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Chapter

**WOMEN'S PARTICIPATION IN LEISURE
CYCLING. A SCOTTISH PERSPECTIVE.**

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ABSTRACT

This paper aims to investigate overriding factors that prevent female participation in leisure cycling. There has been little written about the influence of individual attitudes and perceptions of bicycle use and even less has been written about female attitudes (Sener, Eluru and Bhat 2009). There is a general gap in research in terms of cycle tourism (for exceptions see Sheng 2015; Zovko 2013; Lumsdon 2000; Beanland 2013; Faulks, Richie and Dodd 2008; Heesch, Sahlqvist and Garrard 2012). However, there is even less research that looks at issues related to female constraints in leisure cycling. Shaw (1994) recognized the need to “remove constraints and to encourage increased opportunities for participation,” in terms of

LTPA (Shaw 1994 pp12). This research combines literature on LTPA gender constraints, cycle tourism and cycling in general to contribute to the limited existing knowledge concerning female cycling constraints. Moreover, in contrast to other papers it considers personal attitudes, as well as objective constraints that previous research has been lacking (Raymore 2002). This paper intends to expose constraints in leisure cycling to better prepare governments and organizations to serve the female market that has a desire to cycle for leisure.

Keywords: Leisure cycling; women's participation; constraints; Scotland.

1. INTRODUCTION

1.1. Current Cycling Market

Cycle tourism is a popular leisure time physical activity (LTPA) and is a growing niche market, with cycling breaks growing by 10-15% in the UK (Mintel 2015). A huge increase has been noted in the utilization of the National Cycle Network (NCN) that joins bike paths throughout the UK. Sustrans is a UK charity that works to get fewer people driving and more people walking and cycling. They recorded a 170% increase in the usage of the NCN between 2003 and 2010 (Zovko 2013). Growth in cycling has been driven by the National Cycle Network (NCN) (Beanland 2013; Zovko 2013; Sustrans Scotland 2014), the Olympic games (Grous 2011) and cycling groups that provide social support (Fullagar and Pavlidis 2012).

Cycling takes many forms from competitive cycling to utility cycling and leisure cycling. Leisure cycling has been interpreted as both cycle tourism (Lumsdon 1996) and recreational cycling (Ritchie 1998). The economic value of this niche market in Europe is approximately 44 Billion Euros per annum (Adventure Cycling Association, 2012). Most of this is generated within countries where cycling is more popular than the UK such as Germany and the Netherlands (Beanlands 2013). British interest in cycle tourism is small in comparison with just 7% of adults taking up leisure cycling in the UK (Mintel 2015). However, this is not to say the industry is not contributing significantly to the British economy. Scotland alone generates between £106 – £108 million in direct expenditure every year (Zovko 2013). Indeed, cycling is the 4th most

popular recreational activity in the UK (Fullagar 2012) and 45% of the utilization of the National Cycle Network is for leisure purposes (Sustrans 2012).

1.2. Gender Constraints

There is an existing gender gap in participation in cycling in the UK, both in terms of utility (for commuting or transport use) and for leisure, recreation and physical activity (Heesch 2012; Mintel 2015; Sheng 2015; Dalton 2010). However, most of the research on gender imbalance is heavily concentrated on the limits that females face in utility cycling and often disregards leisure cycling barriers (Privitera 2013; Pucher, Buehler and Seinen 2011; Gatersleben and Haddad 2010; Pojani et al. 2017). These barriers appear to be particularly prominent in the UK, Australasia and North America with females typically cycling more in the Netherlands, Germany, Denmark and Switzerland (Gómez et al. 2005; Heesch 2012). There are also good levels of research into the subject area of gender and leisure as well as the constraints females face in society in terms of their approach to leisure activities. It suggests that in high school, physical activity is not only gendered but is also primarily aimed at males, creating a culture of apathy amongst females (Allender, Cowburn and Foster 2006; Flintoff and Scraton 2001; Flintoff 2008). Moreover, it is evident that females prefer to participate in female only sports and are deterred from activities that include male participants (Lloyd and Little 2010). Cycling is not known to be gender specific and it remains unclear why females in some countries participate less in the activity even though it can be pursued without males.

1.3. Benefits of Leisure Cycling and Female Participation

The invention of the modern bicycle contributed to the emancipation of females and the design where wheels are of equal size was created to cater for female dress (Dando 2007). The bicycle gave females liberty and a new found

freedom to travel greater distances. The bicycle has gained in popularity, with bicycle output quadrupling internationally since the 1970's (Fullagar 2012). This popularity could be in part due to people's desire to use motorized vehicles less due to cost saving and environmental concerns (Lumsdon, L., 2000, Privitera, 2013, Sener, Eluru and Bhat 2009). Dalton (2010) discusses women's willingness to adapt behavior as a means of protecting the environment, suggesting openness to change in the right circumstances. Social benefits of cycle tourism have also been recognized (Faulks, Ritchie and Dodd 2008; Fullagar, and Pavlidis 2012). In fact, it was found that women perceived environmental and social factors as key motivators in their desire to participate in cycling (Heesch, Sahlqvist and Garrard 2012). With these factors, along with the economic benefits cycling can bring a nation (Grous 2011), it seems worthwhile to try and understand societal and personal factors that lead to constraints in female involvement, despite clear desire to participate. Evidence also suggests that in places where female cycling is more prominent and the gender gap is considerably smaller, overall cycling participation and frequency is higher (Emond, Tang and Handy 2009).

2. LITERATURE REVIEW

2.1. Leisure Cycling Gender-Gap

Literature contains multiple definitions of "leisure cycling." This paper adopts the definition from Faulks, Ritchie and Dodd (2008) who recognize leisure cycling and recreational cycling as interchangeable including day trips close to and away from the home as well as long distance and overnight trips on bicycles. This definition has been adopted because day trips are the most common type of leisure cycling, which makes it the most obvious choice from a research perspective (Zovko 2013). Females are generally less likely to partake in leisure and tourism cycling than males in countries such as the UK, Canada, the USA and Australia (Fullagar and Pavlidis 2012; Heesch, Sahlqvist and Garrard 2012; Putter, Buehler and Seinen 2011). Both Faulks Ritchie and Dodd (2008) and Heesch, Sahlqvist and Garrard's (2012) papers used

quantitative data to generate information on cyclists. The fact that their feedback was primarily from men (over two thirds in both) highlights the underrepresentation of women in leisure cycling. However, it should be noted that both research papers were carried out in Australia but, it is clear the UK is also subject to under representation of women. Women are 50% less likely than men to exhibit interest in cycling holidays (Mintel 2015). In countries such as the Netherlands, Germany and Denmark, where the leisure cycle industry is much larger (Beanland 2013) the proportion of females that cycle for leisure is similar to that of males (Heesch, Sahlqvist and Garrard 2012). Although the UK is falling behind in female participation in comparison to its European neighbors, it is advancing in that the gender gap is slowly decreasing (figure 1) and it's cycling culture is greater than in some other developing countries. Gómez (2000) discusses the cycling culture in Lima Peru. In Peru woman's usage of a bicycle is referred to as exceptional due to its rarity. Gómez et al. (2005) also discusses the gender gap in cycling in Bogotá, Columbia suggesting that females cycle less than males. Although cycling in western societies such as the UK is increasing with a 6% rise from 2013 to 2015 (Mintel 2016) a gender gap is undeniable.

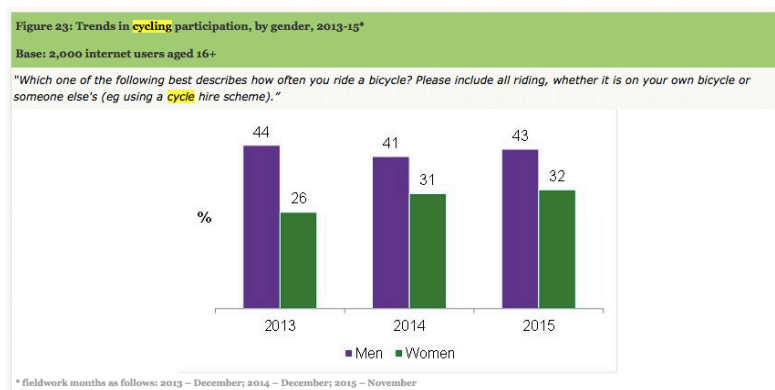


Figure 1. (Mintel 2016).

2.2. Implications of Cycling for Females

It is estimated that cycling saves the Scottish NHS £4 million a year (Zovko 2013) and saves the British economy £128m (Grous 2011) per year. Conversely however, one should also consider the health risks of cycling. A review by Hartog et al. (2010) found that because cyclists are doing exercise they inhale a higher volume of air than drivers. Consequently, cycling could have a detrimental effect on participants' health, although this could be more constraining to the utility cyclist than the leisure cyclist. The literature does not specify that leisure cycling is city bound, and Christmas et al. (2010) found leisure cycling to be more prominent on types of terrain uncommon for utility cyclists such as: forest's, parks, bike tracks rail trails and beaches. Therefore, one cannot simply rule out the detrimental effects air pollution may have on cyclists however, it should be considered a larger threat to utility cyclists than to leisure cyclists.

According to the World Health Organization (WHO) obesity is one of the top-ten health risks people face today (World Health Organization 2000). Only 25% of British females are meeting the recommended benchmark of physical activity compared with 44% of men (British Heart Foundation 2015). LTPA can be seen as difficult, however walking and cycling are recognized as activities that can help women meet the recommended amount of aerobic exercise (Hartog et al. 2010). This is due to the availability and access (Pucher et al. 2010) of cycling as well as the cyclist's primary motivation of enjoyment (Pojani et al. 2017). If more females took up leisure cycling, they could reap the benefits which would both empower them and allow them to enjoy the great outdoors (Henderson 2013).

2.3. Implications of Leisure Cycling in the Tourism Industry

Cycling tourism has the potential to contribute to both the tourism industry and overall GDP of a nation (Beanland 2013; Zovko 2013; Privitera 2013.) Moreover, leisure cyclists spend 9% more than utility cyclists (Rajè and Saffrey 2016) and 20% more than tourists traveling in a vehicle (Belter, Harten and

Sorof 2012). Although the cycle market does bring considerable revenue to the UK, cycling levels are still relatively low, making up 2% of overall transport (Department of Transport 2014). Moreover, it is noted that by increasing female participation, cycling overall would grow due to the creation of a cycling culture (Emond, Tang and Handy 2009). This is the case in the Netherlands, where the economic benefit is so high due to the culture being so strong amongst females, who make up a larger population of cyclists than males (Heesch, Sahlqvist and Garrard 2012). From a tourism perspective touring cyclists, cycling event participants and spectators are important (Faulks, Richie and Dodd 2008). However, indirect expenditure is also important with the purchases of food as well as spending associated with visiting other tourism destinations (Beanland 2013). Cycle tourism is also important for its ability to strengthen rural areas that struggle economically (Belter, Harten and Sorof 2012). A final observation is the potential for the growth of leisure cycling to be used as a tool to encourage more overall cycling in the UK. Christmas et al. (2010) discuss commuter cyclist's tendencies leading to increased participation in leisure cycling. In transforming non-leisure cyclists into leisure cyclists, the overall cycling industry could see growth in utility cyclists due to the confidence people can gain from leisure cycling.

2.4. Constraint Theory

Little has been done in regards to female leisure cycling constraints. Much of the current literature concentrates heavily on the gender gap in LTPA, but seldom considers cycling as a specific activity (Shaw 1994; Henderson and Gibson 2003; Lloyd and Little 2010; Buckworth et al. 2007; Flintoff 2008 and Allender, Cowburn and Foster 2006). However, the theories used throughout the literature can be applied to constraints in leisure cycling. A recurring theory that is common in gender and leisure is Constraint Theory. Researchers approach constraints in different ways according to leisure activities. These can vary from systematic groupings of constraints, for example Reid (1998) grouped constraints according to economic system delivery and psychological constraints.

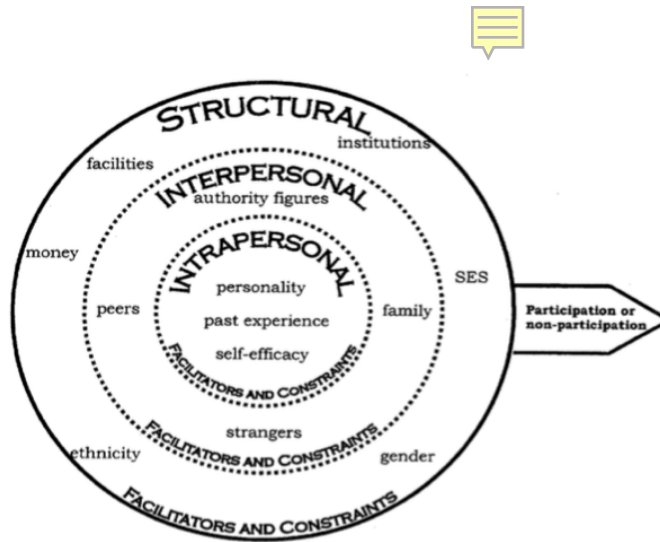


Figure 2. Raymore (2002). An ecological approach to understanding influences on participation.

Others have approached the discussion without grouping constraints to get an overall understanding of general barriers (Jackson 1993). Shaw (1994) views females as disadvantaged in leisure due to oppression in society. She classifies constraints into objective and subjective constraints. Jackson (1993) realized the validity in placing constraints into groups and classifications and came to oppose generalizations of single item barriers. However, it is noted the difficulty in factoring constraints into specific groups due to the extensive forms of barriers that exist in leisure participation (Jackson 1993; Henderson 1997). Raymore's 2002 theory looks at the intrapersonal, interpersonal and structural factors that can lead to participation or non-participation in leisure structures (Figure 2). Raymore (2002) created the model because he believed that the most common constraints theory (Jackson 1993) was heavily based on individual constraints. Henderson and Bialescheki (2005) suggest that Raymore's theory is forward thinking and allows for a better understanding of what disables participation. Schipperijn et al. (2010) chose Raymore's theory because of its socio-ecological approach in understanding human behavior. This paper adopts Raymore's (2002) approach to constraints considering structural, interpersonal and intrapersonal constraints. It should be noted that some constraints could be

placed in multiple categories therefore this paper aims to put constraints into the most applicable category.

2.5. Structural Constraints

2.5.1. Infrastructure, Safety and Marketing Initiatives

Much of the literature focuses on the empirical evidence that concerns about safety discourage women from cycling. Faulks, Ritchie and Dodd (2008) use motivational theories including Danns (1977) 'push' and 'pull' factors and Maslow's (1943) hierarchy of needs. In using these models along with in-depth interviews, the authors conclude that women consider safety as the most important condition for enabling participation in leisure cycling. It should be noted the research was conducted in New Zealand, where although cycle patterns are similar (Sheng 2015) attitude and facilities may differ. Fullagar and Palvidis's (2012) paper makes apparent women's desire to feel safe when pursuing physical challenges. It is noted that men are more likely to cycle for the purpose of transport (Heesch, Sahlqvist and Garrard 2012) and that women are more inclined to partake in cycling for recreational purposes (Mintel 2015). Sener, Eluru, and Bhat (2009) found that this was due to commuter cyclist's likelihood to cycle during peak traffic times, which poses a bigger threat and plays into the safety consideration for women. One of the most recent attempts to improve safety in the UK is the National Cycle Network (NCN), which aims to promote safer cycling and increase numbers. Although there has been a 7% increase in cyclists (between 2012 and 2013) (Sustrans 2014) it is evident that the gender gap still exists with just a quarter of NCN users being female (Sustrans 2012).

Heesch, Sahlqvist and Garrard (2012) found safety to be a major barrier for both genders however, they considered it more problematic for females. Garrard, Rose and Lo (2008) ethnographic study found females were less inclined to cycle without complete separation paths and that males were more willing to cycle amongst vehicles, suggested that the cause of this may be due to the fact that women are more risk averse than men (Byrnes, Miller and Schafer 1999). Steep hills are also considered an issue for females (Sener, Eluru

and Bhat 2009) which could suggest why female participation is higher in places like the Netherlands where the land is flatter. The anticipation of encountering steep hills along with women's concerns about their own fitness levels (Heesch, Sahlqvist and Garrard 2012) could be affecting their confidence to cycle.

Beanland (2013) and Dalton (2010) recognize the need for stronger marketing towards females. Cycling has often been criticized as being gender biased. An example of this problem is the national infrastructure design guides cover showcasing a young male cycling on a main road with traffic in the background (Aldred, Woodcock, Goodman 2016). This could be both intimidating and off-putting for female cyclists. Shaw (1994) considered television marketing's role in stereotyping males and females into societal roles, the males being more powerful, and women having an idealized thin body type without muscles.

2.5.2. Time and Money

Time is a factor that is often mentioned as the reason that females do not cycle (Fullagar and Pavlidis 2012; Shaw 1994 Sener, Eluru, and Bhat 2009; Gomez et al. 2005). Women who do participate in recreational cycling are primarily in part-time employment and not living with children (Heesch, Sahlqvist and Garrard 2012). However, time is an accepted constraint for both genders, with a 2009 study stating that 40% of adults who did not participate in sport blamed the absence of time (Seddon 2011). Shaw (1994) suggested women's lack of economic power made them less capable of affording their preferred leisure activities. Dalton (2010), Gomez (2000) and Zovko (2013) also consider the price of cycling as constraining. Zovko (2013) in considering cycling events observed that funding of highly competitive cycling events was such that a female demographic would find it harder to afford. It is noted that the females that do participate in leisure cycling tend to be middle class (Heesch, Sahlqvist and Garrard 2012; Shaw 1994; Crone-Grant and Smith 2001). Interestingly though Pojani et al. (2017) noted that in Albania and Kosovo women who cycled were often stereotyped as being poor.

2.6. Interpersonal Constraints

2.6.1. Gender Roles

Both Shaw (1994) and Lloyd and Little (2011) discuss female's ethic of care in their papers concerning gender and leisure. They found that the females desire to take care of loved ones overrides their own personal needs and desires, thus neglecting their own leisure activity requirements. Although it is questionable if females' ethic of care is applicable in terms of cycling constraints. Faulks Ritchie Dodd (2008, 23) paper commends leisure cycling as a way in which "cyclists [can] spend time with family, friends, and other like-minded people," in turn allowing for females to enjoy time with and care for their loved ones. However, the overriding theme here of 'gender roles' does not just relate to the female desire to care for others. Being a housewife has been recognized as a reason to refrain from leisure cycling (Gomez et al. 2005). This can be due to time constraints or the fact that married women should not be "exposed to the eyes of other men" (Poiani et al. 2017 pg 41). More commonly female's responsibility for their children poses as a barrier to cycling (Poiani et al. 2017; Aldred, Woodcock and Goodman 2016). Females' need for social interaction in their leisure time, and males' competitive nature in leisure and sport participation are both considered as gender roles (Allender, Cowburn and Foster 2006; Fullagar and Pavlidis 2012). This suggests females may be deterred from cycling because of possible intimidation by machismo competitiveness and the lack of social interaction due to the individuality of the sport.

2.6.2. Culture and Trends

The UK is considered to have a low cycling culture with Britons making only 2% of their trips by bike (Department of Transport 2014). The Netherlands, Germany and Denmark are all considered to have stronger cycling cultures with ten times more participation than in the UK (Pucher and Buehler 2008). Female participation in these countries tends to be higher than or equivalent to that of males (Heesch, Sahlqvist and Garrard 2012). Gomez (2000) discusses gender in different cultures and the social expectations that are placed on females. The paper discussed the lack of "culture favorable to the use of bicycles as a means

of transport, especially by women.” (Gomez 2000, 45). The acronym MAMIL (middle aged men in lycra) was introduced in a 2012 Mintel report on the bicycle retail market (Mintel 2012). The report discusses the rising popularity of cycling for men. The weak cycling culture and prevalence of males over females, highlights a gendered culture in the UK. Females have been reported as having more interest in a LTPA in a female only environment (Lloyd and Little 2011; Flintoff and Scraton 2009; Fullagar and Pavlidis 2012), suggesting the MAMIL culture may function as a barrier. Policy makers have stressed the need for not building for the stereotypical MAMIL (Greater London Authority 2013) and to create an unsegregated cycling culture (Aldred, Woodcock and Goodman 2016).

2.7. Intrapersonal Constraints

2.7.1. Appearance

Leisure activities have been identified as a means of challenging gender constraints like body image and appearance (Fullagar and Pavlidis 2012; Henderson 2003). Although literature suggests that many females still feel that their perception of appearance discourages participation (Wolf 1991). High school appeared to be the age that most gave up cycling (Dill and McNeil 2012), because it is a time that females begin to care more about their appearance. A study done by Allender, Cowburn and Foster (2006) on high school PE participation found that girls considered body image and appearance a reason for their negative attitude towards LTPA. The girls felt that being active could cause sweat and have people view them as unattractive and unfeminine. Additionally, the paper also found that “Concerns about body shape and weight management were the main reasons for the participation of young girls.” (Allender, Cowburn and Foster 2006, 830). Dalton (2010) argued that cycling specifically, over other LTPAs, engenders concerns about appearance. In common with this view Gomez (2000), who found that females were unable to wear attire such as skirts and heels when cycling which would affect their desire to cycle. It seems cycling for some is a means of being fit and empowered but

conversely others may feel 'unfeminine' in the pursuit of the LTPA (Shaw 1994).

3. METHODOLOGY

3.1. Research Approach

The philosophy adopted in this research was interpretivism. Orlikowski and Baroudi (1991) describe the aim of interpretivism as seeking to understand how social groups, through participation in social process, create realities and give them meaning, in turn revealing how these meanings help shape their social actions. An inductive approach with phenomenology theory was adopted due to its ability to contribute to a deeper understanding through experiences (Starks and Trinidad 2007). The research outcome does not claim to constitute a theory, but rather to gain 'empirical generalizations' relating to the nature of the research being qualitative with outcomes seldom being hard facts (Bryman and Bell 2013). The research has no pre-assumed hypothesis and endeavors to expand a theory based on a pre-existent body of knowledge.

3.2. Research Strategy

A mono-method qualitative strategy is the most appropriate owing to its inductive view of the relationship between theory and knowledge (Bryman and Bell 2013). Qualitative interviews were adopted because of their capacity for better understanding of human behavior and because qualitative data has been commended and utilized frequently within the realms of feminist research. Bryman and Bell (2003) advocate this citing its "non-hierarchical relationship" and the fact that it realizes the "perspective of the woman that is being interviewed" (Bryman and Bell pp 503). Feminist research focuses on issues that females face, however the researcher must remain cautious and not create strong relationships with the female participants because this may increase the likelihood of bias (Bryman and Bell 2015). This was the case in Trethewey's (1999) research in which she became friends with the participants. Although it

breaks down boundaries making relationships more equal, it is likely to affect the outcome of the research. Qualitative research has also been widely used in leisure and tourism research. Scott and Godbey's (1990) paper discuss its ability to reveal leisure behavior as a formative process allowing it to unveil leisure involvement over time in this ever-changing world, coinciding with the objectives of this research. Often qualitative interviews are critiqued because of difficulties in replicating the research and they can be prone to bias due to the small-scale samples however, it does provide deeper meaning (Lloyd and Little 2010). Qualitative research is the preferred approach and is widely used in studies concerning both gender and leisure studies (Christmas, et al. 2010; Fullagar and Pavlidis 2012; Faulks, Ritchie and Dodd 2008; Henderson and Gibson 2013; Lloyd and Little 2010).

The semi-structured interview has been selected because of its interest in the participant's point of view and its capacity to produce richer data. (Bryman and Bell 2003). The primary questions were generally restricted to an inductive format and then focused on the themes identified from the literature. In Henderson and Gibson's (2013) review of women and leisure research they found that semi-structured and in-depth interviews were the primary methods being used in 38% of the research papers that they analyzed. This method was preferred over focus groups, which can suffer from a dominating participant, or from the fact that individual's opinions may be altered due to social pressure (Smithson 2000). In using individual semi-structured interviews opinions and views will rely solely on the female as an individual.

3.3. Pilot Study

A pilot study was carried out in order to strengthen the research. Pilot studies are commonly conducted as a means of testing research questions in order to detect weakness in design and instrumentation (Cooper and Schindler 2003). However, the pilot study has also been recognized as a tool to extract information from an expert in a field of interest of who can subsequently provide informed feedback on the subject of interest (Collis and Hussey 2014). This research used a pilot study for the latter reason as a means of gaining

further information on problems of female cycling participation. An interview was conducted using an adaptation of the questionnaire to identify the recurring constraints that women face. One pilot study was carried out with a volunteer from Women's Cycling Forum, an online platform for females who wish to cycle. The participant had a breadth of knowledge of overriding and common issues that women face in their ability and desire to cycle. The interview proved useful in better forming the questions to pinpoint varying reasons why females do not cycle as well as supporting collected secondary data.

3.4. Sampling

Judgment sampling, a type of purposive sampling, was used because the research aims to reveal female constraints. Judgment sampling is used to conform to some criterion (Cooper and Schindler 2003), in this case, active females who don't cycle. The paper looks to specifically identify constraints in cycling, therefore it will only interview females that pursue other LTPA. Purposive sampling is often regarded as preferable in phenomenologist studies (Starks and Trinidad 2007). Judgement sampling was carried out by approaching women in leisure centers, which enhances the chances of the participants being currently active, although they were also asked what LTPA they participated in to ensure high activity levels.

Geography was also adopted as a type of purposive sampling. Henninik, Hutler and Bailey (2011) discuss sampling in terms of a rural and urban sample. This technique was also adopted for this paper in order to get a wider spectrum of views. Seven interviews were conducted in Aberdeen, a coastal Scottish city. The following seven interviews were conducted in Comrie, a village in the center of Scotland. An equal number of participants is deemed important in each geographical location to reduce bias and reveal more equal results (Cooper and Schindler 2003). A total of 14 interviews were carried out over periods between 8 and 20 minutes. This was due to the time constraints faced in women being approached during their leisure time. The locations differ in size which allows for more varied feedback although the feedback does not aim to be representative of a nation, simply to identify deeper understanding into overall

female constraints in leisure cycling. It is important to state here that the study only claims to represent the versions of the females 'stories' and that it is not claiming any empirical truth. Although the sample size is small other research into leisure studies have used a similar sample size (Loyed and Little 2010) and Starks and Trinidad (2007) recognized small numbers as being more useful in phenomenology in unraveling deeper experiences of people. No incentives were provided for participation. The questions were open-ended and created based on the recurring themes of constraints through the literature and through the pilot study.

4. ANALYSIS AND DISCUSSION

All of the women interviewed were Caucasian and didn't disclose their sexual orientation. Participants ranged in age from 17 to 60, however most were under the age of 30. All the participants had cycled at an earlier stage in their life but they were currently not participating in cycling in everyday life or as a leisure activity. Although the research took place in two separate Scottish locations females were living in several different locations around Scotland ranging from major cities (Aberdeen, Edinburgh, Dundee) to rural communities (Comrie, Crieff, Bernary, Ellon). It is important to note that although there are similarities shared between women (because of their gender), this paper does not consider the term 'women' as homogenous and opinions do range. There were seven main themes that were identified throughout the research that coincide with the constraint theory, two of which are structural, four are interpersonal and one intrapersonal constraint (Figure 3). For confidentiality purposes each participant has been identified as P* (Participant Number). According to the Scottish Government (2013) evidence suggests the main problem facing females is the issue of safety, which was indeed an unequivocal theme however, other themes strongly emerged including issues of gender expectations.

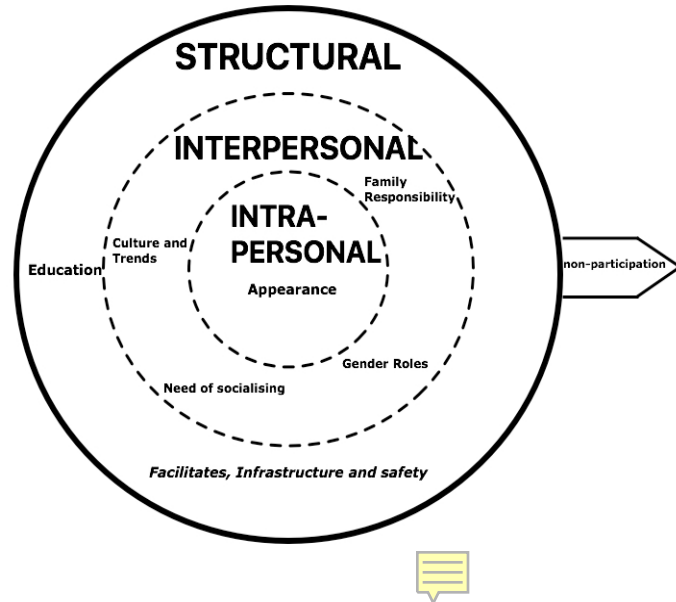


Figure 3. Facilitators for non-participation in leisure cycling.

4.1. Structural Constraints

4.1.1. Facilities, Infrastructure and Safety

The issue of safety was important to a most of participants, with many noting this as the “most important” (P10) constraint. This agrees with Garrard, Rose and Lo’s (2008) paper which found that females were particularly sensitive to perceived traffic danger. It seems that most participants also agreed with Garrard (2003) in that cycling would be unacceptable until there are completely separate roads that are only accessed by bicycles and are not shared with parking spaces or buses. P2 stated that: “If there was more cycle lanes or cycle paths where there’s no traffic, I would probably feel a lot more comfortable.” P4 made direct references to the intimidation of sharing lanes with buses: “There are a lot of lanes but again it’s the bus and cyclist lanes and they don’t go together, especially in a city which is very bus dominated. I wouldn’t feel comfortable being in the bus lane.” This highlights why female cycling levels are so high in countries such as the Netherlands, Germany and

the Denmark which have many more kilometers of bike paths than the UK (Pucher and Buehler 2008). Moreover, participant's concerns are justified because insufficient separate cycle lanes do cause cycling fatalities. In fact, although cycling levels are much lower in countries such as the UK and USA, fatalities are much higher (Pucher and Buehler 2008). Furthermore, in 2015 between the months of January and July in London six of nine bicycle fatalities were female even though they make up just 26% of London cyclists (Transport for London 2016).

The National Cycle Network have worked to create accessible and safe roads with either no, or minimal traffic across the UK for cyclists (Sustrans 2015), it seems that they still have a long way to go in order to persuade females to join their 'quiet roads.' P9 accused the national cycle network as being misleading:

“Well to tell you the truth I have some reservations about the route through the Western Isles because it's the main thoroughfare of the local people and I think cyclists might get a shock when they come” she then goes onto say that “I think I could be quite stressed if I was cycling by myself if the roads were busy.” In order to increase the female usage of the NCN from one quarter (Sustrans 2012) it seems that a bigger effort must be made to make the paths traffic free. Moreover, only 3 participants were actually aware of the NCN.

Some of the participants living in the city stated that they were “nervous to cycle in the city” (P12) because traffic is “just crazy” (P4). Interestingly five out of the seven participants interviewed in Aberdeen discussed how “Cycling in the countryside, [is] good” (P4) and that they would be more likely to cycle in rural areas and “sleepy villages” (P3). However, some of those who resided in rural areas had the same concerns about “busy roads.” P10 discussed how dangerous rural roads can be:

“It's not very safe for bikes on small rural roads with lots of bends and traffic. People who maybe don't know the road with traffic travelling too fast, there have been accidents, there have been deaths on roads I have travelled on.”

It seems many of the participants had a 'grass is greener on the other side' perception of cycling and that in fact, even in considering different locations females are deterred away from roads. The research agrees with Sheng (2015) who discussed women's consideration of safety being of the utmost importance and that males are more motivated by action and adventure in their leisure time and do not share such safety concerns.

Other facilities as well as road infrastructure were noted as being insufficient. Three participants wished for more bike borrowing schemes which could reduce the dedication needed for investing in a bike. P2 also discussed the lack of cycle racks making it difficult to own a bicycle in the city. Finally, P14 who travelled frequently found her bike difficult to transport: "I don't genuinely feel like my bike is something that is transportable." Sener Eluru and Bhat (2009) note the importance of facilities such as bike racks in public places and transport as improving the overall experience of cycling.

4.1.2. Education

It seems that participants felt that there was insufficient education around cycling. Education relates not only to teaching people how to ride bikes correctly, but also how to maintain them and to better educate drivers on sharing the roads with cyclists. P5 said she was more likely to cycle if drivers were given: "more education into cycling." P13 refers to her unwillingness to use her bike because she was not taught how to do it properly in school: "there was no teaching when we were in school of how to safely do it" (P13). Similarly, P12 also felt unprepared to cycle on the roads, moreover her inability was exacerbated because she never sat a driving test, she admitted to feeling scared: "because I don't drive in and around the city."

Even if the women knew how to ride a bike some were concerned about mechanical aspects of a bike, especially if something was to go wrong. It could create difficulties, a view held by P11: "I've had a go with blowing up tires and that seems a bit of a faff as well. You know there are different kinds of valves and things and yeah I think if you've got the wrong one then you can blow your bike up... ." Lack of mechanical and cycling knowledge was noted in Fullagar and Pavlidis' (2012) research in making females feel inadequate when considering cycling. The lack of education is indicative as to why levels of

cycling are low. Countries with higher cycling participation offer extensive education for both cyclists and drivers (Pucher and Buehler 2008).

4.2. Interpersonal

4.2.1. Family Responsibility

Although leisure cycling appears attractive to families and children the research revealed that women not only face difficulties associated with utility cycling (due to children), but also in relation to cycling for leisure purposes (Smart et al. 2014; Dill and McNeil 2012). The pilot study that there may be an issue associated with mothers feeling unable to justify going out for a cycle due to their parental responsibilities. Both P9 and P10 stated how they are more capable of cycling now, but in the past, it would have been too difficult with young children. P10 stated that: “time would restrict people who have got young families and got that full-on timetable which I don’t have anymore.” P9 said that she was in “full time work” whilst bringing up a family, which made cycling too difficult. This was something that Heesch, Sahlqvist and Garrard (2012) also found. Women who did cycle were not living with children and were only working part-time. That said, even mothers that were unemployed may have reservations about cycling, P15, an unemployed mother thought that taking a child out on a bike is simply too dangerous: “I wouldn’t be comfortable, I don’t like having him on the same bicycle as me, or behind me and not knowing what he is up to.” This reflects mothers’ worries about taking small children on the back of their bike.

Even as children grow older it can be hard to motivate children to cycle as a family activity. Both P9 and P11 expressed their desires to cycle as a family however their children showed little interest. Female roles in childcare, according to Smart et al. (2014) competes with other constraints because so much of female time is spent taking care of children. This suggests that even if the roads were made better, society may need to adapt to give women more time and share childcare roles, such as they do in the Nordic countries.

4.2.2. Gender Roles

It appeared that simply being a female made cycling unacceptable for some participants. In recent years there has been more recognition of issues such as catcalling and sexual assault (Sanghani 2015), and it continues to be an issue with females on a bicycle. P3 and P7 had particularly unpleasant experiences around sexual harassment. P3 recalled a time she was on a bicycle and was catcalled: “catcalled and like... I've had people say ‘f**king ride that bike’” and P7 had bad experiences when jogging: “sexual harassment often happens when I go running” which appears to deter her from cycling “that’s probably why I wouldn’t go out I don’t like cycling by myself.” This concurs with Gomez (2000) who highlights the issue of female’s constant fear of being sexually harassed.

An extension of the machismo culture around cycling has led many participants to feel intimidated about taking part. During the pilot study it was made clear that the patronizing and masculine nature of cycling runs through the cycling world from bike shops to cycle clubs. Eight of the participants commented on how intimidating cycling can be to approach as a non-cyclist. Some participants suggested their lack of confidence related back to their early education that was highly gendered and orientated towards competitive activities. Allender, Cowburn and Foster (2006) found that children’s participation in recreational activities was more active and enjoyable when they were not competitive.

Participants 6 and 13 both mentioned cycling as being “unfeminine” which again aligns with Gomez (2000) who’s paper discusses Peruvian citizens surprise towards female cyclists as appearing disrespectful and unfeminine. It comes as a surprise that there are some similarities between participants in this research (carried out in Scotland) and the findings from Gomez’s research that was carried out in Peru. Both countries are very different but share a somewhat old-fashioned view on women.

4.2.3. Culture and Trends

The saying ‘safety in numbers’ appeared to resonate with many of the women who all appeared to be much more willing to cycle if they saw more other women doing it. P6 said that she stopped cycling because “it didn’t seem

cool anymore, most of my friends stopped doing it and I didn't want to be considered a weirdo" which agrees with P7 who stated that "I think because more people do it you'd feel like a bit less weird because in Scotland you're not really seeing that many people on bikes."

It may seem that participants are simply wishing to 'follow the crowd', however, research shows that the greater the number of cyclists, the safer it becomes (Bauman 2008). High levels of cycling have low levels of fatalities (Jacobsen 2003). Cultural normalization (increasing the number of female cyclists), would help make cycling more acceptable to females (Zovko 2013; Emond, Tang and Handy 2009). Every participant admitted that they would be likely to participate if they lived in a country with a large cycling culture, where it was trendy.

4.2.4. Importance of Socializing

A recurring theme was female's perception of cycling being boring or isolating. It appears that females preferred more social activities that allowed for more interaction. P12 thought that one of the main reasons she didn't cycle was because she didn't "have any girlfriends who were cycling" and P5 seemed to think that "It's quite an isolated sport, you can't do it in a group". This perception of cycling being unsocial as a constraint aligns with Allender, Cowburn and Foster's (2006) findings that females look for social interaction during their leisure time.

It was noted throughout the literature that females prefer to be in an 'all female environment' (Lloyd and Little 2011; Flintoff and Scraton 2001; Fullagar and Pavlidis 2012) when taking part in LTPA's. This suggests that all female cycle groups would encourage more females to cycle. P7 said that: "If they did organize some more... all girls cycling or whatever that would be quite good." However interestingly, a large group, even if they are all women could be intimidating. P8 discusses her lack of confidence in approaching sports in particular social circumstances and states that she would "rather go with a friend." Sheng (2015) noted female's tendencies to have higher social anxiety in approaching particular group sports.

It seems that although cycling alone seems unsocial for many women, they still feel intimidated about joining cycling groups. However, other participants

saw the positive side in cycling with just a few close friends and the joy it could bring: "If I ever entered cycling it would be probably with a female friend" (P9) and P11 talked about her friend that cycled "I've got a friend that cycles a lot and she talks about cake and coffee all the time so that sounds pretty good." Fullagar (2008) recognizes leisure cycling's ability to form new friendships. Moreover, during the pilot study P1 identified the ability of cycling to create friendship groups and cycle to places that serve coffee. Despite this, many females appear to interpret cycling as either completely independent or in overly large competitive groups.

4.3. Intrapersonal Constraints

4.3.1 Appearance

All participants claimed to have cycled at a young age. P3 was perplexed at the concept of young children not riding a bike concluding that as a child it was "the funniest thing." However, the pattern of participants giving up in high school was undeniable. When asked why they stopped in high school participants seemed unsure at first. However, further discussion identified the issues as their self-consciousness and desire to fit in. P3 claimed to be "very self-conscious as a kid" and P12 was "concerned with what I looked like and fitting in as well."

This was a subject area that was rarely touched on in the literature despite, the overriding evidence of the problems it can cause. Dill and McNeil (2012) found that adults who currently cycle were continuing it on from a younger age. This suggests that males are more comfortable on a bike due to their continuation of the activity from high school, something that many girls clearly don't experience.

Another notable element of females' concern about their appearance in association with cycling was their negative attitude towards cycling attire. Eight of the participants made references to the unappealing look of lycra for which cycling now appears to be famous for, with the growth of MAMILS. P10 discussed the "perceived macho element to the lycra clad men going around in bunches" and that she "wasn't prepared to go around in tights or lycra." P3

stated that: “I think lycra isn’t cool.” The questionnaire did not ask any questions relating to lycra but it seemed participants were interpreting recreational cycling as something serious, in which lycra had to be worn. Some participants discussed how unappealing helmets could be, although they recognized how important they were. Interestingly, Pucher and Buehler (2008) interviewed Dutch cycling experts and planners, who predominantly opposed bicycle helmet laws because it made cycling less convenient, less comfortable and less fashionable. A view that the participants seemed to share, P14 thought that they made her “look daft.” Helmets are putting women off cycling even though they might not be as useful as perceived and can give people a false sense of safety (Wardlaw 2000).

5. CONCLUSION, LIMITATIONS AND RECOMMENDATIONS

5.1. Conclusion

This paper explored reasons that prevent females from participating in leisure cycling. This is important because previous literature had concentrated on utility cycling. The paper identified constraints that women faced. A review of the literature suggested that safety and a lack of a cycling culture appeared to be the most recurring themes that prevented female participation. In this research Constraint Theory helped clearly segregate constraints allowing for a more straightforward research design and discussion.

The research concurred with the literature to a certain extent, in that most of the participants’ main concerns were the lack of infrastructure and facilities to improve safety. Another emerging theme was women’s fear of being in a minority of females that cycled, something that is more resonant in leisure cycling than utility cycling. It seemed that in order to have a larger representation of women cycling, a strong culture of female cyclists would have to be built up so that women can be inspired by peers to cycle alongside one another. It seems the intimidation of the MAMIL trend made some females feel intimidated. Although culture can seem ingrained in a society and hard to

change, growing trends can contribute to the growth of a culture (Pucher and Buehler 2008).

Time was only really an issue for women that had children. All other participants felt they had time for leisure activities, and it was merely a choice of how they wished to spend their leisure time. Although cycling is often viewed as a family leisure activity, parents found it hard to motivate their children towards cycling or felt insecure carrying their child on their bikes due to the unsafe road conditions. However, Smart et al. (2013) found that it was not necessarily children that stopped women from being able to cycle. They suggested that time constraints allowed women little time to participate due to a lack of maternity leave given to males to enable a sharing of parental responsibilities. The research agreed with Shaw (1994) in that mothers could not justify taking sufficient leisure time for themselves due to their ethic of care, overriding desires for leisure time. In terms of cost it most participants felt that bikes were an investment and did not hinder them from participation.

This paper is important in highlighting that there is a willingness amongst women to participate in leisure cycling with only one constraint being intrapersonal. Interpersonal constraints were more frequent, highlighting the importance of the influence of peers as well as females need to socialize in a non-competitive atmosphere during their leisure time. The research shows that some changes would need to be made in order to encourage more females from non-participants into participants. This paper provides a better understanding of why females are constrained from cycling, it allows for communities and governments to adopt policies to encourage female cyclists.

5.2. Recommendations

It is clear how beneficial cycling can be to the economy and the tourism industry. Marketers need to take advantage of the growing trend in cycling and target females to foster a cycling culture, as suggested by Aldred, Woodcock, Goodman (2016). Arguably no major change will take place until there is a huge effort to segregate cycle paths from roads with traffic on them. Although Sustrans is making progress in their growth of paths and path usage, more needs

to be done to keep traffic separate. There needs to be more promotion of the cycle paths to increase awareness of their existence. A good place to advertise the current cycle paths would be in leisure centers in an effort to target females that have a current interest in leisure sports but who may be unaware of the outdoor opportunities outdoors.

Other facilities such as adapting public transport for cyclists need attention. Buses could have racks attached to the front or back which could hold bikes, allowing people to reach destinations for leisure cycling more easily. These are utilized extensively in parts of the US as well as in Vancouver and are popular to help the transportation of bicycles (figure 4).



Figure 4: Photograph by Cycle City Tours (2016) Highlighting the Facilities Offered to Cyclists in Vancouver

Moreover, tourism destinations should offer facilities for cyclists, such as stands and pumps to attract more cyclists (this is more common in Australia). In considering the views expressed in the pilot study that the cycle world is often seen as a ‘man’s world,’ more females could be at the forefront of cycling. This may include cycling outlets making a bigger effort to hire more females to better culturally normalize cycling for females and greater inclusion of women when advertising cycling.

Greater efforts should be made in education to ensure that cycle proficiency is a legal requirement in every school and there ought to be a greater emphasis

on vehicle driving etiquette in association with cyclists during driving tests and lessons. Cycling activities during high school time may reduce the perception of cycling as masculine or 'uncool'. Flintoff (2008) discusses the issues of sports being highly competitive in high school. By integrating cycling as an activity, it would reduce the issues of females being segregated due to overly competitive male culture. This would also increase the chances of females continuing to cycle into adulthood. At present the continuation of cycling from high school is primarily recurrent in the male demography (Zovko 2013).

Inspiration can be taken from European leaders by adopting laws making car drivers responsible for the safety of cyclists and having roads created to prioritize cyclists. This would help encourage participation due to heightened perceptions of security (Pucher and Buehler 2008). An elevated tax on car usage and making parking more difficult in town centers will encourage people to use a bike over a car and access the city center in a more leisurely manner on their bicycles. Another option is the introduction of bike hire systems which have been a huge success in cities such as Cambridge, where the gender gap is almost non-existent (Aldred, Woodcock and Goodman 2016). A borrow bike system in major cities would be a great tourist attraction and increase revenue options for Governments and councils through advertisement and customer payments (Collinson 2017).

Finally, in an effort to reduce the intimidation women feel about starting up cycling, gym groups such as spin classes which already have an established relationship with females, should offer outdoor cycling sessions to ease them into outdoor cycling. If such policies and provisions are adopted it could allow for a cycling culture to grow and the gender gap to reduce. This research can be useful to local governments and national tourism agents if they are looking for mechanisms which would help shrink the gender gap. Further research could be carried out over a period as roads begin to improve, to see if female attitudes towards cycling become more positive. Research could also be conducted into demography's in terms of religion, ethnicity and income which may reveal more specific reasons for constraints.

5.3. Limitations

Due to time and money constraints interviews were only carried out in two locations, which led to some location specific views and opinions. Because the participants were approached, without prior organization of meetings, participants had little time to consider their answers and also could not participate in interviews for a long period of time. Arguably however, participants not having prior knowledge of the interview could lead them to have more honest answers. The study was small scale revealing the opinions of a small population however, it should be noted that this research was exploratory. The research is based on a particular sample who were largely middle-class, Caucasian, young Scottish females. Hence, the research does not claim to be representative of all women. Finally, interviews could only be undertaken in two locations in Scotland despite the researches ambition to give insight into constraints women may face in the UK and other countries with an existent gender gap.

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