

Cycling Amongst Muslim Women in London: Barriers and Policies

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Abstract

The threat of global warming is a key driver in need for non-motorised forms of travel such as cycling. Cycling is also a solution to a healthier, mobile population. However, Muslims, particularly females from south Asian communities appear reluctant to take up this healthy form of transport and leisure activity.

The aim of this research is to understand the barriers and policies preventing Muslim women from cycling, focusing on the experiences from this group in East London. The research objectives are to understand policy development on cycling and to consider the impact of these policies on the number of cyclists in the UK and specifically, London. The research also seeks to assess the number of female Muslim cyclists as a percentage of the overall number of cyclists in London. Furthermore, this research aims to determine the barriers to increasing the uptake of cycling within this community. Ultimately this research seeks to identify ways in which these barriers can be reduced.

This research concludes that there are barriers to cycling amongst Muslim women, founded largely on cultural and religious beliefs at family and community level. Other barriers include concern about security and safety, the cost of cycling and practical issues such as modest dress. The study finds that effective strong leadership and appropriate policy support can address these barriers, through education about the benefits of cycling, training, and investment in adequate cycling infrastructure. Women can be empowered if cycling in groups, and leaders within these groups can fill the gap in terms of providing role models for women interested in cycling.

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Chapter 1: Introduction

Modern-day society is challenged by widespread issues including climate change, global warming, and health epidemics such as obesity (An et al., 2018). This research views cycling as offering a partial solution to these issues, provided the entire population has access to cycling and is willing to shift from motorised transport to non-motorised cycling. Focusing on ethnic minorities and specifically Muslim women living in London, this research adds to the discourse that this cohort accounts for a small proportion of cyclists in London. This introductory chapter contextualises the research problem and sets out the aim and objectives of the study, whilst signposting the rest of the paper.

DEFRA (2017) points out that a high proportion of greenhouse gas emissions are from motorised transport, and accounts for 80% of carbon dioxide concentrations negatively affecting air quality thus, contributing to climate change. The need to reduce greenhouse gas emissions has led to commitment from the United Kingdom (UK) government to reduce 80% of emissions by 2050, with the Committee on Climate Change (CCC, 2019) suggesting cycling is an action people should perform to reduce their carbon footprint to help meet the climate change goals. The Department for Transport (DfT, 2017) and Public Health England (PHE, 2016), advise that to increase cycling, behavioural change programs coupled with cycling infrastructure is required to maximise the value of this activity, which could also see reduced pressure on the National Health Service.

In recent years, the profile of cycling as a partial solution to climate change and air pollution has been raised through several reports including the Commons Select Committee (CSC, 2019) who not only recognise the benefits of cycling, but also point out that an increase in policy support is needed for this form of transport (HCTC, 2019). The committee also recommend that the UK government sets more ambitious targets for walking and cycling, and provide a “strategy for enabling people to get out of their cars and make the switch to active travel for short trips or as part of a longer journey” (CSC, 2019, p.1), further stating that an increase in financial investment is needed to achieve these goals. The report stresses that policies will only be successful if all communities make the shift towards clean travel such as cycling, further implying that in some communities where there is little uptake of cycling, for example within ethnic minorities in the UK, an increase in cycling may be difficult to achieve (CSC, 2019). Low level cycling amongst ethnic minorities is recorded by TfL (2010), reporting that eight out of ten cyclists are white and within this cohort, men cycle more than women, adding that

only 2.6% of all cyclists in England are from the Black Asian Minority Ethnic (BAME) community, with 71% of residents from this group in London professing to never having cycled, compared to 57% of their white counterparts. These claims are supported in a detailed study conducted by Bowles Green Ltd (2008) who explore ways to engage ethnic minority communities in cycling, especially as there is low level participation amongst Asian ethnic communities, which is having adverse impacts on transport policies as well as health and urban planning. Focusing on Indian, Pakistani, and Bangladeshi communities in the UK, the study also found that there are higher levels of coronary heart disease, diabetes and mental health issues within this group, with suggestions that such health problems can be reduced through regular exercise. Furthermore, the study reveals that more Asian men participate in physical activity than Asian women, where the latter were more likely to participate in indoor keep-fit than outdoor physical activity Bowles Green Ltd (2008). Examination of statistics also reveal that 5% of Pakistani men cycle, and 0% of Bangladeshi women cycle which are significantly lower cycling levels than the 16% for men and 8% for women of the whole UK population (Bowles Green Ltd, 2008).

Janvaria (2018) studied the barriers of cycling, which focussed on the Indian community in Northern England and despite the community being diverse in religion, the barriers hindering cycling were mainly found amongst Muslim women in the study. The research concluded that there is a need for further exploration of the Islamic culture and its limitations for women in terms of cycling. These recommendations are reinforced by similar studies such as Cox (2015) and Aldred and Jungnickel (2014), who point out that cycling can be encouraged if there is an understanding of how cycling behaviours can be shaped by cultural norms that have nothing to do with cycling.

The recent global Covid-19 pandemic emphasises the need for healthy forms of travel to not only promote good health but also prevent further spread of the virus. The DfT (2020) reveal that this pandemic has seen an increase in cycling, thus being a stimulus for a £2billion investment programme in cycling and associated infrastructure, across England (DfT, 2020). However, concerns remain over whether ethnic minorities avail these programmes (Sustrans, 2020a). Winters et al. (2017) suggest that car reduction can be achieved through policies that consider the diversity of society and economy along with city design, cycle routes, and appreciation of the barriers that prevent active travel. Despite increased attention and policies supporting cycling as an alternative to motorised transport, there is little work exploring the

barriers that affect Muslim Women from cycling in London (Ali, 2015). It is important to set the context of this study by understanding where the Muslim population reside in London.

According to the National Census (ONS, 2011) there are 1,012,823 Muslims residing in London, which is a 35% increase on the 2001 Census. This equates to an estimated third of London's population, with the London boroughs of Tower Hamlets, Newham, Hackney, Waltham Forest, and Redbridge each comprising of more than 40% Muslims, as represented in Figure 1. These boroughs will be included in this study and referred to as 'East London'. These local authorities are also included in the top 20 local authorities in England and Wales with the highest percentage of Muslims (Nomis, 2011).

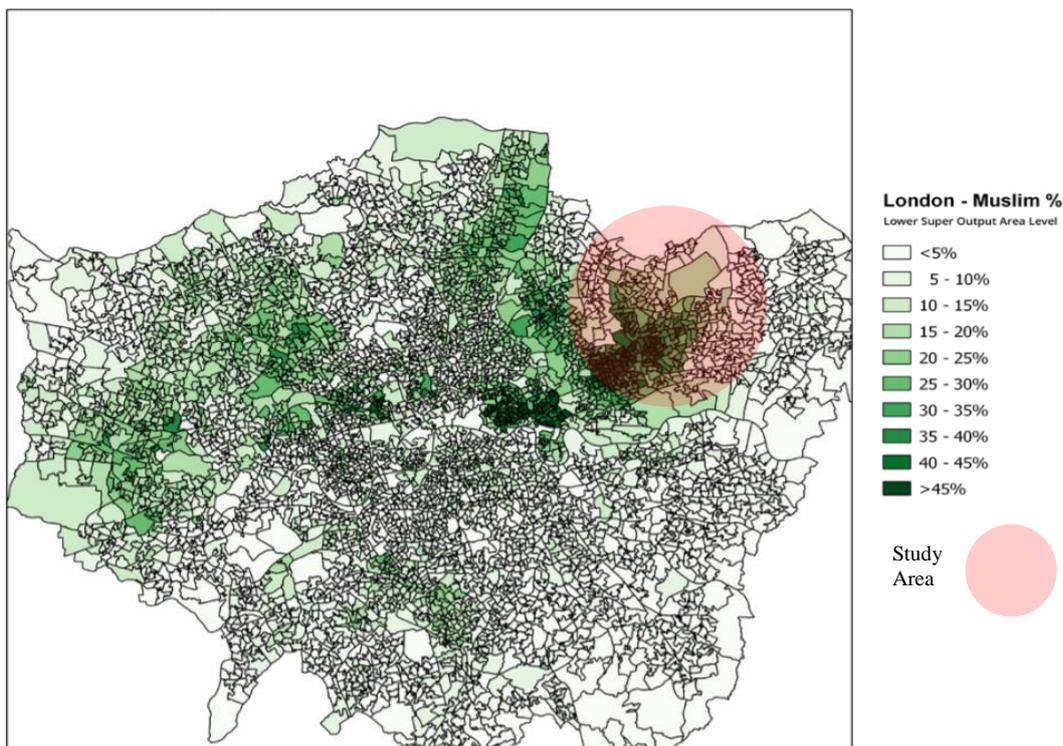


Figure 1: Muslim distribution in London (Nomis, 2011).

In summary, there is a case for cycling from a health and environmental perspective, particularly amongst Asian communities. However, it is also clear that the uptake of cycling is extremely low, particularly amongst Muslim women. This may be because of cultural and religious issues, however, there appears to be little research on this issue. Given the importance of cycling for the entire population, it is argued that the issue of cycling amongst female Muslims within ethnic minority communities needs to be addressed, to facilitate the success of the cycling agenda in the UK. It is evident from Figure 1 that there is a significant concentration

of Muslims in East London, as such this research will focus on this area of London to optimise the reliability of the research findings.

Aim and Objectives

The aim of this research is to understand the barriers and policies preventing Muslim women from cycling in East London. To achieve this aim, it is important to set out the hypothesis ‘Group rides enable Muslim women to cycle’ which will help answer the following two research questions

- What are the barriers to cycling amongst Muslim women?
- Can these barriers be addressed through specific policies and initiatives focusing on cultural issues?

The research objectives are to

- Understand policy development on cycling
- Consider the impact of these policies in the number of cyclists in the UK and London
- Assess the number of Muslim women cyclists as a percentage of the overall number of cyclists in London
- Determine the barriers to increasing the uptake of this means of travel within this community and
- Identify ways in which these barriers can be reduced/removed.

Structure

This dissertation is presented in seven chapters, continuing with Chapter 2 Background Information which provides a brief history of cycling in the UK and associated policies to date. Chapter 3, the Literature Review provides a critical analysis of existing and relevant studies relating to ethnic minorities and levels of physical exercise and cycling, as well as identifying a gap in literature which this study aims to address. Chapter 4 explores theory and describes the chosen conceptual framework by which the main research will be undertaken. The research design is explained and justified in Chapter 5 Methodology, and the data collected is presented, analysed, and discussed in Chapter 6. The dissertation concludes with Chapter 7 Conclusion, Limitations of this study as well as providing Recommendations for further research to validate the conclusions of this work.

Chapter 2: Background

The purpose of this chapter is to provide a background to cycling in the UK, focusing on history and related policies.

UK Cycling History

Cycling in the UK goes back over 140 years, starting with the emergence of safer and more affordable bicycles, the mid-1890s saw nearly two million people cycling in Britain (Rubinstein, 1977). The positive impacts of cycling on British society not only affected men but also saw a surge in cycling amongst women, especially following the ‘Cycling Craze’ of 1895. It is understood that cycling peaked in 1949, accounting for 37% modal share (Golbuff and Aldred, 2011; BMA, 2012). However, due to popularity and increase in motorised transportation by 1950, cycling levels started to decrease sharply and continued to decline for the next two decades to an 11% of modal share by 1973 (Golbuff and Aldred, 2011), with Oosterhuis (2016), Cohen (2010) and Woodcock et al., (2007) also agreeing that the motor car was largely responsible for this decrease. It is argued that other factors, highlighted by Golbuff and Aldred (2011) including policies such as predict and provide which focused on tackling road congestion by increasing road capacity, are responsible for the current levels of cycling remaining low at a stubborn 2% of all trips in the UK.

In present-day society, car dominance and public transport has contributed to cycling levels remaining low in the UK, with DfT (2017) pointing out that more than 80% of journeys of less than 1 mile in England are made by public transport, with around 6% made by motor vehicle, and the smallest shares on bike and foot. Although slightly longer journeys between 1 to 2 miles show increases in cycling, motor vehicles account for most journeys made over 1 mile, with cycling mode share reducing as journey distances increase. Figure 2 shows the percentage of journeys of varying distances made by foot, bike, private motor vehicle and public transport in England.

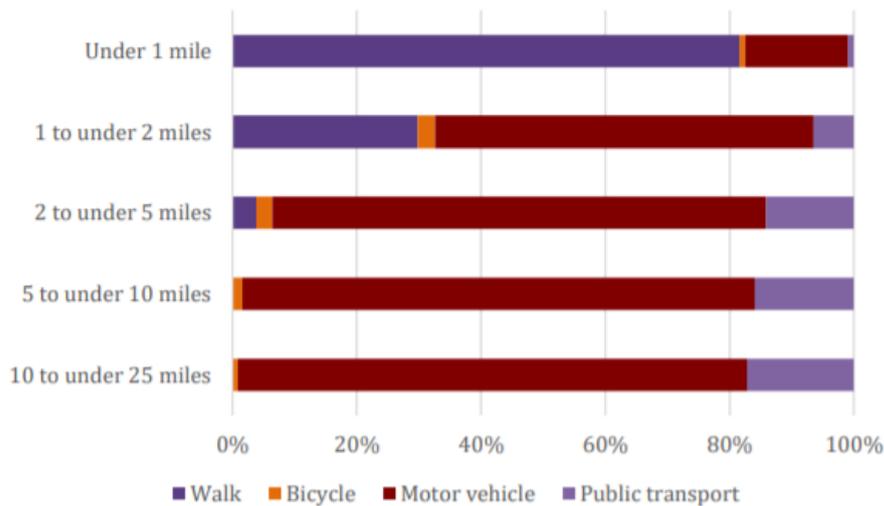


Figure 2: Percentage of journeys by trip length and main mode in England in 2017 (House of Commons Transport Committee, 2018, p.8, Figure 1).

The suggestion being a need to increase policies which support cycling, as set out in the next section.

Cycling Policies

Increased focus on the benefits of cycling since the 1970's by environmental and transport pressure groups such as Greenpeace, Sustainable Transport (Sustrans) charity, London Cycling Campaign, and Friends of the Earth, saw UK car-centric policies being challenged (Golbuff and Aldred, 2011). Similar activism in Netherlands, resulted in a shift towards an integrated land-use and transport policy approach aimed at reducing car-use and increasing active modes of transport such as cycling (Keates, 2007). However, the UK government had a less positive attitude towards cycling as they "erred on the side of caution, hesitant to promote a mode of transport perceived as unsafe" (Golbuff and Aldred, 2011, p. 7).

It is suggested that continued pressure resulted in greater government attention to environmental issues (Hayward, 2009), for example the need to combat climate change. This resulted in the release of Planning Policy Guidance (PPG) 12 by the Department of Environment, which asserted that new developments should be achieved in a way that promoted sustainability through minimising the use of cars, thus reducing CO2 emissions (Golbuff and Aldred, 2011).

By the mid-nineties there was a significant leap forward for active travel in the UK, with the formation of the National Cycling Network (NCN) forming walking and cycling routes spanning 2,500 miles of traffic free paths and quiet lanes (Sustrans, 2020b). It is apparent that through the profile of cycling constantly evolving, a shift in perception of cycling being a niche sport, to an activity that could be enjoyed by all (TfL, 2015b).

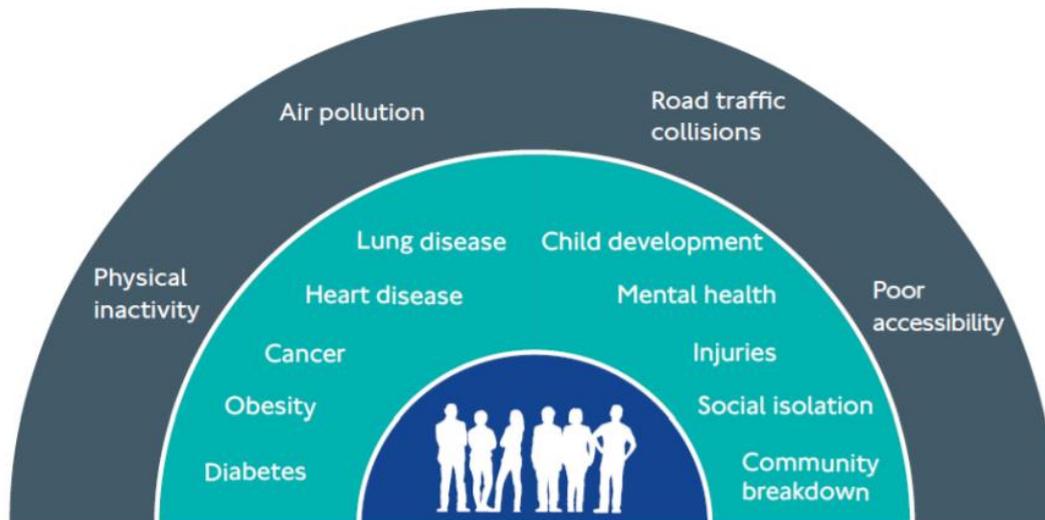


Figure 3. Direct and indirect effects of road transport on human health and wellbeing (TfL, 2015b, p.5).

Despite the shift in perception, the APPCG (2013) recommended further investment in cycling across the UK and assert that more focus needed to be placed on increasing cycling for health and environmental reasons. The effects of not shifting to more healthier modes of transportation than motorised vehicles, are represented Figure 3 which shows detrimental impacts on people’s health and wellbeing.

After decades of being side-lined by motorised forms of transport, it is argued that the importance of cycling in the 21st century is evidenced by inclusion of cycling promoting measures in national and local policies including in the Mayor of London’s Transport Strategy (GLA, 2018), which includes support to meet the aim of all Londoners to take 20 minutes of active travel daily, by 2041. Policy T5A of the draft London Plan (GLA, 2019) supports the Mayor’s commitment to increasing investment in London’s cycling by removing barriers that hinder people to take up cycling as a choice. There is increased support in the draft New London Plan to invest in “new routes and improved infrastructure” (GLA, 2019, P.467), with further investment as a result of the recent Covid-19 pandemic.

At a local level, boroughs such as Waltham Forest and Hackney commit to the future of cycling through their Local Plans and Cycling Strategies, which also aim to remove barriers that deter walking and cycling. Waltham Forest propose initiatives such as further integration of cycling routes to tackle road safety and legibility issues (LBWF, 2019), with Hackney specifying route categories such as shorter local connector routes and quiet ways to enable cyclists to connect to key destination around the wider London area.

Hackney acknowledge that there is still a lot of work to do in their borough to normalise cycling (LBH, 2015), with the introduction of soft measures in their cycling strategy which tackle culture and attitudes to cycling. For example, through TfL's Cycle Market Segmentation scheme, Hackney offer cycling programs to residents that have been identified most resistant to cycling, such as low income and young couples with families.

Summary

In summary, the benefits of cycling and the importance of shifting towards more sustainable modes of transport have increasingly been given importance in national and regional planning and development policies. However, this background highlights that value for the public sums invested in cycling can fully be achieved if all citizens are engaged in the cycling agenda (CSC, 2019). Previous studies of UK cycling highlight the reluctance within the Asian community to participate in cycling, particularly amongst Muslim women. This research addresses this concern through further exploration of relevant literature, with the next chapter considering the depth of current knowledge on this issue which also helps in forming the basis for progressing this study.

Chapter 3: Literature Review

This chapter provides the findings of a critical review of wider research on health and exercise amongst ethnic minorities to establish whether any barriers or enablers of physical exercise have previously been researched. The intention is to also identify any gap in literature which can be addressed as part of this study.

Ethnic Minorities and Health

Based on 2011 Census data, the University of Manchester (Bécares, 2015) examine health inequalities amongst ethnic minorities in the UK, finding more health disparities amongst Pakistani and Bangladeshi women than others in the study. The research revealed 10% higher rates of health issues in this group, than their white counterparts across the census data for 1991, 2001 and 2011. The 2001 census also reveals that only 22% of Muslim women in the UK over 65 are in very good or good health, compared to 47% of women over 65 overall (Ali, 2015). Data also shows that 70% of Muslim women report having limiting long term illnesses, with 76% of Pakistani and 73% of Bangladeshi elderly women having long term illnesses compared to the overall 56% female population who are over 65, in England and Wales (Bécares, 2015). The research also highlights that these health inequalities were much more acute in London in 2011 (Bécares, 2015).

In another study on the prevention of diabetes amongst the ethnic minorities, Gumber and Gumber (2017) find inequalities amongst Muslim women contribute to their lack of exercise, resulting in the mismanagement of diabetes and other long-term illnesses. Considering this barrier “Muslim women may not be able to participate in certain activities due to a lack of female-only classes with female instructors, thus hindering management of diabetes and other long-term conditions” (ibid, p.127). The study also found that people from Black, Asian, and Minority Ethnic (BAME) groups have an increased risk of developing diabetes compared to their white British counterparts. These risks are influenced by demographic and lifestyle factors including gender, genes, generation, geography, religion, and lack of information on how to improve health. It is argued that there is a need to recognise these factors to address health issues through increased knowledge about the benefits of healthy eating and physical activity. Aljayyousi et al., (2019) agree that physical inactivity is a major risk factor to chronic health issues particularly within the Muslim

community, adding that family and culture have a strong influence on the attitudes, decision-making, and behaviours of young adults and others within a community. Hatefnia and Raoofi (2019) and Rebecchi et al. (2016) point out that there are health benefits associated with cycling, including scope for more people to take up cycling and other physical activity to improve health and overall wellbeing.

It is apparent that Muslim women could also benefit from cycling, however it is argued that there are barriers to participation among Muslim women (Song et al., 2017). The APCCG (2013) make similar assertions by suggesting that there is potential to increase cycling within various communities and particularly among women in ethnic minorities.

Murugesu (2018) considers the barriers to cycling among ethnic minorities, stating that there are several reasons including practical issues such as a lack of storage space, overcrowded homes, and a lack of experience of inner-city cycling. It is argued that to cycle in London, one must be assertive, and this has historically been a barrier amongst ethnic minorities and women who may feel that they do not have a sense of empowerment on London's busy streets (Murugesu 2018). There is also an understanding that "ethnic minorities would rather sit in the safety of their cars than open themselves up to harassment on a bike" (Murugesu, 2018, p.1). Aldred (2018 cited by Murugesu, 2018) adds that there is a need to build infrastructure to reflect the diversity of communities in London, with Transport for London introducing Cycling Grants in London to encourage ethnic minorities to take up cycling, however they note that due to barriers hindering certain communities to take up cycling, the uptake of cycling is small.

It is argued that these barriers could be removed by tackling the issues at a community level, as such it is relevant to investigate the role of community cycling clubs.

Role of Community Cycling Clubs

Recent headlines such as "TfL awards funding to community groups encouraging those of all backgrounds to walk and cycle" (TfL, 2019) reflects a shift in focus from infrastructure to community. Prominent authors of active travel support this shift as it can help shape policies that consider culture rather than infrastructure alone, with Aldred and Jungnickel (2014) asserting that "a focus on cycling culture is not opposed to a focus on infrastructure; rather, it enriches it by linking the material and the symbolic and by drawing attention to

ways in which culture shapes the impact of policy interventions” (Ibid, p.80). It can also be taken from such statements, that simply investing money into community cycling, should not be seen as a policy solution to get more people to cycle, the symbolic and cultural influences that make people decide to cycle need to be understood , as indicated by Murugesu (2018).

In 2018, Transport for London launched the ‘Walking and Cycling Grants’ and invested £640,000 over two years on programs for community groups who are under-represented in walking and cycling. The aim of the scheme was to promote walking and cycling as a means of transport and exercise, and promote more cohesive communities (TfL, 2019). The grants were awarded to 30 community groups across 32 London Boroughs, seeing benefits for people from a wide range of communities including people with poor physical health, ethnic minorities, and refugees. Amongst the 2019 grant recipients, Cycle Sisters a UK charity based in Waltham Forest, received funds to help them expand to neighbouring borough of Redbridge. The group originally set out to make cycling more inclusive, by inspiring and enabling Muslim women to cycle through organised rides in the local community. The club has access to bikes for hire, and the combination of cycling and social support has led to an increase in the number of Muslim women cycling in the community. The charity has recently extended their program to female youth to help reduce social isolation through cycling and ensures that ride leaders are fully trained to safely lead rides and provide guidance on bike maintenance (Rand, 2019).

It is apparent that there are ways of encouraging Muslim women to cycle, however studies show that few members of this community make the shift from car to cycling and that this may be caused by barriers to cycling that exist amongst this group. It is important to understand the barriers to this shift in greater detail.

Barriers to Cycling Among Muslim Women

It is argued that the use of cycling is not only affected by the provision of infrastructure such as bike lanes and accessibility to public bikes, it is also related to cultural issues, and gender (Song et al., 2017). This point is reiterated by Vázquez (2017) who points out that the government in Mexico City supports cycling through transport planning, the provision of cycling infrastructure including access to bikes and bike lanes, yet the success of these

strategies has been limited. In a study to understand cycling from a female perspective, Vázquez (2017) found that the decision to cycle among women is based on personal skills, and knowledge of the benefits of this form of exercise, as well as time and socio-cultural factors. The latter was viewed as a barrier to openness to consider cycling, caused by expectations and cultural norms within the community.

Hatefnia and Raoofi (2019) found similar barriers to exercise amongst Muslim women, in that cultural and religious issue prevent Muslim women from participating in such activities. For example, a study of Iranian Muslim working women, 50.7% of whom were in their thirties with 24.4% above 40 years old, with two-thirds of participants being married, revealed that religious belief had a strong impact on their willingness to exercise (Hatefnia and Raoofi, 2019). The success of Muslim group cycling club such as with Cycle Sisters, shows that there are ways of preserving religious beliefs and taking up exercise such as cycling and that this barrier can be mitigated to enable more physical exercise such as cycling (Rand, 2019).

Aljayyousi et al., (2019) explored the level of exercise by Muslim university students to determine how participation in physical activity can be influenced by sociocultural factors. Although the study sample was small with 20 undergraduate Muslim students, 50% of were female students aged from 18 to 23 years. The research found that the decision to partake in physical exercise was influenced by family health values, shaped by culture, and “implicitly shaped by Islam” (Aljayyousi et al., 2019). The study found that males within the family were role models for physical exercise, with other determinants including a health condition which could motivate being physically active. It was also found that within this culture, families generally prioritise work and academic achievement over physical activity. The clear divide between males and females were from the male perspective where culture was the main facilitator for their physical activity, whereas female participants indicate that culture had a negative influence on their choice of physical activity (Aljayyousi et al., 2019). It is accepted that these assertions are supported by wider studies such as of Hamzeh and Oliver (2012) and Summers et al., (2018).

Whilst the above studies were carried out in Muslim countries, where there is likely to be greater influence of family and religion, other studies have confirmed that the cultural influences for Muslim women are also evident in Western countries. For example, in

Australia, it is found that while women tend to dominate physical exercise classes in gyms, Muslim women are underrepresented in gym-based exercise and physical activities in general (Summers et al., 2018). Hamzeh and Oliver (2012) argue that the trend of Muslim women not taking part in physical activities is also common in other multi-cultural regions such as North America, Europe, and Australia. Ibid. assert that the issue is a lack of participation in school physical education, in part due to cultural barriers when participating in physical activities and in part due to a lack of facilities and processes to accommodate Muslim norms in dress for girls and restrictions on body exposure, as well as physical contact between boys and girls, rather than a lack of interest in exercise (Hamzeh and Oliver 2012)

Summers et al., (2018) insist that to increase participation in physical exercises amongst Muslim women, there is a need to consider the impact of religion on the decision-making process of this cohort. It is also accepted that there are wider issues that can impede cycling in urban areas, for instance, Caldwell and Boyer (2019) carried out research in North Carolina (USA), to understand the underuse of cycling infrastructure within the region, despite decades of financial investment and planning for cyclists. The study involved men and women of an average age of 40, the grounded theory-based research found that initiating and sustaining the practice of cycling for commuting involves overlapping relationships between the cyclist and other local cyclists, urban space, and the workplace (ibid, 2019). The suggestion here being a need to support cycling through social learning between urban planners and cyclist, thus ensuring those interested in bicycle commuting are not impeded by hostile urban layouts that prioritise motorised forms of transport.

The inference of this section is that there is a need to understand the social and cultural factors influencing Muslim women's decision to exercise.

Social and Cultural Issues, and Physical Exercise

The preceding sections identify culture, social issues and und religion as influencing Muslim women's decision to exercise and the type of exercise (Song et al., 2017). This section explores these issues in greater detail.

Summers et al., (2018) make an interesting suggestion that cultural norms and Islamic requirements of Muslim women can be viewed as rigid values within a set of practices that are non-negotiable. However, they point out that the fact that a woman is a Muslim does not in itself prevent the individual from participating in physical exercise, rather it is the environment within which that exercise is carried out, is of importance. The suggestion being that if an exercise does not compromise social norms of Islam, such as male and female interaction and the need to cover the body, then it is acceptable for a woman to participate in this activity. That said, if there are few women within the Muslim community cycling, then this can impede others from taking up the exercise, as it is deemed to be on the boundaries of acceptance within the community (Summers et al., 2018). It is also argued that encouragement to participate in activities such as cycling, need to have demonstratable male support within the family and the wider community (Hamzeh and Oliver, 2012).

Summers et al., (2018) point out that the degree of a Muslim's religiosity is based on the extent to which the "five pillars" of their faith are observed. This includes a belief in one God, performing prayers five times a day and almsgiving, as well as fasting during the month of Ramadan and making the pilgrimage to Mecca. In Islamic culture, being religious means having unquestionable observance of practices recommended through the holy book, and this includes a requirement to take care of the body by eating a healthy diet and exercise (Summers et al., 2018). This can be difficult for Muslim woman to negotiate whilst publicly exercising because of the religious rules on modesty (Dagkas and Benn, 2006). Sehlkoglu (2016) makes a similar point suggesting that it can be problematic for a Muslim woman to participate in physical exercise without thinking that such movements of the human body could be contrary to the need to control bodily movements in public, and avoid anything that will make a woman appear immodest.

It is accepted that cultural views including the role of men in Islam may be an influencing factor in willingness and freedom of Muslim women to participate in sport (Hoodfar, 2015). This point is touched on in another study, where Li et al. (2015) examined the habits of female and male undergraduates in Oman and Pakistan and compared these exercise habits to those of U.S. undergraduates. The study found that levels of exercise activity were lower in students from Pakistan and from Oman compared to the U.S., and more men than women participated in exercise in all three countries. It was found that Omani students participated in physical exercise to improve their health, with Omani women more likely to exercise than

their male counterparts. In contrast women and men from Pakistan were driven to exercise as a means of relaxing and of improving their appearance. The inference being that whilst ethnic minority men and women had different reasons for exercising, there was a willingness to exercise, which raises the possibility that Muslim women can be persuaded to cycle.

In contrast to the findings of Li et.al, Mirsafian et al. (2014) that most female Iranian university students had a negative attitude to sports and chose not to participate in team sports or exercise. The study concluded that this lack of interest stemmed from the absence of role models encouraging physical activity amongst them. It is argued that the barriers therefore may be different for Muslim women from different ethnic backgrounds, indicating that specific cultures can affect willingness to cycle. Summers et al., (2018) agree that social and cultural barriers exist, adding that economic barriers and a general disinterest in sport can also hinder participation in physical exercise. This could be attributed to a lack of knowledge of physical exercises and a lack of marketing targeting this group in terms of taking exercise. Toffoletti and Palmer (2017) make a similar point suggesting that it is necessary to address the barriers for women in sport by considering the cultural issue as well as from a consumer and fan of sport perspective. In other words, instead of focusing on health issues, more Muslim women may be attracted to cycling through effective marketing showing Muslim women interested in sports, and having access to information about how to access cycling.

Urban Planning and Cycling in Muslim Communities

Based on the above discussion, it is argued that a physical activity such as cycling is hindered by social and cultural issues, however, as pointed out by Summers et al., (2018) there is little focus on educating or changing the mindset of women in the Muslim community to make activities such as cycling more attractive. Sagaris and de Dios Ortuzar (2015) arguing that cycling can help alleviate environmental issues as a sustainable transport option people can take, at the same time this form of exercise can address social health concerns. The point being that effective urban planning, including the provision of measures to facilitate cycling, can mitigate the impacts of segregation and discrimination whilst reducing exclusion and vulnerability (Sagaris and de Dios Ortuzar, 2015). This can only be achieved if the planning system develops a greater understanding of contextual factors particularly those linked to local cultures that reflect user behaviour. It follows that there is also a need for urban

planners and policy makers to understand the institutional arrangements that define the interaction of local culture with the urban social and physical environment.

A study carried out by Verkeerskunde (2019) suggests a link between urban planning and willingness of migrant women to cycle in the Netherlands. The study points out that in the 1970s and 1980s policies encouraging cycling excluded this group, as such measures were taken to the National Road Safety Plan 1984-1985 to provide traffic information to these communities focusing on Turkish and Moroccan women in 1986. The policymakers were aware that the uptake of cycling was impeded by culture and lack of knowledge amongst these groups. Progress was made by providing cycling training and information on the rules of the road. The policy had some success, however barriers remained Vereerskunde (2019).

As indicated above, there has been increasing importance placed on cycling as a healthy and clean form of sustainable transport, evidenced at a national level through CSC (2019) and a London level in the London Plan (GLA, 2019; TfL 2018). It is acknowledged that there has been progress in promoting cycling in cities such as London, largely through the provision of cycling lanes, public bicycles, and other physical infrastructure. This is because cycling is typically viewed as a sustainable mode of transport and an integral part of a sustainable transport system, a such it is also an important part of urban and transport planning. This has stimulated a transition from motorised travel to cycling which has required overcoming systemic institutional and civil society obstacles (de Boer and Caprotti, 2017). Koglin (2015) agrees that the way to promote cycling within communities is thorough effective planning which provides the necessary infrastructure required for cyclists and promote cycling as alternative to motorised travel (Koglin, 2015). Rebecchi et al., (2016) agrees, adding that a key element affecting the choice of transport is the circulation network in the city, and this in turn is influenced by the urban morphology and infrastructural facilities. However, there is also a need to address cycling from a social perspective, using the planning system to educate and collaborate with diverse communities (Majedi et al., 2015).

Encouraging Cycling for Muslim Women

As mentioned earlier, there are barriers impeding Muslim women cycling in Muslim and multi-cultural countries. To understand how planning can support this group in cycling, this

section considers literature that identifies measures taken in cities such as Copenhagen that have been successful in diversifying cycling.

It is argued that the key to increasing the number of women cycling in London is to focus on the relationship between planning and societal development. It is essential therefore to address the issue of cycling in terms of social issues, as opposed to the subjective-idealistic concepts of traditional theory (Majedi et al., 2015). In other words, it is important to understand the social relations and the organisation of planning to ascertain why some cities are more successful in diversifying cycling in cities (Koglin, 2015).

For example, bicycle planning in Copenhagen, Denmark, has been more successful in promoting cycling than in Stockholm, Sweden. Koglin (2015) states that the reason for the difference in the uptake of cycling in these cities is because Copenhagen has taken an integrated approach to planning that prioritises knowledge exchange between urban, transport, and bicycle planners, and this in turn creates an environment that is effective in translating ideas about increasing the volume of cyclists to the actual numbers of cyclists. However, the opposite is true in Stockholm, where cycling continues to be side-lined within their planning system and the existing infrastructure. This suggests that a traditional and non-collaborative approach to planning does not encourage cycling in cities. Song et al., (2017) studied ways in which to promote cycling among women in Indonesia, a predominantly Muslim culture, and found that policy needs to include ways to change social and cultural perceptions and attitudes, to alter the behaviour.

Summary of Literature Review

In summary it is found that there is reluctance among Muslim women in Muslim countries and multi-cultural western societies to participate in cycling, despite the health benefits of this activity. Existing literature indicates that this is a complex problem, whereby cycling is influenced by religious concerns about modesty, and cultural norms which do not encourage Muslim women to participate in physical activities. This has resulted in a reluctance in cycling in London especially within certain communities, despite the increase in provision of cycle lanes, bike parks, and public bikes.

The literature also reveals that this reluctance to cycling is driven by a lack of knowledge about the benefits of cycling and the relative ease of the process, and this in turn is underpinned by a lack of Muslim role models who cycle, as well as societal impediments where families do not encourage this practice among female relatives.

This review indicates a gap in current research as the literature that does delve into understanding the barriers that prevent Muslim women from cycling, is predominantly from outside of London. This research will be progressed focusing on a cohort of Muslim women in East London, on the basis that this sample, to which the researcher has access, is representative of Muslim women in the wider UK.

Spotswood et al., (2015) make the point that research needs to be done on “alternative theoretical approaches that might improve the understanding about cycling behaviour and potential travel mode shift interventions” Spotswood et al., 2015, p.23). The next chapter compares relevant theories that could be used to underpin this study.

Chapter 4: Conceptual Framework

This chapter takes a brief look at Individualist Theory to understand if such traditional theoretical approaches have been successful in promoting cycling, and further explores alternative theories that can be used to understand the barriers hindering Muslim women cycling, such as Practice Theory.

Individualist behaviour theories are pertinent to approaches that put the responsibility of change on the individual, this has notably proved ineffective over recent decades to increase cycling levels in the UK (Spotswood et al., 2015), this is evidenced by the low uptake of cycling amongst ethnic minorities and known barriers amongst Muslim women. The suggestion from this literature indicates that this issue needs to be addressed from a cultural perspective, rather than following the limited success of individualist behaviour theories. Aldred and Jungnickel (2014) also discourage the use of individual theories in understanding cycling behaviours, and caution that interpretations of individuals can be open to manipulation thus compromise the meaning of the practice of cycling, with Marsden et al., (2014) blaming individualist approaches for failing to challenge systems that have resulted in an increase in unsustainable travel. In other words, the benefit of using individualistic theories is that these can offer an insight into the willingness of individuals to change their

behaviour, however the drawback is that the barriers as discussed in the previous sections appear to be community, cultural and religion-based (Marsden et al., 2014; Aldred and Jungnickel 2014), suggesting cultural theory would be an appropriate alternative to studying cycling behaviour .

Reckwitz (2004) defines cultural theories, associated with the work of Wittgenstein and Heidegger, as an alternative to Individualist Theory, and being based on the appreciation that human action, social order and ‘meaning’ are structures common to all branches of the theory. Two branches of Cultural Theory will be explored to establish the most relevant and smallest unit of social analysis suitable to this study (Reckwitz 2004). Mentalist Theory, which is one branch of Cultural Theory, and associated with theorists such as de Saussure and Lévi-Strauss, who place the social in the human mind thus positioning the human mind as the smallest unit of social analysis, suggesting that human action is a phenomenon (Reckwitz 2004). Schatzki (2008) adds that such an approach to resolving or explaining a problem is useful as it takes account of the individual’s behaviour as influenced by the collective or community, as well as the actors and structures within the community on the acceptability of cycling (Giddens, 1984).

Giddens (2006) links the individual agent with the outcomes and meaning of a practice through his structuration framework, accepting social existence as being based on time, place, and structural rules and meanings that relate to a practice. Giddens (1984) and Bourdieu (1990) acknowledge the relationship between human action and societal structures as recursive, which suggests that individuals adapt to structural expectations when society reproduces situations for the individual to do things.

It is argued that the above contention is supported by Rip and Kemp (1998), as well as Geels and Schot (2010) who suggest that behaviour is influenced by multi-scale, diverse socio-technical systems where “transitions occur through the dynamism of relations between technologies, infrastructures, markets, norms, regulations and other constituents of systems across spatial and temporal scales” (Watson, 2012, p.488). Watson’s (2012) idea that the performance of a practice is what links the individual’s action with the societal-technical system, would suggest that it is the capability of the Muslim woman that puts her in the physical space to actually cycle. In line with decades of such analysis, Aldred and Jungnickel's (2014) work around culture and cycling, supports Bourdieu’s (1990) notion of

habitus by establishing transport practices as socially ingrained dispositions shared by people who have similar backgrounds. The paper goes on to assert that work needs to be done to explore what cycling means for different identities and cultures in society.

It is submitted that in this research, Practice Theory is also useful in understanding the barriers to Muslim women cycling in London, because this theory is concerned with the social factors that influence people's actions and behaviours. Despite individual behaviour being rooted in social practices (Vaara and Whittington, 2012), this theory focuses on the performance of a practice and does not put an emphasis on the agent doing the practice itself (Chatterton & Anderson, 2011; Ritzer and Stepnisky, 2014). Winters et al., (2017) point out that policies concerned with promoting individuals to take up alternative modes of travel to cars is challenging as decisions are influenced not only by one's attitudes and necessity, but also by external factors such as the physical and social environment of the individual.

Despite the similarities in the different cultural theories, it is decided to progress this research using Practice Theory, because this approach links routinised behaviour to time and space, and Blue et al. (2014) point out that each one of life's practices are affected by another. If agency is understood as an actor using capability to do things within a structure, then practical knowledge is based on the rules gained by structural conditions (Blue et al., 2014). Therefore, viewing the Muslim woman as an actor, the practice of cycling for her would be determined by the cultural, religious, and societal structures surrounding her. Moreover, Practice Theory, puts practice in the physical realm rather than in the mind of an individual, by associating activity with practical knowledge (Schatzki 2008).

Putting practice in the line of enquiry, Shove et al. (2012) streamline social practices as comprising three interdependent elements of 'meaning', 'materials', and 'competencies, and these are depicted in the Figure 4 below.

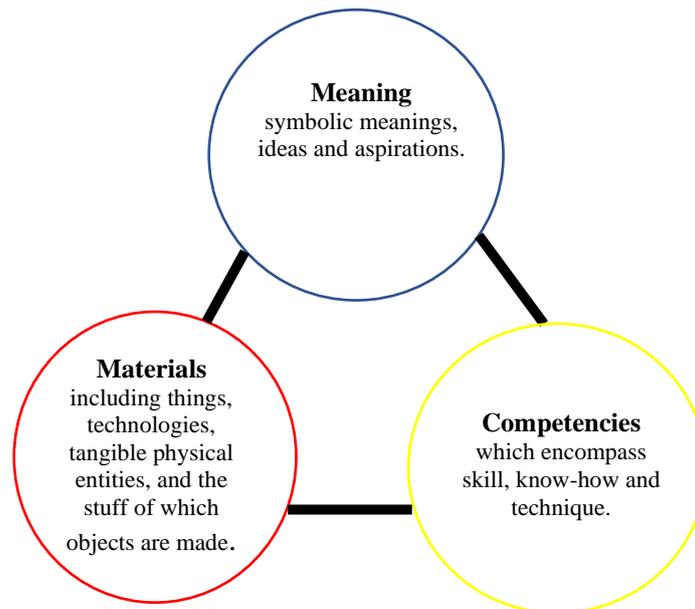


Figure 4. Three-element Social Practice Framework. (Shove et al., 2012, p.29, Figure 2.2).

It is proposed that in the cycling context, meaning would refer to one's thoughts, norms and beliefs around the activity; materials relates to objects, infrastructure, and technologies associated with cycling; and competencies with the skills and abilities required to ride a bike (Shove et al., 2012). It is noted that practices can change over time (Twine, 2015), as this happens then the elements associated with a practice would also change, for example the practice of driving a car could change to riding a bike and so on. In other words, Practice Theory and its three elements provide a useful framework to help investigate the practice of cycling amongst Muslim women.

Summary

Practice Theory is instrumental in understanding the ways in which change can be implemented, by understanding the elements required to cycle. The chosen theory is used as a framework to address the barriers hindering Muslim women cycling through the analysis of what cycle means to Muslim women, what materials associated with cycling hinders the practice and what barriers exist that restricts Muslim women from gaining the competencies to cycle. Similarly, Practice Theory is useful to also explore initiatives and policies that can facilitate cycling for the same cohort, again using the elements that make up the practice of cycling.

Chapter 5: Research Methodology and Analytical Framework

The purpose of this research is to add to the current bank of knowledge on cycling within minority groups, focusing on Muslim women in London. It is therefore important that the research can be validated through other studies and that the findings can be set in context of wider research on this topic. This research will be carried out in accordance with Saunders et al., (2009) research onion. The purpose therefore of this chapter is to set out the options for each stage and provide clear justification for the choices made (Saunders et al., 2009).

Research Philosophy

There are three main philosophies used in this type of academic study, namely Positivism, Realism and Interpretivism (Saunders et al., 2009). It is important to set out the philosophy that underpins this study, that is the researcher's beliefs in the nature of reality, as this affects the study approach, the type of data collected, and the interpretation of that data. Easterby-Smith et al., (2015) point out that two different researchers studying the same topic could arrive at different conclusions, because of their different philosophies. In this context, a Positivist researcher takes the view that reality is independent of social mechanisms, as such the subject can be approached using scientific reasoning and analysis, using statistical analysis to observe and report on trends in the data (Saunders et al., 2009). In contrast, the Interpretivist takes the stance that reality depends on social mechanisms, such as human behaviour, which requires qualitative methods of reasoning and interpretation to develop realistic findings from the study. The third philosophy is that of the Realist, who agrees with the Positivist that reality is an independent entity, and also recognises that reality is influenced by social mechanisms, as such this form of study relies on both quantitative and qualitative reasoning and analysis (Bell et al., 2018).

Saunders et al. (2009) point out that there is no incorrect philosophy, as it typically depends on the social and educational experiences of the researcher. This research is founded on the Interpretivist view of reality, as such the research methodology used to support the hypothesis and help answer the two related questions, will be qualitative reasoning. It is submitted that this will be useful in exploring phenomena through investigating people's perceptions, feelings, attitudes, or experiences (Denscombe, 2014). Furthermore, the increase in population growth and the innate concerns of public health, has highlighted a need for interdisciplinary

analysis, and qualitative research to understand the factors that affect communities and their ability to thrive. Empirically driven qualitative research and interview methods help built environment professionals create environments which help communities develop through deeper understanding of the issues people face (Denscombe, 2014).

Research Strategy

There are several strategies that could be used with this research including case studies, surveys, and action research, as well as ethnographic studies and grounded theory (Saunders et al., 2009). There are benefits to each, however it was deemed important to choose a strategy that can be achieved within the time frame allocated to this study and that will answer the research questions posed within the study. To this end, strategies such as ethnographic study and grounded theory were eliminated from consideration, as both typically require a longitudinal horizon (Bell et al., 2018), which is impractical for this study. Action research was also discounted as it requires the researcher to be part of the study, which is impractical (Saunders et al., 2009) especially considering the constraints around the current Covid-19 pandemic. It is to be noted that the researcher does not cycle herself. This leaves case studies and a survey, the former providing the opportunity to view the problem of cycling amongst Muslim women in London from a range of perspectives including that of the women, the community, and planners. However, there is a risk that the cases studied may not be typical of Muslim communities, which would affect the value and reliability of the results. In contrast interviews offer the potential to address the key questions posed in this study, provided the participation sample is representative of the wider population (Saunders et al., 2009), which in this case are Muslim women living in London. Based on the above, it was decided to progress the research with qualitative interviews.

Data Collection and Analysis

It is accepted that a Realist researcher generally assumes that reality can be understood as an independent entity that is influenced by social mechanisms such as human behaviour, as such this research is underpinned by quantitative and qualitative reasoning and analysis (Saunders et al., 2009).

According to Saunders et al., (2009) there are several forms of data collection that are compatible with mixed reasoning, including the collection of primary data in the form of interviews, and the collection of secondary data in the form of statistics on cycling in London. In terms of interviews as a method of data collection, Silverman (2013) takes the view that interviews that cannot be considered the result of a normal conversation. In other words, the nature of the interview, the environment in which it is carried out and the rapport between the researcher and the interviewee can distort the quality and reliability of data collected. However, Patton (2014) agrees with this view to a point but also suggests that the important factor in carrying out interviews is the interaction between the people involved. Bell (2014) understands the weaknesses of this form of data collection and argues that this risk can be reduced with adequate and careful preparation of the questions, ensuring that the responses to each question will add value to the research. Based on the above discourse it was decided to use semi-structured interview type to help explore the barriers to cycling amongst Muslim women in London.

It is accepted that a suitable alternative to a series of interviews is the use of a questionnaire, with the benefit of gathering a large volume of data in a short time. However it is argued that given the findings of the literature review and the culturally-religious sensitivity of this topic, that interviews offer the optimal solution, enabling the researcher to consider and discuss the topic in detail with a selected sample of Muslim women in East London (Saunders et al., 2009). The intention is to only use a semi-structured interview approach to collect data and at the same time take the opportunity to observe the non-verbal cues of participants, either probing further to get deeper into the issue or change direction of the interview if there is tension or early discomfort observed. However, due to unforeseen circumstances caused by the COVID-19 pandemic, the use of a questionnaire format is also included as explained in the next section.

In addition, it was decided to gather secondary data on religion and gender, specially commissioned for this study from the Office of National Statistics, to test the findings of the literature review that there is a low level cycling amongst Muslim women in London.

Sampling

Participants for interviewing were selected using the Snowball sampling technique as “this approach is most applicable in small populations that are difficult to access due to their closed nature” (Breweton and Millward, 2001, p.118). Kowald and Axhausen (2012) suggest there is a risk of bias in this form of sampling due to the use of the same social network results in one dominant view, decreasing the chances of the study population being representative. This potential limitation is addressed using two groups for sampling.

The first group comprise Muslim women who cycle as part of a community cycling group, in East London and the second group non-cycling Muslim women. The purpose of interviewing cycling and non-cycling Muslim women is to compare common barriers between the groups that the cyclists have managed to overcome.

The leader of Cycle Sisters was invited for interview to understand the motivations, challenges, and enablers of setting up a Muslim female cycling group in London. The leader then used her network of members to recruit potential participants for in-depth interviews, as means of establishing members’ experiences of community cycling, in particular the barriers that Muslim women have overcome to enable them to start cycling.

It was intended that non-cycling interviewees were selected from a Muslim Women’s Community centre, with access arranged through the community centre group leader. However, due to the Covid-19 virus restrictions the intended group of non-cyclists were not available and face to face interviews were not possible with any group. Changes were made to the method of data collection, removing the need for face to face interviews, as such interviews with cyclists were carried out over the phone and using Zoom online video meetings, the Interview Information Sheet prepared for this task is presented in Appendix A, Interview Consent Form in Appendix B, and the Interview Demographic Survey in Appendix C.

As interviews with non-cyclists from the community centre in East London was not possible, an alternative approach was used to collect data using a Facebook post to enable comments to be gathered on the topic from both cyclists and non-cyclists. The data was gathered on a customised Google Questionnaire form, as sampled in Appendix D.

11 cyclists and one non-cyclist from Cycle Sisters were interviewed. The social media means of recruiting additional participants resulted in seven further cyclists completing the online questionnaire, with 13 non-cyclists also.

In summary, the data was collected from 31 participants, including 18 cyclists and 13 non-cyclists. It is argued that the benefit of securing data from both groups was useful in understanding the barriers experienced by Muslim women and how the cyclists among this sample overcame these barriers. Notes were taken during interviews, transcripts written up, and key words highlighted. Questionnaire responses were downloaded in an Excel Spreadsheet format, this included demographic information.

Data Analysis

As previously mentioned, Practice Theory formed the analytical framework in evaluating distinctions between the elements that create the practice of cycling from those that hinder Muslim women from doing the activity. It is argued that the three elements of meanings, materials and competences provide an abstract view of the potential problems embedded within Muslim women in the study as a community, thus removing the individual from investigation and instead focusing on the practice of cycling. In this context, meanings relate to the way in which Muslim women view cycling, materials relate to perceived accessibility to the physical entities required to cycle, and competencies refers to participants ability to cycle. This study approach supports a broad investigation on the different cultural cues, religion, family structure and the meanings behind being actively mobile as a Muslim woman in London (Watson 2012; Shove et al., 2012). The data was analysed using coding and thematic analysis of the transcripts and questionnaire responses to increase understanding. This dismantling of the data allowed the exploration of different values, beliefs, meanings, and experiences of participants (Wong, 2008).

Coding is a relatively simple means of making sense out of text data and facilitating commonalities between the different responses from participants in this study. Coding can be described as an indexing or mapping of disparate data thus allowing the researcher to make sense of that data in relation to research questions. However, there are potential problems with coding for thematic analysis in that it can be subject to researcher bias and /or inexperience,

and as a result there can be a loss of context in the coding process as coding needs context (Elliott, 2018). This challenge has been addressed through the use of NVivo coding software. In this process, transcripts were uploaded onto the software for coding analysis, and optimising the development of structured themes under each element of Practice Theory, with further subheadings for both identified barriers and facilitators as subheadings. Castleberry and Nolen (2018) note that using NVivo codes helps provide a personal insight to participant data allowing the use of participants voice to decipher unique occurrences. Using phrases of participants also made it easier to cluster common meanings of words together and helped when coding in NVivo began. Appendix F presents 2 Example Coded Data from Interviews with Cycle Sisters leader and Fiza, a member cyclist.

Ethics

The purpose of this research is to add to the bank of knowledge on cycling among Muslim women, and the impacts of policy on willingness to participate in cycling. It is important therefore that the research is carried out in accordance with accepted ethical norms and that all sources used in the development of this study are acknowledged (Bell et al., 2018).

According to Bell et al., (2018) the difference stances in ethics in research include universalism where the researcher takes the view that “ethical precepts should never be broken”, and any breaches are considered immoral and detrimental to the study. In other words, a researcher should not use observation without advising the participants of the fact that they are being observed as part of the study. There is also situation ethics where the researcher takes the view that in some cases, breaking the ethical rules provides data that allows greater understanding of social phenomena. In other words, the “end justifies the means” and if necessary, this can/should include disguised observation of the study sample (Bell et al., 2018). Situational ethics can also take the no choice option, whereby the researcher is aware of the ethical requirements of a study, but has no choice but to conceal the purpose of the study, as otherwise participants may alter their behaviour, thus negating the value of the data collected and the research outcomes. Another approach to ethics in research is the perception that ethical transgression is pervasive. In other words, when the participants in a study are given all the information relating to the purpose of the study, this can result in the participants hiding what they consider to be undesirable attitudes and as such the data collected with include dishonest answers. Finally, there is the anything goes perception which suggests that a researcher can

take any measures necessary to gain the trust of the sample and to optimise the data collected (Bell et al., 2018).

It is claimed that the issue of ethics can depend on the perspective of the researcher, as such it is important to note that this research complies with the requirements of the University. Based on the above, this study takes the universalist position when collecting data method for this study. The research will include the collection of primary data from a non-vulnerable sample of women in East London, and in keeping with the universalist approach, the researcher explains to each of the participants the purpose of the research and the way in which the data collected will be gathered. Appendix A provides the Interview Information Sheet and Interview consent as in Appendix B, these were sent out to all interview participants ahead of the interviews. In addition, the researcher notes behavioural observations if deemed relevant, particularly when discussing sensitive subjects such as the impact of religion and cultural expectations on cycling.

In keeping with data protection regulations, the researcher will not collect any personal data that could be used to identify participants. All participants are female and will remain anonymous, apart from the capturing of their age, ethnicity, marital status, highest educational attainment and whether they cycle or not. The researcher explains to participants that their contribution is and there is no requirement to answer any questions posed (Saunders et al., 2009). Ethical conduct will be priority to avoid questions with potential for conflict and controversy from the wider community. The flexibility of the semi-structured interview will allow participants to include items for discussion and potential for further analysis.

Chapter 6: Analysis and Discussion

This chapter presents the data collected with related discussion and analysis. The aim of this study is to explore the barriers to cycling for Muslim women in London and identify ways, in which these barriers can be addressed to encourage more cycling amongst this group.

As previously mentioned, two forms of data were collected. The quantitative data has been especially commissioned for this study from the Office of National Statistics (ONS, 2020). This data reveals the proportion of Muslim women who cycle compared to the male population in the focus area and with London-wide data for Muslims. The data intends to verify the findings of the literature, as data on religion and gender in the UK were not published prior to this study.

The qualitative data collected through the online social media platform Facebook, and the interviews centre on the key elements of Practice Theory, namely the materials, competencies, and meanings associated with cycling. This enables the researcher to determine the barriers and facilitators of cycling amongst the sample and assign themes and sub themes to each element of Practice Theory. The qualitative data helps answer the two research questions.

Secondary Data Findings: Statistics relating to Muslim cycling levels in London

The data commissioned from the ONS is specific to the study boundary area of Hackney, Newham and Redbridge in East London, along with London-wide statistics. The 2011 Census data, shown in Table 1 reveals that Muslim men are cycling more than Muslim women in London. As confirmed in Table 1, Muslim women in East London generally use public transport, and walk more than Muslim men, consistent with the findings for the London region, see Figure 5. However, the levels of cycling amongst Muslim women across London is only 1%, compared to Muslim Men cycling levels at 2%.

		Travel to Work Modes			
Borough	Gender	Public Transport	Motor Vehicle	Cycle	Walking
All London Boroughs	Male	93597	73666	3365	14006
	Female	56351	27421	550	11787
	Both Males and Females	149948	101087	3915	25793
Hackney	Male	2996	1848	246	546
	Female	1851	421	72	473
	Both Males and Females	4847	2269	318	1019
Newham	Male	13085	6644	178	1242
	Female	5397	1632	18	1152
	Both Males and Females	18482	8276	196	2394
Redbridge	Male	6037	6082	88	544
	Female	3429	2612	2	672
	Both Males and Females	9466	8694	90	1216
Tower Hamlets	Male	7428	4146	286	1833
	Female	4114	946	23	1438
	Both Males and Females	11542	5092	309	3271
Waltham Forest	Male	5893	4469	193	815
	Female	3113	1549	45	771
	Both Males and Females	9006	6018	23	1586
Totals for East London Borough's	Total Male	35439	23189	991	4980
	Total Female	17904	7160	160	4506
	Total Males and Females	53343	30349	1151	9486

Table 1: Travel to Work mode share for Muslims in London and East London by Gender and Religion (ONS, 2020). (Source: ONS, CT1110: Method of travel to work by sex by religion, England, May 2020)

Based on the above data, it is evident, as indicated in Figure 5, Muslims represent an estimated 8% of the working population in London. 34% of Muslim people in London drives a car or van, with similar number using public transport. Of this group only 1% travel by bike, and within this cohort cycling is dominated by male Muslims, who account for 86% of Muslims in London travelling by bicycle (Nomis, 2011). This data is illustrated in Figure 5.

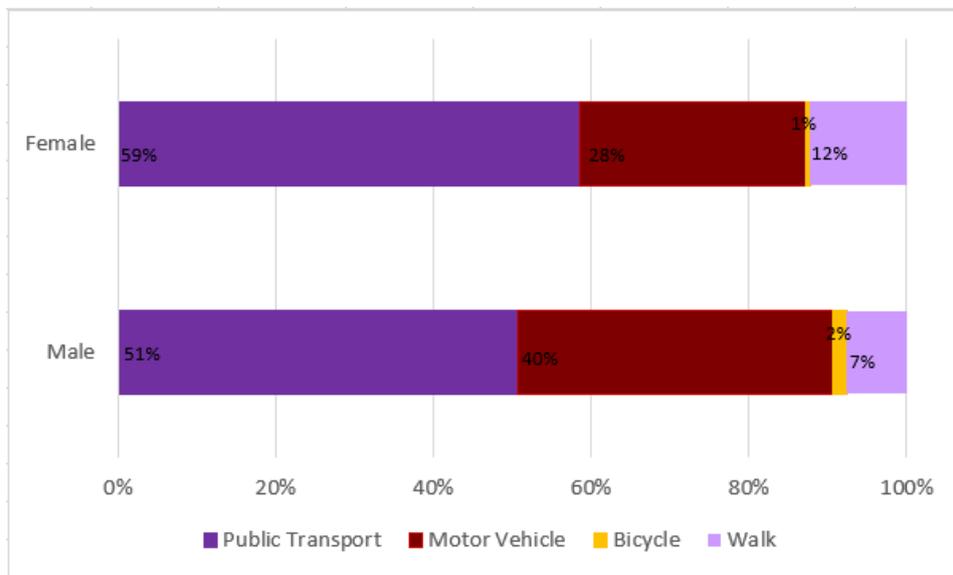


Figure 5: Muslim Travel to Work Mode for All London Boroughs (ONS, 2020).

The data was further analysed for the study boundary which include the London boroughs of Tower Hamlets, Newham, Hackney, Waltham Forest and Redbridge.

An analysis of the data for these borough's indicate a consistent lack of Muslim women cycling, as indicated in Figure 6.

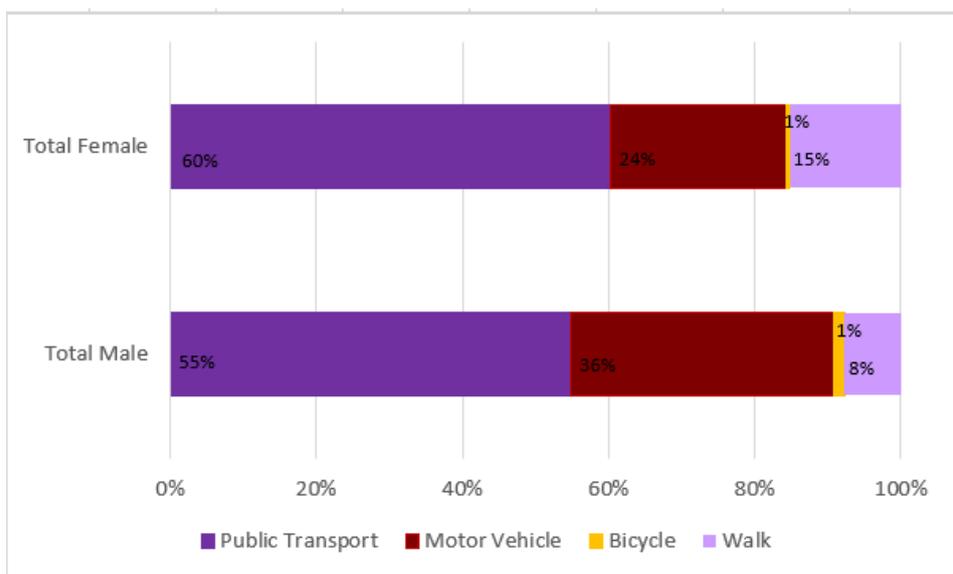


Figure 6: Muslim Travel to Work for East London Borough's (ONS, 2020).

This trend is demonstrated in data from Hackney, where 77% of Muslims who cycle are men. It is also noted that 65% of Muslim women travel by public transport, and only 2.55% travel by bicycle, compared to 53% of Muslim men who use public transport, and 4.3% cycle. Muslim men are almost twice as likely to cycle than Muslim women, as evident in Figure 7. These findings are consistent with the literature review, with both Song et al., (2019) and Murugesu (2018) agreeing that cycling is not favoured by Muslim women.

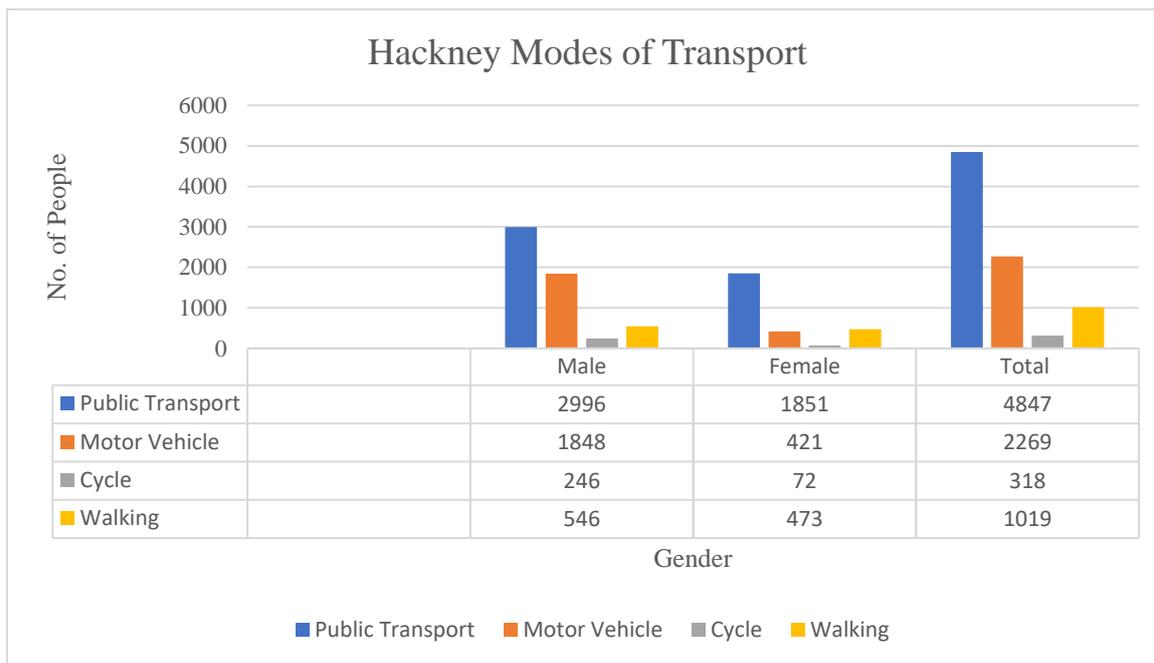


Figure 7. Modes of Transport in Hackney (ONS 2011).

Similar results were found for the other boroughs in the study area, further confirming the literature that Muslim women are reluctant to cycle, (Murugesu 2018; Song et al., 2017). This issue is explored in the interviews, discussed below.

Primary Data Findings

The main research comprised a series of interviews, and an online questionnaire completed via a Facebook link. A sample questionnaire response can be found in Appendix E, and 2 examples of interview transcription in Appendix F of this dissertation. In compliance with ethical standards, the personal details of each participant remain confidential. As such, participants are referred to using fictitious names, and the respondents to the Facebook questionnaire are referenced 1 to 19, as indicated in Table 2.

The survey sample included a total of 31 women, 30 of whom were Muslim women. Within this cohort, 12 were interviewed and 19 completed the online questionnaire. Participants lived in one of the following London Boroughs: Tower Hamlets, Newham, Hackney, Waltham Forest or Redbridge, with predominant representatives from Pakistani, Bangladeshi and Indian heritage.

As set out in Table 2, participants are in the age range 18 to 64 years with mixed marital status. 58% of participants have attained a degree or master's level qualification, and the remainder a High School or College level qualification. The data indicates that 65% of participants do not cycle, with 35% stating that they cycle.

Participant Name *	Age Group	Ethnicity	Marital Status	Highest Qualification	Cycle / Not cycle
Aliya	35-44	Pakistani	Married	Degree	Cycle
Ayesha	45-54	Bangladeshi	Married	College Qualification/Diploma	Cycle
Farah	35-44	Indian	Divorced	Degree	Cycle
Fiza	45-54	Indian	Divorced	College Qualification/Diploma	Cycle
Mumtaz	55-64	Pakistani	Divorced	High School Qualification	Not cycle
Nila	35-44	Bangladeshi	Separated	High School Qualification	Cycle
Parveen	35-44	White English	Married	Master's Degree	Cycle
Rabia	35-44	Indian	Married	Degree	Cycle
Sana	45-54	Pakistani	Divorced	College Qualification/Diploma	Cycle
Sima	35-44	White English	Married	Degree	Cycle
Tasneem	35-44	Somlai	Never Married	Degree	Cycle
Zarah	35-44	Bangladeshi	Married	Degree	Cycle
Online_Participant_1	35-44	White/Pakistani	Divorced	College Qualification/Diploma	Not cycle
Online_Participant_2	18-24	Pakistani	Never Married	High School Qualification	Not cycle
Online_Participant_3	25-34	Pakistani	Married	College Qualification/Diploma	Cycle
Online_Participant_4	45-54	Pakistani	Married	Master's Degree	Not cycle
Online_Participant_5	45-54	Pakistani	Married	Master's Degree	Cycle
Online_Participant_6	45-54	Indian	Married	Master's Degree	Not cycle
Online_Participant_7	25-34	Bangladeshi	Never Married	Master's Degree	Cycle
Online_Participant_8	25-34	Pakistani	Never Married	Degree	Not cycle
Online_Participant_9	35-44	Pakistani	Married	Degree	Not cycle
Online_Participant_10	45-54	Arab	Married	Degree	Cycle
Online_Participant_11	25-34	Arab	Married	College Qualification/Diploma	Not cycle
Online_Participant_12	18-24	Pakistani	Never Married	Degree	Not cycle
Online_Participant_13	45-54	Indian	Divorced	College Qualification/Diploma	Not cycle
Online_Participant_14	25-34	Arab	Married	Degree	Cycle
Online_Participant_15	45-54	Indian/Arab	Divorced	Degree	Not cycle
Online_Participant_16	18-24	White Pakistani	Never Married	Degree	Not cycle
Online_Participant_17	35-44	Pakistani	Married	College Qualification/Diploma	Not cycle
Online_Participant_18	45-54	Pakistani	Married	College Qualification/Diploma	Not cycle
Online_Participant_19	55-64	Bangladeshi	Married	College Qualification/Diploma	Cycle

Table 2: Summary of Participant Demographics.

It is acknowledged that the above sample may be small in comparison to the number of Muslim women living in these boroughs, however this sample is a reasonable representation of Muslim women in London.

As noted in the literature review, Summers et al., (2018), Dagkas and Benn (2006) and Sehlkoglou (2016) make the point that Muslim women tend to avoid physical exercise for a range of reasons including religious issues, concerns over the opinion of the community, and female modesty. Mirsafian et al., (2014) also notes that cultural influences through childhood can impede willingness to carry out physical exercise such as cycling. It is argued that there are strong correlations between these opinions and the findings of this study. For instance, 11 themes emerged across the three elements of Practice Theory emerged in this study, as indicated in Table 3. It is useful to reiterate that in using Practice Theory, meaning refers to one’s thoughts, norms and beliefs about cycling, whereas materials would relate to objects, infrastructure, and technologies required for cycling; and competencies relate to the skills and abilities needed to ride a bike (Shove et al., 2012).

Themes
Meaning
Culture and Community
Religion and Islamophobia
Inaccessibility
Social support
Clothing
Material
Infrastructure
Access to bike
Competency
Ride leaders
Learning to cycle

Table 3: Themes across the elements of Practice Theory

Themes that emerged from the data collection are divided into barriers and facilitators for cycling amongst Muslim women in East London, as this focuses the analysis on the research questions of this study.

Barriers to Cycling

This section specifically addresses the research question posed at the start of this study, *What are the barriers to cycling amongst Muslim women?* The barriers are addressed following the concepts of Practice Theory.

Meanings - Barriers

Cycling for women goes beyond just having the ability to ride and own a bike, rather there is ambiguity around cycling to which different meanings are associated (Larsen, 2016 as cited in Janvaria, 2018; and Vázquez, 2017). The results from the interviews suggest most barriers emerge from what cycling means to Muslim women. This is consistent with the findings of Summers et al., (2018), where physical exercise is avoided because of the nature of the activities and perception that this could affect modesty and go against religious doctrine.

Culture and Community

Several interviewees stated that for first generation Muslims in the UK, holding on to their native culture whilst making a better life for themselves, is important. Speaking about her conflicts with western-norms and expectations of parents, Fiza a 45-54-year-old, Indian woman with a college qualification who cycles, stated that

“we were expected to have one foot in the country of our parent's birth and the other in British culture...my parents did not consider conflicts that I faced as a teenager as I wasn't allowed to cycle” (Fiza).

Sana a Pakistani Muslim in the same age bracket added that it is not only the older generation who create barriers for their daughters, it is the mindset of any parent that can stop their child being free. She explains that most Bangladeshi mothers around mid-forties at her daughters' high school will not allow their daughters to cycle because of a perception that it “is reflective of how respectably she has been raised as a marriage prospect” (Sana).

Nilu a 34-45year old Bangladeshi, who currently cycles acknowledges cycling benefits her health, whilst managing her parent's expectations, by stating

“I am a bit scared about my mum finding out that I have secretly been cycling for six years, I [would] rather not tell her just to keep the peace, but it has done wonders for my mental health” (Nilu)

The researcher sought to understand why Nilu's mother may react badly to her, however given Nilu's poignant body language, this issue was not pursued. However, Fiza, a 45 – 54-year-old Indian Muslim, suggested that control in the Muslim community was an issue, explaining that

“I was eight years old and far too scared to vocalise anything that I knew was unacceptable to my parents'... I think it must have been about control for them” (Fiza)

Three interviewees also revealed the relevance of the community influence on social behaviour within Muslim families. Ayesha explained that whilst here father initially permitted her older sister to cycle, this decision was reversed when there was an adverse reaction from the community, with concern that such practices could “corrupt other girls in the neighbourhood” (Ayesha). The insinuation that parental concerns are often more about community opinion, rather than the wishes of their child.

Most participants expressed that domestic and caregiving responsibilities hindered them from cycling in the past, “us women have a certain role, and the home being in order is priority” (Mumtaz). When asked whether Muslim women have more chores than other women, Zarah, a 34-45-year-old Bangladeshi Muslim responded

“Many families do still live in or near extended family in east London, and yes this means more chores because of family visiting daily” (Zarah).

It is evident from the above responses that there is a link between cycling and cultural expectations which is consistent with the studies conducted by Verhoeven (2009) and Verkeerskunde (2019).

Religion and Islamophobia

It was found that Islam shapes everyday life for both cyclists and non-cyclists in the study. This is unsurprising given similar studies such as Majedi et al., (2015), and Koglin (2015) which found that cycling can only be encouraged through considering requirements and views of the community.

As mentioned in the literature, Muslims lives are guided by the principles of Islamic theology. In that respect, participants did not need probing to explain their religious beliefs on cycling, and the opening questions during both interviews and the questionnaire was ‘What are your views on Muslim women cycling?’ which prompted participants to open dialogue about religion.

Aliya who is a ride leader and a practicing Muslim, spoke about being challenged by a Muslim woman who told her that she found an Islamic ruling that states cycling is forbidden as it resembles a boy “I politely contested this as an out of context ruling as it did not relate to cycling” (Aliya).

Four participants reveal they were likely to learn to cycle, however fellow Muslims judging their level of religiosity is a concern for them, with one participant stating “I remember avoiding cycling past the mosques in case anyone judged my religiousness and called me a hypocrite”(Farah). The idea of one’s religion being judged, is in line with prominent scholars of Islamic teachings, (Ibn Al-Khattab, Ibn Hajar and Ibn Rajab) who state, “People are judged according to what is apparent from them” (Islamicweb.net, 2020). Online_Participant_18 argues that this form of judgement hinders a lot of women in taking up cycling.

A pertinent point made by Ayesha (who wears a veil), is that UK counter-terror strategies have left her feeling alienated from British society and she senses an increase in hate crime in East London recently. This is supported in Phoenix's (2019) work on British Muslim’s sense of belonging in society, where it is pointed out that the intensified scrutiny of Muslims since the 2001 terror attacks, has meant Muslim women have to negotiate their identities within the context of the microaggressions that they face. Online_Participant_17 asks, “how would you make me feel safe whilst cycling in the current Islamophobic climate? police and

government are not doing enough, and tabloids perpetuate it?” It was clear from these responses that there is concern for personal safety when cycling, not necessarily from traffic but of becoming more visible within society.

It is argued that the above response is consistent with the findings of the literature review, confirming the views of Aljayyousi et al., (2019), Hamzeh and Oliver (2012) and Summers et al., (2018) who link cycling amongst Muslim women with accepted religious norms and interpretations of religious expectations amongst the community. However, it is noted that the concerns about Islamophobia are not evident in the literature review, suggesting that this issue indicates a gap in current policy, and a lack of awareness of policymakers about the concerns of this community.

Honour and respect

The literature review highlighted the importance of the honour, respect, and community acceptance with Muslim communities. Similar to the study of physical exercise amongst Qatari women studied by Zimmo (2017), most participants agree hijab means more than a veil in that it relates to honour. Online_Participant_14 suggests that cycling means inappropriate body movement, stating “...cycling would outline my body... it looks provocative and attracts the opposite sex”, suggesting that cycling restricts hijab observing women’s mobility in public spaces (Zimmo, 2017).

Aliya warns that she is about to touch on a taboo topic (Eriksson and Christianson, 2011), providing the insight that many Muslims would be uncomfortable to talk about, let alone admit that the saddle of a bike would comprise a girl’s virginity. Rabia argues that this baseless attitude comes from village mentality and one that is still common “amongst ignorant women in communities”. It is submitted from participant statements that younger Muslim women attribute these taboo topics to generational barriers.

When asked about her views on Muslim women cycling, Online_Participant_17 expressed that “they must be prevented from cycling as it is unappreciated by our culture...and must be banned”. Further in the questionnaire when asked about how cycling can be facilitated, the same participant makes the point about cycling being possible but “...in a woman only area” (Online_Participant_17). The strong views of online_participant_17 validates the literature where Gumber and Gumber (2017) state that the lack of female role models hinder

Muslim women from taking up certain activities. These perceptions are reality for some Muslim women, largely due to the upbringing and family influences on what is acceptable and unacceptable behaviour.

Husbands

The literature review indicates that the Mahram (male protector whom a female cannot marry, includes the husband) is a key influencer of Muslim women's willingness to participate in sport (Hoodfar, 2015). This theme resonated with twelve women in the study who stated that their husbands have been a barrier to cycling for them. Aliya, although happy in her marriage said that with some things relating to honour and safety "...the baton of control was passed down from my parents to my husband" (Aliya), with Online_Participant_7 recalling

"My father did say that under his guardianship, he would never agree to this boy's activity, but if my husband is ok with it then its fine".

Two husbands of participants initially encouraged their wives to cycle to improve health but objected when the women wished to become cycling instructors on the basis that this was not a respectful career for their wives. This confirms the earlier suggestion that young Muslim women are no longer the responsibility of their parents after marriage but are expected to live under an assumed guided protection of their husband.

It is argued that there are strong correlations between the above data and the findings of the literature review. This includes Mirsafian et al., (2014) who found that social pressures affected physical exercise amongst Muslim women, and that negative cultural attitudes could adversely affect willingness to cycle. The above assertions are also supported by Summers et al., (2018) and Toffoletti and Palmer (2017) who also linked barriers to physical exercise such as cycling to social and cultural factors.

Inaccessibility

All non-cyclists and five cyclists reflect similar findings to both Summers et al. (2018) and Toffoletti and Palmer (2017), attributing their lack of knowledge about cycling to a lack of marketing targeting Muslim women. Speaking about the marketing that does exist around female cycling groups, one interviewee makes the point that "the image of a cyclist is so far

removed from what a Muslim women wears in terms of tight fitting clothes and lycra, and that is one reason we think it is not going to work for us” (Sima). This is consistent with the findings of the literature where Matt (2009), suggests that cycling with its high cost equipment could disincentivise immigrant communities (Matt, 2009). The organiser of Cycle Sisters also acknowledged that image and awareness was a problem and highlighted that “funding is challenging...we would like to recruit more Muslim ride leaders in different places, to allow further outreach work” (Sima).

It is clear from the above discussion that Muslim women are impeded from cycling because of lack of funding and information, however the crucial barriers appear to be cultural and social, specifically founded on religious beliefs. As mentioned in the background section, Hackney’s policies seek to tackle cycling barriers from a cultural and attitudes perspective through soft measures targeting low income groups (LBH, 2015), however they fail to capture the needs of ethnic minorities especially Muslim women in their community. The data also indicates that unlike most Western women, to cycle a Muslim woman must break social norms to take up cycling as a leisure activity or a form of transport.

Materials - Barriers

This section investigates how materials affect Muslim women’s behaviour and their choice to cycle. Most participants raised the issues of clothing as the main physical barrier for them, which is consistent with the findings of Dagkas and Benn (2006) and Mirsafian et al., (2014). In addition, inadequate infrastructure and inaccessibility to bikes also create barriers for participants to consider cycling.

Clothing

As mentioned, clothing is amongst the culturally related factors that influence the choice for Muslim women to cycle and is linked to religion and honour for most participants, as most wear Islamic attire daily and this was raised by both cyclists and non-cyclist in the study. This is consistent with findings from Grieco et al., (1994) and Nakamura (2002), where the latter suggested that unless issues such as modest clothing are available, then it is unlikely that Muslim women will take up cycling.

One participant found negotiating her clothing for cycling difficult, in line with the findings of Nakamura (2002), she recalls “it was such an ordeal to find the right thing to wear...I just got so overheated from numerous layers I wear to remain modest” (Online_Participant_6). She eventually gave up cycling altogether because of her clothing. The data shows that most participants prioritised modesty over the need to cycle, Nila confirms “What I wear is the most important thing to me when I am cycling, as long as I look modest”. For Zarah who intended to wear leggings and a long t-shirt at a group ride for Muslim women, the fear that she did not look Islamic enough in the group stopped her cycling.

Infrastructure

Despite visible investment in the cycling infrastructure within East London, four participants highlighted that certain aspects of the built environment discourages them from cycling beyond their local area. Online_Participant_7 explains “The infrastructure may look great in Walthamstow with Mini Holland, but I feel restricted to cycling only there” suggesting cycling becomes less safe for onward journeys. Online_Participant_5 points out that she likes the generous cycle lanes linking Walthamstow to Hackney but she states that there are fewer segregated cycling lanes in Hackney, making navigation difficult. “Slowing down cars to 20 mph is great in Hackney, but that doesn’t stop the show-off male cyclists zooming past” (Online_Participant_5).

There were similar concerns for Tower Hamlets and Redbridge. Most participants agreed that park and canal routes are most favoured as they preferred cycling away from traffic and enjoy the fresher air and scenic routes. Four participants stated that park and canal routes made them feel vulnerable on their own and limited their onward journeys to local facilities. As indicated by TfL (2018), these concerns are not confined to Muslim women. This suggests a need for improved infrastructure and more safe segregation for cyclists which connect them to places and key services.

Access to bikes

Murugesu (2018) indicates in the literature that access to bikes and storage can be barriers to cycling, however only a small number of participants mentioned this hindering them from taking up cycling compared to the more significant issues. Participants do make valid points about unaffordability, lack of storage, fear of theft and bike hire being barriers for them.

Participants saw a bike as an added unaffordable expense as replacing their cars was not an option explains Online_Participant_3, “I need my car to cart my four children around a few times a day, and for my weekly shop”. Two participants stated that storage was a problem and that their small apartments could not accommodate a bike. These views are similar to the findings of Murugesu (2018) who also found that affordability and lack of storage hinder Muslim women from cycling.

Competencies - Barriers

The literature review highlighted that the ability to cycle was lower in Muslim communities, largely due to cultural factors (Shove et.al. 2012; Larsen 2016), this is also reflected in the findings of this study. One participant suggests that she needed to be slim and fit to ride a bike, she states “I am too fat to balance on a bike” (Online_Participant_1). A non-cyclist in her fifties believes that it is impossible to learn to ride a bike as an adult, stating “cycling will only be natural for me if I had learned as a child” (Online_Participant_18). These findings confirm the views of Shove et.al. (2012), who suggest ethnic minority participants do not initially take up or advance their cycling due to lack of self-confidence, and potential inadequate skills to cycle in different situations. These assertions are also consistent with Grieco et al., (1994) who found that the inability and lack of desire amongst Muslim women to cycle in adulthood, reflects their upbringing.

Facilitators to Cycling

As listed in Table 3, the factors that influence Muslim women’s choice to cycle are split between barriers and facilitators. This section provides an insight into how some of the above barriers have been overcome by participants and make cycling a possibility for Muslim women in London, thus addressing the second research question

Can these barriers be addressed through specific policies and initiatives focusing on cultural issues?

Meanings - Facilitators

The literature highlights that cultural barriers to cycling need to be overcome to increase cycling in the Muslim community (Dagkas and Benn 2006). The interviews reveal that it is possible to overcome these barriers without compromising religion and culture through a better understanding of how communities evolve. For example, one interviewee points out that education and financial gain can enhance confidence and dilute negative cultural influences, “the current generation are breaking away from the mould that their own mothers may have instilled in them, so things are shifting”(Tasneem).

The interviews also reveal growing understanding about the benefits of cycling amongst women, which is consistent with the advice of (Song et al., 2017), and pointed out by one cyclist who stated that “I shifted my mindset after self-esteem issues and depression, fed up of what 'lohg kya kehn gaye!' (what people are going to say!). I put my life in perspective and thought this is my life and why should I care” (Sana).

Six participants addressed husbands as being facilitators to their cycling, narrating stories about family rides involving their husbands and their friends. Referring to a family cycling initiative called FECycle Club (organised by Fatima Elizabeth Phrontitery) in Walthamstow, which was useful in shifting the mindset of husbands and improving community awareness of the benefits of cycling.

Supporting the view of Summers et al.(2018), most participants accepted that the increase in cycling in areas such as Walthamstow over recent years is attributed to more visibility of Muslim women cycling in groups. Three ride leaders in the study confirm that they have received positive reactions from the community which often results in more women joining the groups rides. Where they have experienced the odd negativity, the suggestion is that women are empowered if in a group, as suggested by one ride leader “I do not feel singled out when idiots have nothing better to do but verbally abuse us with Islamophobia, in fact what can they do to a group of 12 women riding along?”.

There is evidence that cultural change requires leadership, and that there is a shift in attitude towards encouraging women into this activity, as explained by Maxwell and Taylor (2010). A good example was offered by the Cycle Sisters group who have been working with two prominent mosques in Walthamstow to advocate for the acceptance of Muslim women

cycling. The Imam of the mosque reminds attendees of congregational prayers about the group rides and health benefits that cycling brings. Toffoletti and Palmer (2017) suggest that an effective way to get more Muslim women engaged in cycling is with targeted marketing and information about the benefits and support of the activity. Although word of mouth is working well for local female only Muslim rides in Hackney and Walthamstow, posters at tube stations published by TfL (2018), showing diversity in cycling, with images of Muslim women in Islamic attire on bikes “...is a move in the right direction” states the leader of Cycle sisters, again “funding for more local marketing is scarce” points out (Sima)

Materials - Facilitators

Majority of participants expressed that they generally need to experiment with clothing to suit the type of ride they are choosing to embark upon. Aliya who is a cycle instructor, highlights that one of the first things we tell our members is that there are no specific clothing requirements, however for their safety, adjustments in clothing and footwear are recommended, she insists that “there is no need to compromise modesty”(Aliya). Rabia suggests that lycra is a modern material and a non-essential requirement for cycling, adding “throughout history, women cycled in long dresses and flowing skirts. It is those images that will help normalise cycling.” (Rabia). The inference being that Muslim women who are cycling can negotiate their Islamic attire without compromising their own sense of modesty by adapting their clothing to suit cycling.

Infrastructure

Most participants agree that regeneration around East London has brought about positive roadside cycling infrastructure which helps them navigate journeys confidently. For example, one participant has taken advantage of the wide cycle lanes introduced on the Lea Bridge Road which enable her to take her children out on rides. The majority of participants agree that infrastructure investment is varied across East London, however they feel that the group rides have enabled them to explore safer and more scenic routes as they are mapped out for them by the ride leaders. The importance of group rides was highlighted as a key facilitator of cycling amongst Muslim women, with one new cyclist noting that “if it wasn’t for the groups rides, I would not have known about canal routes and cycle trails that connects Walthamstow to Hackney” (Zarah). The benefits of group rides have been acknowledged in the literature, with investment from TfL (2019) supporting community groups to encourage walking and cycling. The issue with short term funding is that programs become

unsustainable in the long term, suggesting a need for long term funding for groups that deliver benefits such as cycle training and who can prove increased participation in the activity.

One participant specifically pointed out that quiet ways around Hackney enabled her to confidently cycle away from the view of males from her community, and also facilitated her connection to local services and Central London. These findings reflect the Mayor of London's views on improving cycling infrastructure (Golbuff and Aldred 2011; TfL, 2018; LBH, 2019), with further enhancements post Covid-19.

Access to Bike

Murugesu (2018) argues that Muslim women will be encouraged to cycle if there is greater access to bicycles and this view is reinforced by the findings of the interviews. With four participants indicating that the launch of the Santander bike hire scheme in London and the free bike loan schemes in Walthamstow, make cycling affordable for them. Cycle Sisters state that their relationship with Waltham Forest Council is important to enable members to come along and use bikes for free during rides. Although some members said that the schemes limit their riding to scheduled days.

Competencies - Facilitators

Shove et.al. (2012) suggest that competency is the ability to perform a practice using skill, technique and knowledge. In relation to the practice of riding a bike, Larsen (2016) indicates that skills such as balance, steering and knowledge of road safety are competencies that vary between people.

Similar to the findings of Shove et al., (2012), the study reveals that Muslim women's ability to cycle varies and that many cyclists who joined Cycle Sisters were beginners and quickly advanced to ride leaders, due to commitment to lessons. The interviews also revealed that the competency barriers mentioned in the previous section, have also resonated with most of the current cyclists in the study. For example, the perception that one is too over-weight to balance on a bike resonated with (Rabia). She wanted to be a role model for her daughter but kept putting off learning thinking she needed to lose weight to balance and keep up with others. Rabia has progressed her cycling and has recently been approached to lead rides.

The above correlate with the literature review, including Spurling et al., (2013) who indicate that competencies that have been learnt, access to resources and social practices, reflects an individual's behaviour in society. The inference being that organisations such as Cycle Sisters provide a role model for Muslim women, and act as a facilitator for cycling.

Findings of the Study

This research considered demographic data around Muslim women's cycling levels in East London, which are a low 1%, compared to 2% of males that cycle to work from the same community. More importantly for this study, the qualitative data provides a narrative that elicits an understanding of the barriers that Muslim women are facing that hinder them from cycling.

An exploration of existing policies and literature found that despite extensive investment in infrastructure in the UK, the ongoing debate suggests a modal shift from the car to cycling is essential and that all citizens must be engaged in, and committed to the cycling agenda. The inferences from the literature, supported by the research data, is that there is a lack of cycling amongst Muslim women and that this is attributed to concerns of community perceptions of cycling and generational misconceptions over whether Islamic theology encourages or rejects the concept of women cycling. These misconceptions are also apparent in family and community expectations, with non-cycling participants suggesting that cycling is not acceptable from a religious perspective as it may compromise the need for modesty, with Muslim women cyclist showing they have overcome this issue.

The experiences of Muslim women in East London, confirms the findings of the literature review and highlight the importance of cultural barriers related to cultural norms, infrastructure and clothing restrictions, along with issues such as inaccessibility to information about the benefits of cycling, and knowledge about training, support, and access to bikes. It is also found that Muslim women, irrespective of age and academic achievement, are realising the benefits of cycling from a physical and mental health perspective. As such, Muslim women are coming together through organised group rides and breaking through cultural barriers. However, the statistical evidence shows that the cycling levels of Muslim women in London is still low.

To increase the cycling levels amongst Muslim women in London towards achieving London's 80% modal shift target to more sustainable modes of transport by 2041 (MTS, 2016), planning policies need to promote suitable cycling infrastructure and introduce policies that consider the cultural needs of local communities. For example, it is noted that Hackney has adopted soft measures to tackle the barriers of cycling amongst local residents, however the borough's Cycle Plan (LBH, 2015) focuses on cycle awareness programs from an economic deprivation perspective and does not consider the cultural barriers that are hindering the Muslim community, who constitute 14% of the borough's population (Nomis, 2011).

London's cycling infrastructure is set to receive a financial boost following the Covid-19 pandemic which resulted in increased demand in active travel across London (Sustrans, 2020a). Similar to the statement made by CSC (2019), this research submits that the value for the public sums invested in cycling can only be fully realised if initiatives and policies consider the infrastructure needs of all citizens. For example, Waltham Forest is "encouraging wider integrated walking and cycling routes" (LBWF, 2019) and Hackney is categorising cycling routes such as quiet ways and local connector routes, these have proven successful amongst Muslim women in the study as such routes not only allow them to cycle discretely and safely, but also facilitate access to local services and the wider London area. The inference is that to deliver appropriate cycling infrastructure and strategies, there is need for more ambitious policy support for cycling at a national level which promotes more collaborative planning between local authorities to meet the infrastructure needs of specific local groups.

The study also reveals that cycling can be encouraged through peer-support and community leadership. As such, a shift from public transport to cycling can be achieved if community leaders are willing to support these efforts, as this will change mindsets.

In summary, the data gathered from the survey indicates a strong relationship with the findings of the literature review and indicate that experiences of each participant naturally vary from one another. There are clear themes which are consistent with the three elements of Practice Theory, in terms of meaning, materials and competencies, as summarised in the next chapter.

Chapter 7: Conclusion, Limitations and Recommendations

Conclusion

Climate change, global warming, and health issues such as obesity, are contemporary issues that societies around the globe are facing, with London being no exception. It is widely accepted that cycling as an alternative transport mode can contribute to mitigating the harmful effects of climate change and reduce health inequalities resulting from unhealthy lifestyles. Yet cycling levels in London remain stubbornly low. This research aimed to contribute to the discourse around cycling barriers and policies relating to the lack of cycling amongst ethnic minorities and specifically Muslim women in London. The purpose of this chapter is to set out the findings of the study, and the conclusions drawn from these findings.

This research commenced with two questions.

- What are the barriers to cycling amongst Muslim women?
- Can these barriers be addressed through specific policies and initiatives focusing on cultural issues?

Based on the above findings, this study concludes that there are barriers to cycling amongst Muslim women, including cultural barriers based on religious beliefs and community norms. It is found that Muslim women have less freedom than some other religions, with perceived control passed from parents to the husband and influenced by the community expectations of religious behaviour. There are also barriers relating to clothing and access to bicycles where the latter is also linked to culture and religion. Infrastructure also presents a barrier on safety grounds, relating to busy roads and concerns about increased Islamophobia through the heightened visibility of cycling.

The research further concludes that these barriers can be addressed through education and marketing to improve community and individual understanding of the benefits of cycling. This can be achieved through effective leadership and increasing Muslim women role models through group rides, which prove the hypothesis of this research that group rides enable Muslim women to cycle.

In addition, it is concluded that the provision of safe and discreet cycling infrastructure such as local connector routes and quiet ways, could encourage Muslim women to consider cycling and for those who do cycle, encourage a modal shift to cycling for commuting. The

study found that Muslim women would consider cycling if planning policies, cycling programs and associated marketing consider the needs of Muslim women, specifically ensuring their personal safety and increase acceptance of Muslim women cycling as compatible with religious doctrine.

The adaptation of Practice Theory and its three elements as a conceptual framework, proved useful in understanding the symbolic meaning of cycling for Muslim women and associated norms and sentiments associated with the practice; an appreciation of modesty needing to extend to the materiality associated with cycling, which includes clothing and infrastructure; and finally, the competencies and evolving training requirements are better understood.

Limitations

There are limitations to this study which must be highlighted to set the above findings and conclusion in context with other studies. The limitations of this study are the small size participant sample, compared to the population of Muslim women within the study boundary. However, it is argued that this sample provides a snapshot of the views of a representative cohort of Muslim women, as such the study provides a platform for further investigative work on this topic. Another potential limitation is the researcher's inexperience in conducting interviews and developing questionnaires. That said, the possibility of bias within the questions and the data collected was minimised by following best practice in the development of all questions, and in testing the responses against the findings of the literature review.

Recommendations

The findings of this study can be validated through wider investigation on this topic. It is recommended that similar research of men within the same boundary in East London is conducted. Such an undertaking would provide greater understanding of the religious perspective, and the reasons underpinning the cultural importance of women in the community, and reasons why cycling is actively discouraged. The research indicates the importance of leadership, as such it would also be useful to discuss the findings with religious leaders in the community to understand the barriers to cycling from an Islamic theological perspective.

As the results of this research show Muslim women coming together through organised group rides, it is recommended that further funding is directed in this area of work to extend

the offer to the wider London region. It is also recommended that there is sustainable funding and support provided to cycling groups who have consistently demonstrated increased levels of cycling amongst target groups through their programs.

Finally, practical matters such as dress and urban layout were identified as barriers and facilitators for cycling amongst Muslim women, as such it would be beneficial to carry out further research on urban planning relating to cycling policies at regional and local level. Particularly cycling infrastructure, and ways in which planners engage with the Muslim community when developing these plans. For example, exploring the feasibility of more quiet ways and safer routes for women and encourage a joint up approach to planning for these routes between local authorities across London.

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Bibliography

Aldred, R. and Dales, J. (2017). Diversifying and normalising cycling in London, UK: An exploratory study on the influence of infrastructure, *Journal of Transport and Health*, 4, pp. 348–362. Available at: doi: 10.1016/j.jth.2016.11.002. [Accessed 12 May 2020].

Aldred, R. and Jungnickel, K. (2014). Why culture matters for transport policy: The case of cycling in the UK, *Journal of Transport Geography*. Elsevier Ltd, 34, pp. 78–87. Available at: <https://doi.org/10.1016/j.jtrangeo.2013.11.004>. [Accessed 12 January 2020].

Aldred, R., Woodcock, J. and Goodman, A. (2016). Does More Cycling Mean More Diversity in Cycling? *Transport Reviews*. 36(1), pp. 28–44. Available at: <https://doi.org/10.1080/01441647.2015.1014451>. [Accessed 10 February 2020].

Ali, S. (2015). British Muslims in Numbers. Muslim Council of Britain, pp. 24–29. Available at http://www.mcb.org.uk/wp-content/uploads/2015/02/MCBCensusReport_2015.pdf. [Accessed 2 January 2020].

Aljayyousi, G.F., Munshar, M.A. and Al-Salim, F., 2019. Addressing context to understand physical activity among Muslim university students: the role of gender, family, and culture. *BMC public health*, 19(1), pp.1-12.

All-Party Parliamentary Cycling Group (APPCG). (2013). Get Britain Cycling. Available at: <https://allpartycycling.files.wordpress.com/2013/04/get-britain-cycling1.pdf> [Accessed 20 May 2020].

An, R., Ji, M. and Zhang, S. (2018). Global warming and obesity: a systematic review. *Obesity Reviews*, 19(2), pp.150-163. Available at: <https://onlinelibrary.wiley.com/doi/abs/10.1111/obr.12624>. [Accessed 10 July 2020].

Bécares, L. (2015). Which ethnic groups have the poorest health?, *Ethnic Identity and Inequalities in Britain: The Dynamics of Diversity*, (October), pp. 123–139. Available at: doi: 10.2307/j.ctt1t89504.14. [Accessed 10 May 2020].

Bell, E., Bryman, A. and Harley, B., (2018). *Business research methods*. Oxford: Oxford university press.

Blue, S., Shove, E., Carmona, C., and Kelly, M. P. (2014). Theories of practice and public health understanding (un)healthy practices. *Critical Public Health*, 26(1), 36-50. Available at: doi:10.1080/09581596.2014.980396. [Accessed 12 February 2020].

Bourdieu, P. (1990). *The logic of practise*. Cambridge: Polity Press,. (Translated by Nice,R).

Bowles Green Ltd. (2008). *Engaging Ethnic Minority Communities in Cycling*. Available at <http://bowlesgreen.co.uk/wp-content/uploads/2010/07/Ethnic-Minority-Cycling-Report-BG.pdf> [Accessed 4 June 2020].

Breweton, P. and Millward, I. (2001). *Organizational research methods*. London: Sage Available at: <https://dx.doi.org/10.4135/9781849209533>. [Accessed 5 May 2020].

British Medical Association (BMA). (1992). *Cycling: Towards Health and Safety*. Oxford: Oxford University Press.

Caldwell, K.B. and Boyer, R.H., 2019. Bicycle commuting in an automobile-dominated city: how individuals become and remain bike commuters in Charlotte, North Carolina. *Transportation*, 46(5), pp.1785-1806.

Castleberry, A. and Nolen, A. (2018). Thematic analysis of qualitative research data: Is it as easy as it sounds? *Currents in Pharmacy Teaching and Learning*. Available at: doi:10.1016/j.cptl.2018.03.019. [Accessed 10 March 2020].

Chatterton, T. and Anderson, O. (2011). An introduction to thinking about 'Energy Behaviour': A multi-model approach. A paper for the Department of Energy and Climate Change. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/48256/3887-intro-thinking-energy-behaviours.pdf. [Accessed 3 June 2020]

Cohen, M. J. (2010). Destination unknown: Pursuing sustainable mobility in the face of rival societal aspirations. *Research Policy*, 39(4), pp.459-470. Available at: <https://doi.org/10.1016/j.respol.2010.01.018>. [Accessed 12 May 2020].

Committee on Climate Change (CCC). (2019). Net Zero The UK's contribution to stopping global warming. Available at: <https://www.theccc.org.uk/wp-content/uploads/2019/05/Net-Zero-The-UKs-contribution-to-stopping-global-warming.pdf>. [Accessed 6 May 2020].

Commons Select Committee (CSC). (2019). Government leadership and ambition required to champion walking and cycling. Available at: <https://publications.parliament.uk/pa/cm201719/cmselect/cmtrans/1487/1487.pdf> [Accessed 25 May 2020].

Cycle Sisters. (2020). Inspiring and enabling Muslim women to cycle. (Available at: www.cyclesister.org.uk) (Accessed: July 2020).

Dagkas, S. and Benn, T. (2006). Young Muslim women's experiences of Islam and physical education in Greece and Britain: a comparative study. *Sport, Education and Society*, 11(1), pp.21-38. Available at: <https://doi.org/10.1080/13573320500255056>. [Accessed 2 June 2020].

de Boer, M.H.M. and Caprotti, F., 2017. Getting Londoners on two wheels: A comparative approach analysing London's potential pathways to a cycling transition. *Sustainable cities and society*, 32, pp.613-626.

Denscombe, M. (2014). *The good research guide: for small-scale social research projects*. 5th ed. Maidenhead: Open University Press.

Department for Environment, Food and Rural Affairs (DEFRA). (2017). UK plan for tackling roadside nitrogen dioxide concentrations. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/633269/air-quality-plan-overview.pdf. [Accessed 13 May 2020].

Department for Transport (DfT). (2016). *Transport Statistics*. London. Available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/576095/tsg-b-2016-report-summaries.pdf. [Accessed 24th March 2020].

Department for Transport (DfT). (2017). *Cycling and Walking Investment Strategy*. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/908257/cycling-walking-investment-strategy-document.pdf. [Accessed 20 May 2020].

Department for Transport (DfT). (2020). *Cycling and walking Investment Strategy*. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/863723/cycling-and-walking-investment-strategy-report-to-parliament.pdf. [Accessed 20 June 2020].

Easterby-Smith, M., Thorpe, R. and Jackson, P. (2015). *Management and Business Research*, London: Sage

Eriksson, C. and Christianson, M. (2011). A Girl Thing: Perceptions Concerning the Word "Hymen" Among Young Swedish Women and Men. Available at: <https://onlinelibrary.wiley.com/doi/epdf/10.1111/j.1542-2011.2011.00027.x> [Accessed 20 July 2020].

eNotes Publishing. (2020). "Outline of a Theory of Practice - Summary" eNotes Publishing Ed. [Available at: <http://www.enotes.com/topics/outline-theory-practice#summary-summary-857465>] [Accessed: 28 January 2020].

Elliott, V. (2018). Thinking about the coding process in qualitative data analysis. *The Qualitative Report*, 23(11), pp.2850-2861. Available at: <https://nsuworks.nova.edu/cgi/viewcontent.cgi?article=3560&context=tqr>. [Accessed 4 June 2020].

Geels, F.W. and Schot, J. (2010). Part 1: the dynamics of socio-technical transitions: a sociotechnical perspective. In: Grin, J., Rotmans, J. and Schot, J. (Eds.), *Transitions to Sustainable Development: New Directions in the Study of Long-Term Transformative Change*. Routledge, London, pp. 11–104. Available at: <https://doi.org/10.4324/9780203856598>. [Accessed 12 April 2020].

Giddens, A. (1984). *The constitution of society: Outline of the theory of structuration*. Berkeley, CA.: University of California Press.

Giddens, A. (2006). *Central problems in social theory*. Berkeley California: University of California Press.

Golbuff, L. and Aldred, R. (2011). *Cycling policy in the UK: a historical and thematic overview*. Available at: <https://www.cycling-embassy.org.uk/sites/cycling-embassy.org.uk/files/documents/Cycling%20Policy%20in%20the%20UK.pdf>. [Accessed 20 April 2020].

Greater London Authority (GLA). (2016). *Human streets: the mayor’s vision for cycling three years on*. Available at: https://www.london.gov.uk/sites/default/files/human_streets_0.pdf [Accessed 23 November 2019].

Greater London Authority (GLA). (2016). *Mayor’s Transport Strategy*. Available at: <https://www.london.gov.uk/sites/default/files/mayors-transport-strategy-2018.pdf>. [Accessed 10 June 2020].

Greater London Authority (GLA). (2019). *The draft New London Plan*. Available at: https://www.london.gov.uk/sites/default/files/intend_to_publish_-_clean.pdf. [Accessed 14 August 2020].

Grieco, M., Turner, J. and Kwakye, E.A. (1994). A tale of two cultures: ethnicity and cycling behavior in urban Ghana. *Transportation research record*, 1441, p.101. Available at: https://assets.publishing.service.gov.uk/media/5cdbf6b6e5274a1798282547/1_666_PA1320_1994.pdf. [Accessed 10 August 2020].

Gumber, A. and Gumber, L. (2017). Improving prevention, monitoring and management of diabetes among ethnic minorities: Contextualizing the six G’s approach. Available at: doi: 10.1186/s13104-017-3104-9 [Accessed: 5 January 2020].

Hamzeh, M. and Oliver, K.L., 2012. “Because I am Muslim, I cannot wear a swimsuit” Muslim girls negotiate participation opportunities for physical activity. *Research Quarterly for Exercise and Sport*, 83(2), pp.330-339.

Hatefnia, E. and Raoofi, A. (2019). "Perceptions and factors influencing the intention to do regular physical activities for the prevention of osteoporosis among Iranian working women", *Health Education*, Vol. 119 No. 3, pp. 178-186. <https://doi.org/10.1108/HE-12-2018-0062>. [Accessed 14 July 2020].

Hayward, R. (2009). *Railways, urban development and town planning in Britain: 1948-2008*. Farnham: Ashgate.

Hoodfar, H. (2015). *Women’s Sport as Politics in Muslim Contexts* In Hoodfar, H., (ed.) *Women’s Sport as Politics in Muslim Contexts*. pp. 37-53. Available at: <http://www.wluml.org/sites/wluml.org/files/Hoodfar-Women%E2%80%99s%20Sport%20as%20Politics%20in%20Muslim%20Contexts%20-WLUML%20site-fin2.compressed.pdf#page=263>. [Accessed 12 July 2020].

House of Commons Transport Committee (HCTC). (2019). *Active travel: increasing levels of walking and cycling in England*. Available at: <https://publications.parliament.uk/pa/cm201719/cmselect/cmtrans/1487/1487.pdf> [Accessed 18th June 2020].

House of Commons Transport Committee (HCTC). (2018). *Walking and Cycling Statistics, England*. Available at: <https://publications.parliament.uk/pa/cm201719/cmselect/cmtrans/1487/1487.pdf> [Accessed 25 April 2020].

Islamicweb.net. (2020). People are judged according to what is apparent from them. Fatwa No: 317608.

Available at: <https://www.islamweb.net/en/fatwa/317608/people-are-judged-according-to-what-is-apparent-from-them>. [Accessed 12 July 2020].

Junaid, J. (2018) Performing cycling : Cultural dimensions of cycling practices. Available at: <http://usir.salford.ac.uk/id/eprint/50204/>. [Accessed 18 November 2019].

Keates, N. (2007). Building a Better Bike Lane. *The Wall Street Journal*. Available at: <http://online.wsj.com/article/SB117823466296891497.html> [Accessed 4 April 2020].

Koglin T., 2015. Organisation does matter—planning for cycling in Stockholm and Copenhagen. *Transport policy*. 39, pp.55-62.

Kowald, M. and Axhausen, K. W. (2012). Focusing on Connected Personal Leisure Networks: Selected Results from a Snowball Sample. *Environment and Planning A*, 44(5), 1085- 1100. Available at: doi:10.1068/a43458. [Accessed 10 May 2020].

Larsen, J. (2016). The making of a pro-cycling city: Social practices and bicycle mobilities. *Environment and Planning A*, 49(4), 876-892. Available at: doi:DOI: 10.1177/0308518X16682732. [Accessed 10 April 2020].

Li, C., Zayed, K., Muazzam, A., Li, M., Cheng, J. and Chen, A., 2015. Motives for exercise in undergraduate Muslim women and men in Oman and Pakistan compared to the United States. *Sex Roles*, 72(1-2), pp.68-84.

London Borough of Waltham Forest (LBWF). (2019). Shaping the borough: Draft local plan 2020–2035. Available at: https://www.walthamforest.gov.uk/sites/default/files/Final%20Draft%20Local%20Plan_July2019_Web%20optimised_Part1.pdf. [Accessed 18 August 2020].

London Borough of Hackney (LBH). (2015). Hackney Transport Strategy 2015-2025: Cycling Plan. Available at: https://drive.google.com/file/d/15HwACBt8rZ_MyfZtfoCIfRtQzs3gJ6Qi/view. [Accessed 18 August 2020].

Majedi, H., Andalib, A. and Mosharzadeh, M.Z., 2015. Identifying Effective Factors of Women's Participation in Urban Projects. *Bagh-E Nazar*, 12(32), pp.3-12.

Marsden, G., Mullen, C., Bache, I. et.al . (2014). Carbon reduction and travel behaviour: Discourses, disputes and contradictions in governance. *Transport Policy*, 35, 71–78. Available at: <https://doi.org/10.1016/j.tranpol.2014.05.012>. [Accessed 12 May 2020].

Matt, S. (2009). Why is cycling such a 'white' sport? *The Guardian*. Available at: <https://www.theguardian.com/environment/ethicallivingblog/2009/aug/10/cycling-white-sport>. [Accessed 23 July 2020].

Maxwell, H. and Taylor, T. (2010). A culture of trust: Engaging Muslim women in community sport organizations. *European sport management quarterly*, 10(4), pp.465-483. Available at: <https://doi.org/10.1080/16184742.2010.502745>. [Accessed 26 July 2020].

Mirsafian, H., Dóczy, T. and Mohamadinejad, A., 2014. Attitude of Iranian female university students to sport and exercise. *Iranian studies*, 47(6), pp.951-966.

Murugesu, J. (2018). Why does London have so few black or asian cyclists? Available at: <https://www.citymetric.com/transport/why-does-london-have-so-few-black-or-asian-cyclists-3818> [Accessed 24 June 2020].

Nakamura, Y. (2002). Beyond the hijab: Female Muslims and physical activity. *Women in Sport and Physical Activity Journal*, 11(2), pp.21-48. Available at: DOI: 10.1123/wspaj.11.2.21. [Accessed 23 July 2020].

Nomis. (2011). Census Data 2011: KS209EW. All usual residents by religion. Available at: <https://www.nomisweb.co.uk/query/construct/summary.asp?reset=yes&mode=construct&dataset=616&version=0&anal=1&initset=>. [Accessed 14 May 2020].

Office for National Statistics (ONS). (2020). 2011 Census: CT1110. Method of travel to work by sex by religion, England. Available at: <http://www.nomisweb.co.uk/customerrors/nodatASET.asp>. [Accessed 18 May 2020]

Patton, M. Q. (2014). *Qualitative Research & Evaluation Methods Integrating Theory and Practice* (Fourth Edition), Sage Publications, Thousand Oaks:CA

Phoenix, A. (2019). 'Negotiating British Muslim belonging: a qualitative longitudinal study', *Ethnic and Racial Studies*. Taylor & Francis, 42(10), pp. 1632–1650. Available at: doi: 10.1080/01419870.2018.1532098. [Accessed 20 July 2020].

Rand, J. (2019). Inspiring cycling groups: Cycle Sisters. Available at: <https://www.cyclinguk.org/case-study/inspiring-cycling-groups-cycle-sisters> [Accessed 25 June 2020].

Papageorgiou, G. and Demetriou, G., 2019. Investigating learning and diffusion strategies for sustainable mobility. *Smart and Sustainable Built Environment*. 9 (1), pp. 1-16

Public Health England (PHE), (2016). Working Together to Promote Active Travel. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/523460/Working_Together_to_Promote_Active_Travel_A_briefing_for_local_authorities.pdf. [Accessed 7 May 2020].

Oosterhuis, H. (2016). Cycling, modernity and national culture. *Social History*, 41(3), 233-248. Available at: doi:10.1080/03071022.2016.1180897 [Accessed 15 April 2020].

Rebecchi, A., Boati, L., Oppio, A., Buffoli, M. and Capolongo, S., 2016. Measuring the expected increase in cycling in the city of Milan and evaluating the positive effects on the population's health status: a community-based urban planning experience. *Ann Ig* 28, pp.381-391 Available at: doi:10.7416/ai.2016.2120. [Accessed 12 June 2020].

Reckwitz, A. (2004). Toward a theory of social practices: A development in culturalist theorizing, *Practicing History: New Directions in Historical Writing after the Linguistic Turn*, 5(2), pp. 245–263.

Rip, A. and Kemp, R. (1998). Technological change. In: Rayner, S., Malone, E. (Eds.), *Human Choice and Climate Change: Resources and Technology*. Battelle Press, Columbus, Ohio, pp. 327–399.

Ritzer, G. and Stepnisky, J. (2014). *Sociological theory*. New York: McGraw-Hill.

Royal Commission of Environment and Pollution (RCEP). (1988). *Best Practicable Environmental Option*. Available at: <https://webarchive.nationalarchives.gov.uk/20110322144236/http://www.rcep.org.uk/reports/12-bpeo/1988-12bpeo.pdf>. [Accessed 23rd March 2020].

Rubinstein, D. (1977). Cycling in the 1890s. *Victorian Studies*, vol. 21, no. 1, , pp. 47–71. JSTOR, Available at: www.jstor.org/stable/3825934. [Accessed 17 June. 2020].

Sagaris, L. and de Dios Ortuzar, J., 2015. Reflections on citizen-technical dialogue as part of cycling-inclusive planning in Santiago, Chile. *Research in Transportation Economics*, 53, pp.20-30.

Saunders, M., Lewis, P. and Thornhill, A. (2009). *Research Methods for Business Students* (4th edition). Harlow: Pearson Education.

Schatzki, T. R. (2008). *Social Practices - A Wittgensteinian Approach to Human Activity and the Social*. Cambridge: Cambridge University Press.

Sehlikoglu, S., 2016. Exercising in comfort: Islamicate culture of Mahremiyet in everyday Istanbul. *Journal of Middle East Women's Studies*, 12(2), pp.143-165.

- Shove, E., Pantzar, M. and Watson, M. (2012). *The dynamics of social practice*. Los Angeles: Sage. Available at: <https://uk.sagepub.com/en-gb/eur/the-dynamics-of-social-practice/book235021>. [Accessed 5 May 2020].
- Silverman, D. (2013). *Doing Qualitative Research, A Practical Handbook Fourth Edition*. London: Sage.
- Siraj, A. (2010). Because I'm the man! I'm the head: British married Muslims and the patriarchal family structure. *Contemporary Islam*, 4(2), pp.195-214. Available at: <https://doi.org/10.1007/s11562-010-0120-0>. [Accessed 12 April 2020].
- Song, Y., Preston, J. and Ogilvie, D. (2017). New walking and cycling infrastructure and modal shift in the UK: A quasi-experimental panel study. Available at: <https://doi.org/10.1016/j.tra.2016.11.017>. [Accessed 10 February 2020].
- Song, L., Kirschen, M. and Taylor, J., 2019. Women on wheels: Gender and cycling in Solo, Indonesia. *Singapore Journal of Tropical Geography*, 40(1), pp.140-157.
- Spotswood, F., Chatterton, T., Tapp, A. and Williams, D. (2015). Analysing cycling as a social practice: An empirical grounding for behaviour change. *Transportation Research Part F: Traffic Psychology and Behaviour*, 29, pp. 22-33. Available at: doi:10.1016/j.trf.2014.12.001 [Accessed 5 April 2020].
- Spurling, N., McMeekin, A., Shove, E., Southerton, D. and Welch, D. (2013). Interventions in practice: re-framing policy approaches to consumer behaviour. Available at: <http://www.sprg.ac.uk/uploads/sprg-report-sept-2013.pdf>. [Accessed 20 June 2020].
- Summers, J., Hassan, R., Ong, D. and Hossain, M., 2018. Australian Muslim women and fitness choices – myths debunked. *Journal of Services Marketing*, pp.1-12.
- Stone, T. (2020). *Covid-19: London to rapidly expand space for cycling and walking, post-lockdown*. Available at: <https://www.traffictotechnologytoday.com/news/covid-19-news/covid-19-london-to-rapidly-expand-space-for-cycling-and-walking-post-lockdown.html> [Accessed 4 August 2020].
- Sustrans (2020a). *Cycling for everyone: A guide for inclusive cycling in cities and towns*. Available at: https://www.sustrans.org.uk/media/7377/cycling_for_everyone-sustrans-arup.pdf. [Accessed 10 August 2020].
- Sustrans (2020b). *The National Cycling Network*. Available at <https://www.sustrans.org.uk/national-cycle-network>. [Accessed 19 June 2020].
- Taherdoost, H. (2018). *Sampling Methods in Research Methodology; How to Choose a Sampling Technique for Research*, SSRN Electronic Journal. Available at: doi: 10.2139/ssrn.3205035. [Accessed February 2020].
- Toffoletti, K. and Palmer, C. (2017). New approaches for studies of Muslim women and sport, *International Review for the Sociology of Sport*, 52(2), pp. 146–163. Available at: doi: 10.1177/1012690215589326. [Accessed 12 May 2020].
- Transport for London. (2010). *Analysis of Cycling Potential*. Available at: <http://content.tfl.gov.uk/analysis-of-cycling-potential.pdf>. [Accessed 25 April 2020].
- Transport for London (TfL). (2015a). *Active People Debrief*. Available at <http://content.tfl.gov.uk/tfl-active-people-debrief.pdf>. [Accessed 25 April 2020].
- Transport for London (TfL). (2015b). *Valuing the health benefits of transport schemes*. Available at: <http://content.tfl.gov.uk/valuing-the-health-benefits-of-transport-schemes.pdf> [Accessed May 2020].
- Transport for London (TfL). (2018). *Cycling action plan Making London, the world's best big city for cycling*. Available at <http://content.tfl.gov.uk/cycling-action-plan.pdf> [Accessed 25 June 2020].
- Transport for London. (2019). *Walking and Cycling Grants*. Available at: <https://walkingandcyclinggrants.london/> [Accessed 12 May 2020].

- Twine, R. (2015). Understanding snacking through a practice theory lens. *Sociology of Health & Illness*, 37(8), 1270-1284. Available at: doi:doi:10.1111/1467-9566.12310. [Accessed 7 May 2020].
- Vaara, E. and Whittington, R. (2012). Strategy as Practice Taking Social Practices Seriously. *The Academy of Management Annals*, 6(1), 285-336. Available at: doi:10.1080/19416520.2012.672039. [Accessed 2 July 2020].
- Vázquez, M., 2017. The Bicycle in the Daily Mobility: Women's experience in Mexico City. *REVISTA DE TRANSPORTE Y TERRITORIO*, 16, pp.112-126.
- Verhoeven, R. (2009). Ethnic minorities on the road: transportation choices. Available at: <http://www.fietsberaad.nl/index.cfm?lang=en&repository=Ethnic+minorities+on+the+road:+transportation+choices>. [Accessed 18 May 2020].
- Verkeerskunde, (2019). *Non-western migrant women took the bicycle themselves*. Available at <https://www.verkeerskunde.nl/artikel/niet-westerse-migrantenvrouwen-pakten-zelf-de-fiets>. [Accessed 13 July 2020].
- Walker, P. (2013). Boris Johnson vows to continue London's 'cycling revolution'. *The Guardian* 9th December. Available at: <https://www.theguardian.com/uk-news/bike-blog/2013/dec/09/boris-johnson-london-cycling-revolution> [Accessed 25 June 2020].
- Watson, M. (2012) 'How theories of practice can inform transition to a decarbonised transport system', *Journal of Transport Geography*. Elsevier Ltd, 24, pp. 488–496. Available at: doi: 10.1016/j.jtrangeo.2012.04.002. [Accessed 5 June 2020].
- Winters, M., Buehler, R., and Götschi, T. (2017). Policies to Promote Active Travel: Evidence from Reviews of the Literature. *Current Environmental Health Reports*, 4(3), pp.278-285. Available at: <https://link.springer.com/article/10.1007/s40572-017-0148-x>. [Accessed 3 January 2020].
- Woodcock, J., Banister, D., Edwards, P., Prentice, A. M., and Roberts, I., (2007). Energy and health 3 - Energy and transport. Available at: doi:10.1016/s0140- 6736(07)61254-9. [Accessed 12 January 2020].
- Yang, L., Sahlqvist, S., McMinn, A. et.al (2010). Interventions to promote cycling: systematic review. *BMJ*, 341, pp.1-10. Available at: doi:10.1136/bmj.c5293. [Accessed 23 June 2020].
- Zimmo, L. M. (2017). Factors Influencing Qatari Women's Physical Activity. Available at: <http://hdl.handle.net/10388/7883>. [Accessed 23 July 2020].

Appendix A: Interview Information Sheet

INFORMATION SHEET

Dissertation Title:

Building Cycling in London's Muslim Communities: the role of community cycle rides

Purpose of the study

This Dissertation explores whether community led cycle rides can help Muslim women overcome the barriers of cycling, towards building cycling in London's Muslim Communities. This is an important piece of work that I hope will contribute to the discourse around why there appears to be a reluctance amongst Muslim women in Muslim countries and western nations to participate in cycling, despite the health and environmental benefits of this activity.

The solution therefore is that to be effective in creating a sustainable transport system, it is essential to consider the social aspects of planning policy and to have systems in place which take account of the needs of the minority by including their views in the development process. It is noted that whilst there is related research on Muslim women in various countries, there are few studies that specifically address Muslim women in London, and so this research will continue focus on this cohort.

Why you have been chosen to participate in the study

You and your fellow cycling colleagues have been chosen to participate in this study because you are members of a cycling club for Muslim women within a part of London that I am studying. I want to find out your individual views and experiences as a Muslim woman cycling and hope you can help me understand the challenges you have had to overcome, and your motivations through your cycling journey. I will use the information you provide to assist me in understanding the barriers and facilitators of cycling for Muslim women.

What we would like you to do

After you have read this leaflet and have had a few days to think about it, your cycle club Leader will be in touch with you to confirm your interest on a completed Consent Form, I shall provide her with a blank form to pass on to you. Please include any information that will be useful for me to know about you, for example if you need a translator (noting that I speak English, Urdu and Punjabi), any preferred or unsuitable times and dates in the next 3 weeks for the interview etc.

The interview should take no longer than 40 minutes and will commence with some questions about your views on Muslim women cycling and your personal cycling journey, concluding with a simple survey that captures your ethnicity, age, marital status, whether you have children, and your level of schooling.

Please note that due to the current challenges we are all facing because of CoVID-19, I am limited to the interviews being conducted preferably online via Zoom or Skype (video call) or by phone. Please note that I hope to complete all interviews within the next 3 weeks.

Participation in this study is entirely voluntary and you are free to refuse to take part or to withdraw from the study at any time.

Benefits

Your participation may be beneficial for you and others as the information from my research will provide an insight into the barriers to cycling amongst Muslim women and establish if organised cycling clubs help Muslim women overcome these.

Confidentiality

All information collected during the interviews will remain confidential and abide to current General Data Protection Regulation. With your consent, the interviews will be recorded as either voice and/or video and then electronically transcribed, to ensure integrity and accuracy of the information. Please feel reassured that the transcripts will not include the names of anyone and will also not include any information that will enable the identification of an individual. Please note that some of your comments may be direct quotes or summarised in the Dissertation, anonymously or accompanied with a pseudo name.

Use of Data

All data collected during the interviews will be used to inform the Dissertation investigation as described in the 'Purpose of the Study'. Once the Dissertation has been finalised and submitted for marking, all interview transcripts will be stored for a reasonable period for the purpose of audit, if required. The transcripts will be destroyed shortly after that.

Any request to see the results of the research should be made in writing to the Researcher.

Concerns or complaints about the research

Thank you for taking the time out to read this information sheet and considering participation

Appendix B: Interview Consent Form

CONSENT FORM

Study Title:

Building Cycling in London’s Muslim Communities: the role of community cycle rides

Dear Madam,

Thank you for considering taking part in my research. If you are happy to participate in this study, please complete the following two sections of the form and return to myself or your cycle club Leader via email by Monday 18th May.

	Please delete as appropriate
I confirm that I have read the Information Sheet and understand what my contribution to the study will be	Yes / No
I have been given the opportunity to ask the Researcher any questions about the study	Yes / No
I am happy to participate in the study as described in the <u>Information Sheet</u>	Yes / No
I am happy to be contacted via Zoom Video call If you chose to be interviewed via video, I shall provide you with a Zoom meeting invitation to your email or as a text to your phone. You can sign-up to Zoom for free on to your smart phone or/and computer from the following link: https://zoom.us/	Yes / No
I prefer a telephone interview	Yes / No
I agree for the interview video to be recorded I agree to only my voice being recorded	Yes / No Yes / No
I am willing to be contacted about further research on this topic	Yes / No
Additional considerations (eg you need a translator (please specify your language), dates and times to be avoided etc Please specify below):	

Please note that the Researcher will only have access to the following information.

Your Name: Email address (same as for Zoom): Your telephone number: Please sign (or print your name if you cannot print and scan this document) to give consent to be interviewed _____

Appendix C: Interview Demographic Survey

SURVEY

Background information about you

<p>What is your ethnic group?</p> <p>White English Welsh Scottish Irish British Irish Other/ please specify</p> <p>Black British African Caribbean Other/please specify</p> <p>Asian British Indian Pakistani Bangladeshi Chinese Other/ please specify</p> <p>Mixed/ multiple ethnic groups Please specify <u>Other ethnic group?</u> Please specify</p> <p>Are you a resident of the UK? How long have you lived in the UK?</p>
<p>What is your age group?</p> <p>Under 18 18-24 25-34 35-44 45-54 55-64 65-74 75 and Over</p>
<p>What is your Martial Status?</p> <p>Single never married Married Partnership Widowed Divorced Separated</p>

<p>Do you have children? Yes, 3 If Yes, how many? What is their age? 27, 23, 21</p>
<p>Do you work outside the home? No Yes</p> <p>If Yes, what kind of work do you do? Bike</p>
<p>What is your highest level or schooling?</p> <p>None High school Apprenticeship/job training College qualification/diploma <u>Masters</u> degree – Doctoral degree</p>

Appendix D Facebook Invitation to Online Questionnaire

The image is a screenshot of a Facebook post. At the top, the browser address bar shows 'facebook.com'. The post header indicates it is from 'Sobia Chaudhry - I am inviting you to co...'. The post itself is from Sobia Chaudhry, dated May 20 at 7:55 PM. The text of the post reads: 'I am inviting you to complete a questionnaire as part of my Postgraduate Dissertation: Understanding the barriers and facilitators of Muslim women cycling, in London. To be effective in planning for sustainable transport systems, the views of all groups in society need to be considered. This study explores why there is a lack of cycling amongst Muslim women, and aims to understand the barriers and facilitators of cycling for Muslim women, in London. I wish to hear from both cycling and non cycling Muslim women, and would appreciate 15-20 minutes of your time to complete this questionnaire. If you are happy to participate, please complete and submit this form by 15th June 2020. Please feel free to contact me if you have any questions about the study. Please click on the link below to begin. https://docs.google.com/forms/d/e/1FAIpQLSdWHq4DAcR143CU99_tV9v2yppfNa6wx5jR2ZjTd0-xAVSjWg/viewform?vc=0&c=0&w=1 Thank you for your time and wishing you all a blessed Ramadan, and Eid Mubarak to all. Many thanks, Please feel free to forward the invitation to your contacts.' Below the text is a preview of the Google Form titled 'Understanding the barriers and facilitators of Muslim women cycling, in London'. The preview shows the title, a brief description of the study, and the same invitation text as the post. The form is hosted on DOCS.GOOGLE.COM.

AA facebook.com

← Sobia Chaudhry - I am inviting you to co...

 **Sobia Chaudhry** May 20 at 7:55 PM · 🌐

I am inviting you to complete a questionnaire as part of my Postgraduate Dissertation:

Understanding the barriers and facilitators of Muslim women cycling, in London

To be effective in planning for sustainable transport systems, the views of all groups in society need to be considered. This study explores why there is a lack of cycling amongst Muslim women, and aims to understand the barriers and facilitators of cycling for Muslim women, in London.

I wish to hear from both cycling and non cycling Muslim women, and would appreciate 15-20 minutes of your time to complete this questionnaire. If you are happy to participate, please complete and submit this form by 15th June 2020. Please feel free to contact me if you have any questions about the study.

Please click on the link below to begin.
https://docs.google.com/forms/d/e/1FAIpQLSdWHq4DAcR143CU99_tV9v2yppfNa6wx5jR2ZjTd0-xAVSjWg/viewform?vc=0&c=0&w=1

Thank you for your time and wishing you all a blessed Ramadan, and Eid Mubarak to all.

Many thanks,
Please feel free to forward the invitation to your contacts.

Understanding the barriers and facilitators of Muslim women cycling, in London
DOCS.GOOGLE.COM
Understanding the barriers and facilitators of Muslim women cycling, in...
To be effective in planning for sustainable trans...

Appendix E: Online Questionnaire Example Response

Understanding the barriers and facilitators of Muslim women cycling, in London

To be effective in planning for sustainable transport systems, the views of all groups in society need to be considered. This study explores why there is a lack of cycling amongst Muslim women, and aims to understand the barriers and facilitators of cycling for Muslim women, in London.

I wish to hear from both cycling and non cycling Muslim women, and would appreciate 15-20 minutes of your time to complete this questionnaire. If you are happy to participate, please complete and submit this form by 15th June 2020. Please feel free to contact me if you have any questions about the study.

Please click on the 'Fill Out Form' box to begin.

Thank you for your time and wishing you all a blessed Ramadan, and Eid Mubarak to all.

Many thanks,

Sobia Chaudhry

Please feel free to forward this email to your contacts.

Ethnicity *

Asian Pakistani

If you have selected 'other' above, please specify

https://docs.google.com/forms/d/1_TaVpwTmRmq2GQmGUzPAPSsHM14c51GIYUuGf3X3_Sc/edit#response=ACYDBNigJadbTv1kx3MRje1ntAm...

Please confirm whether you are Muslim

Yes

No

What is your age group *

18-24

25-34

35-44

45-54

55-64

65-74

75 and over

What is your marital status?

Single

In a partnership but not married

Married

Separated

Divorced

Widowed

Do you have children? *

Yes (please indicate how many and their ages, below)

No

How many children do you have?

3

What are your children's ages?

14,9,1

What is the highest level of education that you have completed? *

HND

Do you ride a bike?

Yes

No

If you have selected 'yes' to cycling above, please answer the following 2 questions

How long have you been riding a bike?

Please indicate your main purpose for cycling (eg leisure, transport etc)

If you do not cycle, would you consider it? why or why not?

It does not appear decent or practical for a Muslim woman to cycle. I feel it appears provocative and may draw unnecessary attention from the opposite sex.

Hence, a Muslim woman must avoid cycling under all circumstances I believe.

Barriers and facilitators of Muslim Women cycling

What are your views on Muslim Women Cycling? please provide a reason for your answer *

They must be prevented from cycling as it is unappreciated by our culture.

Why do you think there is lack of cycling amongst Muslim women, in London?

No, it's a good thing there is a minimum of Muslim women cycling.

If you identify barriers to Muslim women cycling, please indicate what these are and how these can be overcome?

Their head covering and over garment which may be a hindrance to their cycling.

How can cycling for Muslim women be facilitated? *

It must not be facilitated.

Do you think group cycle rides are an effective way to get more Muslim women cycling? why or why not? *

No, this must not proceed.

Do you think that current infrastructure for example roads, parks, dedicated bike lanes etc, encourage or discourage Muslim women to cycle? please provide reasons for your answer

They should continue to discourage Muslim women to cycle.

Please use the following space to include any other comments that you wish to make about Muslim women cycling in London

They must be banned ideally, unless in a women only area.

If you wish to be kept informed about this study, please select the box below and provide your email and/or contact number where prompted

yes I wish to be kept informed about this and related studies

Please provide your contact details below (optional if you do not wish to be contacted)



Thank you for your participation, all personal information will be treated in accordance with latest UK General Data Protection Regulations. Direct comments used in the study will be presented anonymously or against a pseudo name.

Appendix F: Transcribed Interview Examples

Example Interview 1 removed on the request of the interviewee (8th Oct 2020)

Example Interview 2:

This is an example of a transcribed interview with Fiza a member of the cycling group, who is in the age range 45-54 years, Muslim of Indian heritage and cycles, she has attained a College level Diploma.

Interview dated 30th May 2020, commenced 2pm and concluded 2:30pm

The interview commenced with thanking the participant for agreeing to partake in this study, acknowledged her consent form and the researcher checked that the participant has read through the interview information sheet. The researcher takes the participant through the format of the interview and states that a short survey will be conducted at the end of the session, which captures her demographic information.

Once the above was affirmed, the main interview took place as follows:

Sobia: What are your views on Muslim women cycling?

Fiza: I don't understand why it is even a topic 'Muslim women cycling' I mean we don't have 'Muslim women and walking' conversations, it sounds ridiculous because Muslim women should cycle normally anyway.

Sobia: Do you normally see a Muslim woman cycling around London?

Fiza: Obviously, it is an issue, and this is why we do need to talk about it, it's our cultural stopping us and no it's not normal to see Muslim women cycling.

Sobia: Do you cycle yourself?

Fiza: Well when I was a little girl, my brother got given a bike and I wasn't allowed one because 'girls don't ride bikes do they?' and 'it wasn't something that good Muslim girls do' are ridiculous things I was told.

Sobia: Who told you that you are not allowed to cycle?

Fiza: I wasn't directly told but it was an understanding we had in the home and in the community.

I would overhear conversations between aunty figures that we have to protect our daughters and it is not an appropriate way to sit, it's talking about virginity same as with a horse, you sit sideways and not straddle across. I am certain it relates to that old silly idea that horse riding breaks the hymen which we know is ridiculous to think.

Also, what will people say seeing such and such's daughter out there sitting inappropriately roaming on the streets freely, this would be perceived as not having control over your daughter and the gossiping would start. Gossip is the ultimate shame for a lot of Muslim

parents. There is a control element of 'we can mould the girl from a young age, tell her what's right and wrong'.

Sobia: Is it wrong for a parent to tell their child what is right and wrong, is that expected of every parent?

Fiza: Yes of course, but parents should not project their own wrong ideas on to their children, like cycling or I wasn't allowed to go out and walk by myself because it is shameful.

I didn't realise I was a rebel from a young age and for me to be told I am not allowed to cycle meant that my sole aim in life was to learn to ride a bike.

Sobia: How did you learn to cycle?

Fiza: So, in the middle of the night I would steal my brothers' bike and sneak out the back door leading on to an alleyway just behind the house which was on a slope. It was actually perfect to learn to ride and learn to balance, so I taught myself how to ride a bike, I did fall and hurt myself and have proud scars on my elbows from it.

Sobia: Did you ever ask your parents if you could cycle in the garden or in the alley you discovered was perfect for learning?

Fiza: No, I was eight years old and far too scared to vocalise anything that I knew was unacceptable in my parent's eyes, like cycling. Their issue was always about what the community was going to say, and that community was just too close knit. I think it must have been about control for them. I guess for some families it must be about the girl turning into a woman and concerns about her respect and honour become most important.

Sobia: Would it be fair to say that womanhood is a defining moment for some Muslim families to worry about their daughter respect and honour, or does this happen at a much earlier stage of a girl's life?

Fiza: It depends on each family I guess, but my parents wouldn't want to open that door to me not even at eight or even younger, if they let me at that age then it would be impossible for them to stop me later, I guess that was their thinking.

Sobia: Were your family religious when you were younger?

Fiza: It's funny you ask because exactly before I reached puberty, my father started to become more religious and as he just turned forty I think it was a defining age for him, with that came a new set of rules for our home.

Sobia: What aspects of religion do you think your father was referring to with regards to cycling not being for girls?

Fiza: It was interpretations of religion that got mixed up with dads' culture. I think he might have been thinking along the lines of girls should be seen and not heard or not even be seen and, in his mind,, it probably boiled down to modesty which has its routes set in Islam. I wish to add here that Islam does not suggest sports or a woman going out is immodest in any way, so here is an example of how culture has blamed Islam and given it a bad name.

Sobia: Did you have to dress differently once you entered puberty?

Fiza: definitely, even until this day I am expected to have a cloth covering my chest and dress modestly, it is something ingrained in me now. Even in front of my father and brother out of respect for them. I hate it to this day as we are not required to be covered like this in front of our fathers and brothers but that old culture thing again.

Sobia: Do you wear Islamic modest clothing including the headscarf when you are out cycling?

Fiza: Yes, I do wear a head scarf, but the rest of my attire is western. If I lived close to my parents, I probably would not have cycled no matter what I wore.

Sobia: Would it be fair to say that no matter what a woman wears, some communities simply would not accept females cycling?

Fiza: As second generation British, we are expected to have one foot in the country of our parent's birth and the other in British culture that we have been raised in, it is unfair really when it comes to cycling. That generation desperately try to hold on to their culture which is great, but they do not consider what we are going through and the conflicts that we face.

Sobia: Is Islam a barrier to cycling for Muslim women?

Fiza: definitely not because Islam is holistic and accommodating and of course diverse. It is misinformation and lack of education in our community about this, also I think Muslim women need to be seen to be doing things that are deemed taboo in certain cultures as a form of education for those who desperately get it wrong.

Sobia: Do you think where earlier generations settled in London, makes a difference to their view on cycling?

Fiza: definitely, I often speak about ghetto's and what I mean is the packs of people living together in one small home when our parents first came here. Maybe it was about affordability and they were only able to be in deprived parts of London at that time living in one close community, so what their community thought really mattered.

On the other hand, more educated people or business families may have been able to afford to live in more affluent areas as their families grew, which meant they could live more independently from judgemental communities. It is all about bettering their lives for our parents and I think they didn't want the tarnishing of their izzat (respect) to become a barrier to their own progression so cycling meant nothing to them.

Sobia: What does cycle mean to you?

Fiza: for me it's being able to move around freely, as in most of my younger years I wasn't allowed that freedom. Let's face it as well, many non-hijabs wearing Muslim women may not want to ride with majority hijab and niqab wearing women as they may fear they won't fit in. Other women appearing more religious can be intimidating for non-Muslims and non-hijab wearing women.

Sobia: Is there something inherently common amongst Muslim women that has nothing to do with their clothing?

Fiza: Yes, language, not wanting to go to pubs, wanting to stop off to eat halal food, these are things we have in common and other people may not understand how serious these things are for us.

Sobia: Would cycling in a group encourage women in your community to learn or ride more? riding?

Fiza: I think a Muslim cycling group is a good starting point and pigeon steps need to be taken, but eventually these cycle rides need to promote inclusivity the other way round where non-Muslims come along and one week go to the pub but the following week do something else where

I am more comfortable as a Muslim woman, so no one feels left out. This way older Muslim women may consider exercising and trying out the bike.

Sobia: Do you think older generations are changing their mindsets about exercise and cycling?

Fiza: yes, they are, mum started gentle physical exercise in a local group once she realised that her arthritis was improving along with her friends and there are small shifts

Sobia: That is lovely to hear, what does your mum wear to these classes?

Fiza: Her Shalwar Kameez (traditional Pakistani costume), you would not get her to wear anything else to be honest.

Sobia: What do you wear when you cycle?

Fiza: I wear a hijab, not a helmet because I do not go on longer rides, I am plagued by the age old cover the bottom ethos, which is part of that overall modesty thing. We all know that the female form is abused worldwide, and I think covering the bottom for me is a given. Even to sell a bike, all you must do is drape a woman over it and its sold, it's an upsetting objectification of women which Islam protects a woman from.

Sobia: Do you think cycling infrastructure is adequate and encourages women to cycle?

Fiza: The superhighways, roads and cycle paths are adequate enough for confident cyclists, but more quiet ways would encourage those women who don't cycle to perhaps cycle safely and confidently without the fear that they will be seen, to start off with.

We also need bikes to be cheaper and more accessible. It is the mindset needs changing more than infrastructure, I think.

***Participant apologises at this point and mentions that she has to go in 5 minutes

Sobia: We have covered many points and I have no further questions, unless you wish to add anything else about Muslim women cycling.

Fiza: No, I think we have had a great conversation and mentioned a lot, I hope it has been helpful

Sobia: Yes, speaking to you has really given me an insight into the issues Muslim face with cycling, thanks you. I would now like to capture some demographic information about you, is that is ok

Fiza: sure

The demographic survey sampled in Appendix C is completed, and the interview concludes.