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The impact of personal safety perceptions on travel behaviour and attitudes: A focus on first and last mile walking trips in London

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Being a dissertation submitted to the faculty of The Built Environment as part of the requirements for the award of MSc Transport and City Planning at University College London:

I declare that this dissertation is entirely my own work and that ideas, data, and images, as well as direct quotations, drawn from elsewhere are identified and referenced.

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Abstract

Personal safety and security and its relation to the provision of sustainable transport and mobility is often overlooked, despite it being vital to its achievement. This dissertation investigates the impact of personal safety perceptions on individuals' travel behaviour and attitudes when walking in London, with a specific focus on walking trips between an individual's home/end destination and public transport stops (First and Last Mile Travel). Based on results from an online survey, the research details the high levels of concern for personal safety faced by Londoners during these trips and discusses several factors that have been found to impact this concern. The results also indicate how Londoners alter their travel behaviour as a result of safety concerns, with most people making a series of strategic decisions prior to travel. The research then looks forward and to how personal safety perceptions during these trips can be overcome and a number of measures are suggested. Areas for further research are provided before the research concludes that there is significant work to be done to improve individuals' personal safety perceptions during F&LM travel in London; and it is essential for the sustainability of London's transport system, for public health and wellbeing, and for the environment, that this is achieved.

1 Introduction

“Transport has the highest reliance on fossil fuels of any sector and accounts for 37% of CO₂ emissions from end-use sectors” (IEA, 2022). Nevertheless, transport is vital for connecting and mobilising people and communities, for facilitating trade, and for driving social and economic development (IISD, 2021). For the transport sector to meet goals such as net zero emissions by 2050, whilst continuing to meet the mobility needs of people, communities, and the global economy; there must be a shift from high carbon-intensive modes (cars and motorised vehicles) to more sustainable, lower or zero carbon-intensive modes such as public transport, walking and cycling (Brand et al., 2021; IEA, 2021).

Whilst the provision and uptake of sustainable transport and mobility is the ultimate goal, it is important to note that achieving ‘sustainability’ in these areas does not exclusively involve reducing the environmental impact and lowering carbon emissions, but also ensuring transport and mobility is “universal, efficient [and] safe” (SuM4All, 2022). In the literature and work surrounding sustainable transport and mobility and its relation to improving ‘safety’, the focus is largely on road safety, and reducing deaths and injuries resulting from road traffic crashes (Candia et al., 2019; Spadaro & Pirlone, 2021). Personal safety and security, however, and its relation to sustainable transport and mobility, is often overlooked, despite it being vital to achieving the aforementioned goal. How individuals perceive their personal safety related to transport and mobility impacts on how they use transport and mobilise (Backer-Grøndahl et al., 2009).

1.1 Research Aims and Questions

The aim of this research is to identify the impact of personal safety perceptions on individuals’ travel behaviour and attitudes when walking in London, with a specific focus on walking trips between an individual’s home/end destination and public transport stops (First and Last Mile Travel (F&LM)). The research seeks to understand the extent to which individuals are concerned for their personal safety during these trips, what factors impact this concern, how they alter their travel behaviour as a result, and how their concerns can be improved. The research aims to answer the following questions:

1. What factors impact personal safety perceptions and subsequent travel behaviour during First and Last Mile travel in London?
2. In what ways do individuals alter their travel behaviour as a result of concerns for their personal safety during First and Last Mile travel in London?
3. How can personal safety perceptions during First and Last Mile Travel be improved in London?

1.2 Outline of Structure

This dissertation is structured as follows: Chapter 2 presents a review of the literature on walking as a mode of transport, first and last mile travel, personal safety perceptions and its impact on travel behaviour and attitudes and walking in London. Chapter 3 outlines the methodology for data collection and analysis. Chapter 4 details the results of the analysis and discusses the findings related to the research questions. Finally, Chapter 5 concludes and provides recommended measures for improving personal safety perceptions during F&LM walking trips in London, as well as areas of further research.

2 Literature Review

2.1 Walking as a Mode of Transport

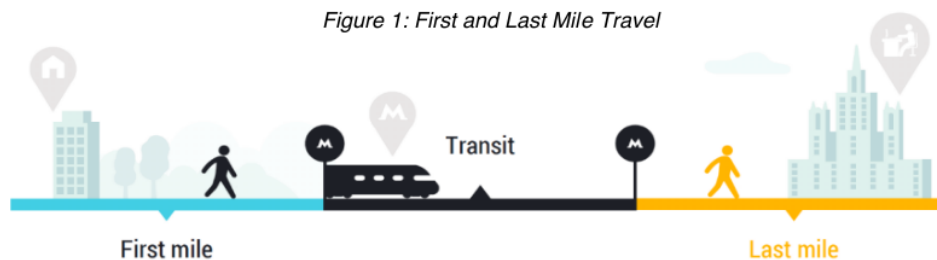
"Walking is the most natural and simple form of movement for humans" (Olszewski, 2007, p.9). Walking can serve many purposes, with individuals walking to work or school, to do shopping or run errands or for recreational or exercise purposes (Olszewski, 2007; Loukaitou-Sideris, 2020). Walking can also make up part of a longer transit trip, with public transport passengers often walking to and from public transport stops (Ibid.).

Walking as a mode of transport has social, environmental, and economic benefits. The literature indicates the importance of walking as a form of physical activity and for improving and ensuring good health and wellbeing (Loukaitou-Sideris, 2020). As a non-motorised form of transport, walking does not produce carbon emissions and subsequently does not contribute to global warming and the climate crisis (Ibid.). Walking, as the "most ancient mode of transportation" (Ibid., p.131), is also the cheapest way to travel with almost no cost associated with it (Ferrer et al., 2018).

Despite these obvious benefits, many cities and urban areas have walkability issues, with individuals facing a number of barriers to walking (Olszewski, 2007; Loukaitou-Sideris, 2020). Firstly, the level of walkability is affected by the pedestrian infrastructure itself, whether the pavement is in a good condition, is wide enough, has an appropriate surface, is accessible, is continuous and has suitable crossing points and urban furniture (benches, signage, bollards etc.). Secondly, the level of walkability is affected by location specific factors such as the topography, climate, road safety, the upkeep of the surrounding environment and other factors which may affect the aesthetics of the area. Lastly, the level of walkability is affected by user specific factors, which may also be affected by the physical and social environment. This includes pedestrian volume, trip duration/distance and perceived personal safety and security (Ibid.).

2.2 First and Last Mile (F&LM) Travel

In transport literature, the 'First and Last Mile' (F&LM) refer to the first and last leg of a journey or trip (EEA, 2019). This is often in the form of individuals using one mode of travel (e.g., walking) to reach their nearest public transport access point, using public transport to cover the main portion of their journey, and then once again using another mode (e.g., walking) to reach their end destination, and vice versa on the return journey (Ibid.). This is demonstrated in Figure 1 below.



Source: Shiv, 2018, p.2

For the purpose of this study, F&LM travel refers to the walking journey between an individual's home or end destination and their main (nearest or most used) public transport access point (Bus stop, underground station, train station etc.).

F&LM travel plays an important role in the promotion and use of sustainable transport modes, particularly in an urban context (EEA, 2019). Studies have found that many of the barriers to public transport use are related to the F&LM legs of an individual's journey and it is therefore essential that interventions are targeted at these journeys and the access points at public transport facilities, in order to promote and encourage sustainable travel behaviours (Hickman & Vecia, 2016; Tilahun & Li, 2015; Tilahun et al., 2016; Church et al., 2000).

To meet climate change and public health goals, it is essential that these F&LM journeys are undertaken by active travel modes, such as walking or cycling (EEA, 2019). If the active travel options for F&LM travel are attractive and convenient, this further promotes the use of public transport and increases the sustainability of the overall urban mobility system (Ibid.). Whilst in many countries the planning of pedestrian facilities is not well structured compared to other modes (Aromal & Naseer, 2022), Olszewski (2007) argues that "achieving the goal of a seamless public transport system cannot be done without careful planning and integration of pedestrian facilities into the multi-modal travel chain, for facilitating both access to the stations as well as transfers between modes" (Olszewski, 2007, p.10).

2.3 Perceptions of Personal Safety

Personal safety perceptions are highly subjective, as they "reflect how individuals react to a place and how a person assesses the conditions there, considering only their own attitudes and preferences" (Dameria & Fuad, 2021). Küller (1991), through his Human Environment Interaction (HEI) model, states that how a person may feel and act in a given situation is influenced by their physical and social environment, as well as their individual reaction tendencies, which result from past experiences and personality characteristics.

Fisher and Nasar (1992) argue that individuals are more fearful and feel less safe in environments which provide refuge (hiding places) for potential offenders; and that don't allow for individuals to have a clear view of their surroundings (prospect) and ease of escape from a potentially unsafe situation. Environments which fit this context may include parks or areas with dense greenery and shrubbery, narrow passageways, alleyways or underpasses. This factor can also be linked to inadequate street lighting, which studies have shown results in individuals perceiving themselves to be less safe when walking after dark, due to lack of prospect (Wu, 2014; Rahm et al., 2021). Rahm et al (2021) found that a combination of insufficient street lighting, environments with unkempt greenery (causing lack of prospect) and the presence of others, led to feelings of entrapment and worsened personal safety perceptions when walking after dark. Personal safety perceptions at night/after dark are also influenced by whether an individual is walking alone or with someone else, with individuals walking alone more likely to feel unsafe (ONS, 2021; Tseloni & Zarafonitou, 2008; Sustrans, 2022).

Individuals also tend to feel safer when walking along routes with people and commercial activity present, compared to quiet and isolated areas (Sustrans, 2022). The level of activity in an area may

also be impacted by the day of the week, with more activity late at night on weekends compared to weekdays (Machielse, 2015). The duration of the walking trip may also influence personal safety perceptions, with Cao and Duncan (2019) finding that individuals are willing to walk for longer if they feel safer. Another factor which may influence an individual's personal safety perceptions whilst walking includes what they are wearing. Many surveys and interviews with women surrounding this topic have found that they feel safer walking when wearing clothing and shoes that don't attract attention and that would allow them to run or move quickly if needed (Condon et al., 2007; Quinones, 2020).

Feltes (2003) found that individuals who knew of someone who had been a victim of a crime suffered from higher levels of concern for their safety, compared to those who had been a victim themselves. Feltes refers to this as 'victimisation through hearsay' and argues that this has a bigger influence on personal safety perceptions than personal experience. This also includes incidents that individuals may hear of through media channels. With media channels sharing a high proportion of stories related to violence and crime, this causes readers/viewers to believe these incidents to be of a higher frequency than the reality, and results in the media exacerbating existing fears and generating insecurity, ultimately impacting on personal safety perceptions (Feltes, 2003; Meško et al., 2009). Chiricos et al. (2000) also found that the impact of the media on personal safety perceptions is greater for those who have personal experience of crime.

In general, whilst these factors can influence anyone's personal safety perceptions, the extent to which they affect women and vulnerable groups (disabled people, minority ethnic groups, and LGBTQIA+ people) is often greater, due to these individuals often being the targets of forms of harassment and hate crimes (Sustrans, 2021).

2.4 Impact of Personal Safety perceptions on Travel Behaviour and Attitudes

Personal safety perceptions can impact travel behaviour and attitudes (Backer-Grøndahl et al., 2009; Fyhri et al., 2010). An individual's attitude towards a mode of transport, in this case walking, is "determined by beliefs about the likely consequences (health, injury) of walking weighted by the evaluation of how good or bad these outcomes would be" (Fyhri et al., 2010, p.51). Therefore, if an individual determines walking to be unsafe (attitude), this can affect their travel behaviour (De Vos, 2022).

Backer-Grøndahl et al. (2009) found that the more people worry about experiencing an unpleasant incident when walking, the more they adapt or change their behaviour. These behavioural adaptations include travelling at a different time, choosing another route, choosing a different mode of transport or avoiding travel at all (Ibid.). If an individual is concerned for their personal safety whilst walking and therefore chooses to avoid travelling at all, this can cause a "vicious cycle (...) with people not walking as an area is perceived to be unsafe and having fewer people around making an area feel less safe" (LC, 2008., p.11). A 2021 Opinions and Lifestyle Survey in Great Britain also found that 42% of adults who felt very or fairly unsafe after dark, and 63% of adults who felt very or fairly unsafe during the day indicated that they had altered their travel behaviour in some way (ONS, 2021). These travel behaviour alterations included not leaving home alone, not going to streets or areas that they thought to be unsafe,

not walking in quiet places such as parks or open spaces, not walking in a quiet street close to where they live, and not going to busy public spaces (including high streets and train stations) on their own (Ibid.).

Fyhri et al. (2010) discuss in their research when these travel behaviour changes are made. They state that prior to travel, individuals can make strategic decisions, e.g., what mode to use, when to leave, or if to travel at all; and then during travel, tactical decisions can be made which may involve them deciding when to cross the road or which side of the road to walk on etc. These decisions are not only influenced by each other, but also influenced by the physical and social environment, the media, and personal emotions at a given time, including personal safety perceptions (Fyhri et al., 2010).

2.5 Improving Personal Safety Perceptions

There is significant literature and work on how personal safety perceptions when walking during F&LM travel can be improved and this is often tailored to specific locations. Many studies indicate that the provision of adequate pedestrian lighting can improve individuals' personal safety perceptions whilst walking by increasing the ability for individuals to survey their surroundings, reducing concealment, and deterring crime and anti-social behaviour (Wu, 2014; Rahm et al., 2021; Svechkina et al., 2020). Increased staff presence at public transport stops has been noted to make individuals feel safer when transiting (Loukaitou-Sideris, 2014). Loukaitou-Sideris (2014) found that individuals would prefer the physical presence of staff rather than technological substitutes, such as CCTV, which may catch and deter criminal offenses but can't physically stop it in real-time. CCTV is a controversial tool with notable limitations, but despite this it is still heavily invested in and seen as the 'solution' to improving security in urban settings (Ditton, 2000; Gill et al., 2007; Beebeejaun, 2009). Ditton (2000) found that feelings of safety did not improve after the installation of CCTV in the city of Glasgow and Gill et al. (2007) found that people in residential areas in the UK were disappointed by the lack of impact CCTV had on tackling crime. Ditton (2000) also found that police presence is more effective in improving personal safety perceptions compared to CCTV. Loukaitou-Sideris (2014) found that the public also want the police or security personnel to patrol the routes leading to and from public transport hubs, not just inside the facility. These routes could include many individuals F&LM travel routes. Increased bus coverage and number of stops, to reduce the duration of F&LM travel has been cited as another way to improve personal safety perceptions (Loukaitou-Sideris, 2014).

2.6 Walking in London

Walking is the most used mode of travel in Greater London, making up 34.6% of trips in 2019/20 (TfL, 2020). Almost all Londoners walk every week and out of these walking journeys, approximately half of them are walking to or from public transport access points (F&LM travel) (TfL, 2017b; TfL, 2019).

As already discussed, walking can have social, environmental, and economic benefits. Looking at these specific to London, Transport for London (TfL) (2018b) has estimated that if every Londoner walked for 20 minutes a day, 1 in 6 early deaths and 20-30% of depression cases could be prevented. They also estimate that "57kg of carbon [could be] saved per year if every young person in London walked (instead of being driven) one mile to school and back" (Ibid., p.12) and that "1/3 of trips made by Londoners as

a driver or passenger could be walked in less than 25 minutes" (Ibid., p.13), which would reduce not only congestion but also carbon emissions.

One of the main barriers to walking in London is personal safety and security. 20% of Londoners feel worried about personal security while walking, and in 2017/18, out of the worrying incidents experienced by Londoners when using public transport, 15% occurred whilst walking to or from public transport stops (TfL, 2018a; TfL, 2018b). In general, Londoners feel less safe walking at night/after dark, with only 49% of women and 73% of men in London stating that they do feel safe walking after dark (TfL, 2012; TfL, 2019). Research conducted by London TravelWatch (2022) found that 73% of people believe travelling after 10pm is the least safe time to travel and that 48% of women in London avoid travelling at certain times due to concerns for their personal safety and security. Fears or concerns for safety may have longer-term effects on travel behaviour in terms of mode choice in London. A TfL (2019) survey found that 15% of women have stopped using a mode of transport where they have experienced a 'worrying incident', with 12% of these respondents stopping temporarily, but 3% stopping completely. In London, women, black, Asian and minority ethnic (BAME) individuals, young people (16-24) and disabled people are the groups more likely to be concerned for their personal safety and security whilst using public transport (including walking to and from) (TfL, 2019).

TfL's 'Healthy Streets Approach', aims to encourage walking, cycling and public transport use in London (TfL, 2017b). The approach is based on 10 indicators for ensuring a healthy street, one of which is 'People feel safe' (TfL, 2017a). This indicator encompasses both road safety and personal safety and security, with the statement being clearly made that "people will be less willing to walk, cycle or use public transport if they feel unsafe on a street" (Ibid., p.12). Some of the questions asked to determine the performance of a street against this indicator include: "Is there ever a visible police presence?", "Will people feel safe at all times of the day and night?", "Does the street lighting illuminate the pavement as well as the carriageway?" (Ibid., p.12). This makes it clear that London authorities are aware of the issue of personal safety perceptions and what influences it.

2.7 Summary

It is vital that F&LM trips in London are made by active travel modes, such as walking, to reduce car usage, and the ensuing congestion, carbon emissions and climate change impacts and to improve public health and wellbeing. The more people walk, the more it encourages others to do so. Personal safety perceptions whilst walking during F&LM travel, may be highly subjective, but there are clear commonalities between individuals in terms of what impacts their personal safety perceptions, how their behaviour changes as a result and what measures can be implemented to ensure transport and mobility is safe for all. F&LM walking trips are an important part of the wider public transport system, and it is essential that these trips are convenient, attractive, and most importantly, perceived to be safe for individuals to undertake.

3 Methodology for Data Collection and Analysis

3.1 Methodology for Data Collection

To collect data for this study, an online survey using 'Google Forms' was developed. A copy of the full online survey can be found in Appendix 2. The online survey included 20 questions, with some being socio-demographic questions and others being specific to this study. The socio-demographic questions included asking respondents their gender, age, ethnicity, disability status, and the London borough they currently reside in, however, the survey did not ask for the respondent's name or contact details and therefore the data was fully anonymous. The questions were all 'Required', meaning they had to be answered or the response could not be submitted, except for the last question which allowed for further comments. The only constraint to answering the online survey was that the respondent had to be currently living in London.

The majority of the survey questions were close-ended, however some were open-ended and allowed for the respondent to write an 'Other' option. There are advantages and disadvantages to both question types, with close-ended questions allowing for quicker and easier responses, but not allowing for the in-depth or detailed response that open-ended questions offer (Hyman & Sierra, 2016). In this case, as the survey was self-administered and unsupervised, this lent itself more to close-ended questions, but in case of the answer options not fully reflecting the respondent's opinion, the 'Other' option was provided (Ibid). The 'Other' option also meant that bias from the provided answers was limited. The online survey results are therefore a mixture of qualitative and quantitative data.

To seek responses, the online survey was shared on various social media platforms including LinkedIn, Twitter, Facebook and Instagram. London-based Facebook groups were specifically targeted, as well as specific people known to the researcher who live in London.

3.2 Ethical Considerations

Whilst the research did involve the collection of primary data, the online survey was fully anonymous, with only background questions on age, gender, ethnicity etc. collected, from which the respondent could not be identified. Appendix 3 presents the 'Ethical Clearance Form' for this study, which was completed and approved prior to the start of the data collection.

3.3 Research Limitations

There were three main limitations to this research. Firstly, there are some disadvantages to using online surveys as a means of data collection, as used in this study. Online surveys, by nature, can only be answered by individuals who have internet access and are literate (Andrade, 2020). Andrade (2020) also argues that the individuals who choose to complete an online survey are "sufficiently biased" towards the subject of the survey, as they would not take the time to complete it if they were not interested in the subject. Secondly, the sample size was small with only 139 respondents, which can have disadvantages particularly when interpreting results and analysing statistical significance (Hackshaw, 2008). Finally, the sample was not representative of London's population. Linked to the previous limitations of online survey use and the small sample size, the sample is heavily dominated by

young, white, able-bodied women. This prevented the study from making statistically generalising statements (all men, etc.).

3.4 Methodology for Data Analysis

Once the online survey was closed, the responses from Google Forms were downloaded into Microsoft Excel. For the quantitative data, the data was firstly cleaned, and initial analysis was conducted in Microsoft Excel with descriptive statistics drawn out. IBM SPSS Statistical Data Editor was used to perform cross-tabulation and to visualise the relationships between the different variables. The graphs and charts were created using Microsoft Excel.

For the qualitative data, which resulted from the survey's open-ended question, a categorisation process was undertaken whereby similar or repeated responses were grouped into categories. Due to the small number of open-ended questions and subsequent responses, this process did not require the assistance of a specific tool/software and was able to be conducted manually in Microsoft Word.

4 Findings and Discussion

This Chapter firstly provides the descriptive statistics and overall personal safety perceptions of the respondents. The three research questions which were presented in Chapter 1 are then discussed, with the data collected and analysed being used to answer each question.

4.1 Descriptive Statistics

The online survey was made live mid-June 2022 and kept live until mid-July 2022, allowing four weeks for response submissions, which garnered 139 responses. The socio-demographics of the respondents are detailed in Table 1 below.

Table 1: Respondent's socio-demographics (N = 139)

Socio-demographics (N= 139)	Number	Percentage (%)
Gender		
<i>Female</i>	95	68.3%
<i>Male</i>	43	30.9%
<i>Other</i>	1	0.7%
Age (yrs)*		
<i>18 – 25</i>	41	29.5%
<i>26 – 35</i>	68	48.9%
<i>36 – 45</i>	20	14.4%
<i>46 – 55</i>	6	4.3%
<i>56 – 65</i>	4	2.9%
Ethnicity		
<i>Asian or Asian British</i>	19	13.7%
<i>Black, Black British, Black Caribbean or African</i>	2	1.4%
<i>Mixed or multiple Ethnic Groups</i>	3	2.2%
<i>White</i>	111	79.9%
<i>Other Ethnic Group</i>	4	2.9%
Disability		
<i>No Disability</i>	127	91.4%
<i>Disability</i>	11	7.9%
<i>Prefer not to say</i>	1	0.7%
Borough		
<i>Inner London</i>	110	79.1%
<i>Outer London</i>	29	20.9%

**there were 0 responses from individuals aged 66 - 75 and 75+ and hence they are not included in the above table*

Notably, out of the 139 respondents, 95 (68.3%) were female, 109 (78.4%) were under 36 years old, 111 (79.9%) were white and 127 (91.4%) were not disabled. The observed higher response rates from these socio-demographic groups are not uncommon, with studies finding that finding that men, minority groups and older people are less likely to respond to/complete online surveys (Smith, 2008; Couper et

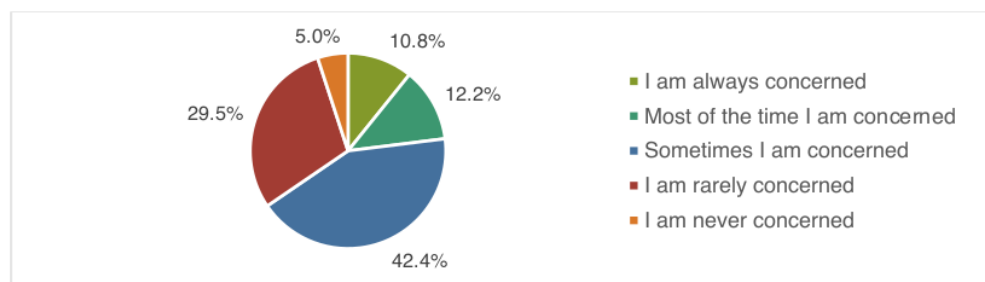
al., 2007). The salience, relevance or interest level of the survey subject to an individual can also impact response rates (Groves et al., 2000). In this instance, the observed higher response rates from women are likely to have been impacted by this, given the survey subject.

The respondents were also asked to select which London Borough they currently reside in, and out of the 33, there was at least one respondent from 26 of them. Owing to the utilisation of local Facebook groups as a means to gather respondents, there is an overrepresentation of respondents who currently reside in Tower Hamlets (37.4% of respondents). The location of the respondents can also be depicted to consider if they reside in 'Inner' or 'Outer London', with 79.1% of respondents currently residing in Inner London, and 20.9% of respondents in Outer London. This variable will need to be analysed due to the difference in travel behaviours between inner and outer London (TfL, 2014).

4.2 Personal Safety Perceptions in London

Before analysing the factors influencing personal safety perceptions and the resulting changes in travel behaviour, the general personal safety perceptions of the respondents during F&LM walking trips in London needs to be ascertained.

Figure 2: Personal safety perceptions during F&LM walking trips in London



As can be seen in Figure 2 above, 10.8% of respondents stated that they are always concerned during their F&LM walking trips. 12.2% said they are concerned most of the time, 42.4% said sometimes, 29.5% said rarely and 5% said they are never concerned. This means that 95% of respondents have some level of concern for their safety during their F&LM walking trips in London, and only 5% have none. The socio-demographics of the respondents related to their level of concern for their safety during F&LM walking trips in London is detailed in Table 2 below.

Table 2: Cross tabulation of socio-demographics and level of concern for safety during F&LM walking trips in London

Socio-demographics	Extent of Concern during F&LM walking trips	
	Some level of concern	No concern
Gender		
Female	98%	2%
Male	88%	12%
Age		
18 – 25	98%	2%
26 – 35	97%	3%
36 – 45	90%	10%
Over 45	80%	20%
Ethnicity		
White	95%	5%
All other Ethnic Groups*	96%	4%
Disability		
Disabled	91%	9%
Not Disabled	95%	5%
Borough		
Inner London	96%	4%
Outer London	90%	10%

* Due to low response rates, 'Asian or Asian British', 'Black, Black British, Black Caribbean or African', 'Mixed or multiple Ethnic Groups' and 'Other Ethnic Group', have been grouped together

Some notable findings from analysing the socio-demographics of respondents in relation to personal safety perceptions:

- Women, younger people (under 36), and ethnic minority groups (not white) have an overall higher level of concern for their safety during F&LM walking trips in London (highlighted orange in table). This is in line with the general literature, as well as the literature specific to London. For women and younger people, the difference between them and men and older people was far more significant than that of the difference between white individuals and all other ethnic groups, with only a difference of 1%, and this may be due to the lower number of responses from minority ethnic groups. It should be noted that no responses from anyone over the age of 65 were received, and very limited responses from over 45, so the data does not capture what you would consider to be older or elderly people.
- Those who live in inner London have an overall higher level of concern for their safety compared to those who live in outer London (highlighted green in table). This conflicts with TfL's findings which indicate that individuals living in outer London are worried more often than those living in inner London (TfL, 2013).

- Unlike the findings in the literature, these results do not indicate that disabled people have a higher level of concern for their safety than non-disabled people. In fact, these results suggest the opposite, which may be an anomaly as a result of the small sample size of disabled people.

4.3 Question 1

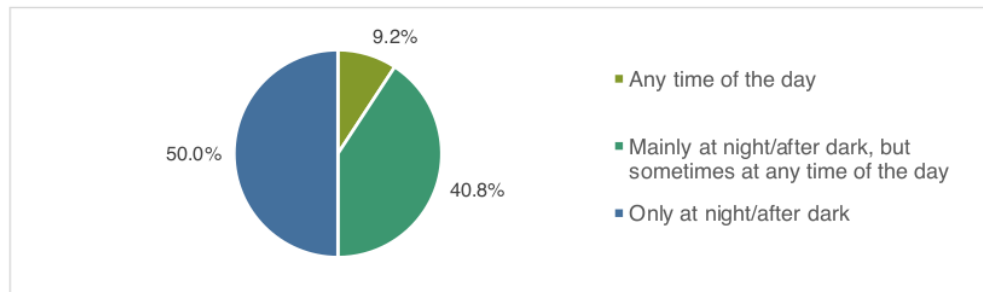
What factors impact personal safety perceptions and subsequent travel behaviour during First and Last Mile travel in London?

The literature review indicated that personal safety perceptions whilst walking are influenced by the physical and social environment as well as individual characteristics (Dameria & Fuad, 2021; Küller, 1991). These factors included the built environment and the openness of the route itself, lack of street lighting, time of day, unaccompanied travel, duration of travel, day of the week, clothing worn, the media and known experience (Fisher and Nasar, 1992; Wu, 2014; Rahm et al., 2021; ONS, 2021; Tseloni & Zarafonitou, 2008; Sustrans, 2022; Condon et al., 2007; Quinones, 2020; Feltes, 2003; Meško et al., 2009; Chiricos et al., 2000)

4.3.1 Time of Day

In the literature, the time of day of travel was noted to have a significant impact on safety perceptions whilst walking, with individuals perceiving themselves to be more unsafe travelling at night/after dark, particularly when alone (ONS, 2021; Tseloni & Zarafonitou, 2008; Sustrans, 2022). Respondents were therefore asked in the online survey: "If you are concerned, is this concern whilst walking between your home/end destination and the public transport stop, at any time of the day or only after dark/at night?" (Question 11). Of those who had stated they were concerned, 50% selected that they were concerned 'only at night/after dark', 40.8% selected 'mainly at night/after dark, but sometimes at any time of the day', and 9.2% selected 'any time of the day', as shown in Figure 3 below.

Figure 3: Impact of time of day on personal safety perceptions during F&LM walking trips in London

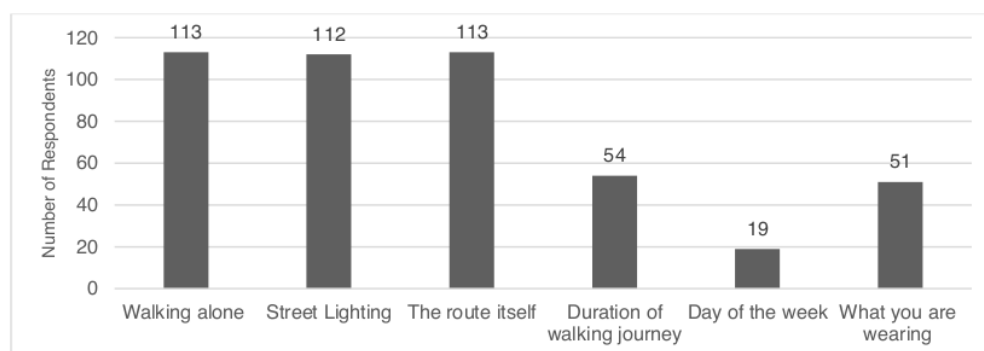


These findings are in line with the literature, with 90.8% of concerned respondents feeling more concerned for their safety either only or mainly at night/after dark. 50% however are concerned during the day in at least one instance. Of the 9.2% of individuals that responded that they were concerned at 'any time of the day', 58 % are female, and 83% are under the age of 36. As a result of these findings, interventions and measures to improve personal safety perceptions in London cannot just focus on the issues at night/after dark, as half of the respondents are also concerned during day, in at least one instance.

4.3.2 Other Factors

The online survey sought to understand which other factors, aside from time of day, had an impact for F&LM walking trips in London and asked respondents: “In addition to the time of day, which of the following also have an impact on how safe you feel when walking between your home/end destination and the public transport stop? (select all that apply)” (Question 12).

Figure 4: Factors influencing personal safety perceptions during F&LM walking trips in London



As shown in Figure 4 above, the most selected responses were ‘Walking alone vs walking with someone else’ and ‘The route itself (if it includes: underpasses, parks, alleyways etc. en route)’, with each option being selected by 113 respondents (81%). These options were closely followed by ‘Street Lighting (how well lit the route is)’, with 112 respondents selecting this option. The remaining options, ‘Duration of the walking journey’, ‘Day of the week’ and ‘What you are wearing (e.g., type of shoes or clothing)’, were selected by 54, 19 and 51 respondents respectively. Whilst some of these factors are not able to be easily changed or improved and are a result of deeper underlying societal issues; concerningly, two out of the three most selected options are related to infrastructure and the built environment and can be improved (street lighting and route characteristics). The socio-demographic data compared to the response to this question was analysed, and the most selected factor from each group is detailed in table 3 below.

Table 3: Most selected factor influencing personal safety perceptions during F&LM walking trips in London per socio-demographic group

Demographic Group	Most Selected Factor	% of Demographic Group that selected that factor
Gender		
Female	Walking alone	91.6%
Male	Street Lighting	69.8%
Age		
18 – 25	The route itself	85.4%
26 – 35	Walking alone	85.3%
36 – 45	Street Lighting & The route itself	80.0%
Over 45	Walking alone	60.0%

Ethnicity		
<i>White</i>	The route itself	82.9%
<i>All other Ethnic Groups</i>	Walking alone & Street Lighting	78.6%
Disability		
<i>Disabled</i>	The route itself	81.8%
Borough		
<i>Inner London</i>	The route itself	84.5%
<i>Outer London</i>	Walking alone	79.3%

As can be seen in the table above, for women the most selected factor that influences their personal safety perceptions during F&LM walking trips in London is walking alone, being selected by 91.6% of the female respondents; whereas for men it was street lighting, being selected by 69.8% of male respondents. The route itself was the most selected factor for those in inner London, white individuals, and disabled individuals. Walking alone and street lighting were the most selected factors for all other ethnic groups.

Respondents were also given the option to add an 'other' factor which may influence their personal safety perceptions during their F&LM walking trips. 11 respondents chose to add an additional factor, and these are detailed in full in Table 8 in Appendix 1. Based on an analysis of these responses, five main categories were distinguished, as detailed in Table 4 below.

Table 4: Summary of 'other' factors influencing personal safety perceptions during F&LM walking trips in London

#	Category	Count
1	Busy (Positive? / Negative?)	7
2	Distraction / Attraction	2
3	Road Safety	1
4	Anti-social Behaviour	1
Total		11

The first category, which had the most responses, is 'Busy (Positive?/Negative?)'. This category has been labelled as 'Positive?/Negative?' as some responses grouped in this category indicated that when it is busier (people and cars around along their route) they felt safer whilst walking during F&LM travel, but for some responses this inference was not clear, and it is possible that they were indicating that this actually made them feel less safe. Some studies state that activity and the presence of other people around make people feel safer when compared to quiet isolated areas (Sustrans, 2022), however, when the physical environment offers low surveillance prospects, the presence of other people can invoke feelings of entrapment (Rahm et al., 2021). Two respondents also indicated that whether they felt safer or less safe with other people around, was dependent on who these other people were:

"if it's families/women I feel safer, if it's men (alone or in groups) I feel less safe"

"if there are other women walking around"

'Distraction/Attraction', is another factor mentioned by two respondents and refers to their use of a mobile phone and headphones whilst walking in London, which impacts on their safety perceptions. This category has been labelled "Distraction/Attraction", as it is not clear if their concern is that the use of their phone and headphones distracts them and makes them less aware of their surroundings or that the use of their phone and headphones may attract thieves, or a combination of both. Studies have found that mobile phone use by pedestrians results in cognitive distraction which "reduces situation awareness, [and] increases unsafe behaviour, putting pedestrians at greater risk for accidents, and crime victimisation" (Nasar et al., 2008, p.69).

The two remaining categories are 'Road Safety' and 'Anti-social Behaviour', with one respondent indicating that their concern levels were also impacted by road safety, particularly considering the number of crossing points on their journey. The other respondent stated that groups who gather in certain areas and conduct anti-social behaviour such as drug taking, makes them feel less safe. This can also be linked to the first category of 'Busy (Positive?/Negative?)', where personal safety perceptions are influenced by who the other people en route are and what they are doing.

At the end of the survey, respondents were given the option to add additional comments and one respondent commented about the impact of the COVID-19 pandemic:

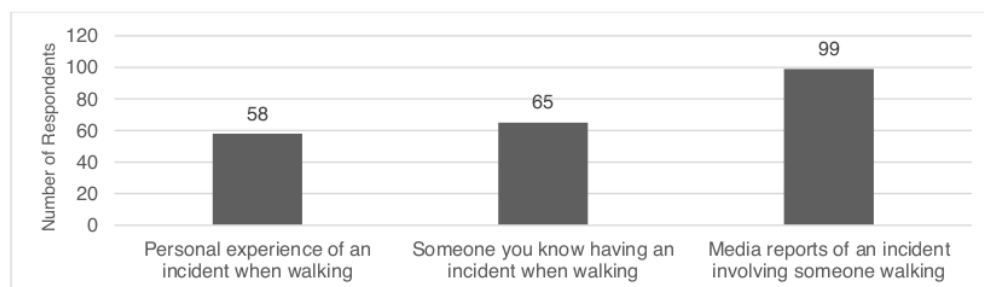
"More irrational thoughts when out walking. This has also been perpetuated by the pandemic as I don't go out as much as I used to so that develops the irrational fears"

The effects of the COVID-19 pandemic and the resulting increased time spent indoors on individuals' mental health and wellbeing is still being researched, but initial studies confirm that there is a causal effect (Bu et al., 2022). The implications of this on travel attitudes and behaviour requires further investigation.

4.3.3 Known Experience and the Media

The literature indicated that an individual's past experiences, known experiences and the media can impact on their personal safety perceptions (Feltus, 2003; Meško et al., 2009; Chiricos et al., 2000). Respondents were therefore asked in the online survey: "Do any of the following have an impact on your travel behaviour when walking between your home/end destination and the public transport stop? (select all that apply)" (Question 18). The results are depicted in Figure 5 below.

Figure 5: Impact of personal and known experience (including the media) on travel behaviour during F&LM walking trips in London



As can be seen in the figure above, 99 respondents (71%) selected that media reports of an incident involving someone walking have an impact on their travel behaviour related to F&LM walking trips. 65 respondents (47%) selected that someone they know having an incident has an impact, and 58 respondents (42%) selected that their own personal experience has an impact. 36 respondents (26%) selected all three options. The results show us that media reports of incidents involving someone walking impact on more people's personal safety perceptions and subsequent travel behaviour decisions related to F&LM walking trips, than personal and known experiences in London, and that known experiences also have more of an impact than personal experiences. Looking at the 32 respondents who stated that they are either always concerned or concerned most of the time for their safety during F&LM walking trips in London, 78% were impacted by the media, 72% had personal experience of an incident and 63% were impacted by someone they know having an incident. These results are in line with the literature which stated that 'victimisation through hearsay' (including the media) caused people to have higher levels of concern for their safety, compared to those who had been a victim themselves (Feltus, 2003).

Analysing the socio-demographics related to this question, the analysis shows that out of the women who responded to the survey, 44% are impacted by personal experience of an incident during F&LM walking trips, 52% are impacted by knowing someone else who has had an incident, and 81% are impacted by reports of incidents in the media. This is compared to the 35%, 37% and 51% of men respectively.

In some of the open-ended questions in the survey, respondents brought up the media and the impact it has on their personal safety perceptions and subsequent travel behaviour decisions during F&LM travel in London:

"General talk and media around women's safety at night has increased my awareness of feeling unsafe at night and when passing males and passing vans. [I have] more irrational thoughts when out walking"

"I live right next to Clapham Common. The Sarah Everard case has really stayed with me. Whenever I need to walk near or through the common at dark, I alter my route and end up spending money on an Uber. Even being near the common at dark, alone scares me."

One young, female respondent stated that to improve their safety perceptions on their F&LM journeys they want:

"less media coverage about women's safety in the evenings"

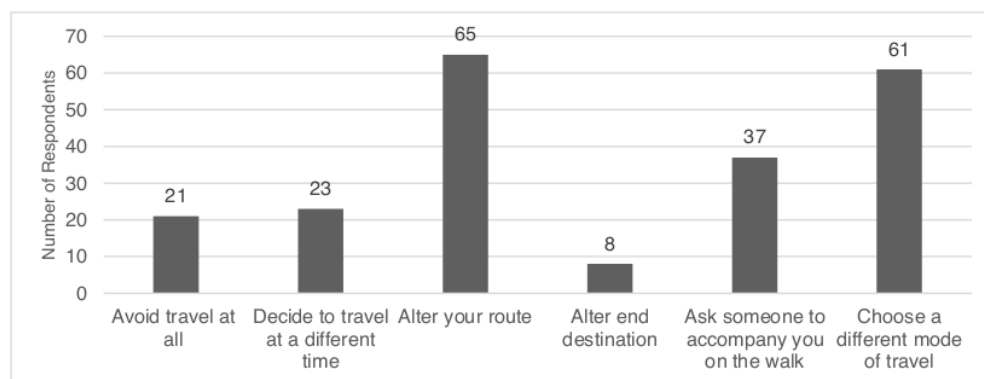
It is therefore clear that the consumption of the media resulting in 'victimisation through hearsay' has a significant negative impact on personal safety perceptions and subsequent travel behaviour decisions during F&LM travel in London.

4.4 Question 2

In what ways do individuals alter their travel behaviour as a result of concerns for their personal safety during First and Last Mile travel in London?

The literature confirmed that personal safety perceptions can impact travel behaviour and attitudes (Backer-Grøndahl et al., 2009). There a number of ways an individual can adapt their travel behaviour as a result, including: avoiding travel at all, travelling at a different time, choosing a different route to avoid certain areas or features, choosing a different mode of travel, not travelling unaccompanied, and altering end destination (Backer-Grøndahl et al., 2009; ONS, 2021; Sustrans, 2022). Respondents were therefore asked in the online survey: "When you do have concerns for your safety when walking, or considering walking, between your home/end destination and the public transport stop, have you ever changed your travel behaviour in one of the following ways? (select all that apply)" (Question 13). As shown in Figure 6 below, the most selected responses were 'Alter your route' selected by 65 respondents (47%) and 'Choose a different mode of travel' selected by 61 respondents (44%). The remaining options, 'Avoid travel at all', 'Decide to travel at a different time', 'Alter your end destination', and 'Ask someone to accompany you on the walk' were selected by 21, 23, 8 and 37 respondents respectively.

Figure 6: Travel behaviour changes resulting from safety concerns during F&LM walking trips in London



A notable result is that only 65 respondents have altered their route due to concerns for their safety, despite 113 respondents previously indicating that the route itself impacts their safety perceptions. This suggests that despite the route impacting their safety perceptions, for a significant number of people, their level of concern is not to the extent which warrants them to alter their travel behaviour and their route. This could also suggest that changing their route is not possible, or their current route is, in their opinion, the safest option, despite it still making them feel unsafe. A surprising result is that only 37 respondents have asked someone to accompany them on their walk due to concerns for their safety, despite 113 respondents previously indicating that walking alone or walking with someone else impacts their safety perceptions. This may be because asking someone to accompany them is not possible or they feel uncomfortable doing so, despite the potential improvement to their personal safety perceptions. Concerningly, 21 respondents have at some point decided not to travel at all as a result of feeling concerned for their safety. This drastic decision can have a wider impact on people's lives (Sustrans, 2022). Of the individuals who selected this option, 86% were women.

The socio-demographic data compared to the response to this question was analysed, and the most selected travel behaviour change from each group is detailed in Table 5 below.

Table 5: Most selected travel behaviour changes during F&LM walking trips in London resulting from safety concerns per socio-demographic group

Demographic Group	Most Selected Travel Behaviour Change	% of Demographic Group that selected that change
Gender		
<i>Female</i>	Alter Route	69.2%
<i>Male</i>	Alter Route	46.5%
Age		
<i>18 – 25</i>	Alter Route & Ask someone to accompany you on the walk	46.3%
<i>26 – 35</i>	Alter Route	48.5%
<i>36 – 45</i>	Alter Route	45.0%
<i>Over 45</i>	Choose a different mode of travel	60.0%
Ethnicity		
<i>White</i>	Alter Route	46.8%
<i>All other Ethnic Groups</i>	Choose a different mode of travel	50.0%
Disability		
<i>Disabled</i>	Ask someone to accompany you on the walk	63.6%
Borough		
<i>Inner London</i>	Alter Route	50.9%
<i>Outer London</i>	Choose a different mode of travel	48.3%

As can be seen in the table above, for both women and men, white individuals and those living in inner London, route alteration is the most common form of travel behaviour change that occurs as a result of concerns for their safety during F&LM walking trips in London. For individuals from all other ethnic groups and individuals living in outer London, choosing a different mode of travel is the most selected. For disabled individuals, asking someone to accompany them on their walk is the most selected. Some other notable points from the socio-demographic analysis include:

- A higher proportion of individuals with disabilities selected 'Avoid Travel at all', 'Travel at a different time', 'Alter end destination' and 'Choose a different mode of travel', than individuals without disabilities
- A higher proportion of individuals living in outer London selected 'Avoid Travel at all', 'Travel at a different time', and 'Ask someone to accompany you on the walk' than those living in inner London
- A higher proportion of individuals from all other ethnic groups selected 'Travel at a different time' and 'Alter end destination' than white individuals

Respondents were also given the choice to add 'other' ways they change their travel behaviour when walking between their home/end destination and public transport stop. 23 respondents chose to add an

additional behavioural change, and 18 of these responses were analysed and are detailed in full in Table 9 in Appendix 1 (4 responses were repeats/expansions of the original options provided). Based on an analysis of these 'other' responses, seven main categories were distinguished, as detailed in Table 6 below.

Table 6: Summary of 'other' travel behaviour changes resulting from safety concerns during F&LM walking trips in London

#	Category	Count
1	Phone Call	11
2	Share Location	4
3	Increase Speed	3
4	No Distractions or Attractions	2
5	Self-defence	1
6	Accepting Fate	1
7	Increase Lighting	1
Total		23*

**3 responses fit into more than 1 category, hence the total count is 23 and not 18.*

11 respondents stated that when they are concerned for their personal safety during their F&LM walking trips, they call someone, often for the duration of the trip, in order to feel safer. One respondent even stated that they just pretend to be talking on the phone instead of making a real call. Four respondents stated that they share their live location with a friend or family member for the duration of the walking trip and also confirm when they get to their end destination. Three respondents stated that they try to walk faster or even run when they are concerned for their personal safety, in order to get to their end destination quicker. Two respondents commented that they don't wear headphones/listen to music when they feel concerned for their personal safety, so they are more aware of their surroundings. The other three responses include one respondent indicating that they consider how they will defend themselves if attacked and walk with their keys between their fingers. Another respondent stated that if street lighting isn't sufficient that they use a headtorch to make themselves feel safer. Concerningly, one respondent stated that they almost just accept their fate, stating that when they are concerned for their personal safety, they:

"take a deep breath and go. If something will happen then let it be".

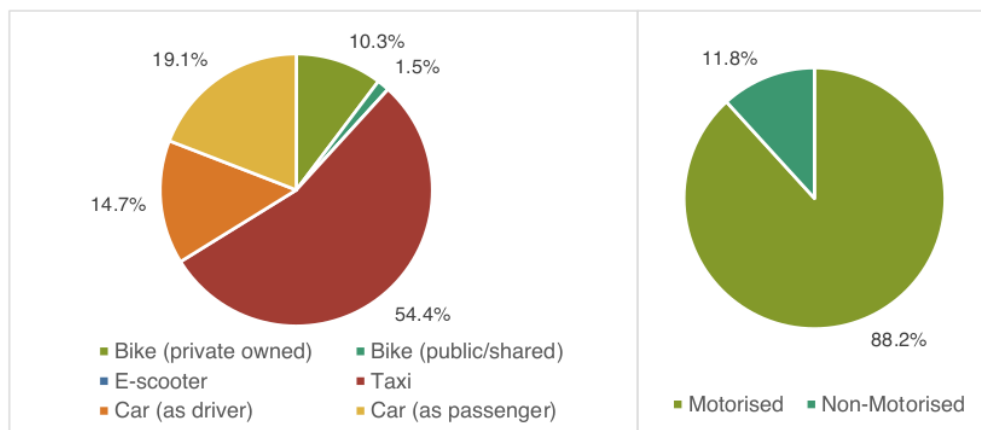
It could be argued that these responses aren't 'travel behaviours' as such, but more a variety of precautionary and defensive measures that people feel they need or have to take to make themselves feel more comfortable when they feel unsafe.

4.4.1 Change of Mode Choice

As noted in the previous section, 61 respondents (44%) selected that they have chosen a different mode of travel when they feel concerned for their safety when walking, or considering walking, between their home/end destination and a public transport stop. This was the second most selected travel

behaviour change. Those respondents who did select this choice, were then asked which mode they tend to use instead (Question 14). This is detailed in Figure 7 below.

Figure 7: Mode choice resulting from safety concerns during F&LM walking trips in London



As can be seen in the figure above, of those who have chosen a different mode of travel when they feel concerned for their safety when walking, or considering walking, between their home/end destination and a public transport stop, 54.4% tend to use a taxi instead. This is followed by 19.1% tending to instead travel by car as a passenger and 14.7% tending to travel by car as a driver. This means that 88.2% of those respondents who choose to change modes from walking to/from their home/end destination and public transport stop, due to feeling unsafe, tend to choose a motorised form of transport instead. The detrimental environmental impact of individuals switching from walking, a non-motorised mode of transport, to a motorised form of transport when they feel unsafe is clear.

There is also the individual economic impact to be considered. Walking costs an individual nothing, but if instead they have to pay for a taxi, car parking or bike hire when they feel too unsafe to walk, this cost could accumulate. Analysing the socio-demographics of the respondents, of those who chose a taxi instead, 85% are women. Therefore, the economic cost of having to pay for a taxi when an individual does not feel safe enough to walk their F&LM journey, is going to fall more on women. This is evident due to schemes such as 'Home Safe London' being created, which works to cover part of the cost of women's taxi rides and help women in UK get home safely instead of walking alone at night (Home Safe London, 2022).

4.4.2 When are the changes in travel behaviour made?

The literature states that decisions to change travel behaviour can be made before, during and after travel (Fyhri et al., 2010). Respondents were asked: "If you selected that you have changed your travel behaviour in any way in Question 13, at what point have you made these decisions? (select all that apply)" (Question 15). Figure 8 below depicts the results.

Figure 8: Travel behavioural change occurrence for F&LM walking trips in London



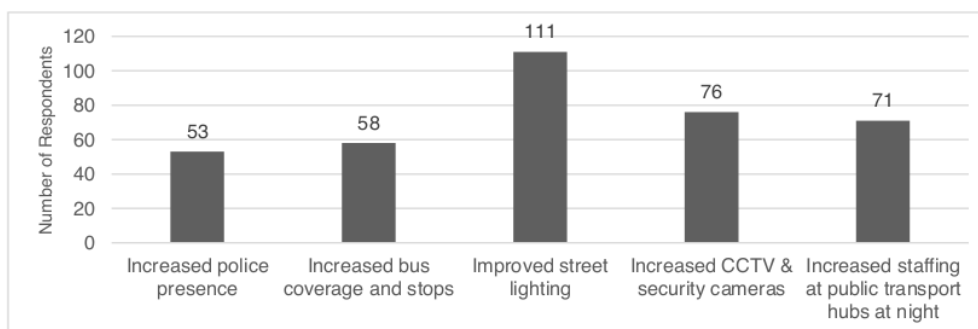
As can be seen in the figure above, 86 respondents (62%) selected that they have made a behavioural change, prior to undertaking the walking journey, and 53 respondents (38%) selected that they have changed their behaviour during the journey. This means 62% of respondents are making strategic proactive decisions prior to travel, which is in line with the 66% of travel behaviours selected previously being strategic ones (avoiding travel, choosing a different mode, etc.). 38% of respondents are making tactical reactive decisions whilst travelling, which is in line with the 34% of travel behaviours selected previously being tactical ones (altering route and altering end destination).

4.5 Question 3

How can personal safety perceptions during First and Last Mile Travel be improved in London?

The literature indicated a number of ways personal safety perceptions during F&LM walking trips could be improved. To understand which of these were most important to Londoners, the respondents were asked: "Which of the following ways do you think will help improve your safety perceptions when walking between your home/end destination and your nearest/most used public transport stop? (select all that apply)" (Question 19). As can be seen in Figure 9 below, the most selected option was 'Improved Street Lighting' with 111 respondents selecting this option. The second most selected option was 'Increased CCTV and Security Cameras' chosen by 76 respondents, followed by 'Increased staffing at public transport hubs at night' chosen by 71 respondents.

Figure 9: Measures to improve personal safety perceptions during F&LM walking trips in London



'Improved Street Lighting' is an improvement that would only be of benefit whilst walking at night/after dark. As the most selected option, this in line with the 112 respondents who indicated that street lighting,

or lack of, impacted their personal safety perceptions when walking during their F&LM walking journeys. This is also in line with the 118 respondents who are concerned for their safety either 'only at night/after dark' or 'mainly at night/after dark, but sometimes at any time of the day', and with other studies that also found increased street lighting as the highest rated measure from respondents (Reed et al., 2000) 'Increased CCTV and security cameras' was the second most selected option and was selected by more respondents than increased police presence and increased staffing at public transport hubs at night. This is contrary to the literature which states that increased police and staff presence in and around public transport stops is often more effective and desired than CCTV (Ditton, 2000; Loukaitou-Sideris, 2014). One respondent even commented on their personal experience of being a victim of a crime outside a public transport stop in London and how CCTV not only didn't deter the criminal but also didn't assist with catching them:

"When my phone got stolen, the police asked me to fill an online form although the incident happened in front of an underground station in Zone 2 and they can easily check the CCTV and find the people but they decided that it's not worth it. I'm really not sure why do they have CCTV if they don't use them. They should give thieves a good reason not to take someone's things"

Whilst 'increased police presence' is suggested in the literature as a way to improve personal safety perceptions, and has been selected by 53 respondents, some respondents suggested that increased police presence may not have the desired effect:

"More police would make me feel less safe"

"having increased police presence would make me feel safer to an extent - ever since Sarah Everard I am more wary of police"

It therefore must be considered how the police can best be utilised to make everyone feel safer in this instance and this would require further investigation.

In terms of analysing the socio-demographics of the selected measures, for every socio-demographic group the most select measure was 'Improved Street Lighting'. However, there are some notable differences in the selections of the other measures:

- A higher proportion of men selected 'Increased Police Presence' and 'Increased CCTV and security cameras' compared to women.
- A higher proportion of individuals from all other ethnic groups selected 'Increased CCTV and security cameras' and 'Increased staffing at public transport hubs at night' compared to white individuals.
- A higher proportion of individuals with disabilities selected 'Increased Police Presence' and 'Increased bus coverage and stops' compared to those without disabilities.
- A higher proportion of individuals living in outer London selected 'Increased Police Presence' and 'Increased staffing at public transport hubs at night' compared to those living in inner London.

Respondents were also given the choice to add an 'Other' way their safety perception could be improved, with 12 respondents choosing to do so. These 'are detailed in full in Table 10 in Appendix 1. Based on the analysis of these responses, seven main categories were distinguished, as detailed in Table 7 below.

Table 7: Summary of 'other' measures to improve personal safety perceptions during F&LM walking trips in London

#	Category	Count	Sub-Category	Count
1	Social Change	9	Education	4
2			Police Enforcement	2
3			Systemic Change	1
4			Reduced Media	1
5			Problem Solving	1
6	Physical environment/ infrastructure	4	Street Activation	3
7			Street Enhancement	1
			Total	13

**1 response fit into more than 1 category; hence the total count is 13 and not 12.*

The responses have been grouped into seven sub-categories, detailed in the table above, and then further grouped into two main categories: social change and physical environment/infrastructural improvements.

Social change is a more complicated category, and one that warrants its own study, but in summary from analysing the results from this study, as well as a further review of the literature, it is clear that a significant element of improving personal safety perceptions during F&LM walking trips involves getting to the root causes of, and then addressing, criminal and anti-social behaviour, and violence against women and vulnerable groups (Sustrans, 2022). Nine respondents who provided an 'other' option to the above question have stated that a form of social change will improve their personal safety perceptions, and this response rate supports its importance.

In terms of physical environment/infrastructural improvements that were mentioned, these can be grouped into two sub-categories: 'Street Activation' and 'Street Enhancement'. Three respondents stated that forms of 'Street Activation' would improve their safety perceptions on their F&LM journeys. Street activation involves the improvement of the public realm, through commercial investments, improved accessibility, and expansions which encourage more pedestrian activity and footfall in a given area (TfL, 2015). Street activation and the subsequent increased footfall can make people feel safer (Ibid.) This is further demonstrated by the results and discussion from question 12 of the online survey, with respondents stating that when it is busier (people along their route) they felt safer. It is important to note however that street activation is not going to be possible on every street, particularly residential streets, and therefore may only improve a portion of an individual's F&LM walking trip. Linked to Street Activation is 'Street Enhancement' where one respondent stated that their safety perceptions on their F&LM journeys would improve if:

"[an] area is cared for and looked after"

Street enhancement is not just about ensuring streets are well maintained and not dirty or vandalised, but also about improving the street to encourage pedestrian activity (TfL, 2017b). This can involve adding seating to allow places for people to stop and rest, providing shade and shelter from the elements, and introducing more greenery and other visually stimulating features such as street art to increase the attractiveness of the street (TfL, 2017b). However, it is important that these additional features do not have negative impacts on individuals' safety perceptions, as mentioned in the literature, particularly when walking at night.

5 Recommendations and Conclusions

5.1 Recommended Measures

Based on the data gathered from the respondents and the literature review, there are several ways that individual's safety perceptions can be improved during their F&LM walking trips in London.

5.1.1 Improved Street Lighting

With 80% of respondents stating that improved street lighting would improve their personal safety perceptions during F&LM walking trips in London, this cannot be ignored. Wu (2014) argues that improving pedestrian street lighting is not just about installing brighter lighting, but about installing high quality lighting at planned out intervals which provide adequate, continuous illumination for those using the pavements and ultimately deter anti-social behaviours.

Further research would be required to identify streets and routes with poor street lighting and determine the optimum level of lighting for that street. Determining the optimum level of street lighting for personal safety reasons would also have to be conscious of light pollution, energy sources and the impact of increased lighting on other crimes such as car theft, which has been found to increase on well-lit streets (UCL, 2022).

5.1.2 Increased Security Presence

Under this measure, increased police presence, CCTV & security cameras and staffing at public transport hubs at night have been grouped together, as it is clear from the literature and the survey responses that a coordinated approach between these three forms of security is required to ensure maximum impact.

In order to feel safer, individuals in London want the physical presence of others at public transport stops, particularly at night, whether that be TfL staff or the police, or a combination of both. TfL staff would need specific training for this and liaison and communication with the police force is key. CCTV despite its flaws, still has a purpose, but the use of it for enforcement and further deterrent purposes needs to be improved.

5.1.3 Improved Signage & Navigational Assistance

The data collected from this study indicated that people in London feel less safe when using their mobile phone whilst walking during F&LM travel. In London thousands of mobile phones are stolen every year, with criminals often targeting those walking and using their mobile phone and distracted from their surroundings (Met Police, 2022). One respondent stated:

"I feel really stressed while using my phone for maps. When it's in my pocket, I feel safe"

If a significant number of people are using their phones whilst walking for navigational purposes, then it should be considered how the built environment can be improved to make navigation easier and make people less reliant on mobile phones, particularly in and around public transport stops. This could be done by increasing the amount of physical signage in general, but also improving the visibility and

accessibility of said signage, with considerations for individuals with disabilities or for whom English is not their first language (this would also improve tourism experiences).

5.1.4 Improved Cycling Infrastructure

A questionnaire conducted by Sustrans (UK) found that if women choose to cycle, instead of walking alone and after dark, to an extent, they feel safer (Sustrans, 2022). This feeling of being safer when cycling compared to walking is linked to reducing the journey time and increased ease of escaping an incident (Ibid.). This study demonstrated that individuals try and walk faster or even run when they feel unsafe, in order to reduce journey time, and so cycling may be an alternative to this. If cycling can be considered by individuals as a viable alternative to walking F&LM journeys, this may improve personal safety perceptions and ensure F&LM travel is still undertaken by an active travel/non-motorised mode.

In order to make cycling a viable option for F&LM travel in London, cycling infrastructure at public transport stops (particularly tube stations) has to be improved. Bike parking needs to not only be increased but also made more secure, so that individuals feel confident leaving their bike there. Bike lanes can be added on key routes leading to tube stops, particularly where the route to the nearest tube stop may be considered too far to walk.

However, it should be noted that cycling instead of walking cannot be the solution for everyone (including people with disabilities, with young children, or those who have been drinking alcohol), and therefore improvements to pedestrian infrastructure still need to remain a priority, alongside improvements to cycling infrastructure.

5.2 Further Research

Further research could involve pinpointing specific F&LM routes which are deemed to be 'unsafe' by those who walk it and analyse why this is and how they can be improved. Once interventions aimed to improve safety perceptions have been implemented, a review can be undertaken to analyse if individual's safety perceptions have improved or not.

This study could also be applied specifically to children's trips to and from school. TfL estimate a quarter of weekday morning car trips are school drop offs, which contribute to congestion and carbon emissions in London (TfL, 2018b). Road safety is often cited as a barrier to children walking to school, however there is less focus on personal safety and security. Analysis needs to be conducted to understand why these trips aren't being walked and how they can be improved from a personal safety perspective to further encourage children and their parents to walk to school.

5.3 Summary

95% of the respondents in this study have some level of concern for their safety during their F&LM walking trips in London, and only 5% have none. This rate is alarmingly high, and it is vital that the UK government, TfL and the relevant private sector organisations understand what they can do to improve this. The results from this study indicate that walking alone, lack of street lighting and certain route characteristics impact the most people's personal safety perceptions and subsequent travel behaviour during F&LM travel in London. The media also plays a significant role in lowering personal safety

perceptions, even more so than personal experience of an incident, particularly for women. The subsequent changes in travel behaviour tend to be more strategic changes made prior to travel, with route alteration and choosing a different mode of travel being selected the most. The ensuing environmental impact that switching from walking to a motorised form of transport causes is clear. Improved street lighting was the measure selected by the most respondents, but other measures such as increased security presence, improved signage and navigational assistance and improved cycling infrastructure have also been expanded upon. To conclude, the results of this study indicate that there is significant work to be done to improve individuals' personal safety perceptions during F&LM travel in London; and it is essential for the sustainability of London's transport system, for public health and wellbeing, and for the environment, that this is achieved.

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Appendices

Appendix 1: 'Other' Responses to Questions 12, 13 and 19

Table 8: 'Other' Responses to Question 12 in Online Survey

#	Direct Quote from Respondent	Category
1	"I feel really stressed while using my phone for maps. When it's in my pocket, I feel safe"	Distraction / Attraction
2	"How busy road is with people and cars"	Busy (Positive?)
3	"Who else is on the street - if it's families/women I feel safer, if it's men (alone or in groups) I feel less safe"	Busy (Positive?)
4	"The people that gather around the canal (drug abusers)"	Anti-social Behaviour
5	"If it's busy with lots of people around in the evening, I feel safer than if no one or few people are around"	Busy (Positive?)
6	"The number of zebra crossings. In London people often don't stop at them and it makes me feel unsafe having to cross roads"	Road Safety
7	"How busy the route is"	Busy (Positive?)
8	"Groups of people standing on my route"	Busy (Negative?)
9	"If I am using my phone / wearing earphones"	Distraction / Attraction
10	"How many other people are around"	Busy (Positive?)
11	"How many places are open at the time of day e.g. service station, shops, etc . also if there are other women walking around"	Busy (Positive?)

Table 9: 'Other' Responses to Question 13 in Online Survey

#	Direct Quote from Respondent	Category
1	"Phone call someone"	Phone Call
2	"Try to be on the phone with someone for the duration of the walk"	Phone Call
3	"Take a deep breath and go. If something will happen then let it be"	Accepting Fate
4	"Walk faster / run home"	Increase Speed
5	"Call someone on walk"	Phone Call
6	"Run, don't wear earphones, share live location with friend"	Increase Speed / No Distractions or Attractions / Share Location
7	"Had to call family to feel safer"	Phone Call
8	"Calling Someone"	Phone Call
9	"Called someone"	Phone Call
10	"I will ring someone (mum, friend, boyfriend) until I get home; I won't listen to music; I look over my shoulder/ make sure I'm more aware of my surroundings; Put my keys between my fingers."	Phone Call / No Distractions or Attractions / Self-defence
11	"Call a friend for safety, sending friends locations"	Phone Call / Share Location

12	"Walk faster"	Increase Speed
13	"Use head torches, lights to increase safety where there is no street lighting"	Increase Lighting
14	"Phone someone while walking or made sure to message a friend once I was home"	Phone Call
15	"Call someone whilst walking"	Phone Call
16	"Sent location update to friends"	Share Location
17	"Share my live location"	Share Location
18	"Pretend to be on talking on the phone"	Phone Call

Table 10: 'Other' Responses to Question 19 in Online Survey

#	Direct Quote from Respondent	Grouping
1	"More street activation"	Street Activation
2	"London police should open CCTVs and investigate small incidents so thieves would consider stealing someone's bike/phone/bag"	Police Enforcement
3	"More people out in general"	Street Activation
4	"More people about on the street for safety in numbers"	Street Activation
5	"Overall system of dealing with substance abuse victims who are homeless in the area"	Systemic Change
6	"Less media coverage about women's safety in the evenings"	Reduced Media
7	"Decreasing drunken behaviour -- most of the times I've felt unsafe have involved drunk men"	Police Enforcement / Education
8	"Area is cared for and looked after"	Street Enhancement
9	"Education of women's safety"	Education
10	"Education and change of gender norms which result in violence against women"	Education
11	"Change behaviour"	Education
12	"More funding for schemes for women/people at night where there is visible support esp. in more dangerous areas of London"	Problem Solving

Appendix 2: Copy of Online Survey

Hi! I am a MSc Transport and City Planning student at University College London (UCL). This survey is collecting data for my dissertation which is looking into the impact of personal safety perceptions on travel behaviour and attitudes, with a focus on first and last mile walking trips in London.

This survey has 20 questions and should take you less than 5 minutes to complete.

**** Please only answer this questionnaire if you currently live in London ****

Data collected from this research is anonymous (not collecting name or email etc.) and will be only accessible by the researcher and stored safely until publication.

Thank you!

1. Which of the below do you identify as?

- Female
- Male
- Prefer not to say

2. How old are you?

- 18 - 25 yrs old
- 26 - 35 yrs old
- 36 - 45 yrs old
- 46 - 55 yrs old
- 56 - 65 yrs old
- 66 - 75 yrs old
- Over 75

3. What is your ethnic group?

- Asian or Asian British
- Black, Black British, Black Caribbean or African
- Mixed or multiple Ethnic Groups
- White
- Other Ethnic Group

4. Do you consider yourself to have a disability?

- Yes
- No
- Prefer not to say

5. What is the size of your household? (Number of people living in your household/where you currently live)

- 1
- 2
- 3
- 4
- 5
- More than 5

6. Which London Borough do you currently live in?

- Barking and Dagenham
- Barnet
- Bexley
- Brent
- Bromley
- Camden
- City of London
- Croydon
- Ealing
- Enfield
- Greenwich
- Hackney
- Hammersmith and Fulham
- Haringey
- Harrow
- Havering
- Hillingdon
- Hounslow
- Islington
- Kensington and Chelsea
- Kingston upon Thames
- Lambeth
- Lewisham
- Merton
- Newham
- Redbridge
- Richmond upon Thames
- Southwark
- Sutton
- Tower Hamlets
- Waltham Forest
- Wandsworth
- Westminster

7. How long have you lived in London? (years)

- Less than 1 year
- 1 - 2 years
- 3 - 4 years
- 5 - 10 years
- 11 - 20 years
- 21 - 30 years
- More than 30 years

8. How far (in km) is your home from your nearest/most used public transport stop? (Bus, Tube, DLR, Train etc.)

- Less than 0.5km
- 0.5km - 1km
- 1km - 2km
- More than 2km

9. When using public transport in London (Bus, Tube, DLR, Train etc.), how often do you walk between your home/end destination and the public transport stop?

- Always
- Most of the time
- Sometimes
- Rarely
- Never

10. When walking between your home/end destination and the public transport stop, to what extent are you concerned for your safety?

- I am always concerned
- Most of the time I am concerned
- Sometimes I am concerned
- I am rarely concerned
- I am never concerned

11. If you are concerned, is this concern whilst walking between your home/end destination and the public transport stop, at any time of the day or only after dark/at night?

- Any time of the day
- Mainly at night/after dark, but sometimes at any time of the day
- Only at night/after dark
- N/A - answered 'I am never concerned' to question 10

12. In addition to the time of day, which of the following also have an impact on how safe you feel when walking between your home/end destination and the public transport stop? (select all that apply)

- Walking alone vs walking with someone else
- Street Lighting (how well lit the route is)
- The route itself (if it includes: underpasses, parks, alleyways etc. en route)
- Duration of walking journey
- Day of the week
- What you are wearing (e.g. type of shoes or clothing)
- None of the above
- N/A - answered 'I am never concerned' to question 10
- Other:

13. When you do have concerns for your safety when walking, or considering walking, between your home/end destination and the public transport stop, have you ever changed your travel behaviour in one of the following ways? (select all that apply)

- Avoid travel at all (decide not to make journey/go out due to concerns of walking between your home/end destination and the public transport stop)
- Decide to travel at a different time
- Alter your route
- Alter end destination
- Ask someone to accompany you on the walk
- Choose a different mode of travel (instead of using public transport then walking)
- None of the above
- N/A - answered 'I am never concerned' to question 10
- Other:

14. If you selected "Choose a different mode of travel (instead of using public transport then walking)" in the previous question, what mode do you tend to use instead?

- Bike (private owned)
- Bike (public/shared)
- E-scooter
- Taxi
- Car (as driver)
- Car (as passenger)
- N/A - did not select 'Choose a different mode of travel' in Question 13

15. If you selected that you have changed your travel behaviour in any way in Question 13, at what point have you made these decisions? (select all that apply)

- Prior to the journey (pre-planning)
- During the journey
- After the journey (plans to change for next time)
- N/A - answered 'None of the above' for Question 13

16. When choosing where to live in London, did you consider the safety (in your opinion) of the walking route between your home and the nearest/most used public transport stop is?

- Yes, I did consider it
- No, I did not consider it

17. If you did consider the safety of the walking route to your nearest/most used public transport stop when choosing where to live, which of the following did you consider a safety concern? (select all that apply)

- Route involves walking through or next to a park
- Route is not well lit
- Route involves walking down an alleyway or narrow passageway
- Route involves walking through a non-residential area
- Route is too long
- N/A - answered 'No, I did not consider it' in Question 16
- Personal experience of an incident when walking
- Someone you know having an incident when walking
- Media reports of an incident involving someone walking
- None of the above
- Other:

18. Do any of the following have an impact on your travel behaviour when walking between your home/end destination and the public transport stop? (select all that apply)

- Personal experience of an incident when walking
- Someone you know having an incident when walking
- Media reports of an incident involving someone walking
- None of the above
- Other:

19. Which of the following ways do you think will help improve your safety perceptions when walking between your home/end destination and your nearest/most used public transport stop? (select all that apply)

- Increased police presence
- Increased bus coverage and stops
- Improved street lighting
- Increased CCTV & security cameras
- Increased staffing at public transport hubs at night
- None of the above
- Other:

20. Please feel free to write here any further comments or opinions you have on safety whilst walking between public transport stops and your end destination/home in London. (optional)

Appendix 3: Ethical Clearance Form

Ethical Clearance Pro Forma

It is important for you to include all relevant information about your research in this form, so that your supervisor can give you the best advice on how to proceed with your research.

You are advised to read though the relevant sections of [UCL's Research Integrity guidance](#) to learn more about your ethical obligations.

Submission Details

1. **Name of programme of study:** MSc Transport and City Planning
2. **Please indicate the type of research work you are doing (Delete that which do not apply):**
 - Dissertation in Planning (MSc)
3. **Please provide the current working title of your research:**
The impact of safety perceptions on travel behaviour and attitudes: A focus on first and last mile walking trips in London
4. **Please indicate your supervisor's name:** Jonas De Vos

Research Details

5. **Please indicate here which data collection methods you expect to use. (Tick all that apply/or delete those which do not apply.)**
 - Questionnaires (including oral questions)
 - Secondary data analysis
6. **Please indicate where your research will take place (delete that which does not apply):**
 - UK only
7. **Does your project involve the recruitment of participants?**
'Participants' means human participants and their data (including sensor/location data and observational notes/images.)

No

Appropriate Safeguard, Data Storage and Security

8. Will your research involve the collection and/or use of personal data?

Personal data is data which relates to a living individual who can be identified from that data or from the data and other information that is either currently held, or will be held by the data controller (you, as the researcher).

This includes:

- Any expression of opinion about the individual and any intentions of the data controller or any other person toward the individual.
- Sensor, location or visual data which may reveal information that enables the identification of a face, address etc. (some post codes cover only one property).
- Combinations of data which may reveal identifiable data, such as names, email/postal addresses, date of birth, ethnicity, descriptions of health diagnosis or conditions, computer IP address (of relating to a device with a single user).

No

9. Is your research using or collecting:

- special category data as defined by the General Data Protection Regulation*, and/or
- data which might be considered sensitive in some countries, cultures or contexts?

*Examples of special category data are data:

- which reveals racial or ethnic origin, political opinions, religious or philosophical beliefs, trade union membership;
- concerning health (the physical or mental health of a person, including the provision of health care services);
- concerning sex life or sexual orientation;
- genetic or biometric data processed to uniquely identify a natural person.

No

10. Do you confirm that all personal data will be stored and processed in compliance with the General Data Protection Regulation (GDPR 2018)? (Choose one only, delete that which does not apply)

- I will not be collecting personal data

11. I confirm that:

- The information in this form is accurate to the best of my knowledge.
- I will continue to reflect on and update these ethical considerations in consultation with my supervisor.

Yes

RISK ASSESSMENT FORM

FIELD / LOCATION WORK



DEPARTMENT/SECTION: BARTLETT SCHOOL OF PLANNING

LOCATION(S): LONDON, UK

PERSONS COVERED BY THE RISK ASSESSMENT: ELLEN ROGAN

BRIEF DESCRIPTION OF FIELDWORK (including geographic location): NO FIELDWORK - DESK-BASED (LONDON)

COVID-19 RELATED GENERIC RISK ASSESSMENT STATEMENT:

Coronavirus disease (COVID-19) is an infectious disease caused by coronavirus SARS-CoV-2. The virus spreads primarily through droplets of saliva or discharge from the nose when an infected person coughs or sneezes. Droplets fall on people in the vicinity and can be directly inhaled or picked up on the hands and transferred when someone touches their face. This risk assessment documents key risks associated with fieldwork during a pandemic, but it is not exhaustive and will not be able to cover all known risks, globally. This assessment outlines principles adopted by UCL at an institutional level and it is necessarily general. Please use the open text box 'Other' to indicate any contingent risk factors and control measures you might encounter during the course of your dissertation research and writing.

Please refer to the Dissertation in Planning Guidance Document (available on Moodle) to help you complete this form.

Hazard 1: Risk of Covid -19 infection during research related travel and research related interactions with others (when face-to-face is possible and/or unavoidable)

Risk Level - Medium /Moderate

Existing Advisable Control Measures: Do not travel if you are unwell, particularly if you have COVID-19 symptoms. Self-isolate in line with NHS (or country-specific) guidance.

Avoid travelling and face-to-face interactions; if you need to travel and meet with others:

- If possible, avoid using public transport and cycle or walk instead.
- If you need to use public transport travel in off-peak times and follow transport provider's and governmental guidelines.
- Maintain (2 metre) social distancing where possible and where 2 metre social distancing is not achievable, wear face covering.
- Wear face covering at all times in enclosed or indoor spaces.
- Use hand sanitiser prior to and after journey.
- Avoid consuming food or drinks, if possible, during journey.

- Avoid, if possible, interchanges when travelling - choose direct route.
- Face away from other persons. If you have to face a person ensure that the duration is as short as possible.
- Do not share any items i.e. stationary, tablets, laptops etc. If items need to be shared use disinfectant wipes to disinfect items prior to and after sharing.
- If meeting in a group for research purposes ensure you are following current country specific guidance on face-to-face meetings (i.e rule of 6 etc.)
- If and when possible meet outside and when not possible meet in venues with good ventilation (e.g. open a window)
- If you feel unwell during or after a meeting with others, inform others you have interacted with, self-isolate and get tested for Covid-19
- Avoid high noise areas as this mean the need to shout which increases risk of aerosol transmission of the virus.
- Follow one way circulation systems, if in place. Make sure to check before you visit a building.
- Always read and follow the visitors policy for the organisation you will be visiting.
- Flush toilets with toilet lid closed.
- 'Other' Control Measures you will take (specify):

NOTE: The hazards and existing control measures above pertain to Covid-19 infection risks only. More generalised health and safety risk may exist due to remote field work activities and these are outlined in your Dissertation in Planning Guidance document. Please consider these as possible 'risk' factors in completing the remainder of this standard form. For more information also see: [Guidance Framework for Fieldwork in Taught and MRes Programmes, 2021-22](#)

Consider, in turn, each hazard (white on black). If **NO** hazard exists select **NO** and move to next hazard section.

If a hazard does exist select **YES** and assess the risks that could arise from that hazard in the risk assessment box.

Where risks are identified that are not adequately controlled they must be brought to the attention of your Departmental Management who should put temporary control measures in place or stop the work. Detail such risks in the final section.

ENVIRONMENT

e.g. location, climate, terrain, neighbourhood, in outside organizations, pollution, animals.

The environment always represents a safety hazard. Use space below to identify and assess any risks associated with this hazard

Examples of risk: adverse weather, illness, hypothermia, assault, getting lost.
Is the risk high / medium / low ?

NO RISKS

CONTROL MEASURES

Indicate which procedures are in place to control the identified risk

- work abroad incorporates Foreign Office advice
- only accredited centres are used for rural field work
- participants will wear appropriate clothing and footwear for the specified environment
- refuge is available

work in outside organisations is subject to their having satisfactory H&S procedures in place
 OTHER CONTROL MEASURES: please specify any other control measures you have implemented:

EMERGENCIES

Where emergencies may arise use space below to identify and assess any risks

e.g. fire, accidents

Examples of risk: loss of property, loss of life

NO RISKS

CONTROL MEASURES

Indicate which procedures are in place to control the identified risk

participants have registered with LOCATE at <http://www.fco.gov.uk/en/travel-and-living-abroad/>
 contact numbers for emergency services are known to all participants
 participants have means of contacting emergency services
 a plan for rescue has been formulated, all parties understand the procedure
 the plan for rescue /emergency has a reciprocal element
 OTHER CONTROL MEASURES: please specify any other control measures you have implemented:

FIELDWORK 1

May 2010

EQUIPMENT

Is equipment used?

NO

If 'No' move to next hazard
 If 'Yes' use space below to identify and assess any risks

e.g. clothing, outboard motors.

Examples of risk: inappropriate, failure, insufficient training to use or repair, injury. Is the risk high / medium / low ?

CONTROL MEASURES

Indicate which procedures are in place to control the identified risk

the departmental written Arrangement for equipment is followed
 participants have been provided with any necessary equipment appropriate for the work
 all equipment has been inspected, before issue, by a competent person
 all users have been advised of correct use
 special equipment is only issued to persons trained in its use by a competent person
 OTHER CONTROL MEASURES: please specify any other control measures you have implemented:

LONE WORKING

Is lone working a possibility?

NO

If 'No' move to next hazard
 If 'Yes' use space below to identify and assess any

risks

*e.g. alone or in isolation
lone interviews.*

Examples of risk: difficult to summon help. Is the risk high / medium / low?

CONTROL MEASURES

Indicate which procedures are in place to control the identified risk

- the departmental written Arrangement for lone/out of hours working for field work is followed
- lone or isolated working is not allowed
- location, route and expected time of return of lone workers is logged daily before work commences
- all workers have the means of raising an alarm in the event of an emergency, e.g. phone, flare, whistle
- all workers are fully familiar with emergency procedures
- OTHER CONTROL MEASURES: please specify any other control measures you have implemented:

FIELDWORK 2

May 2010

ILL HEALTH

The possibility of ill health always represents a safety hazard. Use space below to identify and assess any risks associated with this Hazard.

*e.g. accident, illness,
personal attack,
special personal
considerations or
vulnerabilities.*

Examples of risk: injury, asthma, allergies. Is the risk high / medium / low?

NO RISK

CONTROL MEASURES

Indicate which procedures are in place to control the identified risk

- all participants have had the necessary inoculations/ carry appropriate prophylactics
- participants have been advised of the physical demands of the research and are deemed to be physically suited
- participants have been adequate advice on harmful plants, animals and substances they may encounter
- participants who require medication should carry sufficient medication for their needs
- OTHER CONTROL MEASURES: please specify any other control measures you have implemented:

TRANSPORT

Will transport be required

NO

YES

NO

Move to next hazard

Use space below to identify and assess any risks

e.g. hired vehicles

Examples of risk: accidents arising from lack of maintenance, suitability or training

Is the risk high / medium / low?

CONTROL MEASURES**Indicate which procedures are in place to control the identified risk**

- only public transport will be used
- the vehicle will be hired from a reputable supplier
- transport must be properly maintained in compliance with relevant national regulations
- drivers comply with UCL Policy on Drivers http://www.ucl.ac.uk/hr/docs/college_drivers.php
- drivers have been trained and hold the appropriate licence
- there will be more than one driver to prevent driver/operator fatigue, and there will be adequate rest periods
- sufficient spare parts carried to meet foreseeable emergencies
- OTHER CONTROL MEASURES: please specify any other control measures you have implemented:

DEALING WITH THE PUBLIC**Will people be dealing with public****NO**

If 'No' move to next hazard
If 'Yes' use space below to identify and assess any risks

e.g. interviews, observing

Examples of risk: personal attack, causing offence, being misinterpreted. Is the risk high / medium / low?

CONTROL MEASURES**Indicate which procedures are in place to control the identified risk**

- all participants are trained in interviewing techniques
- advice and support from local groups has been sought
- participants do not wear clothes that might cause offence or attract unwanted attention
- interviews are conducted at neutral locations or where neither party could be at risk
- OTHER CONTROL MEASURES: please specify any other control measures you have implemented:

FIELDWORK**3**

May 2010

WORKING ON OR**Will people work on****NO****If 'No' move to next hazard****NEAR WATER****or near water?**

If 'Yes' use space below to identify and assess any risks

e.g. rivers, marshland, sea.

Examples of risk: drowning, malaria, hepatitis A, parasites. Is the risk high / medium / low?

CONTROL MEASURES

Indicate which procedures are in place to control the identified risk

- lone working on or near water will not be allowed
- coastguard information is understood; all work takes place outside those times when tides could prove a threat
- all participants are competent swimmers
- participants always wear adequate protective equipment, e.g. buoyancy aids, wellingtons
- boat is operated by a competent person
- all boats are equipped with an alternative means of propulsion e.g. oars
- participants have received any appropriate inoculations
- OTHER CONTROL MEASURES: please specify any other control measures you have implemented:

MANUAL HANDLING (MH)

Do MH activities take place?

NO

If 'No' move to next hazard
 If 'Yes' use space below to identify and assess any risks

e.g. lifting, carrying, moving large or heavy equipment, physical unsuitability for the task.

Examples of risk: strain, cuts, broken bones. Is the risk high / medium / low?

CONTROL MEASURES

Indicate which procedures are in place to control the identified risk

- the departmental written Arrangement for MH is followed
- the supervisor has attended a MH risk assessment course
- all tasks are within reasonable limits, persons physically unsuited to the MH task are prohibited from such activities
- all persons performing MH tasks are adequately trained
- equipment components will be assembled on site
- any MH task outside the competence of staff will be done by contractors
- OTHER CONTROL MEASURES: please specify any other control measures you have implemented:

FIELDWORK 4

May 2010

SUBSTANCES

Will participants work with

NO

If 'No' move to next hazard
 If 'Yes' use space below to identify and assess any risks

e.g. plants, chemical, biohazard, waste

substances

Examples of risk: ill health - poisoning, infection, illness, burns, cuts. Is the risk high / medium / low?

CONTROL MEASURES

Indicate which procedures are in place to control the identified risk

- the departmental written Arrangements for dealing with hazardous substances and waste are followed
- all participants are given information, training and protective equipment for hazardous substances they may encounter
- participants who have allergies have advised the leader of this and carry sufficient medication for their needs
- waste is disposed of in a responsible manner
- suitable containers are provided for hazardous waste
- OTHER CONTROL MEASURES: please specify any other control measures you have implemented:

OTHER HAZARDS

Have you identified any other hazards?

NO

If 'No' move to next section

If 'Yes' use space below to identify and assess any risks

i.e. any other hazards must be noted and assessed here.

Hazard:

Risk: is the risk

CONTROL MEASURES

Give details of control measures in place to control the identified risks

Have you identified any risks that are not adequately controlled?

NO

X

Move to Declaration

YES

Use space below to identify the risk and what action was taken

DECLARATION

The work will be reassessed whenever there is a significant change and at least annually. Those participating in the work have read the assessment.

Select the appropriate statement:

X

I the undersigned have assessed the activity and associated risks and declare that there is no significant residual risk

I the undersigned have assessed the activity and associated risks and declare that the risk will be controlled by the method(s) listed above

NAME OF SUPERVISOR: Jonas De Vos

FINAL GRADE

GENERAL COMMENTS

/100

Instructor

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