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RESEARCH ARTICLE

Cycling Motilities: Conditions, Weights and Reliefs for Cycling in Disadvantaged Neighbourhoods in Sweden

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In current Swedish planning and policy discourse, cycling is seen as an efficient way to commute in urban environments and a key component in advancing more sustainable transport. In Sweden, cycling is more prevalent among the more affluent population, but there is (with some exceptions) little knowledge on cycling in low-income areas. Given that well-developed cycling infrastructure is available and that bicycling is a comparably low-cost transport mode, higher rates of cycling in disadvantaged neighbourhoods could be expected. For policies that increase inclusive cycling to be implemented, there is a need to understand what makes cycling achievable for diverse groups. Based on the everyday cycling experiences of 31 families living in socially disadvantaged and ethnically diverse neighbourhoods in Sweden, this paper provides qualitative accounts of cycling, knowledge that can inform policy. Key concepts from urban sociology are used to analyse a person's conditions for cycling. Our findings suggest that while cycling could be considered a practical, social, and flexible mode of transport, especially for younger people, only a few adults in our sample cycled. The results reflect an ambivalence toward cycling as part of everyday mobility. Cycling was perceived as something "typically Swedish", a norm conditioned by age, gender, and body related weights and reliefs and hard to combine with everyday care- and work responsibilities. The gap between *preferred* and *used* mode implies an untapped cycling potential, a finding that suggests that pro cycling policies need to pay increased attention to broader social justice perspectives to support cycling (also) in disadvantaged neighbourhoods.

Keywords: families; cycling motility; disadvantaged neighbourhoods; cycling policy; inclusive cycling in Sweden

Introduction

In current Swedish planning and policy discourse, cycling is presented as a key component in advancing more sustainable transport. On a national level, with some regional exceptions, cycling has declined in Sweden (van der Meulen and Mukhtar-Landgren, 2021). In Sweden, cycling among the foreign-born has previously been described as relatively lower compared with Swedes in general (Trivector, 2014). More recent data (2011–2016) from the Swedish National Travel Survey shows no significant difference in the number of cycling trips between socially disadvantaged areas compared to other urban areas. However, the quarter with the lowest disposable income does significantly fewer bicycle trips than the quarter with the second highest income (Eriksson et al, 2022, p. 55). For policies to work toward enhancing increased and inclusive cycling, there is a need to understand what makes cycling achievable for a diversity of social groups (Hamidi, 2023; Lam, 2022). Against this background, based on the everyday cycling experiences of families living in socially disadvantaged and ethnically diverse neighbourhoods in Sweden, this paper contextualizes cycling and provides qualitative accounts of cycling that help build new knowledge that can be used to inform cycling policy.

Even with adequate infrastructure in place and the presence of narratives and practices that normalize cycling in a specific context, this might not be enough to enable individual cycling practices (Cox, 2015; van der Kloof, 2015). Previous studies show that cultural norms and perceptions about age, ethnicity, and gender form barriers for who can identify as a cyclist in different contexts (Aldred et al, 2016). Even in countries with ambitions to increase cycling, including Sweden, there might still be a disconnect between the interventions intended to support cycling on a policy level and the implications that cultural dimensions may have on shaping individual life (Hamidi, 2023; van der Kloof, 2015). This limitation suggests that merely focusing on available infrastructure and modal *choice* is not enough to understand what enables and hinders cycling, as the social and cultural dimensions of cycling as a practice and an experience would be missed (Cox, 2015; Lam, 2022).

Making the decision to cycle is conditioned and embedded in wider sociocultural and material relations rather than merely being an individual choice (Jiron and Carrasco, 2020; Nansen et al, 2015). A focus on families' everyday cycling experiences suggests that mobility practices of different kinds are interconnected with a family's time-spatial obligations, which produce various forms of travel demands (Jarvis, 2005). For example, low-income groups may face difficulties carrying out their time-spatial obligations due to lack of transport resources (e.g., driver's license, access to a car or bicycle, or dependence on inadequate public transport) or because low-wage occupations are performed on site at fixed times rather than, for example, in a home office or other office location (Henriksson et al, 2024). To better understand the complexity of the mobility experience, mobility needs to be considered as embodied, embedded in social structures and emplaced in physical contexts (Jiron and Carrasco, 2020). Cycling is a relational and situated practice that, for example, aids in the fulfilment of daily tasks such as transporting children and objects as well as a way to participate in a family's social activities (Dowling and Maalsen, 2020). We draw on these insights to explore and analyse what constitutes an individual's cycling potential in the context of everyday life. Against this background, we found qualitative approaches useful for researching individuals' everyday mobility strategies. Hence, the coordination and negotiation of individual daily mobility requirements with other family members' needs take centre stage, as well as how e.g. gender, age and socio-economic conditions (such as lack of resources) affect mobility practices in everyday life (Henriksson et al, 2021; Jiron and Carrasco, 2020).

We draw on in-depth interviews with family members living in socially disadvantaged areas in Sweden to further explore their negotiations of their daily mobilities given their economic and transport resources. We aim to analyse the weights and reliefs that the research participants

associate with cycling and, by doing so, contribute with a contextualized account of the consequences that material conditions, in combination with social and cultural circumstances, may have on individuals' cycling potential in the studied neighbourhoods. The concepts *weight* and *relief* (Friberg et al, 2004) have been used to show how material structures, such as public transport, either adds weight or relief to the experience of moving through everyday spaces and fulfilling the needs of everyday life. We draw on Friberg et al (2004) to describe and analyse the everyday situations, material conditions, and embodied (gendered and aged) experiences that the research participants perceive as adding weight or relief to cycling. By doing so, this paper increases the knowledge of how everyday cycling mobilities may be perceived in disadvantaged neighbourhoods. Our work suggests that understanding the specific mobility contexts and needs of diverse social groups will help policy makers to develop and implement strategies that overall expand the range of everyday mobility alternatives. Here, encouraging and making cycling more accessible in everyday life for immigrant groups might be one measure, but it could also mean to improve possibilities for walking, or making public transport more affordable for low-income families with many children. Being informed by a social justice approach, policy measures may entail different things depending on the social and cultural context of the targeted group.

We begin by reviewing relevant research on family mobilities and cycling inclusion. Then, we introduce the analytical framework. Next, we describe the research project's methods and the research context. In the subsequent sections, we analyse and discuss the findings. In the conclusion, we discuss the research findings' implications for policy.

Understanding cycling in the everyday life of families

Research addressing family and household mobilities has attracted increased interest in the mobilities field (Jensen et al, 2015; Jiron and Carrasco, 2019). The word "families" denotes an open and fluid concept, referring to the multitude of relational arrangements people are part of in their daily lives, and constitutes an important context impacting their mobilities (Holdsworth, 2013). As noted, research on family mobilities often stresses the importance of focusing on mobility decisions as negotiated and interdependent. Important contributions relate to the time-spatial organization of everyday lives in the life phases of families with small children (Holdsworth, 2013). The car, in combination with other technologies, is often perceived to be a key in the organization of everyday family life (Hjorthol, 2008; Mclaren, 2018), as it arguably offers flexibility and capacity to manage households' and children's complex spatial and temporal routines, especially in car-centric countries (Dowling and Maalson, 2020). Often, there is a tendency to focus on the daily commute, be it to work or (pre)school, whereas less attention has been devoted to leisure travel (cf. Barker et al, 2009). Families' social interaction when moving and cycling together is a theme explored by several studies (Barker 2009; Jensen et al, 2015; McIlvenny, 2015).

Issues of social justice and equity have been increasingly raised in recent years in the context of transport (Golub et al, 2016; Lam, 2022; Spinney, 2022, 2024). A growing body of research takes social inequalities into account in various ways. Cupples and Riddley (2008) argue that while an increase in cycling may be viewed as "good", the overall picture may obscure the fact that more needs to be done to enable more diverse groups of people to cycle. For instance, Plyushteva and Schwanen (2018, p. 140) stress that mobility choices need to be considered as circumscribed by accessible transport options, limitations of transport infrastructures, and precarious living conditions. Although gender and other socioeconomic factors have been explored as a factor in several studies on immigrant travel behaviour (including cycling), *why* gender matters have received less attention (Delbosc and Shafi, 2023, p. 923). Ravensbergen (2020, p. 680) notes there is a missed opportunity in "examining how embodied identity shapes the cycling experience and vice versa – or the decision not to cycle".

With more policies in place to support sustainable transport and the promotion of cycling, scholarly attention has been directed toward how cycling policy has tended to benefit the abled bodied, the young(er), and the middle aged, particularly for middle-class white men, at the expense of women and children (Bonham and Jungnickel, 2022; Henriksson and Hvidt Breengaard, 2022; Nixon and Schwanen, 2019). In some minority groups, women who move around unaccompanied are perceived to be promiscuous, so cycling is associated with social shame, which can hinder their freedom of mobility (Ravensbergen, 2020). Steinbach et al (2011) point to how ethnic minorities are underrepresented as cyclists, although variations to this pattern also exist. Haustein et al (2020b) found that in countries with comparably high levels of cycling, such as Denmark and the Netherland, immigrants cycle less than the native born. Other studies show a general pattern of immigrants being more reliant on public transport, walking, or cycling compared to their native-born counterparts; however, over time, immigrants adapt their behaviours to the dominant norm, including cycling (Welsch et al, 2018).

In a similar manner, children's cycling has decreased in many countries, including Sweden (Niska et al, 2017). Spinney (2024, p. 51) has argued that "children are marginalized in adult-centric cycling discourses, spaces, and smart initiatives cycling policy", thus contributing to de-valuation of other rationalities than those accommodating growth. This has resulted in children being ignored, or not being identified as cyclists, or simply as having the same mobility needs as adults. An increasing number of studies analyse the intersections between age, gender, and other social aspects, as well as aim to understand the interplay between spatial conditions and cultural conceptions around parenthood, childhood and mobilities. For instance, Silonsaari et al (2023) found that among middle-class families, children's insistence on cycling to school or leisure activities proved to be vital for parents' inclination to let them cycle. Social motives such as friends who cycle were important pull factors. Nyström and colleagues (2023) has suggested that conditions such as limited financial resources, access to cycling infrastructure, and (in)ability of parents to cycle may hinder children's active mobility in disadvantaged neighbourhoods (Nyström et al, 2023, p. 5).

The mobility literature outlined above stresses that mobility decisions need to be understood as conditioned and embedded in wider sociocultural and material relations. This approach concerns the practices, behaviours, infrastructures, and technologies of everyday life that frame and organize the research participants' everyday mobilities. A time-geographic approach is helpful as it emphasizes the elements that support or make it more difficult to carry out everyday family obligations (i.e., the weights and reliefs of everyday life, Friberg et al, 2004). These everyday obligations often come with stress, as combining work, school, leisure activities, and the like may be particularly burdensome in some parts of life and for individuals/groups with less social or economic resources (Joelsson et al, 2023). Analysing these issues in a framework of a person's *cycling motility* (Hamidi, 2023) provides further insight into how issues of inequality and differentiation are entangled in families' everyday mobilities and helps understand what weights and reliefs individuals associate with cycling.

Cycling motilities: addressing cycling inequalities and potential for cycling

Vincent Kaufman's concept of *motility* has been used in several studies to shed "light on how both mobility opportunities and personal capabilities to appropriate them are unequally distributed across different social groups and physical spaces" (Flamm and Kaufman, 2006; Hamidi, 2023; Henriksson et al, 2021, p. 3). In a recent study on cycling justice, Hamidi (2023) proposes the concept of cycling motility to examine the inequalities and the entangled elements that constitute an individual's cycling potential. The motility of a person is the potential mobility this person has, which is shaped by social inequalities and the geographical

environment. Cycling as an everyday transport requires at least three conditions: *access* to mobility resources such as suitable bikes, including access to resources relating to bike-friendly infrastructure, economic resources, and time; *competence* as in skills to use a bike and ability to navigate in traffic; and *cognitive appropriation* as to what extent a person, families, or groups make use of the perceived or real access and competence to take up cycling in their everyday life (Flamm and Kaufman, 2006; van der Kloof, 2022). We draw on Schwanen and Nixon (2020, p. 85), who refer to appropriation as including not only cognitive appropriation but also non-conscious sensation and embodied perceptions. Building on these insights, the concepts of weight and relief will be combined with the concepts of access, competence, and appropriation to analyse our research participants' cycling motilities.

Methods and research context

This study investigates the everyday mobility experiences of families in three disadvantaged neighbourhoods (7,500–10,000 inhabitants) in three cities in Sweden. These neighbourhoods are associated with territorial stigmatization (Wacquant, 2007) – that is, they are seen as particularly dangerous, characterized by urban poverty and social exclusion. Experiences of crime and violence create feelings of insecurity among the research participants, especially for parents who may restrict their children's mobility to keep them safe (Joelsson et al, 2024). They live in areas near community services and have access to various modes of transport. After walking, taking a bus is the most common means of transport. However, everyday obligations often lead to burdensome trips for adults, especially for mothers. High prices limit the possibility of traveling by bus, especially for young(er) people. The car is central to many families because it enables quick journeys and is a way to exercise care. Several of our participants, however, do not have access to a car, and many of the women do not have a driver's license (18 out of 25). Of the 31 families interviewed, 22 of the families talked about family members cycling. (See appendix for overview).

In total, 31 families participated and 47 in-depth interviews with parents and their children were carried out. Some interviews were individual, but many were carried out as family interviews. In total, we interviewed 35 adults (10 fathers and 25 mothers) and 36 children between the age of 3 and 18 (18 boys and 13 girls). We interviewed eight children between 3 and 6 years old; these children had not necessarily acquired cycling skills. Therefore, most of the quotations in the analysis come from adults and their older children (between 12 and 18 years old.) The study was approved by the Swedish Ethical Review Authority (dnr 2020-03246).

The interviews were conducted in 2021, during the Covid-19 pandemic, by the authors. Due to the pandemic, the majority of the interviews were conducted outdoors although a few were conducted online or in the homes of the research participants. Some interviews were conducted in languages other than Swedish, such as English or Somali. The length of the interviews varied between 10 minutes to two hours, depending on who was interviewed, where the interview took place, and the composition of the group. The interviews focused on the research participants' understandings of their everyday mobility and activities, perceptions of cycling and other modes of transport, and their neighbourhood. Cycling was not necessarily brought up by the interviewees but could be discussed when specifically asked. We asked about cycling practices in their everyday lives as well as about norms and conceptions around cycling, but mainly in cases where interviews were done without the presence of other family members, since these could be sensitive issues. If other members of the family were present, we asked for a more general reflection.

The research participants have different backgrounds in terms of nationality, education, employment, and number of children. In all the neighbourhoods, a majority of the residents

have immigrant backgrounds. Some families were large, consisting of a mother and father and from four to nine children, but the sample also has a few single parents (one father and four mothers). Many of the adults worked in the care sector (e.g., in nurseries, (pre)schools, and elderly care) or as a bus or taxi driver. Some were students, unemployed, or on parental leave (only women) at the time of the study.

Analytical procedures

The thematic analysis has been carried out in a reflexive manner (Braun and Clarke, 2019). First, the interview material from each case study was thematically analysed to identify overall themes related to everyday mobilities. Second, we identified accounts on when and how the cycling mobilities were addressed, highlighted, or talked of by the research participants. Third, these accounts were further analysed in the context of the mobility research, situating them in relation to sociocultural context and materiality, further analysed with regards how the research participants associate cycling with the weights and reliefs of cycling. Accounts that included weights and reliefs, access, skills, and appropriations were singled out and analysed with the framework of cycling motility (cf. Henriksson et al, 2021). The themes we explore below concern everyday family mobility, including age-, gender- and body-related enablers and constraints to cycling.

Cycling mobilities in the family context

All the studied areas have a well-developed cycling infrastructure, connecting the remote areas with the city centre as well as neighbouring areas and shopping areas. All three cities portray themselves to be "cycling cities" as their size and topography (flat) are well suited for cycling. The municipalities make efforts to improve existing cycling networks and build new cycle lanes, increase the number of fast cycle lanes, and keep existing cycle lanes clear from snow during winter. The weather conditions in the three cities are similar, with cold winters and mild summers. Cycling is a weather sensitive transport mode where low air temperatures have been found to reduce cycling, whereas light, warm, and dry atmospheric conditions have positive effects on cycling (Böcker et al, 2019). When comparing the cycling levels between Stockholm and Copenhagen, Haustein et al (2020a, p. 289) found that two of three Copenhageners continued cycling during winter, while only one of 10 Stockholmers pushed through the colder month. Weather also impacted our research participants, where the most common form of mobility used by the research participants is the bus. While the cycling infrastructure is of a relatively high standard, children's cycling is primarily local, whereas for young people, cycling is more common for sports activities and for school commuting outside the neighbourhoods.

It is common for the families to combine several transport modes. For Heena, a mother, who prefers to walk or cycle, the form of transport mode she ends up using depends on the time available and everyday care responsibilities: "When I'm in a big hurry in the morning, sometimes I get a ride from my husband [laughs] after we have left our little girl at school". When available, the car has a prominent role, especially for the larger families, in combination with bicycling and walking. For Noor, cycling is associated with a high degree of flexibility compared to the bus: "If I have a lie-in in the morning, then I usually take the bike, because then I can … it goes faster by bike and then I can cycle later than if I were to catch the bus" (Noor, 14).

While the flexibility associated with the bicycle offers a relief to Noor's everyday life, the bus remains her preferred transport option to manage her everyday mobilities. For families with many younger children, everyday family mobilities can be characterized as multimodal, where the bicycle is one of several options. Abbas' family consists of nine children, and Abbas

and his wife need to be flexible for work, sometimes starting work before the children are off to school:

> My children go to [school in the nearby area], so I usually give them a ride. But my son usually takes the bike, and my daughter sometimes takes the bus if she feels like it. We are a big family, and the car doesn't take us all, so they either go by bike or walk to school. (Abbas)

For Abbas' family, the car becomes a solution to transport those in the family who need it the most, most often those who cannot walk, cycle, or take the bus independently. Hence, the older children have more freedom to choose their preferred means of transport (bike or bus).

As previous studies on cycling in Sweden have noted, a hindering factor is the weather as cycling is particularly demanding during the colder parts of the year (Edberg, 2023; Haustein et al, 2020a). Similarly, the research participants in our study talk about cycling as enjoyable and prefer cycling for their daily mobility in the summer but cut down on their cycling during the winter months. For younger people like Ville (15 years old) who have the option of going by bus during the winter months, cycling is something to look forward to when it gets warmer. "I prefer to go by bike anyway because it's nice to be active on the move. And then you can get into small roads and get there faster." Ville talks about cycling in terms of a pleasant bodily mobility that allows exploring and orienting himself to the world in an active way. This embodied knowledge of cycling exemplifies children's positive experiences and motivations to cycle, not as instrumental but as liberating, convivial, and playful (Lee, 2016; Spinney, 2024). Cycling is also a positive embodied experience in Teoma's account on why she prefers cycling:

> If you take the bus, then … well, clearly, it's possible that you get to school very early, but it's not so fun. And walking, it's fun, you get a little tired. But if you cycle, you arrive very early, you have a lot of energy left and you can talk to your friends while you cycle and stuff like that. You can do it while walking too, but it's more fun to cycle. (Teoma, 13 years old)

Although both walking and cycling allow Teoma to maintain her social relationships on the move (McIlvenny, 2015), Teoma prefers cycling since it saves energy and is more fun compared to walking. This view resonates with Nixon's (2012) argument that the commuting practices of cycling, driving, and walking shape individuals' sense of energy use. Compared to car drivers, who were found to be more alienated from their energy consumption used for transport, cyclists and pedestrians embody the knowledge of the energy used for mobility (Nixon, 2012). For the younger research participants, cycling was considered a practical, energizing, and flexible transport mode and often the preferred transport mode, especially during the summer. However, economic restraints are a significant *access*-related barrier to cycling addressed in the interviews. For those younger participants who preferred to cycle, the cost of buying a bike was considered a significant weight for their families. Seda (12 years old) said she would like to "cycle very, very much, but we can't afford to". Her bike had become too small for her, and she longed for a bike that fits her. During Covid, she avoided the bus, and going by car was not an option for environmental reasons. With no access to a bike, her everyday mobility was limited to walking. Other hindering factors are related to competence in how to use bikes, a typically gendered weight that is referred to as hindering primarily adult women – not children. In the summer, bus service is reduced, which means fewer transport options are available. Abbas reflects on what this may mean in relation to increased cycling uptake – and for *whom*:

> It gets worse for the adult population, especially for women who may have difficulties cycling. They may not have learned to ride a bike; they come here as adults and have never ridden a bike before. So that becomes a little more difficult for them. But the young people ride bikes. (Abbas)

In our sample, very few of the women explicitly admitted they could not cycle. Across the interviews, it was common to, as Abbas did, refer to the neighbourhood women in general as having limited cycling skills. While lack of skills and economic barriers to access bikes are raised as hindering factors for cycling, further challenges to bicycling relate to malfunctioning bikes and lack of skills in maintaining bikes – adding weights to everyday cycling. Sara, a single mother with no driving license, speaks of the weights of flat tires: "So, I get a puncture all the time, I can't take it. So, the blue bike that we love the most, the tire is flat again. So, we have still not got around to fix it, we have one bike that works reasonably well." Even when cycling is preferred mode of travel, the energy and costs involved in repairing a continuously malfunctioning bike may be overwhelming among other time-consuming tasks of everyday life. In combination with a potential lack of maintenance skills, maintenance issues make cycling an unreliable mode of everyday transport.

In general, despite an established cycling infrastructure, for the adults cycling was seldom used despite often being the preferred mode of everyday transport. The stacked-up weights related to everyday care responsibilities, cycling skills, malfunctioning bikes, and weather conditions combine to make cycling conditional – available when the weather and temperature are right and convenient, given that the research participants economic conditions allow purchasing and maintaining bikes (access) in the first place. The younger research participants accounted for most of the cycling, as many of the young people go to school in other neighbourhoods and do not receive school bus passes.

Maturing into and out of cycling

Parents' skills, conceptions, concerns, and decisions about cycling play an important role in shaping cycling practices among children. Many studies have shown that the number of children and adults cycling has decreased, including recreational cycling (Nyström et al, 2023). Studies have shown that families' time-compressed lives and stress to fit in full-time work with children's recreational activities make particularly middle-class children's lives more institutionalized and car dependent (Joelsson, 2019). In addition, parents' perceptions of risks, social norms, and what is good parenting affect the propensity for parents to let children cycle (Forsberg et al, 2020). The interviews addressed parents' risk perceptions and their negotiations with their children as being mature enough to cycle, a concern more related to age than gender. Risks involved having to cycle longer distances across town, and concerns about safety issues in the neighbourhood were addressed: "She wants to cycle to school, but I'm a little scared. For this area … I don't want her to ride her bike by herself, especially in the mornings and when it's dark. No, I don't want to, so maybe we'll give her a ride" (Sandra).

While parents talk about chauffeuring their children to school as caring for their safety, the reasons why are related both to dangerous drivers in their neighbourhood and a concern with territorial stigmatisation of the areas that we studied (Joelsson et al, 2023). Being driven to school instead of walking or cycling is also established as something desirable and a way to fit in with the structural story of the car norm (Freudendahl-Pedersen, 2015): "It is not necessary for us to take the car, but they want to go in the car to be dropped off at preschool. It's like two more minutes … But they want to get out of the car like all the other kids [laughs]" (Salma).

While parents' risk-management involves careful negotiations of their children's everyday mobility, being an overprotective parent and children's assumed autonomy and independence is a balancing act between parents' and children's respective needs and wishes (Joelsson, 2019) and parents negotiating risk perceptions (Nyström et al, 2023): "Yes, I know that I … Yes, maybe we limit her … But maybe from the next ... We have talked about it, because we are going to buy her a slightly bigger bike, and maybe from the sixth grade she will ride, when she will be twelve" (Sandra).

In the quotation from Sandra, she finds that letting her daughter cycle by the age of 12 as both suitable and potentially safe. The mentioning of the age 12 as a threshold for cycling is of importance in a Swedish context. Since the 1960s, recommendations in Sweden have been that children under the age of 12 should not cycle by themselves in traffic. Researchers suggest an updated recommendation is needed where that active transport should be done safely together with an adult but can eventually take place in the company of other children or independently based on the child and guardian together assessing the child's ability in relation to the current traffic environment (Rutberg et al, 2024, p. 3).

However, just like there are recommendations and cultural perceptions that influence parents' decisions to let their children cycle, social norms present additional weights to cycling, especially for youth (Schmassmann et al, 2024). A study by Ravensbergen (2020) on migrants in Toronto identified hindering factors in how embodied regulations were gendered and aged. For example, bike riding in some of their home countries was acceptable for boys but not for men, and for girls it was not appropriate to cycle past puberty (Ravensbergen, 2020, p. 601). Lea talks about how cycling in her home country is not common for women, but she had not had the opportunity to learn how to bike as a child: "Yes, so that's why I'm a little shyer to do it. But when I was nine, ten years old, I did. I took my brother's bike and snuck off and left [laughs]" (Lea).

Despite that gendered perceptions on cycling prevented Lea from learning to cycle as a child, Lea found a way to practice cycling on her brother's bike. By avoiding being observed cycling in full public view, she could learn how to cycle. Still, she feels shy practicing cycling, adding weight to her cycling experience. She finds cycling with her children a comfort zone, as it allows for a space where she can practice together with her children. Norms around cycling and its gendered dimension have been found to be an important factor influencing cycling uptake among young people over the course of their youth (Schmassmann et al, 2024). Studies on adults in the US reflecting on their teenage years found that social norms and the extent to which bicycling was seen as "cool" in a community were contributing factors for teens abandoning bicycling (Underwood et al, 2014, p. 22). For some of the boys participating in the study, cycling was primarily related to views that cycling is not "cool": "I have some friends who ride mopeds and things like that. And in their eyes, the bicycle is considered uncool" (Tigran). For Iman, who talks about his son growing up, cycling is something that you grow out of: "Before he used to ride a bike. Now he takes the bus. He's an adult now [laughs]". Iman expresses what Cox and Van de Walle (2016, p. 121) refer to as a common-sense hierarchical ordering of transport modes, where "an upgrading between evolutionary stages" is assumed to be "natural" across the life course and a way of gaining status. Thus, the bike can be regarded as a transport mode you mature into and out of – a steppingstone from childhood to other forms of more adult connotated forms of mobility (Lee, 2016).

Cycling bodies

In this section, we address how the research participants talked about cycling as embodied – that is, how their cycling bodies feel and how this in turn reduces their capacity to appropriate (and identify with) cycling despite access and the skills to use bikes. Cycling in public space

encompasses regulation of conduct of the gendered cycling body in public space (Bonham and Jungnickel, 2022). For Isla, a single mother who does shift-work in a care home for elderly, cycling in public adds both reliefs and weights. Cycling is a relief as it provides daily exercise, and cycling is a weight because it is difficult to cycle home after a late shift. Cycling from work is also associated with fear for her personal safety, especially during the night:

> Yes, so there aren't that many people moving around that time of day. And then … then you meet some shady people, so that... I'm scared when I cycle home from work. Because it has happened that I have been pursued also by a man here. […] And it's hard to deal with sometimes. I usually ride very fast, that is, very fast. I don't even look at people, I just ride. So that's how I usually handle it. (Isla)

There are no buses around when she finishes the night shift, and she does not have a driver's license nor a car. As a single mother, she does not have a partner who can help her, and after having put in long hours at the elderly care home, she must push her already tired body at great speed to feel safer. Personal safety as an obstacle to women's cycling is a reoccurring theme in research, connected to potential exposure to both sexual violence and to violence from the motorized traffic (Lam, 2022; Ravensbergen, 2020). Concern for personal safety is a significant part of Isla's cycling experience; in the future, she has hopes to afford an e-bike. If she could afford a faster bike, she would get home faster and feel safer. It matters less how tired you are when on an e-bike as "you can still outrun other bikes".

Cycling as "intense embodiment" has been discussed by Ravensbergen (2020, p. 684), who notes that breathing or the heart beating can be mundane bodily processes made aware of through the pleasure, pain, and bodily fluids associated with everyday cycling (see also Lee, 2016). The tired cycling body is brought up by the research participants in several ways as why, for example, they do not cycle, even though having both the access and skills to cycle. For instance, Sara talks about everyday cycling as associated with the added weights of distance and geographical location, bodily effort, and tiredness from work. After having changed workplaces, Sara thought the longer distance made cycling too demanding, so her previous positive experiences of cycling changed:

> I always cycled when I worked in the city, and then I started working in [name of district, approx. 10 km from home] and I tried a few times. You know, it was too hard. Yes, you kind of post sweated for an hour when you were at work. And then you were completely exhausted after cooking all day, you must cycle home again, I was like, "No, I can't take it." (Sara)

For Sara, physical exercise – in combination with a physically demanding profession as a cook – is not associated with heightened energy or a pleasant experience as in some of the previous examples. Quite the contrary, the exertion and unwanted bodily secretions are perceived as added weights in her cycling experience. Davidson (2021) argues for the need to critically engage with presumptions about mobile embodiments and reproduction of neoliberal, gendered, and racial hierarchies. Davidson argues for understanding mobility as situated in context-specific relations of power. In Sara's and Isla's cases, this would suggest situating their capacity to appropriate cycling in a wider context and to consider the relations of power that make their intersectionally gendered mobile bodies exposed (Isla) and weighted (Isla and Sara), affecting their ability to *become* cyclists. In Sara's case, despite the preference to keep cycling, the physical effort became too overwhelming for her to continue cycling. One could only speculate if an e-bike, could she afford one, would help her overcome the challenges of uphill stretches, long distances, and wind (Edberg, 2023).

Embodied cycling identities

The embodiment of cycling also mattered in the ways that some of the women perceived cycling identities in general and the extent that they may themselves identify with such identities. For example, Jasmine, a mother, owns a bike and her children cycle occasionally. Although she buys into many of the practical reasons raised in pro-cycling discourse, she hesitates to identify cycling as something for her. In her view, attempting to cycle the distance to work would be inconvenient and unrealistic: "I won't make it." For Jasmine, not only the embodied perceptions of cycling reduced her capacity to appropriate cycling, so did her perceptions of what it means to be a cyclist and to identify as cyclist. Aldred (2013) points out how the identity as a cyclist can take many forms, including the sporty cyclist in racing gear, and how this position is negotiated by cyclists with regards to not wanting to appear "too competent" as a cyclist. Jasmine, for example, refers to the typical cyclist as a particular kind of person: "[P]eople who love training […] someone who doesn't care if you get sweaty." Here, Jasmine exemplifies what Aldred (2013, p. 256) discusses as a blurring of the boundaries between cycling as "sport" and cycling as "everyday activity". For Jasmine, the unwanted bodily secretions associated with cycling as "exercise" prevents her from becoming a cyclist. For research participants who do buy into the image of the sporty cyclist, as Jasmine's husband, disruptive events such as losing the bike prevented his further cycling: "Yeah, he's kind of sporty, so he goes to the gym. And he had also cycled quite far and so to improve his breathing, he wanted to get some fresh air, he wanted to stop smoking. But it's gone now, so he doesn't cycle, he drives a car" (Jasmine).

The discussion on cycling identity needs to be related to how cycling is perceived or perceived to be performed: for utility, health, or commuting to work over longer distances. For some research participants, cycling was closely associated with what it means to be Swedish (i.e., "Swedishness"). One of the participants in a bike school in one of the studied neighbourhoods said that "in Sweden, everybody cycles and drinks water". These sentiments can be viewed in combination with those participants who talked about cycling as something that saves money, as a healthy mode of transport, or something that should be done. Despite having lost several bikes and feeling unconfident when cycling, Xenia still feels an obligation to cycle during the pandemic when restrictions on using public transport were introduced: "But maybe I should also take some responsibility to ride a bike, not take the bus like the others. But I haven't." Cycling is constructed as a form of a moral alternative to other transport modes, a responsibility she *should* have taken but failed to deliver (Steinbach et al, 2011). Her response reflects societal norms that frame cycling as a responsible way of moving around during the pandemic, compared to what many others do in her neighbourhood – they use the bus. This would suggest that appropriating cycling entails negotiate cycling identities as interlinked with perceptions of Swedishness, bodily and moral capacities, and to what extent one can live up to such norms or not.

Conclusions

In this paper, we analyse accounts on cycling as part of the everyday mobility among Swedish families in disadvantaged neighbourhoods. Our findings show that despite available cycling infrastructure and the fact that cycling was often the preferred mode, it was rarely the used mode. For the younger research participants, cycling was more common, especially as cycling was considered a flexible way of going to school, and sometimes the only option when the bus was not available. We have also illuminated how cycling is perceived as something you mature into and out of and therefore connected to ideas of growing up. In addition, the bodily aspect of cycling is also prevalent. All in all, our analysis illustrates the families' time-spatial obligations and their organisation of daily life and suggests reasons why cycling may not be the used mode of transport.

The extent that someone manages to appropriate cycling is conditioned by gender, age, ethnicity, and contextual differences. Motives that enable cycling include gaining independent mobility and health and for social and parental reasons (van der Kloof, 2015). While cycling is comparably safe and convenient in a Swedish context, only a few of the interviewed research participants identified as cyclists; the majority tended to talk about cycling as weighted by bodily, gendered, aged, and motivational barriers. Partly, cycling was linked to something typically Swedish and that there was an expectation about cycling that the participants could not always live up to. It was a common perception that women of specific backgrounds and ages simply cannot cycle, and the interviewed women talked about having few friends who cycled. Such weights added up to limited participation in cycling. Only a few of the men and even fewer of the women talked about cycling "as for me". Rather, much of their accounts reflected ambivalence to cycling as their everyday mobility choice.

The motility framework and its emphasis on, for example, access, competence, and appropriation have made apparent inequalities in cycling motility evident (Lam, 2022) and helped us articulate why these inequalities may occur. A significant weight was the costs associated with purchasing, maintaining, and replacing lost bikes, costs that when combined add up to a significant barrier to cycling for the families in the studied neighbourhoods. The young people who cycled talked of their joyful explorations, social encounters, and identification with cycling, which can be seen as a relief that enables them to appropriate cycling. However, their capacity to access the cycling system was associated with several hindering factors, such as parental concerns about children's safety in the neighbourhoods and costs. In addition, cultural perceptions of whom cycling is suitable for was another weight, especially for younger research participants, who negotiate cycling as potentially "uncool" and immature.

The gap between preferred and used mode that we have identified implies an untapped cycling potential for increased and potentially more inclusive cycling in disadvantaged neighbourhoods. Therefore, current pro-cycling policies need to pay increased attention to broader social justice perspectives to support cycling for all citizens. Hamidi (2023, p. 77) argues for the need of "motility justice" and the need to recognize differences "in mobility related needs, fair distribution of mobility related opportunities and resources and enablement of individuals in appropriating and taking up mobility opportunities". Our research indicates a need for supporting cycling with everyday care and work responsibilities. Cycling promotion and policy should build on concrete opportunities to access bikes, learn new skills, and overcome physical and normative barriers (van der Kloof, 2022). Since cycling was perceived of as something "typically Swedish", cycling norms conditioned by age-, gender-, and body-related enablers and constraints need to be addressed. On the one hand, for long lasting behavioural changes in cycling potentials, such efforts need to be combined with the strengthening of social sustainability in disadvantaged areas. On the other hand, as argued by Schwanen and Nixon (2020), cycling and other forms of active mobility may also have a positive impact on wellbeing and for strengthening social sustainability in disadvantaged areas. These conditions emphasise the importance of including social justice perspectives in sustainability efforts involving cycling.

Additional File

The additional file for this article can be found as follows:

- **Appendix.** Research participants. DOI: https://doi.org/10.16997/ats.1590.s1

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Competing Interests

The authors have no competing interests to declare.

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