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**Pandemic Mum in the City: Incorporating the needs of  
pregnant women and new mothers into the planning for  
and designing of the Post-Pandemic City**

By  
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Being a dissertation submitted to the faculty of The Built Environment as part of the requirements for the award of the MPlan in City Planning at University College London: I declare that this dissertation is entirely my own work and that ideas, data and images, as well as direct quotations, drawn from elsewhere are identified and referenced.

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*Helen Carter.*

09/07/2021

For my sisters,

‘Each day I pushed my pram through freeze and blossom  
down the wide boulevards of Motherhood....  
I stood with my sisters in the queues of Motherhood -  
the weighing clinic, the supermarket - waiting  
for Motherhood’s bureaucracies to open their doors...  
and by lamplight wrote urgent letters of complaint  
to the Department of Motherhood but received no response’

‘The Republic of Motherhood’  
Liz Berry

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## **Abstract**

This dissertation was inspired by personal observations of how my two sisters, who gave birth in September and October 2020, struggled with a city that was not planned for them. These observations led to a qualitative investigation understanding why this was. Between August 2020–July 2021, investigations were carried out to understand the planning and urban design needs of pregnant women and new mothers. These investigations were framed by and aimed to build on intersectional feminist geography, *Rythmanalysis* (2015) and problematise planning guides using Universal Design and Gender Mainstreaming approaches (Reid-Musson, 2018 and Lefebvre, 2015). This dissertation highlights how planning guides side-line pregnant women and new mothers as it is seen as temporary despite it being common and recurring. This dissertation discusses how pregnant women and new mothers have additional built environment needs that, whilst sometimes overlap with those with disabilities, are often in tension with them, demonstrating the necessity in recognising them as a separate but complimentary category. It also demonstrates how involving this demographic, who are going through what I term a temporary rhythm of intersectionality, in planning consultations serves others with more permanent disabilities. This is due to the perspective shift on becoming a mother where built environment deficiencies become obvious, deficiencies which others have ‘assimilated into (their) life experience’ (I5, 08/02/21, Hertfordshire). The effects of COVID-19 are like this new-motherhood perspective. COVID-19 has inspired a re-evaluation of how we plan and design cities and to which this dissertation contributes. As such, not only does understanding the embodied experience of pregnant women and new mothers improve our planning for this demographic but, through involving them in planning processes, serves others experiencing a temporary rhythm and those with permanent disabilities.

## **1.0 Introduction**

Pregnant women and new mothers have been ignored within Universal Design literature and feminist urban geography. Understanding the embodied experience of this demographic through interviews, walking ethnography and solicited diaries, reveals they have access needs, that sometimes overlap, but also conflict with those of others less-able. Taking an intersectionality perspective, this paper argues there is a need for this demographic to be recognized as a separate but complimentary group to others who are

'not able to', if we are to plan and design cities that serve them (Freund, 2001, p.689). This dissertation argues that a lack of understanding of pregnant women and new mothers' needs, both within Universal Design and Gender Mainstreaming planning approaches, has led to inadequate provision of accessible infrastructure, such as changing and feeding facilities. This lack of provision excludes this demographic from the urban realm and denies them a 'right to difference' (Gilbert & Dikeç, 2008, p.252).

Building on Henri Lefebvre's (2015, p.18) *Rhythmanalysis*, arguing capitalism marginalises us via domination of 'linear', socially constructed rhythms over 'cyclical', bodily rhythms, this dissertation reveals another way this demographic is marginalised. The rhythms of pregnant women and new mothers shift, first due to pregnancy, and second in response to the baby's feeding and sleeping rhythms. Lack of adequate planning for them coupled with this shift in rhythms and their discord with 'linear' rhythms of UK cities, reduces these women's travel radius. What's more, as the city fails to cater for them, mentally mapping their environment becomes part of pregnant women and new mothers' rhythms. This shows another way this demographic is excluded from the city, as the scarcity of baby-friendly facilities and the pre-planning this necessitates, robs these women of time. It also shows the limitations of *Rhythmanalysis* (2015, p.37), demonstrating that not all city rhythms are publicly observable. Therefore, to understand how 'linear' rhythms excludes this demographic, 'the rhythmanalyst' must accompany and 'be grasped by' this demographic's rhythms within private and public (ibid.). This provides an argument for walking ethnography and interviews to be utilised within planning academia and planning consultations.

We cannot talk about 'linear' rhythms without discussing the 'event' that broke them – COVID-19 (Goonewadena et al. 2008, p.9). This dissertation contributes to the wider shift within planning looking at COVID-19 as an opportunity to question our city planning and imagine better alternatives (Moreno et al., 2020). The pandemic has highlighted existing deficiencies within our cities (UCL, 2020). Here we see parallels with the experience of pregnancy and new motherhood, where the change in 'cyclical' rhythms, shifts these women's perspective to empathise with those with disabilities. This temporary rhythm of intersectionality makes the deficiencies in the built environment more obvious to pregnant women and new mothers, similar to the effects of COVID-19. Therefore, they provide

insights into how planning fails those with reduced mobility, exemplifying the need to include them in planning consultations. Recognising temporary rhythms of intersectionality alongside those with more permanent disabilities challenges the assumption of ableness as norm. It also demonstrates that, although a temporary experience, pregnancy and new motherhood is common and recurring. Therefore, a larger group exists who need accessible infrastructure than previously thought, warranting a re-evaluation of the amount provided.

Bearing this in mind, this dissertation responds to the following research questions:

- 1) Can pregnant women and new mothers be given the same consideration as people with disabilities to recognize their mobility needs? How does this understanding impact how we plan for them and problematize Universal Design?
- 2) Can adopting a rhythmanalysis approach further understandings of how pregnant women and new mothers are excluded from the city and hence why their use of it changes? How can adopting a rhythmanalysis approach help to discover new ways to plan for the post-pandemic city?
- 3) Why have pregnant women and new mothers been forgotten about in decision making and feminist geography? What does their inclusion in arguments for a 'right to difference' add to existing debates, particularly towards inclusion of those left behind in main core policies?

### **1.1 Research Aims**

- Discover how and why pregnant women and new mothers' use of the city changes.
- Explore the limiting factors for this demographic in accessing the city.
- Question why this group has been ignored in planning and urban design academia, policies, and guides.
- Reveal how including them in planning processes provides a better built environment, not just for them, but for others going through temporary rhythms of intersectionality and those with permanent disabilities.
- Demonstrate why incorporating pregnant women and new mothers into the planning and designing of the post-pandemic city is important for ensuring a 'right to difference' for women and those with disabilities Gilbert & Dikeç, 2008, p.252).

Overall, this paper demonstrates how current city planning and design disadvantages pregnant women and new mothers. Through exploring this demographic's movement in the city, we reveal how, contrary to historical assumptions that new mothers stay at home, they do have places to be. The desire to go out and experience the city does not change. It is rather the lack of consideration for their needs and rhythms in planning and design which excludes them from public space and forces them to stay close to home. This demonstrates yet another way our cities are gendered.

## **1.2 Dissertation structure**

The following chapter will review the literature that frames this research, as well as highlighting how this dissertation fills literature gaps. It highlights the limitations of Universal Design and Gender Mainstreaming approaches within planning guides and demonstrate how and why this demographic has been side-lined within feminist urban geography. It then discusses how using a Rhythmanalysis approach reveals why and how pregnant women and new mothers are further disadvantaged in cities, and therefore why understanding their needs is paramount to ensuring their 'right to difference' (Ibid.). The methodology chapter explores the research methods used during the process as well as the feminist framing taken.

The analysis section of the dissertation is split into three chapters. The first explores the embodied experience of pregnant women and new mothers and how the built environment limits their access. It discusses how and why the needs of pregnant women and new mothers are different to others with disabilities, thereby problematising Universal Design. The second analysis chapter again explores the embodied experience of this demographic, but instead focus on how their 'cyclical' rhythms are in discord with dominant city rhythms, thereby creating another level of disadvantage. The last chapter of analysis focuses on how and why this demographic is made invisible, both within the city and planning policies, guides and processes. This chapter demonstrates how making them visible serves not only themselves, but others with more permanent disabilities. The dissertation will finish with some recommendations for how to incorporate the needs of pregnant women and new mothers into planning and designing the post-pandemic city.



## **2.0 Literature Review**

Literature analysing how pregnant women and new mothers access the city is limited. This dissertation responds to this gap. Noticing how my sisters struggled with aspects of the city during pregnancy and new motherhood, I searched for official planning documents on planning or designing for this demographic. Whilst the UN Habitat (2021), the World Bank (2020), URBACT (2019) and RTPI (2021), have produced guides on planning for women in the last two years, pregnant women and new mothers are hardly mentioned. When looking at literature and official planning guides for those less able-bodied, such as those with disabilities, such as the UK Design Council, there is limited mentions of the relevance to pregnant women and new mothers (Design Council, 2021). This is not the case with others experiencing a temporary rhythm of intersectionality, such as older people, who have instead been increasingly present in Universal Design literature in recent years, revealing the gendered nature of pregnant women and new mothers' exclusion (Design Council, 2021 and Clarkson & Coleman, 2015). As such, they have been forgotten and 'othered' within feminist geography and within Universal Design, leaving a gap that needs addressing (Khrebtan-Hörhager, 2019, p.125).

To address this gap, this dissertation uses intersectional feminist geography and Henri Lefebvre's work on production of space, everyday life and rhythm analysis to understand how pregnant women and new mothers use the city and why they are made invisible within the literature and planning guides (Lefebvre, 2015). The first section of the literature review therefore explores the concept of Universal Design, which the Design Council states is an approach that is 'welcoming to everyone, responsive to people's needs, intuitive to use' and offers 'choice when a single design solution cannot meet all user needs' (Design Council, 2021). We discuss how pregnant women and new mothers fit within Universal Design literature, concluding that its focus is on those with disabilities and older people. The second section looks at feminist geographers, such as Linda Peake (2016), arguing that whilst their work highlighted the gendered nature of urban spaces and emphasized the importance of situated knowledge, there needs more exploration of the embodied experience of women as they move through space and hence the experience of pregnant women and new mothers. It also critiques 'gender mainstreaming', arguing that this policy approach, which prioritizes the gender over other aspects of identity, leads to a lack of investigation into



different experiences of intersectionality and provision for them (RTPI, 2021 and Lacey et al., 2013).

The third section explores the work of Henri Lefebvre's (2015) *Rhythmanalysis* to discover how urban spaces are produced to privilege the able-bodied male. This is especially true with 'linear' rhythms, such as the commute, which he argues reflect capitalism's imposition on 'everyday life', 'establish(ing) itself, creating hourly demands, systems of transport' and 'repetitive organisation', dominating over 'cyclical' rhythms of the body and nature (Lefebvre, 2015, pp.16). This dissertation builds on Lefebvre's (2015) work using an intersectional feminist lens to understand why certain rhythms are prioritised over others and how COVID-19's disruption to these rhythms questioned their normalcy. It argues that Lefebvre's work to highlight the conflict and interconnection between cyclical, bodily rhythms and 'linear', socially constructed rhythms has specific relevance for pregnant women, new motherhood and the pandemic as he argues that 'we are only conscious of most of our rhythms when we begin to suffer from some form of irregularity' (Lefebvre & Regulier, 2015, p.86). In essence, pregnancy and new motherhood, when the body goes through rhythmic and hormonal change and then when mother's must work in relation with their baby's bodily rhythms, is a time when linear and cyclical rhythms are made visible. The last brief section will look at the timely nature of this dissertation, by setting out the specific COVID-19 context of this study and outlines why and how it holds particular importance and opportunities to rethink the city (Moreno et al., 2020).

## **2.1 Midwifery and Public Health Literature**

Most literature about the built environment needs of pregnant women and new mothers comes from a public health perspective. For example, Beate Ritz (2014) writes about the environmental impact of pollution on fetal development, whilst others look at the impact of green space on maternal wellbeing (Laurent, et al., 2013). Studies have argued that increased air pollution during pregnancy results in low birthweights and premature births (Laferriere & Crighton, 2017 and Singhal, 2019 ). Other articles explore environmental and social factors preventing the uptake of breastfeeding, especially in low-income areas, with Laura Brown arguing that a lack of sheltered spaces for breastfeeding in public contributes to low uptake rates (Peregrino, et al., 2018 and Brown & Sear, 2019). Most relevant for this

dissertation, Camille Cronin analyses the adjustment to new motherhood from a nursing perspective (Cronin, 2003). Her research has implications for planning, finding that due to the importance of maternal support for new mothers, housing policy should not 'move daughters far away from maternal mothers' (Ibid., p265-266). However, the objective of Cronin's research is to improve aftercare for new mothers, rather than changing the built environment.

## **2.2 Universal Design**

As P. Clarkson and Roger Coleman (2015, p.238) highlight, this 'history of design for disability' starts with USA's Vietnam Veterans. However, this literature treated those with impairments as separate from ableness, 'reduce(ing) disability to medical...notions' (Imrie, 2015, pp.486). Rob Imrie argues this 'perpetuates the understanding that (disabilities) can be.... an ephemeral part of the design process... considered...as an afterthought' (Ibid). The tendency towards categorizing disability may be an unintended consequence of the 1960s disability rights activists, who galvanised behind shared challenges to argue for legal recognition (Yeh, et al., 2016). However, whilst politically useful, the artificial binary of ableness/disability did not reflect people's experiences. What started as the disability rights movement became a 'broader social agenda .... (aiming) towards 'design for human diversity...and equality' (Bates, 2018, pp.985)

In the early 2000s sociologists focusing on disability, like Freund (2001, pp. 690), challenged this 'post-structural' love affair with difference', as it 'eclipses...situations.... shared by different individuals.' Freund (ibid., pp.691) argued we cannot ignore the 'socially constructed nature of categories, such as ...disability.' Once realizing this, we question ableness as norm. He argues for disability to be understood as 'not being able to', 'part of a continuum where one is disabled in different spheres of life and to different degrees' (Ibid., pp.692). Those who are 'not...able to' constitute a bigger population than traditional conceptions of disability, putting onus on urban design as either enabling or inhibiting people's movement (Ibid. pp.689). It shifts focus from semantic analysis of disability to one on embodied experience, thereby recognizing the design's importance for access. Understanding disability as 'not....able to', allows us to consider pregnancy and new

motherhood as on the disability spectrum, and therefore a group with accessibility rights (Ibid).

Since the 1990s, as part of this shift examining the fluidity of identity categories, Universal Design came to the fore, aiming to create cities that 'everyone can use', 'reflect the diversity of people who use it and not impose barriers' (Design for All Europe, 2004 and Design Council, 2006). The Design Council, advisors to UK government, argue Universal Design is a 'general approach to designing in which designers ensure... their .... services address the needs of the widest possible audience, irrespective of age and ability' (Clarkson & Coleman, 2015, pp.235). Like Freund's (2001) work, it problematized the able-bodied/ disability divide, thereby questioning ableness as norm. As Clarkson (2015, pp.235) argues, it 'shifted the focus from THEM - the elderly and disabled... to the US'. Nonetheless, by arguing that disability is anyone with an 'impediment', we risk not addressing specific disability needs. Universal Design tries to cater to everyone but fails to recognize that specific categories emerged because these groups had common needs not addressed. I will be cautious therefore in using 'disability' for pregnant women and new mothers. Nonetheless, considering pregnant women and new mothers with the same import as other disability users reveals previously underexplored tensions and overlapping needs that exist between these two groups. Highlighting these differing and complementary needs reveals the necessity to campaign for pregnant women and new mother's urban needs as a separate but complementary group, justifying the provision of more accessible infrastructure.

As such pregnant women and new mothers are not recognized as a category with specific access needs. Looking at the Design Council (2021), UN Habitat (2021), Royal Town Planning Institute (2003 and 2021) and UK Government websites, pregnant women and new mothers are not mentioned. The UN-Habitat's *Her City* (2021) nods to mothers with prams, but with no focused attention. The Design Council's uses a photo of wheelchair user and a woman with a pram on their website, not one of their 314 resource guides mentions mothers or pregnant women (Design Council, 2006 and 2021). Throughout this dissertation, I argue that to create a 'right to the city', which I take to mean as a 'right to difference' and the creation of a built environment that 'embraces and enhances difference', we must explore the specific needs of this demographic (Gilbert & Dikec, 2008, p.252 and Milgrom, 2008, p.264).

### 2.3 Feminist Geography

The issue of how does not for women has been debated in recent years. With Leslie Kern's (2020) book *The Feminist City*, and due to COVID-19 school closures highlighting persisting gender inequalities, feminist geographers reevaluating planning and design (Kern, 2020, Glaser, 2021, Agarwal, 2021, Lungumbu & Butterly, 2020). However, whilst this literature poses important questions, it comes from a geography perspective, focuses on semantic representation of women's body and, when exploring the city, focuses on safety in public space (Kern, 2020). This focus on urban realm safety, in part due to pressure from the #MeToo movement, has filtered into gender-inclusive planning guides produced by UN Habitat (2021), The World Bank (2020), RTPI (2021) and URBACT (2019) (Glaser, 2021). These documents provide toolkits for local authorities to co-design with women to ensure built environment safety, however the urban needs of new mothers are only briefly touched upon with regards pram access, and pregnant women are not mentioned (The World Bank, 2020). Kern's (2020, pp.19) work, pays more attention to this demographic, arguing for an intersectional approach between those with disabilities, new motherhood, and pregnancy. However, this is not fully explored and she calls for further research.

The absence of feminist geographic literature on pregnant women and new mothers is explained by the 'ambivalent relationships that feminist theory (has) with the body' (Shilling, 2007, p.12). Feminist have long fought against their bodies defining their societal value. Simone de Beauvoir's *The Second Sex* (1949) argued that 'man defined woman not in herself, but as relative to him', women valued only as wives and mothers (Beauvoir, 1997, p. 16). De Beauvoir argued against this, stating women's wombs did not define them (Ibid., p.35). 1960s second wave feminists argued there was 'nothing natural about women's corporeality which justified their public subordination' and 'interrogat(ed)... the sex/gender divide' (Shilling, 2007,p.12 and Jenson, 2017). Alongside the post-modern shift, feminist sociologists like Kathy Davis explored the semantic body, arguing the 'female body is always...'other'' (Davis, 1997, p.5). As a form of resistance, therefore, feminist strands reimagined the female body, not seeing it as biologically inferior or something that needed to be controlled (Ibid.). Some 'rejected altogether' that the body was 'a basis for explaining difference', with Judith Butler deconstructing the 'distinction between biological bodies and socially constructed gender difference' (Ibid.p.8-9). Others argued this approach 'ignore(d)

differences in embodiment' and was 'falsely universalist', not 'do(ing) justice to the particularities of... bodily experience' (Ibid.). This led feminist geographers, like Liz Bondi (2003) and Linda Peake (2016), to explore the embodied experience of women, a trend becoming more common in recent years. Not all feminist academia has shied away from motherhood, however tensions surrounding the female body led to an under exploration of the effects of motherhood, especially in relation to cities.

This dissertation takes a reflexive approach exploring 'the tensions the body evokes' and acknowledges that it is 'essential...to deconstruct the body as bedrock of sexual difference, but also validate(s) difference.... to do justice to individuals' embodied experiences' (Davis, 1997, p.16). Questioning the gender/sex divide has provided women with choices over their bodies, as 'until... recently' having a baby wasn't.... considered a decision' (Snitow, 1992, p. 38). It has also been paramount in providing the LGBTQ+ community, especially trans men, women and non-binary, with rights and recognition. However, similar to Pragya Agarwal's (2021) approach, this is not this dissertation's focus, and I use 'women' to refer to cis-women. The reason for this is two-fold. First, whilst shared parental leave is more common, COVID-19 highlighted how gender roles that assume 'woman's place...in the home' are still engrained (Hayden, 1980, p.170 and Lungumbu & Butterly, 2020). The UN (2020) expressed concern for COVID-19's effect on women, and 2021 UK school closures meant 15% of mothers took unpaid leave to homeschool children, compared with 8% of fathers (UN, 2020) (Topping & McIntyre, 2021). Whilst 'motherhood moves away from traditional norms, albeit glacially', women still 'shoulder a huge responsibility' (Agarwal, 2021, p.7 and 19). Second, it is undeniable that pregnancy, birth and then the baby changes the embodied experience of those who experience motherhood and fundamentally differs, not only from men's experience, but also women who have not gone through it. Planning and design are gendered in many ways, the experience of this not restricted to women who give birth. However, just because women's bodies do not define them, does not mean that we ignore those who choose motherhood. To achieve a 'right to difference' in the city, we must explore how pregnant women and new mothers are disadvantaged by the city and its form (Gilbert & Dikec, 2008, p.252)

## 2.4 Gender Mainstreaming

Like the 1990s emergence of Universal Design policies, governments, the UN and EU and RTPI adopted Gender Mainstreaming approaches, responding to feminist academia. Gender mainstreaming, Anita Lacey argues, 'make(s) gender issues visible by putting gender equality at the centre of policy making' (Lacey, et al., 2013, p.145). The RTPI (2021) classifies gender mainstreaming having 'the different needs of men and women' at 'every stage of the planning, design, implementation ...of policies'. First referenced by the UN in 1995, since 1997 it has been 'the EU's central policy approach to gender equality' (Ibid.). However, putting gender above other identity aspects, risks similar shortcomings to Universal Design, ignoring differences between people of the same gender (Lacey, et al., 2013).

Lacey argues for an intersectional approach instead within planning and design policy to 'transcend the potential unidimensionality of... gender analysis' (Lacey, et al., 2013, p.151). Intersectionality emerged as a criticism of white middle-class feminism, which ignored layers of disadvantage for women of colour (Ibid.). Since the 1970s, intersectionality has become a 'framework considering gender as part of a complex and dynamic series of social ... structures that shape individuals'...experiences' (Ibid.). These intersections of disadvantage unveil 'dynamics of exclusion' as they play out in the built environment (Broto & Alves, 2018, p.367). These dynamics are 'always open to revision' (Broto & Alves, 2018, p. 367). Universal Design and Gender Mainstreaming fail to take intersectionality seriously, presenting oversimplified understandings of how the 'right to difference' is denied to different demographics (Gilbert & Dikec, 2008, p.252). As Vanesa Broto argues, 'identity is not a permanent category' and 'different forms of identification may be adopted through the life course' (Broto & Alves, 2018, p.369). Exploring the embodied experience of pregnant women and new mothers reveals how this as a temporary rhythm of intersectionality between gender and ability, altering their experience of the city. Not recognizing these temporary rhythms of intersectionality, and subsequent failure to produce appropriate planning guides, has led to their exclusion from the city (Parker, 2016). On the reverse, recognizing and appreciating temporary rhythms intersectionality, 'reveal(s) openings for activist intervention' and new possibilities for city formation (Parker, 2016, p.1346).

## 2.5 Rhythmanalysis

Understanding pregnancy and new motherhood as a life rhythm relates to Lefebvre's *Rhythmanalysis* (2015, p.16), arguing that domination of a city's 'linear' rhythms over the 'cyclical' is capitalism's imposition on everyday life (Lefebvre, 2015, p.16). *Rhythmanalysis* was intended as the fourth book in *Critique of Everyday Life* (Elden, 2015, p.2). The latter, criticising contemporary Marxists, argued the effects of capitalism are only understood through individuals' everyday reality. He argued that 'Marxism...is a critical knowledge of everyday life' (Goonewadena, 2008, p. 118). This emphasis on embodied experience also underlies his work on the *Production of Space*, arguing space is not static but 'a product and precondition of processes of social production' (Butler, 2012, p. 5). He thereby critiqued Marxist academics for over-emphasizing capitalism's temporal aspects and the production of labour, instead arguing 'the production of space...reveal(s) social relations' (Ronneberger, 2008, p. 136).

In *Rhythmanalysis* (2015, p.19), Lefebvre joins the space and time, arguing that the 'disastrous role of capital does not consist.... in (bringing) forth rich and poor....it consists...in its imperious contempt for the body and lived-time' (Meyer, 2008, p. 151)

As such, Lefebvre argues to comprehend the domination of capitalism, we must be attentive to these rhythms (Lefebvre, 2015, p.77). He argues that the Rhythmanalyst 'think(s) with his body, not in the abstract, but in lived temporality...arriv(ing) at the concrete through experience' (ibid., p.31). Kurt Meyer argues *Rhythmanalysis* is the heart of everyday life, seeing in the concrete how socio-political powers control our lives (Meyer, 2008). However, whilst Lefebvre argues capitalism uses 'linear' rhythms to exclude people from the city, his work remains silent on the rhythms of pregnant women and mothers and how they are further denied a 'right to difference' (Gilbert & Dikeç, 2008, p.252). Whilst Lefebvre admits that 'it is not uncommon for children to refuse social rhythms', the implications of this refusal for mothers when interacting with the city is not explored (Lefebvre, 2015, p.52 and Lefebvre & Regulier, 2015, p.84).

I argue therefore, like Emily Reid-Musson, that intersectional feminist geography can take from Lefebvre's *Rhythmanalysis* to further understandings of women's spatial exclusion

(Reid-Musson, 2018). Reid-Musson, responding to the lack of cross-section between rhythmanalysis and intersectionality, argues that 'exploring...embodiment and rhythms...deepen(s) intersectional rhythmanalysis' (Ibid., p.894). Understanding city rhythms, as Robin Smith, not from a dualist perspective, but as complex and intersecting, reveals how intersectionality and rhythmanalysis take complex, fluid approaches to understanding dynamics of exclusion (Smith & Hetherington, 2013). As Reid-Musson (2018, p.885) argues, 'social oppressions are not static but made and remade through spatio-temporal arrangements like rhythms.' This dissertation, therefore, takes rhythmanalysis and intersectional feminist approaches, focusing on the embodied experiences of pregnant women and new mothers to understand their planning needs, how their rhythms differ from dominant city rhythms and how this in turn excludes them from the city.

## **2.6 Post-Pandemic City**

One cannot talk about rhythms without addressing COVID-19, breaking and questioning 'linear' rhythms (Lefebvre, 2015, p.37 and Wikenberg, 2021). Lefebvre argued rhythms also present themselves historically as 'moments' or 'events', creating breaks to the linear (Goonewadena et al. 2008, p.9). As such, seeing this break as an opportunity for 'a radical re-think of the city', planning literature surrounding the post-pandemic city emerged (Moreno, et al., 2021, p.93). Studies from UCL Minds and the UN argued that COVID-19 highlighted existing urban issues, such as limited green space and narrow pavements (UN, 2020 and UCL, 2020). COVID-19 also reduced our travel radius, with government directives ordering UK citizens to 'stay at home', forcing us to appreciate 'the overlooked resource of our immediate neighbourhood' (UK Gov, 2021 and Michael, et al., 2020). This was a trend internationally, with Parisian Mayor Hidalgo promoting the 15-minute city (Willsher, 2020). As such, this dissertation provides insights into the planning and design needs of pregnant women and new mothers, with the aim of feeding these into the post-pandemic city discussion.

COVID-19 also reveals why work on motherhood and pregnancy is emerging within the social sciences and hence the timely nature of this dissertation. As the UN stated, women are 'hardest hit by this pandemic', with COVID-19 'deepening pre-existing inequalities' (UN, 2020). This is no more evident than for new mothers and pregnant women who, especially



in Spring 2020 lockdown, could not access face-to-face support (Brearley, 2021). This led to a moment of motherhood activism focusing on ‘motherhood (as) feminism’s unfinished business’ (Glaser, 2020, p.10). Campaign group *Pregnant then Screwed* have worked to get women access to support during the pandemic, releasing a book in March 2021 dedicated to

‘the mothers who survived a pandemic...who gave birth without...support...those who spent their maternity leave losing their minds to loneliness...pushed to the edge by a system... incapable of recognizing the extra load they carried to prevent it... descending into... chaos’ (Brearley, 2021, p.vii)

This book, together with Agarwal’s (2021) Eliane Glaser’s (2021) activist works, presents a call to action, recognizing new motherhood and pregnancy as a period of discrimination when the ‘full penalty...of being female is encountered’ (Thomson, et al., 2011, p. 276). As Brearley (2021, p.vii) argues,

‘2020 was the year we finally realised that the needs of pregnant women and mothers are often...ignored...now is the time we...demand recognition...and change.’

As such, this dissertation aims to contribute to this activism by providing an analysis of the spatio-temporal exclusion of pregnant women and new mothers.

## **2.7 Research Questions**

Reviewing the literature highlights questions for reflection, to which this dissertation responds:

- 1) Can pregnant women and new mothers be given the same consideration as people with disabilities to recognize their mobility needs? How does this understanding impact how we plan for them and problematize Universal Design?
- 2) Can adopting a rhythmanalysis approach further understandings of how pregnant women and new mothers are excluded from the city and hence why their use of it changes? How can adopting a rhythmanalysis approach help to discover new ways to plan for the post-pandemic city?

- 3) Why have pregnant women and new mothers been forgotten about in decision making and feminist geography? What does their inclusion in arguments for a 'right to difference' add to existing debates, particularly towards inclusion of those left behind in main core policies?

### 3.0 Methodology

To explore built environment needs of pregnant women and new mothers, a previously under-represented group within planning, careful consideration was put into choosing methods that would ensure validity and make involvement in the process easier for this demographic. The methods chosen, therefore, directly follow from the literature review. A feminist framing and aspects of Lefebvre's 'rhythmanalyst' approach are utilized. Moreover, given COVID-19 and to contextualise the research process, a timetable of the research process is provided in Figure 1. This chapter presents a detailed reflection of the methods used, research design and process which produced the findings presented in Chapters 4, 5 and 6.

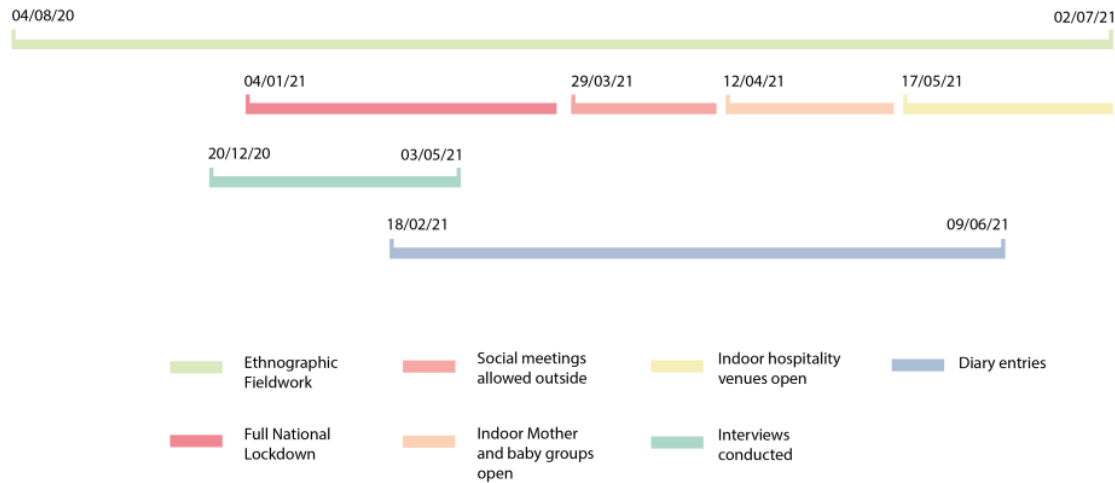


Figure 1: Timetable of research methods against UK restrictions (Walsh, 2021 and UK Government, 2021)

### 3.1 Feminist framing

Considering the literature and object of study, this dissertation's research design uses a feminist framing. As Paula Meth argues there is a 'broad agreement that feminists...are searching for methods consonant with their...aims... being a 'focus on gender inequality and a commitment to changing this' (Meth, 2003, p.196). As feminist literature focuses on power relations, researchers recognize that the 'process of research produces particular social relations', such as the 'unequal research relationships between 'researchers' and

'research subjects' that reflect patriarchal power (ibid, p.199 and Caretta & Riano, 2016, p.258). As such, Martina Caretta (2016, p.260) comments how 'feminist researchers propos(e) reflexivity' in their research 'to analyze power dynamics and reach scientific validity.' Reflexivity means 'acknowledge(ing) how...research participants influence the research process' (Ibid.). Research that uses a feminist lens 'actively encourages methodology that promotes action', like participatory interviewing, as these aim to 'democratize research methods' through the 'knowledge co-production between researchers and...participants' (Meth, 2003, p.201 and Caretta & Riano, 2016, p.258-259). Participants' shaping the research provides 'empowerment', thereby contributing to a feminist vision of the 'ability to effect...social change through the research process' (Meth, 2003, p.201 and Ramazangolu & Holland, 2011).

However, whilst aims may be similar amongst feminist geographers, there is 'less agreement about whether there are particular methods.... situated to feminist investigations' (Ibid). Many within second wave feminism argued that quantitative methods 'objectified subjecthood' and their quest for 'objectivity...was a smokescreen for male interest' (Hughes & Cohen, 2010, p. 189). Instead, researchers opted for 'grounding feminist knowledge...in women's experiences' (Ramazanoglu & Hollan, 2011). Whilst 'methodology...is concerned with...making knowledge valid and authoritative', postmodern feminists questioned 'what counts as reliable knowledge', as the 'power to produce authoritative knowledge is not...open to all' (Ibid., 2011). Feminist researchers used qualitative research as it was 'grounded in women's experience' and 'provide(d) knowledge that otherwise does not exist' (Ibid.). However, this orthodoxy that 'feminists use qualitative methods' is disputed Christina Hughes, who argue that quantitative methods also serve women and that the qualitative/quantitative divide upholds patriarchal tendencies towards binary divisions (Hughes & Cohen, 2010 , p.190 and Massey, 2007). As such, Jacqueline Scott argues the choice of method is not political but 'rather different methods are appropriate for addressing different research questions' (Hughes & Cohen, 2011, p.192 and Hammersley, 1992).

### **3.2 Qualitative-led Research Design**

This dissertation uses qualitative methods, not because they are 'feminist', but because they are most 'appropriate' (Hughes & Cohen, 2011, p.190). As discussed, research pertaining to the embodied urban experience of pregnant women and new mothers is lacking. This dissertation builds on Lefebvre's (2015) *Rhythmanalysis*, exploring how everyday rhythms reveal power structures. As feminist geography and Lefebvre's work, with their emphasis on embodied experiences, frames this dissertation, methods aiming to understand participants' lived experience, like semi-structured interviews and diary entries, are chosen. However, as only 25 interviews were undertaken, there are limitations into how far this represents the wider demographic. As such, this dissertation uses primary and secondary research to ascertain whether the interviews are reflective of the wider demographic.

As for primary research, three types were undertaken: semi-structured interviews with 25 pregnant women and new mothers and four women's health professionals; solicited diaries and ethnographic fieldwork with two new mothers. The secondary research consisted of: newspaper articles about the experience of women in cities, new mothers during the pandemic and post-pandemic cities; planning guides focusing on women and cities produced by URBACT (2019), UN-Habitat (2021), RTPI (2021) and the World Bank (2020); motherhood activist books (Brearley, Glaser and Agarwal, 2021); the UK government website for their approach to inclusive design, and their COVID-19 response; and Design Council and RPTI (2021) website searches to find resources on planning and designing for pregnant women and new mothers. In the latter case, no resources were found (figure 2).

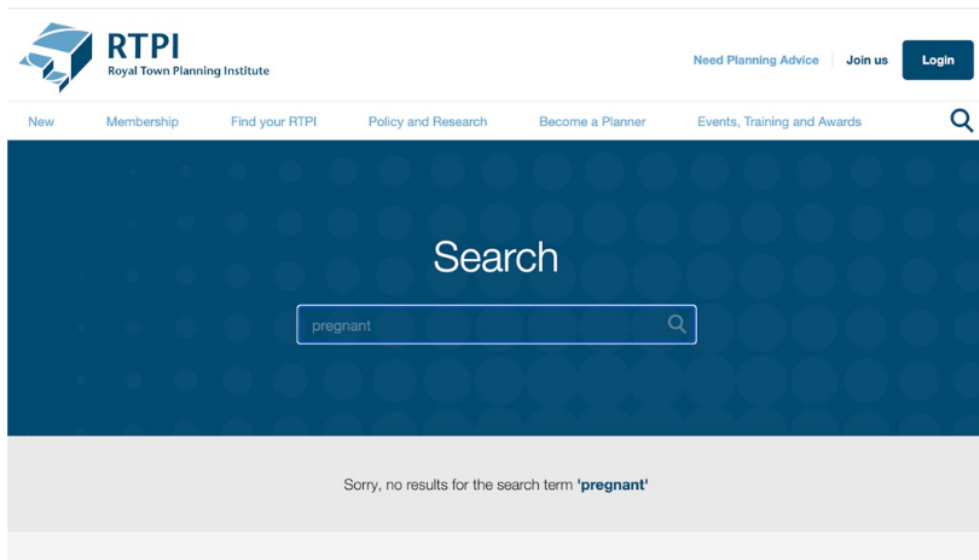


Figure 2: Search for pregnant women resources (RTPI, 2021)

### 3.3 Participant recruitment

Participants were recruited through personal contacts and using a snowball method.

Overall, 29 participants were recruited – 25 pregnant women and new mothers and 4 healthcare professionals. As participants recruited others, it enabled a participatory process, following the feminist approach of ‘knowledge co-creation’ and participant empowerment (Caretta & Riano, 2016). The 25 pregnant women and new mothers and four healthcare professionals were recruited using sources presented in Table 1. Some participants offered to recruit participants spontaneously, whilst others were due to myself acknowledging a lack of contacts. This follows Caretta’s (2016, p.261) argument that ‘conducting feminist participatory research requires academics to share....their power within the research process’.

<b>Recruitment process</b>	<b>Number of interviewees</b>
Direct contact	9
Mutual Friend	3
Via participant who was a direct contact	7
Via participant recruited by a mutual friend	1
Via participant recruited by another participant	3
Via Facebook group about women in built environment professions	6
<b>Total</b>	<b>29</b>

*Table 1 Recruitment Process*

<b>Stage of motherhood</b>	<b>Number of interviewees</b>
Pregnant for first time	2
First-time mother	17
Pregnant with second child	4
Second-time mothers	2
<b>Total</b>	<b>25</b>

*Table 2 Interviewee's Stages of Motherhood*

Of the 25 pregnant women and new mothers interviewed, there was variation on where they were in their 'motherhood' journey (table 2). The research included second-time mothers to gain understanding of the lived reality of pregnancy and new motherhood before COVID-19. Two second-time mothers offered comparison, confirming that whilst second-time motherhood was challenging, they felt more informed, and it did not change their life perspective as much (I24, 03/02/21 and I25, 10/02/21, Manchester).

Amongst the first-time mothers there was a variation in how long ago the women had given birth. When interviewed, first-time mothers had given birth between two months to 18 months previously. This variety ensured a large period of new motherhood was covered, to investigate whether women still had altered experiences of the built environment or whether women acclimatized, becoming less aware of difficulties. Attempts were made to ensure a variety of UK locations to ensure information collected would reflect the experience of pregnancy and new motherhood in major UK cities (table 3).

Interviewee Location	Number of interviewees
Bristol	1
Leeds	1
Manchester	4
Hertfordshire	1
Greater London	21
Paris	1
<b>Total</b>	29

*Table 3 Interviewee Locations*

All interviews were undertaken December 2020-February 2021, corresponding to full UK Lockdown from January 2021, meaning all bar one was conducted virtually (see figure 1). The interview conducted in December 2020 was done outside, respecting social distancing guidelines and offered an understanding of the difficulties of being interviewed whilst managing a baby. The lockdown aided the interview process as, due to subsequent



cancellations of baby groups, women were more flexible with time. Women had to contend with their babies' schedules, however, meaning that at least two interviews were postponed because of the baby's rhythms, highlighting difficulties interviewing this demographic.

### **3.4 Semi-structured interviews**

Semi-structured interviews were chosen as a method because of their 'unique flexibility' and ability for 'participants to offer new meanings to the topic' (Galletta & Cross, 2013, p. 2). As Anne Galletta (2013, p.2) argues, the semi-structured interview explored the 'multi-dimensional nature of lived experience' through the process of 'texturing', which 'creates openings for narratives to unfold' and including 'questions informed by theory'. This creation of 'openings' follows feminist framing seeing 'interviewing....as an interaction between two individuals' which 'enables the interviewee to 'generate meaning', upending the researcher/ interviewee power dynamic (Ibid, p.76 and 84). The semi-structured interviews were flexible for new mothers contending with a baby during the interview. Nine new mothers had babies awake during the interview, creating pauses when babies were unsettled, and mothers responded to their needs.

The semi-structured interviews were split into three sections (appendix D and E). The first section was structured and focused on demographic data. The second section were open-ended questions around their city experience before and post-birth. These questions were altered by depending on answers from the first section. If it was a first-time pregnancy, questions concerning post-birth were disregarded. These questions were informed by feminist geography literature, especially questions concerning how people interacted with them in space, with public ownership of the pregnant body prevalent in literature (Glaser, 2021, p.119). The last section was like the second but focused on COVID-19. These questions were informed by theory and secondary research, such as UN (2020) policy briefings and others discussed previously, highlighting the adverse impact of COVID-19 on new mothers. These questions were also informed by ethnographic fieldwork undertaken, reflecting the iterative nature of research (Galletta & Cross, 2013, p.4).

Twelve interviews carried on after the semi-structured questions and this was the most participatory section, where I 'share(d) some of (my) power within the research process',

asking for more participants or sharing initial findings (Caretta & Riano, 2016, p.260). Women told anecdotes of their experiences in the city which they forgot during the semi-structured interview sections. One first-time mother with experience in research, discussed research methods and made her own suggestions (I11, 30/01/21, London). Another first-time mother commented on how the interview process had been cathartic, enabling her to voice frustrations at the lack of support during COVID-19 (I9, 02/02/21, London). Again, demonstrating the feminist framing taken, focusing on empowering participants and 'working with groups that tend to be forgotten' (Caretta & Riano, 2016, p.258).

### **3.5 Diary Entries**

Diary entries were also used with two new mothers, for as Meth (2003, p.195) argues they 'promote participation and engagement by respondents.' However, unlike the method Meth uses, the diary entries received were unsolicited and in digital form, showcasing how the research process enabled an 'empowering relationship between the researched and the researcher' (Ibid., p196). Two new mothers sent images of built environment obstacles in real time via whatsapp. After these initial images were sent, these two participants were asked to continue sending information about difficulties they experienced in image or text form. This was after most interviews and initial analysis were undertaken (see figure 1). Often women found it difficult recalling experiences, due to sleep deprivation, or they described a specific built environment issue but were unable to provide images for contextualisation. As such, other methods were needed to contextualise obstacles, thus reflecting the 'ongoing iterative nature of qualitative data analysis' and how 'analysis accompanies data collection' (Galletta & Cross, 2013, p.4). This data collection method meant images were sent sporadically. However, it captured the frustration of mothers when faced with an urban design issue. Both participants were London based.

### **3.6 Ethnographic research and the walking interview**

The final method used, spanning August 2020-July 2021 (see figure 1), was ethnographic fieldwork. Due to COVID-19, this was possible with direct family as I formed part of their support bubble. The ethnographic research entailed walking with the participants, observing their movement and the comments made. Photos were taken of poor urban design and examples of good design practice. This reflects a growing trend where 'researchers walk

with participants' and 'engag(e) with participants 'on the move', thus exploring 'people's understanding of place' (Evans & Jones, 2011, p. 849). Nataša Rebernik notes that application of 'walking ethnography' to 'disability terrain...(is) rare' (Rebernik, et al., 2020, p. 5). Nonetheless, this method, which Kusenbach terms 'go-alongs', suited researching pregnant women and new mothers, as one new mother commented how, due to sleep deprivation they found it difficult to remember issues (I11, 30/01/21, London). The walking interview offers a solution as it 'capture(s) the... hidden or unnoticed habitual relations with...the environment' (Ibid).

Nonetheless, due to the participants being family, the ethnographic fieldwork held unique dynamics. Whilst there as an observer of the participants, I also provided support. This limited the ability to take notes. However, looking at Lefebvre's (2015, p.37) *Rhythmanalysis* he argues that for a Rhythmanalyst 'to grasp a rhythm it is necessary to have been grasped by it' (Ibid.). As such, whilst there are complications in being aide and researcher, it meant I was 'grasped' by the rhythms of these new mothers and therefore understood them to a greater extent.

### **3.7 The Analysis Process**

As explained, the 'iterative nature of...research' meant overlap between data analysis and research process (Galletta & Cross, 2013, p.4). As such, the ethnographic fieldwork undertaken from August 2020 informed the questions in the semi-structured interviews, and interview results altered the ethnographic fieldwork, with more effort put into taking photos of obstacles. However, most analysis was done at the end of the research process.

For semi-structured interviews, each interview was recorded, using a voice notes app if done in person or over the phone, or via Zoom's inbuilt record function. Three of these interviews were transcribed manually, however due to the material quantity this was not possible for all. As such, for the remainder, a transcription application was used, and the transcription was checked manually against the recording and altered. A process of manual coding was undertaken, where main themes of 'the built environment', 'rhythms and 'feminism' were identified. These interview transcriptions were re-read and themes refined.

The 'built environment' theme was reclassified as 'access' and 'feminism' was redefined as the 'invisibility of pregnancy and new motherhood' within the city and planning processes.

Sub-themes were also detected. For the 'built-environment', initially sub-themes related to specific built environment hinderances, like, stairs, transport and space. After re-reading transcripts these sub-themes were then grouped into sub-themes; 'body that limits', 'pram that limits' and 'infrastructure that limits.' For the rhythm section, identifying sub-themes was straight-forward as 'body rhythms', 'baby's rhythms' and COVID-19 were obvious from the outset. The sub-themes for the last section went through the most refinement. Initial sub-themes were termed 'otherness', 'awareness from decision-makers', 'ability to effect change', and 'empowerment'. After looking again at the literature, it was decided these related to the 'invisibility of pregnancy' and 'invisibility of motherhood' in the city, and 'invisibility in planning guides and processes.' The themes and sub-themes were taken as headings and quotations supporting each theme were manually inputted. Data from ethnographic fieldwork and diary entries were reviewed and slotted in. The analysis of these two other methods were also incorporated into the semi-structured interview questions and used to reinforce interview findings.

### **3.8 Limitations**

Whilst attempts to carry out a thorough exploration were made, there were limitations to the research process. For example, due to snowball recruitment all participants were from a middle socio-economic background. Attempts were made to get participants from a varied socio-economic background, through emailing charities working with young parents and Sure Start Centres. However, for the latter no response was received, and for the former the charity cited limited resources to facilitate participant recruitment. The analysis and experiences reflect the experiences middle-class women and therefore no claims are made about lower-income women's experiences. This snowballing recruitment also meant the geographic spread is limited, with 72% of participants from London. The ethnographic fieldwork also created tensions, as being observer and support reduced capacity to take notes and photos. After initial interview analysis was conducted, attempts were made to rectify this by taking more photos.

Nonetheless, the biggest limitation was COVID-19. Whilst interviews were conducted via zoom, the one in-person interview gave unspoken information from body language. How the baby's rhythms dictated what the mother did was visible. Via Zoom it was harder to read bodily signals. After the initial interviews, it became apparent that rhythms of these women were important and therefore walking interviews would be a more suitable method. However, due to social distancing and lockdown regulations this was not possible with most participants. A variation of this method was undertaken with two participants who were family, which informs the analysis.

This research process unveiled insights into how pregnant women and new mothers' needs are not addressed, thereby disadvantaging them in space, in planning policy and decision-making processes. Chapter 4, 5 and 6 of the dissertation will analyse in detail the research process' results and the themes and sub-themes that emerged.

#### **4.0 The Bump, Pram and Universal Design**

Freund's (2001, pp. 689) concept of 'not being able to', taking a bio-medical approach to disability where any 'impairment' lessens your ability, allows us to view pregnant women and new mothers as temporarily disabled by their built environment, thereby recognizing their mobility needs. Freund's (2001) concept, which focuses on grades of disability rather than fixed categories places more importance on urban design as enabling or disabling. In breaking down the ableness/disability dualism, we 'universaliz(e) the...incorporation of differences into the social body' (ibid., p.695). With pregnant women and new mothers, ability is hindered first due to the woman's bio-medical factors like pelvic girdle pain, whereas in the second ability is reduced by the baby's bio-medical needs. What's more, the built environment, whilst not an agent, impacts whether this demographic is 'able to' access places at certain times (ibid.). This is true post-birth, when women are able-bodied, but are disabled by the pram. As such, there are similarities between the needs of pregnant women, new mothers and those with disabilities.

Nonetheless, contrary to Universal Design, looking at creating places for 'all', and whilst similarities in needs exist between wheelchair users and pregnant women and new mothers, their needs do not always align and need to be taken into consideration separately (Design Council, 2021). This first section of the dissertation looks at urban design issues that affect new mothers and pregnant women, and how they either align or, sometimes don't, with others with mobility issues. By doing so, it shows why having an in-depth understanding of pregnant women and new mothers' needs is necessary as they are not covered by the Design Council's (2021) approach to Universal Design. It also demonstrates how intersectionality explores the needs of sub-groups whilst acknowledging common hinderances faced by pregnant women, new mothers, and those with disabilities, thereby warranting this approach in Universal Design.

The interview, diary and ethnographic analysis showed that three main ways in which pregnant women and new mothers had limited access. During pregnancy the body limits, during new motherhood the pram limits and the infrastructure limits over the whole period.

#### **4.1 Body that limits**

Pregnancy differs for each woman, with some experiencing stronger symptoms than others. Nonetheless, it is a time where senses are heightened, and movement slows down due to the bump. As discussed, within feminist literature the body evokes tensions, with a desire to not be defined by the womb, but also an understanding that the physicality of being a woman undoubtably affects how women experience space (David, 1997). However, feminist geography and urban studies lack in-depth understandings of women's embodied experiences, which is required when planning and designing for pregnant women. Therefore, interviews with 25 pregnant women and new mothers were undertaken to understand their embodied experience.

Five respondents stated that the first trimester had the biggest effect on their decisions in the city. One woman pregnant stated, 'it was only really in...early pregnancy and...late pregnancy' when 'it's... an issue' as in 'early pregnancy you're...really tired' (I22, 08/02/21, London). These same five women commented how although not visibly pregnant, this was when they felt the most tired, nauseous and overwhelmed by smells and hunger, affecting their use of the city. First, heightened sensitivity to their environment affected travel choices. For example, one first-time mother stated that 'in that hot period of the summer...there were...times I didn't take a train....because it wasn't the new trains' that 'were air conditioned' (I2, 24/01/21, London). Prior to pregnancy, whilst hot weather was an annoyance, it did not affect their choice of transport. Two first-time mothers commented how they found smells and sights overwhelming, especially in supermarkets where 'seeing food at that point...makes you want to be sick' (I11, 30/01/21, London). They would ask their partners to go shopping instead. Two first-time pregnant women and one new mother also commented how they became aware of air pollution, although it is unclear whether due to heightened senses or moral responsibility towards the fetus.

As such, another way pregnancy changed women's behaviour in the city was, as Glaser argues, due to moral pressure to do what's best for the fetus (Glaser, 2021, p. 8). As pregnancy is 'a frail state of uncertainty. The unborn child... half physical fact, half theoretical possibility', it makes women feel extra vulnerable due to a desire to protect the

‘theoretical possibility’ so that it becomes ‘physical fact’ (ibid., p.118). Two respondents stated how ‘it felt...important to go out’ and were ‘conscious to..get..daily exercise’ (I2, 24/01/21). Another stated they did more walking during pregnancy after a gestational diabetes diagnosis (I10, 11/02/21, London). This behaviour change was seen as a given during pregnancy, with one woman stating ‘pregnant women....do a lot of walking anyway’, showing improving lifestyles is the assumed norm (I9, 02/02/21, London). Three respondents, two pregnant for the first time, commented on becoming more ‘worried about pollution’ as they were ‘aware... it’s not...good for the baby’ (I19, 25/01/21, London). One respondent stated that because of that, they wanted more green spaces (I4, 27/01/21, London).

One of the biggest ways pregnancy altered and limited women’s access to the city was due to the bump and the third trimester. Three respondents, pregnant before the pandemic, highlighted that due to the increasing size of their bump and the fact ‘you have parts of your body that you’re protecting.... you’re much more conscious of crowds, of being bumped’ (I21, 10/02/21, London). This supports claims made by neuroscientist Flavia Cardini, who found that during the final trimester, women’s peripersonal space increases (Cardini, et al., 2019). She argued this could be the result of a primitive instinct to protect the baby and increasing body size (Ibid.). This fear of danger was also observed during ethnographic fieldwork, with two women in their final trimester taking extra care on stairs (field observation, 04/08/2020). Nevertheless, fear of crowds, ‘being bumped’ and ‘people fall(ing) into you’, made two women reconsider their routes to avoid rush hour and avoid stairs (I2, 24/01/21 and I22, 09/02/21, London).

Eight women mentioned how the bump and exhaustion in the final trimester meant they needed to sit and were slower, creating a change of perspective where women felt empathy with those with disabilities. Out of these women who commented on their slower movement, four respondents stated this was due to hip and back pain during the final trimester. This affected their use of the city in numerous ways. Whilst three women commented how they became more active in the early stages of pregnancy for the benefit of the fetus, supported by ethnographic observations of two women, these women and two others stated that increasing pain and exhaustion meant they ‘did less walking around’ in



the last trimester, with 'being able to...park closer' being important (field observation, March-September 2020, I24, 03/02/21, Manchester). This was again reflected in the four women who cycled during the pregnancy but were unable during the last months. Six respondents said they avoided stairs, opting to take lifts instead, a fact verified by ethnographic observations (field observation, August 2020). Here we see a mirroring of needs between wheelchair users and pregnant women. However, what is unique about pregnancy was that opting for lifts was not entirely due to reduced mobility but also out of a fear for the fetus, showcasing the need to take an intersectional approach in understanding the needs of pregnant women.

Eleven respondents mentioned how the final trimester made them more conscious of those with permanent disabilities, which continued into new motherhood, showing an intersection of minority rights for further exploration. One woman commented they were grateful for the disability rights campaigners' work to improve urban accessibility as 'otherwise, we would be having a much worse time' (I2, 24/01/21, London). Three respondents argued it changed their perspective from an 'able status to a less able status', which in turn made them 'more mindful of others who are experiencing the same' (I11, 30/01/21 and I21, 10/02/21, London). However, whilst there was appreciation of similarities, four women stated their experience was not comparable to those with permanent mobility issues, as 'your experience with the pram is easier than the experience of....a wheelchair' user (I5, 08/02/21, Hertfordshire). This suggests that whilst taking an intersectional approach to understanding the embodied experience of pregnancy may 'reveal openings for activist intervention' which joins with disability activism, their needs are not identical and need to be understood in and of themselves (Parker, 2016, p.1346).

#### **4.2 Pram that limits**

One of the main differences with accessibility between pregnancy and new motherhood, is the pram. As one respondent said you 'have this...spirit animal that's been thrust upon you in the form of your pram' (I21, 10/02/21, London). The pram also creates differences in needs between those with permanent mobility disabilities and new mothers, showcasing the need to explore new mothers within Universal Design, as planning for wheelchair users does not meet the former demographic needs. Tensions between users does not only exist

between new mothers and wheelchair users, but with less able users with 'non-visible disabilities' (UK Government, 2020). As such, whilst this dissertation section explores new mothers' use space, it is doing so to deconstruct Universal Design and highlight the necessity to explore the lived urban experiences of each type of disability to deliver a post-pandemic city that meets their needs.

Whilst there are similarities in city use between new mothers and those with permanent mobility issues, there are important differences. Firstly, whilst wheelchair and prams users both must contend with maneuvering wheels in the city, the uniqueness of a pram is the way it changes the user's spatial form. The pram is in front of an able-bodied user, as opposed to the user within the seat (figure 3). As women highlighted, this brings up conflicts where accessibility infrastructure has been designed for wheelchair users but does not work for new mothers. Five respondents highlighted this space formation created issues with opening doors meaning they relied on assistance. One woman commented on how widened station ticket barriers were helpful, but that pram users need a greater distance between ticket stubs and automatic gates, as the pram user has something in front placing her further away from the ticket stubs (I12, 30/01/21, London). The interviewee's sentiments were that the design for station ticket barriers do not take this into account, and are 'considered' from, 'the perspective of an able-bodied person rather than someone who has... a disability' (ibid.). They went further, insinuating that urban design is considered from a 'standing up human adult' perspective, rather than from mothers' embodied experience who have 'something in front of (them)' (ibid.).



*Figure 3 User's form becomes elongated. Poor pavement upkeep creates dip where wheels get stuck, which had caused the woman to fall (field observation, 02/07/21)*

Another conflicting area of use between wheelchair and pram users that interviewees highlighted was buses. Four London based interviewees stated that due to limited step-free access at tube stations, which nine interviewees highlighted as the biggest challenge with mobility, they used buses more. This was reflected during ethnographic fieldwork as the woman's nearest tube station did not have a lift (field observation, 26/03/21). However, whilst space is provided on buses for prams and wheelchair users, four interviewees cited that it was 'not enough', especially as priority, understandably, is given to wheelchairs (I3, 01/02/21, London). What's more, two women mentioned how the vertical bar in the middle of what I'll term the 'accessibility space', placed for standing passengers, makes maneuvering two prams into the space difficult, despite there being room (figure 4). This need not be a conflict between wheelchair and pram users as more and better designed accessibility spaces on buses would reduce this tension.



*Figure 4 bar for standing passengers reduces space for less-able users (field observation, 02/07/21)*

Five women also criticized the lack of differentiation in signage for wheelchair versus pram users given for accessible routes. Four London respondents commented how the accessible tube map is not clear, especially as there are different levels of accessibility, for example lifts from platform to street level, or from platform to concourse. One woman stated she avoided the tube as she 'couldn't be bothered with the lifts', showcasing how a lack of provision and understanding of this demographic's mobility affected new mothers' transport choices (I5,08/02/21, Hertfordshire). Information signposting was also an issue on travel planning apps and transport maps, showing the dissimilarities between wheelchair and pram users. Citymapper offers a step-free function giving accessible routes to destinations (Citymapper , 2021). Whilst useful, seven respondents commented how the experience of using a pram is different as 'some options might be open to you...that're not open to others and that's not clear' (I5,08/02/21, Hertfordshire). For example, a route may be inaccessible for a wheelchair user if it includes some steps, which might not be an issue for a pram user, especially as other passengers are often willing to help. This shows how limited understanding of less-able users' differing needs leads to a lack of provision for new

mothers in transport systems. The assumption of ableness as norm also means there is an under provision of accessible infrastructure.

#### **4.3 Infrastructure that limits**

Inspired by Freund's (2001) work, emphasising that it is not body that limits so much as a lack of thoughtful urban design, this sub-section explores how whilst the body and pram limits women, it is the lack of accessible design provision which excludes them from the city.

Sixteen interviewees stated stairs limited access, showing an overlap of needs between less-able users. Two interviewees, as a result, felt that they didn't belong in the city anymore, with one woman stating, 'it's not set for mothers' (I1, 24/06/21). One of these women cited an experience at Waterloo Bridge, when she was unable to cross with a fellow pregnant woman and a new mother, due to no accessible infrastructure (I22, 08/02/21, London). She stated this experience made her see 'this isn't for us', reflecting how failure to plan for this demographic has denied them a 'right to difference' in the city (Ibid., and (Gilbert & Dikec, 2008, p. 252)).

Lack of signage for accessible routes in wayfinding processes was also highlighted by five respondents as a shared issue with other less-able users. One interviewee said this was an issue in places with accessible design elements, for example 'in the Olympic Park...there are a lot of ramps.... but it's not always... clear when you're going to end up at a dead end... it's not always sign-posted well enough' (I9, 02/02/21, London). This was also the case with lifts in Kings' Cross tube station, as 'it says it's accessible, but I couldn't see where the lift was' (I2, 24/01/21, London). Another woman stated that this led to 'places (being) usually accessible, but they're inconveniently accessible', suggesting that when designing and planning an area it is not enough to include accessible options, but thought needs putting into the wayfinding process (I24, 03/02/21, Manchester).

Poor maintenance and temporary access issues where alternatives had not been thought out also excluded women from the city. Eight women stated when lifts were out of order no alternative was provided, meaning a replan of their route or reliance on others' help. For example, one woman cited 'if the lift's broken it needs to be...clearly sign posted because it

would have made it impossible for me to get out...on my own' (I16, 26/01/21, Manchester). Poor maintenance robbing women of independence was lamented by one woman who stated that having to ask for help 'is not... nice... having gone from being completely independent' (I23, 09/02/21, London). Twice during ethnographic observations in Stratford and the Olympic Park lifts were out of order and not signposted early enough in the wayfinding process, either within the built environment, or on travel planning apps (field observations, 22/03/21 and 19/06/21 and figures 5 and 6). This made the participant frustrated as she planned this lift into her route (field observation, 19/06/21). One woman suggested a solution was ensure the staffing of stations to aid in case of temporary works (I5, 08/02/21, Hertfordshire). This would not be a solution for wheelchair users, highlighting again how the needs between them and new mothers are different. Seven women cited poor maintenance as an issue with pavements, also seen during a field observation (figure 3) (field observation, 02/07/21). One woman cited this was especially an issue on 'tree lined streets...because all the roots push the paving slabs up' (I7, 20/12/20, London). Uneven pavements are an issue for new mothers as walking with the baby is a method to get them to sleep. For wheelchair users they present a different issue, as it is about becoming unstable.



Figure 5 signage not visible (field observation, 22/03/21)



Figure 6 Sign on floor (field observation, 22/03/21)

Another issue excluding new mothers from the city, due to their increased pram size, was lack of space. Ten respondents highlighted lack of pavement space created tensions and a 'needs hierarchy' between users (I12, 30/01/21, London). This again shows the why a greater understanding of individual experience is needed rather than the Universal Design approach planning for 'all' (Design Council, 2021). Narrowness of passing points was highlighted by another interviewee on the Elizabeth Line, where she stated the seat formation didn't allow for a pram to pass (I2, 24/01/21, figure 7). In relation to pavements, one respondent stated how 'there wasn't space for us', with another citing annoyance at the 'irregularity of pavements...and the obstacles people put on them' (I22, 08/02/21 and I12, 30/01/21, London). Images of street furniture were also recorded by two new mothers in their diaries, for figure 9 this obstacle forced 'another woman coming the other way... to push our prams in the road' (personal diary, 18/02/21 and 20/04/21, figures 8 and 9).

Four women highlighted temporary obstructions and poor maintenance, such as wheelie bins and parking on pavements, as limiting space and creating access issues. The lack of space made women assess who needed the space more (I12, 30/01/21, London). One



respondent commented how 'if I'm pushing towards someone who's fit, in their twenties and able-bodied...they could go in the road' whereas 'if you're pushing a buggy towards someone who's 80...I'll go in the road' (ibid.). This respondent lamented the lack of provision, stating that this type of negotiation 'shouldn't have to be a consideration' (ibid.). Six respondents commented they had pushed the pram along the road, due to temporary or permanent obstructions reducing space, or poor maintenance. This highlights the importance of new mothers being considered in Universal Design, as through their inclusion we see how many users need additional space moving through the city. Currently lack of provision creates tensions between less-able users.



*Figure 7 Narrow passing point (field observation, 02/07/21)*





*Figure 8 lamppost limits access (personal diary, 20/04/21)*



*Figure 9 Traffic sign and narrow pavement forces  
pram user into road (personal diary, 18/02/21)*

The final way infrastructure limited pregnant women and new mothers in the built environment, that differs from other less-able users, is lack of toilets, baby-changing and feeding facilities. In other words, provision for the baby's needs. Twelve interviewees commented a lack of toilets was an issue during pregnancy as they needed to use them more. Two interviewees stated COVID-19 exacerbated this as toilets were closed. Thirteen interviewees stated that a lack of baby changing facilities made it difficult to spend time in the public realm. Even when changing facilities were provided, as one diary entry highlighted, space was lacking (personal diary, 09/06/21, figure 10). Another woman commented that changing facilities were only available in women's toilets, highlighting propagation of motherhood stereotypes (I9, 02/02/21, London). Whilst changing and feeding facilities are limited, they are increasingly being provided, with three women citing John Lewis, Canary Wharf and IKEA facilities seen in figures 11 and 12 (field observation, 01/04/21). However, these are places where you spend money, restricting access to those who can afford it and often hidden away, 'other(ing)' the practice of breastfeeding (Agarwal, 2021, p.61). Furthermore, as two interviewees highlighted, and as observed

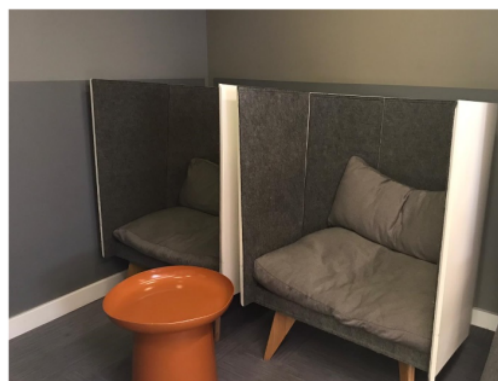
during field observations (figure 13), accessible toilets are often locked, requiring permission to use them, again othering new mothers and limiting their access.



*Figure 10 cramped baby-changing (personal diary, 09/06/21)*



*Figure 11 Baby-changing facilities and gender-neutral toilets (01/04/21)*



*Figure 12 Breastfeeding booths (field observation, 01/04/21)*



*Figure 13 locked accessible toilet (field observation, 22/03/21)*

Building on Freund's (2001) work, arguing people are disabled to lesser or greater extent by urban design, we can see this holds true for new mothers as although able-bodied themselves, they are hindered by a built environment that does not cater for their needs. As such, taking Freund's (2001, p.689) definition of disability as 'not able to' and an intersectional approach, we see that pregnant women and new mothers are 'not able to', hindered constantly by infrastructure that does not cater for them. Within Universal Design, pregnant women and new mothers have been 'othered' or forgotten about (Agarwal, 2021, p.61). As such, how their needs differ and sometimes create tension with other less-able users is not fully acknowledged or planned for (UK Government, 2021 and Design Council, 2021). This tension does not mean that one must lose out to the other. For example, providing more and better designed accessibility spaces on buses could resolve priority issues. Providing information based on pregnant women and new mothers travel habits would also provide more viable options than currently given on trip planning apps. Therefore, whilst pregnancy and new motherhood is a 'disability' in 'not able to', it does not need to exclude them from public space. An understanding of this demographic's embodied experience is needed to carefully plan post-pandemic cities that ensure their 'right to difference' (Gilbert & Dikec, 2008, p. 252) .

## **5.0 Rhythms of the City, Pregnancy and New Motherhood**

As discussed, Lefebvre's (2015, p.18) *Rhythmanalysis* argues capitalism excludes people from the city through the domination of 'linear' socially constructed rhythms over the 'cyclical.' Taking this approach to pregnancy and new motherhood, a period when bodily rhythms come into consciousness due first to pregnancy and second due to the baby yet to adapt to 'linear' rhythms, shows how this demographic is further denied a 'right to difference' and 'othered' in the city (Gilbert and Dikeç, 2008, p.252 and Argawal, 2021, p.61). This chapter adds to Reid-Musson's (2018) and Smith's (2013) criticism of Lefebvre's work. They argue that *Rhythmanalysis* does not appreciate the city rhythms' complexity, overlooking how intersectionalities are further disadvantaged by the domination of 'linear' rhythms (Ibid.). Exploring the rhythms of pregnant women and new mothers reveals a layer of city rhythms so far underexplored, adding complexity to our understanding of how 'social oppressions are....made...through spatio-temporal arrangements' (Reid-Musson, 2018, p.885). Furthermore, COVID-19 as a break to these 'linear' rhythms, provides an opportunity to 'rethink' our cities' spatio-temporal organization (Moreno, et al., 2021, p. 93). The additional understanding of how pregnant women and new mothers are limited by current spatio-temporal organization, provided by the following analysis, can be used to create more complex planning policies for the post-pandemic city.

### **5.1 Rhythms of pregnancy**

A main theme from interviews with women pregnant before COVID-19 was the discord of bodily pregnancy rhythms and 'linear' commuting rhythms (Lefebvre, 2015, p.18). Eight women cited they felt anxious commuting as a seat was not guaranteed. Five interviewees commented how this discord between bodily rhythms and 'linear' rhythms altered their travelling, with one stating they 'started avoiding rush hour...because it was impossible to get a seat' (I12, 30/01/21, London). The break to commuting rhythms due to COVID-19 was appreciated by one woman, who stated that the 'hidden advantage of being pregnant during the pandemic is you can get a seat everywhere' (I18, 21/01/21, London). This shows the potential of COVID-19 as a period which, through its pause on city rhythms, allows us to question whether they serve us.

The biological rhythms of pregnancy affected how twelve interviewees used the city, with limited facilities serving their needs causing them to mentally map routes or areas. This time spent mapping places before entering the public realm is part of pregnant women's rhythms, necessitated by a failure to plan for their needs. For example, one interviewee mentioned how, due to nausea, 'more time' was 'spent seeing her environment and what was going to make her feel ill', before leaving the house she 'was already thinking where can I get (snacks) on the way' (I11, 30/01/21). The creation of a mental map became a 'pattern', a new rhythm dictated by her body (ibid.) In the final trimester, twelve women cited how they needed to use the toilet more. However, due to few public toilets, exacerbated during COVID-19, meant that five women planned before leaving. One woman stated this experience made her more conscious of the city, as she needed to know her 'radius for the toilet' and 'map(ped) everything in (her) mind' (I4, 27/01/21, London). As such, pregnant women's rhythms in the public realm originate before leaving the house.

This shows limitations in *Rhythmanalysis* (2015), focusing on the rhythm analyst observing the public realm, as it does not understand how observable city rhythms originate in private. It fails, therefore, to consider hidden city rhythms, in this case time spent assessing the built environment before pregnant women venture out. The revelation that hidden rhythms dictate observable movement in public furthers Lefebvre's concept to serve pregnant women. If we focus on Lefebvre's (2015, p.37) argument that the rhythm analyst must 'be grasped' by rhythms, then to understand pregnant women and new mothers' rhythms it is necessary for the rhythm analyst to go-along with those they are observing. This requires the rhythm analyst to focus on certain groups within the city, before turning to observe the public realm and how they interact together. As such, we further our understanding of rhythms taking place before 'leaving the house' and understand how dominant city rhythms disadvantage some more than others (I1, 24/01/21, London).

Nine interviewees commented how in the final trimester they became 'slower', creating three alterations in how they used the city: they would a) not walk as far, reducing their travel radius, b) factor in extra time to journeys and c) they empathized with older people (I21, 10/02/21, London). Three respondents mentioned they pain experienced during pregnancy, affected distances walked and their speed, meaning they did 'less walking

around' (I24, 03/02/21, Manchester). For the five who cycled during pregnancy, they also stopped cycling in the third trimester. One interviewee stated that if much walking was involved, she 'tried...not to do it, or gave (herself)... time' (I2, 24/01/21, London). Pre-planning becomes part of their rhythm. However here the speed of movement also limits the travel radius, the local environment becoming more important. This was also the case with three women who used buses more, as it is a slower transport mode. During the third trimester, women spent more time in their local area, therefore planning in facilities at neighbourhood level is key. This understanding of pregnancy rhythms provides another argument for the 15-minute city (Moreno et al., 2021).

Three women expressed how the city was built with 'able-bodied' rhythms in mind, creating discord with pregnancy rhythms, inconveniencing women (I12, 30/01/21, London and field observations, 01/07/21). One woman commented how traffic-light crossings, especially at four-fork junctions, gave limited crossing time. To cross they 'could do it if (they) sprint... at the moment (they) can't' (I22, 08/02/21, London). She found it 'frustrating, it takes me twice as long...because I have to do....one road and then the other' (Ibid.). She cited Oxford Circus' diagonal pedestrian crossing as a solution. Giving pedestrians more crossing time would allow an assortment of rhythms to access the city. This was the same post-birth and observed during ethnographic fieldwork (field observation, 01/07/21). One woman cited how train transfer times between Chesfield at Orpington were too short, as 'you can't climb...the stairs, go across and get downstairs quick enough...the lifts and the elevators.... are a lot slower', suggesting that train timetables are based on able-bodied speeds, excluding those with mobility issues (I12, 30/01/21, London).

## **5.2 Baby's rhythms**

Post-birth, twelve interviewees found the baby's rhythms limited time spent in the public realm. Ideal 'windows' to leave the house were mentioned by five interviewees (I25, 10/02/21, Manchester). This need not be the case, but as highlighted in chapter 4, infrastructure for feeding and changing babies is not widely available, restricting how far and how long new mothers can be out. This created reluctance in four women moving far from home, especially in the weeks post-birth, for fear of not having facilities. This supports findings from Carol Wilkins' midwifery study, who argued that new motherhood 'meant that

established routines...were thrown into confusion' as women encountered 'logistical planning and preparation for outings with their babies' (Wilkins, 2006, pp. 173-174). For some, lack of baby-friendly facilities 'engendered a desire to avoid those difficulties by staying at home', heightened in COVID-19 when facilities were shut (ibid.). One interviewee cited anxiety 'about not having anywhere to feed' meant they had 'not been venturing out as much' (I8, 03/02/21, London). Another woman stated that as a new mum, 'no matter what you do, you need places to feed and change' (I4, 27/01/21, London). Again, the baby's rhythms required women to mentally map facilities before leaving the house. As one respondent said, 'you can't just walk out the door anymore', showing how the process of pre-planning robbed them of time and excluded them from space (I25, 10/02/21, Manchester).

Although the baby's rhythms reduced their travel radius, women exercised agency, with nine stating they left the house for their own wellbeing. One interviewee mentioned how

'if a baby doesn't align with that window, you can feel like I can't do this .... I guess I pushed through... I just took it anyway and tried to make it work' (I11, 30/01/21, London).

From this interview we see how the baby's rhythms put a mental barrier for the mother going out, especially in the first weeks post-birth. However, it also shows agency, in that whilst historically assumed that new mothers do not go out, they do have places to go (Brearley, 2021, p.34 and 37 and Agarwal, 2021, p.27). However, it is with a different purpose than prior to motherhood. Instead, it was the lack of facilities, such as smooth paths facilitating the baby's sleep, which reduced the travel radius, rather than a lack of desire to venture out. This suggests increasing built environment facilities could ease new mothers' anxiety and lessen time spent pre-planning.

### 5.3 Becoming local

Women commented changing where they spent money, with nine women stating they left the house not because of consumer desires, but for their mental health. This raises questions about whether UK cities are planned around 'linear' rhythms rather than specific demographic rhythms (Lefebvre, 2015). One respondent commented how 'when you see new mums out, they're not necessarily doing anything, they're not there to do anything other than...be there...that's all you need to be doing at the early stage' (I11, 30/01/21, London). Whilst eight women commented how they bought coffees on daily walks 'that's not really the objective' (Ibid.). Nine women also stated they shifted from spending money in restaurants and bars to local cafes and supermarkets in response to the baby's rhythms, meaning they stayed home in the evenings. One woman stated that before having their child they 'wouldn't hang out in (their) local area' (I23, 09/02/21, London). Nine women who gave birth pre-COVID-19 cited this shift to spending more time and money in their neighbourhood, suggesting that whilst COVID-19 made local living the norm, it was already the experience of new mothers. As one woman stated, 'the 15-minute city really resonates with a carer because...that's as far as I can get' (I21, 10/02/21, London). Overall, there was an understanding that wherever they went was not as important as leaving the house, as maternity leave could make them feel 'lonely', thereby challenging historical beliefs that women stay at home - one interviewee stating 'I do go out every day because I need to go out every day' (I14, 01/02/21, London, Brearley, 2021, p.36 and I6, 05/02/21, London).

Nonetheless, the built environment made going out without a consumer purpose difficult. Six women commented how cafés and John Lewis feeding rooms were the only places for feeding, but that they had to buy something to stay there. As one woman stated, 'you don't...want to be buying a cup of coffee every time you.... change a nappy', with another stating that to breastfeed out of the 'cold and wet...you ended up having to buy something' (I23, 09/02/21, London and I25, 10/02/21, Manchester). Three women stated how they found walled gardens, like Streatham common, as good for breastfeeding as they were shaded from the elements. However, most commented on a lack of outdoor breastfeeding facilities. In one interview, 52hours's breastfeeding public bench (figure 14) was mentioned as a solution, providing free and accessible breastfeeding environments (I6, 05/02/21, London, (BigSEE, 2019). Another woman commented how ticket prices to the neighbouring



suburb were expensive, suggesting public transport pricing is based around commuter patterns. The World Bank (The World Bank, 2020, p. 37) argues that 'multi-trips' are excluded from transit planning, thereby denying new mothers, especially those from lower-economic backgrounds, access to the city.

This shift to responding to the baby's rhythms and more local movement could provide opportune moment to encourage more environmentally friendly patterns. As Amy Findley highlights, 'pregnancy is...regarded as a "teachable moment", where new behaviours are encouraged (Findley, et al., 2020). New mothers' rhythms already incline towards local movement. Nonetheless, the moment is lost due to lacking accessible public transport and safe cycling infrastructure. As such, nine stated they rely more on their car post-birth, with one stating that giving birth made them buy a car sooner (I7, 20/12/20, London). Especially interesting was one woman self-identified as a 'confident cyclist' using her car more due to 'feeling worried about' safety (I6, 05/02/21, London). As such, lacking public transport accessibility and unsafe cycling infrastructure encouraged unsustainable behaviours in a group otherwise inclined to local movement.



*Figure 14 52hours breastfeeding bench providing privacy and shelter from elements (BigSEE, 2019)*

#### 5.4 COVID-19 breaking rhythms

The pandemic broke dominant city rhythms, allowing us to question whether they serve us. As Moreno (2020, p.93) argues, it has shown 'the need for a radical rethink of the city.' This potential for change is manifested in the post-pandemic city. As seen, the discord between mothers' rhythms and lack of provision for babies' needs forces new mothers to local movement. The pandemic has done the same. As a result, together with wider trends towards providing more environmentally friendly cities, concepts such as the 15-minute city have come to the fore (Willsher, 2020). Whilst this serves new mothers, it is disappointing this is due to two crises - climate change and COVID-19 - that affect *men* and women and those who are *able-bodied* and those with disabilities. As such, whilst these planning forms better serve pregnant women and new mothers' rhythms, ensuring free and accessible facilities that serve these rhythms must be planned into mix-use neighbourhoods. This gives valuable time back to pregnant women and new mothers - time currently spent mentally mapping their environment. It is only through doing so that the 15-minute city truly meets pregnant women and new mothers' needs.

## **6.0 Making the invisible visible**

The first two chapters showed how pregnant women and new mothers have additional built environment needs that, whilst sometimes overlap, are separate to others with disabilities. Therefore, it is necessary to understand their embodied experience to provide cities that serves their needs. We also explored how pregnancy and new motherhood rhythms alter their travel radius, due to a lack of planning and designing for them. Understanding pregnant women and new mothers' rhythms, and how they contrast to dominant city rhythms and others with reduced mobility, complicates Lefebvre's *Rhythmanalysis* (2015). It shows we need to understand the intersectional rhythms to understand how some are more excluded from the city than others (Reid-Musson, 2018). Pregnant women and new mothers have unique needs currently underserved in UK cities. As such, this brings to question why, if their day-to-day activities and lifestyles are limited by the built environment, they have not been included in planning and urban design guides in the UK (RTPI, 2021, Design Council, UK, UK Government, 2021). As such, this section looks at how and why they are invisible and possible strategies for making them visible in planning processes. It discusses what their inclusion in planning processes means for others going through temporary rhythms of intersectionality, and for those with permanent disabilities.

### **6.1 Invisibility of pregnancy**

Although 'the early stages is when you feel...most...exhausted', five women commented how it was invisible, verified by the lack of inclusion of pregnancy by The Disabled Persons Transport Advisory Committee (DPTAC) in their definition of 'non-visible disabilities' (I5, 08/02/21, Hertfordshire and (UK Government, 2020)). The DPTAC uses the term 'non-visible disability' to describe 'disabilities...not visually obvious' (Ibid.) They state 21% of people in the UK have a disability, but do not include pregnant women in this percentage despite them experiencing 'mobility' and 'fatigue difficulties' (Ibid.) This goes against the 2010 Equality Act, which lists pregnancy and maternity as a 'protected characteristic' (Brearley, 2021, p.39). Not being visible, yet feeling exhausted, created anxiety for five women in getting seats on trains, with four changing travel times. This demonstrates overlap in experiences during early pregnancy and other 'non-visible disabilities', not recognized by UK Government (2020) policy.

Five women commented how during the first trimester 'you don't want to tell people...you're pregnant' due to an 'anxiety of death' and an unspoken assumption that you 'shouldn't share news of...miscarriage', an aspect that differentiates the experience of early pregnancy from other 'non-visible disabilities' (I5, 08/02/21, Hertfordshire, Agarwal, 2021, p59, (Zucker, 2021) and UK Government, 2020). This silence around miscarriage and subsequent invisibility of early pregnancy means there are women who do not 'experience multiple trimesters of pregnancy', but feel the physical effects of early pregnancy, like nausea (Ibid.). This increases the number of women going through this experience and who need planning provision. Policy initiatives that overcome the non-visibility of pregnancy, like the baby on board badge campaign were lauded by eight interviewees. However, there are tensions in using the badge due to the 'silence and stigma' surrounding miscarriage. Three women stated they had to negotiate the first trimester, removing it when they got to work to avoid colleagues finding out (Zucker, 2021). Three interviewees stated even wearing the badge did not guarantee a seat. Therefore, public awareness of how pregnancy affects movement during the first trimester was lacking. As one respondent stated:

'There's this idea of pregnancy being when women are massive, but that only...happens at the end...for most of the time, it's not visible (I11, 30/01/21, London).

## **6.2 Invisibility of motherhood**

As Glaser (2021, p.5) argues, 'motherhood is such a common experience that its problems go unnoticed', contrasting with third trimester, when women's bodies are treated with care in public. Agarwal (2021, p.98) argues that a 'woman's body is the terrain on which patriarchy is erected.' We can see this through the pregnancy experience, for as Glaser (2021, p.106) argues,

'it transforms a woman...from an autonomous individual to responsible carrier...of a being.... infinitely vulnerable and therefore infinitely valuable - certainly more valuable than her.'

Six interviewees felt they were treated better during pregnancy compared to post-birth. One respondent mentioned how 'people...treat you like a delicate flower....when you're a mother they don't' (I1, 24/01/21, London). Public ownership of the fetus was seen by those

pregnant before COVID-19, as they found strangers 'touch your belly', which was an invasion in their personal space (I15, 26/01/21, Leeds).

Whilst public consideration is given to protect the fetus during the last trimester, this same concern is not given post-birth, as the perceived common nature of new motherhood made mothers less visible (Glaser, 2021, p.5). One interviewee commented how cars slowed down more on crossings when she was pregnant compared to post-birth (I22, 08/02/21, London). Another woman commented how people did not give up seats on buses, despite there being more necessity to use seats next to 'accessibility spaces' as you cannot leave the baby unattended (I1, 24/01/21, London). Furthermore, five women stated with a pram you are a nuisance as opposed to someone disadvantaged by the urban realm. As one respondent said:

'As soon as you're... pushing a pram they see you as...an inconvenience...you take up too much space' (I24, 03/02/21, Manchester).

Another respondent commented how 'people's perceptions are less conscious of someone when they've got the baby, as opposed to when they're making the baby' (I8, 03/02/21, London). There is more respect, therefore, given in how people interact with pregnant women, despite twenty-three respondents stating the pram and the baby's rhythms impacted their use of the city more than pregnancy. This is not to say the impact of pregnancy is minimal, but it is less than post-birth. Therefore, due to being perceived as more common and less vulnerable, there is a disconnect in public treatment of new mothers compared to the impact it has on their urban experience (Glaser, 2021, p.5 and 7).

### **6.3 Temporary rhythms of intersectionality**

Another reason why new mothers are ignored in planning policies and process is due to its perceived temporality by decision makers and women themselves. Three women commented how new motherhood is seen as 'only nine months, so just...suck it up', you have the pram, and associated accessibility issues 'for at least three years' (I22, 08/02/21, London). As such, these women felt it was not given much import. As the experience was seen as temporary, despite it being common and recurring at the city-level, one woman stated there was not much incentive for her council to change the built environment, stating

‘they don’t imagine the needs of... mothers...because they’re so petrified of changing the urban realm to disadvantage car users’ (I21, 10/02/21, London).

One woman, through taking part in the research, contacted her local council to address an entrance issue at her local park. Whilst the council resolved the issue by installing a ‘pram crossing’ (figures 15-17), the planning inspector stated ‘he’d never noticed that it was a problem for mothers’ (personal diary, 10/03/21). Not only does this show this dissertation’s impact in changing the urban realm, but also how new mothers are largely invisible to decision-makers. It was not just decision makers, however, who saw the experience as temporary. Four women stated that after the initial months they acclimatized to difficulties, with one woman, who gave birth ten months prior to being interviewed, stating ‘I just find a way because I’ve gotten used to it’ (I15, 26/01/21, Leeds). This was also verified by the ethnographic fieldwork undertaken where, whilst initially nervous and frustrated about the built environment, the two women ‘got into a routine’ and became more confident moving through the city (field observation, September 2020-July 2021).



Figure 15 Inaccessible entrance (personal diary, 10/03/21)



Figure 16 New curbs added after complaining to council (personal diary, 30/03/21)



*Figure 17 New curbs (personal diary, 26/04/21)*

The temporality of pregnancy and new motherhood offers a perspective shift invaluable for planners to understand built environment limitations and how they affect those with permanent disabilities. Eighteen women stated how new motherhood shifted their perspective, becoming more acutely aware of accessibility deficiencies. As one woman stated during ethnographic fieldwork, 'it's a watershed moment when you have a baby. Nothing will ever change my life as much' (field observation, 01/07/21). Ten women found the experience made them empathize with those with disabilities, as 'it's as if someone suddenly takes away one of your senses' (I7, 20/12/20, London). Six women stated how the experience made them more feminist, with one woman commenting how before giving birth she 'was naïve to the flaws because I didn't really understand feminism before I became a mother' (I21, 10/02/21, London). Three became more conscious about road safety, especially as 'the pram goes out first', and four women stated how they became 'more aware of their local surroundings' and needing amenities nearby (I4, 27/01/21, London and I20, 20/01/21, Bristol). This demonstrates what new mothers' perspective can bring to planning consultations, influencing for the better how we plan our cities.



#### **6.4 'We moan about it to other mums': model for new mother planning consultations (I7, 20/12/20, London)**

Despite new motherhood presenting accessibility challenges within the city, eight women stated they only shared their experiences with other mothers in safe spaces. One woman stated they would not know how to make their voice heard with another stating that their priorities lay elsewhere (I7, 20/12/20 and I11, 30/01/21, London). Five new mothers instead stated the importance of safe spaces to share experiences like coffee shops and baby groups. Due to the pandemic, however, and the closure of these between 4/01/21-29/03/21 (figure 1), six new mothers lamented the lack of peer-support (UK Government, 2021) (UK Government, 2021). This led to a return to, what Agarwal (2021, p.10) terms the

‘historical isolation of women from each other... language of female internality and privacy, the exclusion of women from the creation of a political community.’

As mentioned, the adverse COVID-19 impact on new mothers resulted in activist campaigns to address ‘the motherhood penalty’ (Brearley, 2021). Nonetheless, one interviewee suggested that most complaints about the built environment stayed between themselves, hidden from planning professionals (I7, 20/12/20, London). There was also a lack of effort from planning professionals to understand their experiences, two women stating ‘I’ve never...been asked these questions before’ (I5, 05/02/21, London). This suggests pregnant women and new mothers are not averse to planning consultations, but that current means of participation, which four respondents said was emailing their MP, is not suitable to new mothers’ lifestyle as ‘you don’t have the extra capacity to... write to the council....I’ve had that thought in my head so many times, but I don’t do it because there’s not the energy’ (I11, 30/01/21, London). Understanding, therefore, many women voice these issues at baby groups could feed into how planning departments consult with this demographic. Through taking a ‘rhythmanalyst’ approach where the observer is ‘grasped by’ the rhythm of new mothers, planners could consult baby groups, thereby overcoming the barrier to participation of new mothers’ lack of time and energy (Lefebvre, 2015, p.37).



## 7.0 Conclusion

Pregnant women and new mothers have conflicting needs with others with mobility issues and therefore need to be understood as a separate, but complementary group. Universal Design's approach that by designing and planning for those least able serves all users has not addressed this demographic's needs (Design Council, 2021). Chapter 4 showed how numerous tensions existed between pregnant women and new mothers' used of space, as opposed to wheelchair users. Therefore, taking an intersectionality approach, demonstrates Universal Design's downfalls and that more investigation is warranted to understand these specific sites of intersectionality, and hence, more complexity in planning guidance.

Understanding pregnant women and new mothers' embodied experience, revealed how bodily rhythms, of mother and baby, become more pronounced, altering how they use the city. Through doing so, we revealed how pregnant women and new mothers' rhythms originate in private before entering public as they carry out mental mapping before leaving the house. The lack of feeding and changing facilities robs these women of time by necessitating pre-planning, showing another way this demographic is denied a 'right to difference' in the city (Gilbert & Dikeç, 2008, p.252). This also demonstrates limitations of *Rhythmanalysis*, as these rhythms are not visible to a rhythm analyst observing the public sphere. This research instead emphasises that the rhythm analyst must be 'grasped' by rhythms to understand them, thereby demonstrating the importance of walking interviews to understand embodied experiences (Lefebvre, 2015, p.37). Planners could use walking ethnography to understand different intersectionalities and create more complex planning frameworks. What's more, taking a rhythm analysis approach reveals how new mothers become more local and shift where they spend money, showing an overlap with effect of COVID-19 on cities. COVID-19, as a break to 'linear' city rhythms, questioned whether they serve us (Lefebvre, 2015, p.27). It also showed us all what being a new mother is like in cities which do not cater for their needs. As such, Chapters 4 and 5 demonstrated how pregnant women and new mothers are disadvantaged in space and why their embodied experience should be explored separate to wheelchair users.

Nonetheless, whilst the RTPI (2021), URBACT (2019), UN-Habitat (2021) and the World Bank (2020) produced guides on gender-inclusive planning not one of these explores the needs of

pregnant women and new mothers. They are invisible. We explored the reasons for this in Chapter 6. The first trimester is not physically visible, despite it greatly affecting the body. Women, however, are reluctant to make it publicly known due to miscarriage and associated shame (Zucker, 2021). Secondly, as Glaser (2021, p.5) argues, because 'motherhood is such a common experience...its problems go unnoticed'. Unlike the third trimester when women felt more respect, five new mothers stated they were 'an inconvenience' and excluded from the city (I24, 03/02/21, Manchester). This also leads to, as Agarwal (2021, p.2) argues, an assumption on behalf of new mothers that their 'story is mundane, not of value or interest to anyone'. Thirdly, there is a sense of not wanting to discourage other women from choosing motherhood (Glaser, 2021, p.14). Quiet on the difficulties of new motherhood, leads to a reluctance to complain for fear of judgement, reflected in the statements of six women, who acclimatized to the experience rather than complaining to their local planning departments (ibid., p.13). Fourth, three women felt that decision makers and planning departments saw the experience as temporary and therefore of no import, despite the experience lasting multiple years and constantly affecting new groups.

The final reason, as seven interviewees stated, is that new motherhood is an exhausting period, meaning that normal consultation pathways are not accessible. Complaining about the built environment was not a priority, especially as they also view their experience as temporary. Four women stated that, verified by ethnographic observations, you became used to the challenges of moving through the city after the first year (field observation, 01/07/21). This highlights the importance of consulting with new mothers soon after birth, as this is when challenges are more obvious. As such, this dissertation highlights the need to consult with different intersectionalities in planning processes. More than this, consulting with those experiencing a temporary rhythm of intersectionality, such as new mothers, reveals additional information about the city's limitations as it is a 'watershed moment' when design obstacles are more obvious than to those who have acclimatized to the experience (field observation, 01/07/21). As such, taking a rhythmanalyst approach in planning consultations, where planners accompany demographics through the city, is a way to access this knowledge pool and bring these insights into the planning and designing of the post-pandemic city.

### **7.1 Recommendations**

- Prioritise pregnant women and new mothers' inclusion in planning consultations as they provide valuable insights into the built environment's limitations, especially for those with permanent disabilities.
- Utilize walking interviews and consultations with baby groups as it makes participation more accessible.
- Make information about the needs of pregnant women and new mothers available on RPTI and Design Council websites.
- Incorporate rhythm analysis approaches into planning education, as it reveals insights into how certain groups are excluded from the city.
- Planners and policymakers to take seriously temporary rhythms of intersectionality, thereby making visible those currently excluded from mainstream planning and design policies (new mothers, older people etc.), demonstrating how the amount of people who need accessible infrastructure is greater than we currently plan for.

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## Appendix

### Appendix A: Ethical Clearance

 Respondent: Helen Carter Submitted on: Wednesday, 20 January 2021, 10:05 AM

### Ethical Clearance Pro Forma

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

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

Please ensure to save a copy of your completed questionnaire BEFORE hitting 'submit' (you will not be able to access it later).

#### Submission Details

1 \* Please select your programme of study.

MPlan City Planning : MPlan City Planning

2 \* Please indicate the type of research work you are doing.

☐ Dissertation in Planning (MSc)  
☒ Dissertation in City Planning (MPlan)  
☐ Major Research Project

3 \* Please provide the current working title of your research.

Pandemic Mum in the City: incorporating the needs of first-time mothers in planning for and designing a post-pandemic city

4 \* Please select your supervisor from the drop-down list.

Andres, Lauren : Andres, Lauren

#### Research Details

5 \* Please indicate here which data collection methods you expect to use. Tick all that apply.

☒ Interviews  
☐ Focus Groups  
☐ Questionnaires (including oral questions)  
☐ Action research  
☒ Observation / participant observation  
☐ Documentary analysis (including use of personal records)  
☐ Audio-visual recordings (including photographs)  
☐ Collection/use of sensor or locational data  
☐ Controlled trial  
☐ Intervention study (including changing environments)  
☐ Systematic review  
☐ Secondary data analysis  
☐ Advisory/consultation groups

6 \* Please indicate where your research will take place.

UK only : UK only

7 \* Does your project involve the recruitment of participants?

'Participants' means human participants and their data (including sensor/location data and observational notes/images.)

☒ Yes ☐ No

**Appropriate Safeguard, Data Storage and Security**

**Appropriate Safeguard, Data Storage and Security**

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

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

This includes:

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

☒ Yes ☐ No

9 \* Is your research using or collecting:

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

\*Examples of special category data are data:

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

☒ Yes ☐ No

10 \* Do you confirm that all personal data will be stored and processed in compliance with the General Data Protection Regulation (GDPR 2018)?

☒ Yes  
☐ No  
☐ I will not be working with any personal data

11 \*

I confirm that:

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

You **MUST** download a copy of your responses to submit with your proposal, and for your own reference.

To do this, use the print screen function of your web browser, and print to PDF in order to save.

## Appendix B



**Title of Study:** Pandemic Mum in the City: incorporating the needs of first-time mothers in planning for and designing a post-pandemic city.

**Department:** Bartlett School of Planning, University College London.

**Name and Contact Details of the Principal Researcher:** Helen Carter  
[helen.carter.14@ucl.ac.uk](mailto:helen.carter.14@ucl.ac.uk)

**Name and Contact Details of the UCL Supervisor:** Dr Lauren Andres, [l.andres@ucl.ac.uk](mailto:l.andres@ucl.ac.uk)

### Consent Form for Mothers and Health-Care Professionals for Research Studies

Thank you for considering taking part in this research. The person organising the research must explain the project to you before you agree to take part. If you have any questions arising from the Information Sheet or explanation already given to you, please ask the researcher before you decide whether to join in. You will be given a copy of this Consent Form to keep and refer to at any time.

**I confirm that I understand that by ticking/initialling each box below I am consenting to this element of the study. I understand that it will be assumed that unticked/initialled boxes means that I DO NOT consent to that part of the study. I understand that by not giving consent for any one element that I may be deemed ineligible for the study.**

		Tick Box
1.	*I confirm that I have read and understood the Information Sheet/ explanation for the above study. I have had an opportunity to consider the information and what will be expected of me. I have also had the opportunity to ask questions which have been answered to my satisfaction. I would like to take part in an individual interview	
2.	*I understand that I will be able to withdraw my data up to up to 3 months after the completion of the task.	
3.	*I consent to participate in the study. I understand that my personal information ( <i>Employment, Family Status, Maternal Status, Ethnicity, Age and Place of Residence</i> ) will be used for the purposes explained to me. I understand that according to data protection legislation, 'public task' will be the lawful basis for processing.	

4.	<p><b>Use of the information for this project only.</b> Data will be collected, stored and managed in line with the UK Data Protection Act (2018) and at no point will personal information about respondents be divulged to any third party without the consent of the participant concerned</p> <p>I understand that all personal information will remain confidential and that all efforts will be made to ensure I cannot be identified.</p> <p>I understand that my data gathered in this study will be stored anonymously and securely. It will not be possible to identify me in any publications.</p>	
5.	I understand that my information may be subject to review by responsible individuals from the University for monitoring and audit purposes.	
6.	I understand that my participation is voluntary and that I am free to withdraw at any time without giving a reason. I understand that if I decide to withdraw, any personal data I have provided up to that point will be deleted unless I agree otherwise.	
7.	No promise or guarantee of benefits have been made to encourage you to participate	
8.	I understand that the data will not be made available to any commercial organisations but is solely the responsibility of the researcher(s) undertaking this study.	
9.	I understand that I will not benefit financially from this study or from any possible outcome it may result in in the future.	
10.	I agree that my anonymised research data may be used by others for future research. [No one will be able to identify you when this data is shared.]	
11.	I consent to my interview being audio/ recorded and understand that the recordings will be destroyed within <i>1 year</i> following transcription. To note: If you do not want your participation recorded you can still take part in the study.	
12.	I hereby confirm that I understand the inclusion criteria as detailed in the Information Sheet and explained to me by the researcher.	
13.	I have informed the researcher of any other research in which I am currently involved or have been involved in during the past 12 months.	
14.	I am aware of who I should contact if I wish to lodge a complaint.	
15.	I voluntarily agree to take part in this study.	
16.	Use of information for this project and beyond will only be used for analysis and publication purposes. Personal information will not be displayed publicly. Personal data will be stored for one year – prior to full anonymisation.	

\_\_\_\_\_  
Name of participant

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Researcher

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

## RISK ASSESSMENT FORM FIELD / LOCATION WORK



*The Approved Code of Practice - Management of Fieldwork should be referred to when completing this form*

<http://www.ucl.ac.uk/estates/safetynet/guidance/fieldwork/acop.pdf>

**DEPARTMENT/SECTION** HELEN CARTER

**LOCATION(S)** LONDON, UK

**PERSONS COVERED BY THE RISK ASSESSMENT**

Helen Carter

### BRIEF DESCRIPTION OF FIELDWORK

- Using the contextually-specific walkability criteria, observational study will be carried out to investigate walkability in each street case studies, with particular focus on walkability and active and public transport connectivity.
- Journey satisfaction user surveys to examine pedestrian attitudes and experiences. Ideally 50 participants per each street case study.

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

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

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

### ENVIRONMENT

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

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

Working besides major roads could lead to injury – low risk.

### CONTROL MEASURES

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

- |                                     |  |
|-------------------------------------|--|
| <input type="checkbox"/>            | work abroad incorporates Foreign Office advice   |
| <input type="checkbox"/>            | participants have been trained and given all necessary information                     |
| <input type="checkbox"/>            | only accredited centres are used for rural field work                                  |
| <input checked="" type="checkbox"/> | participants will wear appropriate clothing and footwear for the specified environment |
| <input type="checkbox"/>            | trained leaders accompany the trip   |

<input type="checkbox"/>	refuge is available
<input type="checkbox"/>	work in outside organisations is subject to their having satisfactory H&S procedures in place
<input checked="" type="checkbox"/>	OTHER CONTROL MEASURES: please specify any other control measures you have implemented: Avoid having my back towards the traffic flow

### EMERGENCIES

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

*e.g. fire, accidents*

Examples of risk: loss of property, loss of life

Working besides major roads could lead to injury – low risk.

### CONTROL MEASURES

Indicate which procedures are in place to control the identified risk

<input type="checkbox"/>	participants have registered with LOCATE at <a href="http://www.fco.gov.uk/en/travel-and-living-abroad/">http://www.fco.gov.uk/en/travel-and-living-abroad/</a>
<input type="checkbox"/>	fire fighting equipment is carried on the trip and participants know how to use it
<input checked="" type="checkbox"/>	contact numbers for emergency services are known to all participants
<input checked="" type="checkbox"/>	participants have means of contacting emergency services
<input type="checkbox"/>	participants have been trained and given all necessary information
<input type="checkbox"/>	a plan for rescue has been formulated, all parties understand the procedure
<input type="checkbox"/>	the plan for rescue /emergency has a reciprocal element
<input type="checkbox"/>	OTHER CONTROL MEASURES: please specify any other control measures you have implemented:

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### EQUIPMENT

Is equipment used?

NO

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

*e.g. clothing, outboard motors.*

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

### CONTROL MEASURES

Indicate which procedures are in place to control the identified risk

<input type="checkbox"/>	the departmental written Arrangement for equipment is followed
<input type="checkbox"/>	participants have been provided with any necessary equipment appropriate for the work
<input type="checkbox"/>	all equipment has been inspected, before issue, by a competent person
<input type="checkbox"/>	all users have been advised of correct use



<input type="checkbox"/>	special equipment is only issued to persons trained in its use by a competent person
<input type="checkbox"/>	OTHER CONTROL MEASURES: please specify any other control measures you have implemented:

LONE WORKING	Is lone working a possibility?	YES	If 'No' move to next hazard If 'Yes' use space below to identify and assess any risks
e.g. alone or in isolation lone interviews.	Difficulties in summoning help when required. Risk of assault – low risk.		

CONTROL MEASURES	Indicate which procedures are in place to control the identified risk
<input checked="" type="checkbox"/>	the departmental written Arrangement for lone/out of hours working for field work is followed
<input type="checkbox"/>	lone or isolated working is not allowed
<input checked="" type="checkbox"/>	location, route and expected time of return of lone workers is logged daily before work commences
<input checked="" type="checkbox"/>	all workers have the means of raising an alarm in the event of an emergency, e.g. phone, flare, whistle
<input checked="" type="checkbox"/>	all workers are fully familiar with emergency procedures
<input type="checkbox"/>	OTHER CONTROL MEASURES: please specify any other control measures you have implemented:
<input checked="" type="checkbox"/>	Plan my journey ahead and leave details of the field site and a work plan (with contact details) with a colleague prior to carrying out the research. If I don't return at a certain time or don't hear back from me after several calls then suitable action will be taken place.
<input checked="" type="checkbox"/>	Whenever possible, avoid lone working at night
<input checked="" type="checkbox"/>	Keep to busy, well-lit roads
<input checked="" type="checkbox"/>	Keep an eye on the traffic and other pedestrians and take extra caution when carrying out observational study
<input checked="" type="checkbox"/>	Make sure phone, camera and other valuables are not on display. Keep them in a bag if not used.

**ILL HEALTH**

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

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

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

**CONTROL MEASURES**

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

- ☐ an appropriate number of trained first-aiders and first aid kits are present on the field trip
- ☐ all participants have had the necessary inoculations/ carry appropriate prophylactics
- ☐ participants have been advised of the physical demands of the trip and are deemed to be physically suited
- ☐ participants have been adequate advice on harmful plants, animals and substances they may encounter
- ☐ participants who require medication have advised the leader of this and carry sufficient medication for their needs
- ☐ OTHER CONTROL MEASURES: please specify any other control measures you have implemented:

**TRANSPORT**

**Will transport be required**

**NO**

**YES**

☐

☒

**Move to next hazard**

**Use space below to identify and assess any risks**

*e.g. hired vehicles*

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

Walking, tube and bus

Is the risk high / medium / low?

Low risk - COVID-19 protective measures taken

**CONTROL MEASURES**

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

- ☒ only public transport will be used. Mostly walking to the fieldwork location.
- ☐ the vehicle will be hired from a reputable supplier
- ☐ transport must be properly maintained in compliance with relevant national regulations
- ☐ drivers comply with UCL Policy on Drivers  
[http://www.ucl.ac.uk/hr/docs/college\\_drivers.php](http://www.ucl.ac.uk/hr/docs/college_drivers.php)
- ☐ drivers have been trained and hold the appropriate licence
- ☐ there will be more than one driver to prevent driver/operator fatigue, and there will be adequate rest periods
- ☐ sufficient spare parts carried to meet foreseeable emergencies
- ☒ OTHER CONTROL MEASURES: please specify any other control measures you have implemented:  
Using road safety skills and being aware of the traffic when walking.

<b>DEALING WITH THE PUBLIC</b>	Will people be dealing with public	<b>YES</b>	If 'No' move to next hazard  If 'Yes' use space below to identify and assess any risks
<i>e.g. interviews, observing</i>	Examples of risk: personal attack, causing offence, being misinterpreted. Is the risk high / medium / low? Observational study involves working in public places – possible risks of personal injury or abuse/attack. Low risk.		

<b>CONTROL MEASURES</b>	Indicate which procedures are in place to control the identified risk
<input checked="" type="checkbox"/> all participants are trained in interviewing techniques <input type="checkbox"/> interviews are contracted out to a third party <input type="checkbox"/> advice and support from local groups has been sought <input type="checkbox"/> participants do not wear clothes that might cause offence or attract unwanted attention <input checked="" type="checkbox"/> interviews are conducted at neutral locations or where neither party could be at risk <input checked="" type="checkbox"/> OTHER CONTROL MEASURES: please specify any other control measures you have implemented: Avoid standing in places where you will be causing an obstruction <input checked="" type="checkbox"/> Always carry my UCL ID to identify myself <input type="checkbox"/> Undertake training in good observational study techniques prior to carrying out the research	

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<b>WORKING ON OR NEAR WATER</b>	Will people work on or near water?	<b>NO</b>	If 'No' move to next hazard  If 'Yes' use space below to identify and assess any risks
<i>e.g. rivers, marshland, sea.</i>	Examples of risk: drowning, malaria, hepatitis A, parasites. Is the risk high / medium / low?		

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

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

**MANUAL HANDLING (MH)****Do MH activities take place?****NO****If 'No' move to next hazard****If 'Yes' use space below to identify and assess any risks**

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

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

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

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

**SUBSTANCES**Will participants  
work with

NO

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

substances

*e.g. plants,  
chemical, biohazard,  
waste*Examples of risk: ill health - poisoning, infection, illness, burns, cuts. Is the  
risk high / medium / low?**CONTROL  
MEASURES**

Indicate which procedures are in place to control the identified risk

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

**OTHER HAZARDS**Have you  
identified  
any other  
hazards?

If 'No' move to next section

If 'Yes' use space below to identify and  
assess any  
risks*i.e. any other  
hazards must be  
noted and assessed  
here.*

Hazard:

Risk: is the  
risk**CONTROL  
MEASURES**

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

Have you identified any risks that are  
not  
adequately controlled?

NO

☒

Move to Declaration

YES

☐Use space below to identify the risk and  
what  
action was takenIs this project subject to the UCL requirements on the ethics of Non-NHS  
Human Research?

No

If yes, please state your Project ID Number

For more information, please refer to: <http://ethics.grad.ucl.ac.uk/>

**DECLARATION**

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

Select the appropriate statement:

- ☒ I the undersigned have assessed the activity and associated risks and declare that there is no significant residual risk
- ☐ I the undersigned have assessed the activity and associated risks and declare that the risk will be controlled by the method(s) listed above

NAME OF SUPERVISOR: Dr Lauren Andres

**FIELDWORK 5**

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## **Appendix D**

### **Questions for new mothers and pregnant women**

#### **Pregnancy, new motherhood and the city:**

Profile:

Age Range:

Family Status:

Employment Status:

City:

First time mother? Second time mother?

Date gave birth:

- 1) Has your use of the city change now you are pregnant? What things do you have to take into account when leaving the house, which you didn't before becoming pregnant (for example, you made sure there was access to a toilet where you were going)?
- 2) Thinking back to your first pregnancy, how did your use of the city change after giving birth? What factors did you have to take into account before leaving the house?
- 3) How often have you been able to leave the house since becoming a mother/pregnant? What has prevented you from leaving on occasions when you decided to stay at home?
- 4) Have the ways people interact with you in public spaces changed now you are pregnant?
- 5) What are the top 3 spaces/ places in the city you most frequent? Why?
- 6) Are these places different from where you used to go before you were a mother/ pregnant, and if so, why have they changed?
- 7) Have you noticed more flaws with the design of public spaces or public transport since becoming pregnant or becoming a mother? What are the top 3 challenges/ issues you face in the urban environment and why?
- 8) How would you design a public space or plan a city, so it was more friendly for pregnant women and new mothers?
- 9) Do you feel that becoming a mother/pregnant has made you aware of things you didn't notice before? has it changed your perspective?
- 10) Something about breastfeeding maybe???

#### **Pregnancy, new motherhood and the pandemic:**

- 1) Do you think the pandemic has altered your experience of pregnancy/ new motherhood? If so, in what ways? How does it compare to you first pregnancy?

2) For you, what have been the most difficult aspects of the lockdown, preventive measures and social distancing rules? These can be either emotional impacts, or practical difficulties, such as lack of support getting on the bus.

3) Has the pandemic altered if and how you can access professional health services, such as health visitors and midwives? How has this impacted you?

4) Has the pandemic altered if and how you can access informal/ personal support, i.e. from family and friends? How has this impacted you?

5) Thinking about your day-to-day routines and activities, is this how you envisaged life as a new mother/ your maternity leave? How much do you think the pandemic has altered your maternity leave/ pregnancy experience?

6) Where are the places you have spent the most time in the city since the pandemic? Are these places different from those before the pandemic? How much do you think these changes are a result of the pandemic or becoming pregnant/new mother?

7) Do you think your needs and challenges are catered/listened and even known? (For example, by healthcare professionals, planning professionals or local authorities).



## **Appendix E**

### **Questions for healthcare professionals:**

**Profile:**

**Gender:**

**Age:**

**Profession:**

**Years working:**

**Location:**

**Ethnicity:**

### **Pregnancy, new mothers and the pandemic:**

- 1) How has professional health care altered since the pandemic for pregnant women or new mothers?
- 2) What have been the biggest challenges in responding to the pandemic whilst trying to deliver healthcare services?
- 3) Do you think the pandemic has highlighted existing issues with healthcare services and access to them? If so, what are they?
- 4) Do you think the pandemic has highlighted existing issues with mobility in the city for new mothers and pregnant women? If so, what are these issues?
- 5) What are the biggest threats of the pandemic to the emotional and physical health of pregnant women and new mothers?
- 6) What do you think about longer term impacts - are mums involved in pandemic going to be more at risk later on?

### **Pregnancy, new mothers and the city:**

- 1) In your opinion, what environmental factors (i.e. air quality etc.) influence pregnancy, the health of new mothers and newborns? And in what ways? How is this impacted by the pandemic?
- 2) In your opinion, what socio-economic factors most influence pregnancy/ fetal development, the health of new mothers and newborns? And in what ways? How is this impacted by the pandemic?
- 2) What do pregnant women/ new mothers need access to in the city? Has access to them been made more difficult due to the pandemic?
- 3) How would you redesign a city to make it healthier or more accessible for new mothers/ pregnant women?

4) What are usually the obstacles for new mothers/ pregnant women accessing support?  
Has this changed since the pandemic?

5) What types of support (informal, formal) are most important for the emotional and physical health of pregnant women and new mothers? Has access to support changed during the pandemic?

6) Do you have any thoughts or recommendations for what could be done in the future to support new mothers, based on what has been learnt during the pandemic? Are there any blindspots or calls for further action with regards to healthcare services?

