans this year is to, I don't even know how I'm going to get the time, but at least volunteer three, four hours a week when they have their workshop, so I can just fix, because it might take six weeks before something goes wrong or on our rides. But at least if I'm fixing other people's bikes, then I'm able to just get an understanding of what to do and how to fix punctures and how to fix it – Interview.

Rewards

Get rewards for being a ride leader is perceived as helping to recruit new ride leaders and keep the current leaders volunteering, e.g. discounts when they buy a new bicycle. This could be arranged by the managing board looking for brands who would like to sponsor the Cycle Sisters.

But for that we need more, we need more ride leaders, and we need to get them involved. It's a commitment. I mean, it's something you do for free, but sometimes I think maybe a small monetary incentive might be handy. I mean, one of the things for example is I've got a very basic hybrid I want to get a better bike and it would be nice if there was some contribution, I don't know, whatever it was, you know? you're a ride leader you've done it for six months or whatever, so here's a hundred pounds towards your next bike. And that would just a little pat on the back you know? because often there's so much going on in your life and we're very lucky there's a lot of very committed ladies in our group but maybe little things like this just giving you that pat on the back, thank you, continue, you know? obviously there's not enough funds to make it a full-time job but some financial incentives. Interview.

Volunteer recruitment and programme design

The possibilities of the programme design (how many rides can be done and when) depend on the number of available volunteers, hence, volunteer recruitment is a crucial issue in most of the groups.

Manageable commitments

In this regard, some volunteers were suggesting that maybe if ride leaders could have a manageable commitment in terms of their dedication, this might help recruit more of them. However, this has the counterbalance of the cost of the training, and more organisational effort from

the coordinators. But it might be worth trying to find out whether there is more that could be done towards getting this balance right:

The more people that get involved, the less time you have to give because you can divide it up and we'd be saying to people "just commit to two Sundays a month". More realistic for them. And therefore, if we could get more trainings and maybe, okay, "you just need to do one a month", or "you just need to do this". Because right now there's quite a lot of pressure on the same ladies to do it week in, week out. – Interview.

Demand for more rides or in weekdays

In some groups, there is demand for more rides. Depending on the availability of ride leaders and bicycles, more rides could be organised, or could be done simultaneously, just 15 minutes apart.

Every week we've got disappointed ladies, because there's nearly 200 women just on the on (this local) group and obviously, they're not all regulars but every week there's disappointment, "oh I tried to get in and I couldn't". Our slots go I think within 20 to 30 minutes, it's all booked up. And it would be handy to have another group going either on another day or we thought of maybe we'll have two on the same day but leaving say 10 to 15 minutes apart. You could possibly join for the snack bit together. But at least on the road it's still causing less disruption. – Interview.

Some groups, have detected a need for weekday days, which again, depends on the availability of ride leaders, but would help with inclusion for those women who have children in school age:

They want to drop the children to school and then ride. So, kind of a mid-morning kind of ride, sort of 10 o'clock or something would suit them, and they could be back in time to pick up the children. So, this is something that, you know, I hear quite often people wanting to do midweek rides and they just cannot do the weekends. – Interview.

Maintaining a regular offer

The regularity of the rides is highly valued by the participants, a feature that is suggested to maintain as much as possible:

The schedule of the rides needs to be stable, steady over time you know any break is like you are telling these women, "no, you don't have that space". And obviously, this is the only space they have, to share and socialize and access to the bicycle. Obviously, that's a big deal for them. So, I think what's important as I take away is that it's so important that the rides carry on, you know, that

they're there every week and that you are volunteering and guiding for supporting all these women. – Focus Group.

Resources and funding

Bicycles for the rides

The data show how the bicycles available for the rides are a limited resource and might be limiting the access of women who do not own a bicycle to the rides. Participants to the rides are in the lower ranges of income, therefore owning a bicycle is very challenging for them. The best situation is when the council provides, maintains, and takes of the insurance of enough bicycles for the Cycle Sisters local group.

In terms of facilitating the access to privately used bicycles, perhaps a collaboration of Cycle Sisters with other organisations that can provide bicycles for lower income communities would help. Collaborations with sponsors and local shops could help by providing discounts. Additionally, collaborations with bike-sharing schemes could provide discounted subscriptions to the participants.

Another situation is that of participants having the bicycle in a shed and needing to repair and/or upgrade it in order to make it functional. Services like “Doctor bike” or the possibility of creating a Muslim women community workshop could help tackle this problem.

This issue is complex, but the charity has managed so far to get access to several bicycles for each of their groups, and to access to storage spaces to keep them in the parks where they start the rides.

We have three riders who often occupy those bicycles. So that means the new riders who are coming, they won't get the opportunity because there's no bikes left. And so that's another issue. Like we have been encouraging the three that are always more or less taking up the bicycles to consider buying their own or hiring out their own. But another issue that has come up is that they don't have anywhere to store their bicycle and therefore they don't feel comfortable buying one themselves. – Interview.

Liaising with boroughs

Cycle Sisters groups in which the local boroughs have been engaged have better conditions in terms of access to bicycles, or advertisement in the parks. Strengthen the engagement with the boroughs seems to be a good strategy, however, it takes time and effort to find the contact persons in the boroughs who has capacity to engage and take action:

We've got a big, massive banner in the park in two positions. And I know people have said “I've seen the banner and I know your email”. It is really really

useful and that's thanks to (another ride leader) who works in the council and provided that for us, but I think more needs to be done. – Interview.

Seek sponsors

One of the ideas shared to help with fund-raising for the Cycle Sisters is for them to arrange sponsorships. There are already some examples in which the ride leaders perceived the experience has been positive:

So, it's like this kind of partnership (with Rapha for the Fast 500) and Cycle Sisters had a huge presence there also, like a lot of the women were Cycle Sisters. So, like this kind of partnership, and I know Cycle Sisters has a partnership already with Rapha, we got the water bottles. I'm aware of these kinds of things, but it's like how do we increase this? How does it become that? Like Cycle Sisters sure is a club but it's also still a charity, you know, we are, we should be able to get partnerships that positively benefit us without us having to fork out cash. – Interview.

Cycle training for participants

Available training for participants seems to make a big difference (see section on Perception of cycling competence):

- It allows the access to the rides to those potential participants who don't have the skills or don't feel cycle-confident enough to join the rides.
- Training increases the competence and self-confidence of the participants and allows them to integrate cycling and its benefits in their everyday lives.

Recent budget cuts have reduced the access to training for the Cycle Sisters, a barrier to access the rides for those who could benefit the most. Some of the Cycle Sisters ride leaders have also trained as cycle instructors. It would be ideal to see a commitment to lesson funding from local councils alongside potentially training more ride leaders as instructors to offer these lessons to potential and regular participants.

Gadgets and technological resources for the ride leaders

In a micro-scale approach, there have been noticed certain barriers for ride leaders to do their jobs appropriately, such as lacking the technology (smartphones with enough capacity for the routing apps), power bank so that their phones don't run out of battery, insufficient data allowance in their mobile phones to support routing apps and lacking adequate accessories to support the mobile phone for wayfinding:

Sometimes the barriers aren't on the riders, sometimes the barriers are on some of the ride leaders. For example, don't have the things that makes them

comfortable on their bikes. If they have like the phone stand on their bike, they're relying on few people to lead the ride. So, (only) four people in (this group) can lead the ride, the rest are marshals. And a lot of them is because of phone data or because they don't have all the apps set up on their phone or they don't have a smartphone. So, it's things like that, how do we support them in a way that is dignified, but also, they don't feel less of, you know, it's like that, how do we get that right? Cause that's quite important to the role of ride leader; to have those resources. – Interview.

Diversity and Inclusion

Supporting women with children

Family commitments are a barrier for some Muslim women who would like to attend the rides. Some ride leaders reflect on what could be done, but they are conscious that this is an organisational burden with the risk of not knowing how many women would attend. Apart from what the Cycle Sisters could undertake, another option could be to coordinate with other organisations and organise simultaneous activities for the children of the women joining the rides.

“Well I've got nobody to look after the children, can I not bring the children?” and “no, this is an adult only” and I don't know, if there was something that could be not a crèche as such but some activities for children starting at a similar time so therefore the mums could do this because now more and more people are working all hours and all days and shift work and so forth... So, I think would be quite handy and helpful if there were in the future some activities that could go side by side that could keep the children busy. – Interview.

It's positive to hear people say, “Can I bring my children?” Like, that's a great thing. We'd love to introduce children or to include children in our rides. It's just it's an additional level of admin and coordination. A different project as well, the rides are not designed for children. – Interview.

Outreach to different ethnicities

According to the data (see Figure 2. Ethnicity. Data from the Registration Questionnaire.), there is a majority of Asian women. As already mentioned in the Ethnicity section, the Cycle Sisters are already creating ways of engaging Muslim women from other communities, with the help of community champions, like the specific engagement programme that is taking place with Somali women in Tower Hamlets.

Collaborations to access non-standard cycles

As discussed in the Disability section, collaborations with other organisations that can help Cycle Sisters provide access to non-standard cycles would help include sisters with disabilities.

Outreach and Communication

Getting potential participants to join the rides

Attracting new participants or, more specifically, breaking the barriers of WhatsApp group members who haven't participated in any ride is a concern of the Cycle Sisters programme. Some suggestions have to do with offering "open days" or "coffee mornings" to find out what are the barriers and allow potential participants to experience what the rides are.

I think if we had a session where we just had anyone can come along and try the bicycle where they can just have a go and see realize that they can do it. Like an open day. Especially in the areas where the groups are relatively new, to have this kind of visibility that people maybe in the park, they could come close (and ask) "what are you doing?" and you know, get interested. – Interview.

So, we need to find out what is the barrier. So have a coffee morning with them, maybe say to them, "come to this free coffee morning", maybe that will attract them to come at least to talk to us. And then we can find out and how we can help them because there are many newbies or actually, they've been on the group chat for years but never joined the ride. So, what is stopping them to arrange something to find out? - Focus Groups.

Also attending community events, by putting out a stall of the Cycle Sisters was shared a suggestion:

If we can go to community events, so like fun fairs or school events or any kind of big scale event and have a stall there so we can just talk to people because a lot sisters have seen the cycle sister posters and they've heard about it. It's known, they're just a bit scared to join or they're on the WhatsApp group but they haven't actually joined a ride, they're just looking at pictures because they haven't got that confidence to join yet. So maybe if an event was there where all the newbies can come and then actually try a bicycle and see, it's not too bad. – Focus Groups, Y.

Advertise in health centres and be prescribed

Find ways to advertise in local NHS Practices and inform them of the rides' benefits.

Especially about the mental health. And I know not many people get in to see their GPs, but I was just having a thought, could we put Cycle Sisters leaflets,

obviously with permission of the practice managers, and even for the practice managers to discuss with the doctors saying, “this is a service that has been proven, it is increasing women's mental health, well-being or giving them the space away from the crappy economy or the heating issues or trying to feed the families”. Whereas if they can have the advert in our borough's doctor surgeries, that might spread the word a bit more. – Focus Group.

Advertise in faith communities

Some ride leaders make the point of advertise directly in places related to faith and Muslim culture:

You have to make more effort to reach people where they are at, so we need basically to do more outreach, to go to mosque or to go to on Friday prayers, for example, to reach more people, to do well, to promoting. You know, like halal cuisine spaces. If you want to more outreach, I think that would be the best places to reach people, but we haven't really been doing that. – Interview.

Harder-to-reach communities

Attracting harder-to-reach women, who could benefit the most:

I do feel sometimes there are women who are hard to reach because they don't know the language, they don't have good internet skills to book rides. So, we need to sometimes talk to people in charge of the refuge (and ask) "how can you get to women who maybe they're new to the country?", maybe they're like, I don't know, have experienced problems in their homes or women who are not always affluent or educated or knowledgeable or able, how can you reach those women? I think that would be the fascinating part as well. Yeah, reaching out to those disadvantaged women, women who are really disadvantaged in life. Who could benefit the most from this project. – Interview.

Clothing information

Some participants (and potential participants) inquire about clothing, as mentioned in the section Women only. The need to have available information to share with Muslim women that can help them overcome any barriers they may have in regard to clothing is something that the ride leaders have been thinking about:

Some women were like "I don't know what to wear and my clothing is inappropriate" and they don't know where to get the stuff from. I obviously wear as abaya as well, if I'm doing a long ride then I'll wear like a long shirt, but generally I'll wear an abaya, which is like a long dress. But then you can't cycle in every outfit, it has to be a particular type and a particular fabric and they're a particular length and there is this ignorance about, well, I don't know where to get those things. So, it'd be handy if there was maybe not a uniform as such, but maybe some links to some outfits that are cycle-friendly. I have one outfit for example that is perfect for cycling, I haven't found anything like it, and I could but because a lot of these places are online so it's not such an easy process of just buying and check and then return if it's not good. If somebody can do that homework even myself and then come up with oh "these five outfits, these are going to work, take your pick". – Interview.

Cycle Sisters consultancy service

Ride leaders are very optimistic about the potential of expansion of the Cycle Sisters; however, they are also aware that there are other groups already established. In this context, there is a proposal of the Cycle Sisters offer consultancy of other groups who may need it and create a network between all of them:

So, like a way to overcome this very positive barrier would be things like consultancy. Cycle Sisters has fundraising experience. Maybe they can offer a hand to these other groups. They also have huge experience in leading rides. How do we connect in a way that doesn't completely downplay all the work that these other groups have done, but really boosts the work they've done, more like partnerships rather than Cycle Sisters taking over? It'd be great to see Cycle Sisters nationwide, but actually there are other groups. It'd be wrong to be like, well, we're going to take over because these groups are established now, even if not to the same level of Cycle Sisters. So, I think on a national level, I keep calling it a positive barrier because really it is. There's a sense of Cycle Sisters consultancy rather than establishment. – Interview.

Enhance visibility and representation

Visibility and representation promotes participation, that is, when Muslim women see people like them participating in cycle rides, they then feel more able to do it themselves. This could be one of the reasons why a ride leader suggests that participants wear Cycle Sisters high-vis vests:

If the riders could have one (vest) as well, I feel that it will help them feel part of it. It'll help them with their sense of belonging and sense of, you know, it feels special when you see other clubs and they're all wearing the same thing. But it's also going to help with advertising as, you know, you cycle past places that you see eight, 10 people all wearing the same thing. It looks really cool, and it will attract people's attention. And then it's kind of free advertising in a sense. – Focus Group.

This other ride leader in the same Focus Group, added that it would be good to have visible information of the contact details of the Cycle Sisters in the vests, so that passers-by could access to that:

I was just thinking if the logo could be a bit visible and lower (so that it's not covered by the hijab) maybe and then also have a QR code on it it'll be so much easier if we can just say join by scanning this. Focus Group.

Encouraging everyday cycling

The power of personal stories

In order to motivate participants of the rides to cycle in their everyday lives, communicating individual stories is thought to be useful:

You could do like a blog as well about the different Cycle Sisters and the different bikes they have and why they like their bike, on our website or something. And you can have (name) with her bike and why they like their

bike, so it gives people an idea of what they're using it for and for their lifestyle. – Interviews.

Try before you buy events

Another barrier that ride leaders have detected is that participants find it hard to get enough information to make up their minds and buy their own bicycles. Here is an idea to engage the local bike shops with that objective in mind:

Maybe ask local bike shops if they're willing to have like an open day with their bikes that they can, you know, from an amount of course because it's a budget for everybody isn't there? because local bike shops are quite happy to help, they're gonna get the money for it, so it's just "yeah!" and I normally say to whoever wants to look for bikes is like if you're coming on the rides and you're thinking of looking for a bike have a look at the other bikes around you. You know you can always ask; you know if anybody says to me "can I try your bike out?", I was like "yeah" quite happily, you know "when we have a coffee stop just try it out". So yeah, asking local bike shops might help. You could have like an open day bike shop. – Focus Group.

The importance of feeling accompanied

Feeling accompanied appears in the data as an important support for participants both to get to the meeting point for the rides, and for them to feel confident enough to cycle beyond the rides. The first scenario, getting to the meeting point, implies an organisational effort and extra dedication from the volunteers to accompany participants from their homes to the parks, but it could potentially be one of the barriers that keep potential participants from making the decision to join the rides. The second scenario, cycling beyond the rides, already happens when participants who have met on the rides organise on their own to cycle in small groups. The initiative Smiles and Miles (an annual challenge run by Cycle Sisters to encourage independent cycling) has also been mentioned as a good practice in creating this sense of support.

What Cycle Sisters can do is limited in this case, as there are already the social spaces of the coffee breaks (in which links between participants are created), and sharing the routes with participants, which is a valuable resource for them to re-do them on their own. Being aware that these spaces and resources are important and make sure they are available is important. The WhatsApp groups and other social media platforms could also help in putting people in touch with each other so that they can connect and organise beyond the rides. The wider point of enhancing the aspect of social connection of the rides becomes of great importance, given the positive impact that this has in reducing isolation and improving well-being of the participants.

Conclusion

The Cycle Sisters project supported by London Marathon Foundation has had an impact on participants' well-being that has been captured both in the quantitative and the qualitative data. The width and detail of these impacts, and the insights that the ride leaders have shared have been broader than expected. And the evaluation has generated so much material that it has been incredibly hard to summarise.

This evaluation also shows how much the impacts on physical health and mental health are related, by putting together cycling in a social activity and taking place partly in green spaces.

The complexity of the background and context of the participants results in the overlapping and interrelation of many different aspects. The intersectional approach is inevitable, given that this is women, cycling, and a majority from a Muslim faith. The different systems where participants are underrepresented or experience different types of discrimination create the conditions for this project to tackle social inequalities and offer a magnified beneficial impact to those involved.

References

- Hamidi, Z. (2021) Decomposing cycling potentials employing the motility framework. *Journal of Transport Geography*. 91, 102984. doi:10.1016/j.jtrangeo.2021.102984.
- Kaufmann, V., Bergman, M.M. & Joye, D. (2004) Motility: mobility as capital. *International Journal of Urban and Regional Research*. 28 (4), 745–756. doi:10.1111/j.0309-1317.2004.00549.x.
- van der Kloof, A., Bastiaanssen, J. & Martens, K. (2014) Bicycle lessons, activity participation and empowerment. *Case Studies on Transport Policy*. 2 (2), 89–95. doi:10.1016/j.cstp.2014.06.006.
- Thigpen, C. (2018) Do bicycling experiences and exposure influence bicycling skills and attitudes? Evidence from a bicycle-friendly university. *Transportation Research Part A: Policy and Practice*. doi:10.1016/j.tra.2018.05.017.
- World Health Organization (2020) *WHO guidelines on physical activity and sedentary behaviour*. <https://apps.who.int/iris/bitstream/handle/10665/336656/9789240015128-eng.pdf>.