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Beyond Car-Centred Adultism? Exploring Parental Influences on Children's Mobility

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Abstract

Motorised traffic and car-centric environments restrict children's commuting patterns and outdoor activities. This has adverse health consequences as it induces physical inactivity and reduces children's well-being. Understanding parents' daily routines and reasons to facilitate or restrict their children's active and independent mobility is essential to improving children's well-being and encouraging environmentally sustainable mobilities. This article explores parental decision-making processes regarding how children should travel to and from school and how these constitute barriers or enablers for children's independent and active mobility in a Portuguese context. We used a mixed-methods sequential approach: We first collected data through an online survey and then via focus groups with parents and interviews with school directors. Overall, parental concerns about traffic stem from an automobility-centred culture that has converted urban streets into an optimised system of mobility flows focused on (single and employed) adults. This culture responds to the anxieties it creates by perpetuating a cycle that exacerbates existing concerns and reinforces the need to rely even more heavily on mobility technologies, especially the private car. This adult-centred mobility culture jeopardises children's ability to navigate the city independently while offering children a highly problematic and self-reproducing social construction. In this construction, the risks and drawbacks of physically confined virtual environments and experiences are considered acceptable, while engaging with the physicality and sociality of the urban environment is considered unacceptably dangerous and promiscuous.

Keywords

active commuting to school; independent travel; parental safety perceptions; travel behaviour; urban mobility; walkability for children

1. Introduction

Achieving a shift towards decarbonising urban mobility by encouraging public transport, shared micro-mobility, and active modes of transport, mainly walking, is a crucial challenge for many cities. They increasingly face problems related to traffic congestion, road safety, energy dependency, social injustices, and air pollution. Moreover, walking is the simplest, most universal, affordable, healthiest, easiest, and oldest way to get around. Improving walking improves the streetscape, helps to increase security, provides "eyes on the street," and creates safer and less noisy environments (Cervero, 2014, p. 178), while a shift to walking can also reduce car use and traffic congestion. Furthermore, in car-dependent cities, people tend to have fewer opportunities to access services, parks, recreation, and other institutions when they cannot drive a car.

Recent studies verify that children's active and independent mobility has drastically decreased over the last decades in many countries, including Portugal (Arez & Neto, 1999; Lopes et al., 2014). Children are increasingly transported to school in the back seat of a car, to the extent that the term "backseat generation" has emerged (van den Berg et al., 2020). Several reasons have been identified, such as growing social fears (crash rates and crime rates), increased distance between home and school, the planning of the built environment in dedication to car mobility, among others (Carver et al., 2019). Previous evidence has shown that parental perceptions of road safety and general built environment-based safety were also associated with the choice of transport mode (Mitra, 2013).

This article explores how parents' daily routines, safety perceptions, and views of the school district's infrastructure shape their attitudes toward children's active and independent mobility. We study this in the Portuguese context and show parents' diverse reasons for overwhelmingly choosing car-based mobility for the path between home and school. The reasons seem to converge on the (single- and employed) adult-centred land-use and mobility planning of the past decades. We reveal the extent to which children are spending time on indoor play and screen-based entertainment, further exacerbating the lack of outdoor and spatial awareness and low levels of physical exercise. We also show how valuable specific knowledge of the local context and social norms is for understanding how active and independent travel for children might be facilitated while highlighting the importance of parental backgrounds. This study offers insights to aid transport planners and policymakers, both in Portugal and globally, in creating safe, parent-and-child-friendly environments that promote active and independent mobility.

This article is structured as follows. After this introduction, Section 2 presents a literature review exploring how children travel to and from school and parental perceptions of children's active travel. Section 3 describes the methodology employed. Section 4 discusses the main findings and the implications for planning practice. The last section summarises the main conclusions and suggests future research directions.

2. Children's Active Travel and Parental Perceptions

In recent years, more attention has been paid to children's travel behaviour and independent mobility (Huertas-Delgado et al., 2019). Independent mobility is understood as children being allowed and able to move freely to reach different activities. Since children are not usually able to use motorised modes independently, there is a strong relationship between children's independent mobility and active mobility, most commonly walking (sometimes also cycling; Silonsaari et al., 2024).

Usually, attending school is a crucial daily activity for children. Several studies defend active travel to school as a daily source of physical activity and energy expenditure for children, with the potential to reduce overweight and obesity and improve cardiovascular health among school-aged children (Hino et al., 2021). Children's active commuting to school has additional benefits, such as developing social skills and autonomy levels (Aranda-Balboa et al., 2020). This improves children's mental, psychological, cognitive, and social well-being (Mei et al., 2024; Siiba, 2021). Additionally, walking is environmentally sustainable, and when substituting a car-based trip, it reduces exhaust gases from cars (Chillón et al., 2011) and peak hour congestion (Zhu & Lee, 2009), among other benefits. Yet, despite these well-known benefits, the dominance of motorised traffic and car-oriented urban environments continues to expand (Larouche et al., 2018).

Different personal, social, and environmental factors determine children's travel behaviour. The literature confirms, however, that parents are the primary decision-makers in children's travel behaviour in general (Aranda-Balboa et al., 2021) and school travel behaviour in particular (Kerr et al., 2006). Aranda-Balboa et al. (2020) identify the following key barriers to independent and active mobility reported by parents: (a) distance from home to school; (b) traffic-related risks; (c) crime-related risks; (d) characteristics of the built environment, namely density, mixed-use, street connectivity, aesthetics, and pedestrian and cycling infrastructures; and (e) social support, namely the presence of children or adults on the streets.

Distance is presented by other studies as one of the most used indicators in children's school travel mode choice (Macdonald et al., 2019), with those living longer distances from school being less likely to actively travel to school (Mitra & Buliung, 2015; Terrón-Pérez et al., 2018). However, studies have no consistency regarding the "optimal" distance (Panter et al., 2010). In a recent study from Seattle, USA, safety concerns were reported as stronger than distance as barriers to active travel to school (Lee et al., 2020).

Traffic-related safety concerns consider danger to children being involved in accidents due to factors such as traffic speed, road size, availability of legible signs for children, and safe lighting systems at junctions to ensure visibility at crossings (Danenberg et al., 2018; Rothman et al., 2015). Lopes et al. (2014) evaluated children's independent mobility in Portugal and found that traffic is the most frequent cause of parental concern for outdoor safety. However, parental fear of traffic varies with context (Aranda-Balboa et al., 2021; Rodríguez-Rodríguez et al., 2021). Parents point to barriers such as school opening hours, lack of sidewalks or long distances between crosswalks, highways that must be crossed or provide dangerous or polluting environments, hazardous walking conditions, and fences. Conversely, safe walking-only paths are considered key enablers (Bejleri et al., 2011).

Crime-related issues include fear of assault, harassment, and bullying. Situations of this nature, as documented on television, greatly impact parental decisions (Huertas-Delgado et al., 2019; Lopes et al., 2014). However, parents' perceptions are context-specific and vary with social norms and cultures, geography, socio-demographic characteristics, and policy (Aranda-Balboa et al., 2020; Huertas-Delgado et al., 2019).

A growing body of literature has been exploring for some years which aspects of the built environment influence children's travel behaviour, such as residential density, land-use mix, street connectivity, and commercial density. The idea is that these should guarantee a walkable distance between a child's home and relevant services for them (e.g., schools, local shops, libraries, health services, among others; Gorrini et al., 2023; E. Ikeda et al., 2020). A few studies also considered important micro-scale characteristics of the built

environment, usually in terms of comfort. This refers to standard quality criteria, such as presence of tree shade (density), type of pavement, continuity and width of sidewalks, walking paths, but also to a set of highly recommended elements for the specific comfort of children while walking (e.g., playgrounds, shelters, toilets; Huertas-Delgado et al., 2019).

In terms of "social support" and other social factors, for example, in one study a child's age, lower parental education, and socioeconomic status were more strongly associated with children's active school transportation than built environment features (Rothman et al., 2018). However, these authors also assume that the built environment contributes to social characteristics in a location, thus complicating this correlation. Other authors have linked active school travel to gender (Macdonald et al., 2016).

Various instruments have been used to assess parental perceptions of barriers to modal choice. However, these instruments often cannot be compared across countries because they use highly heterogeneous instruments and scores (Huertas-Delgado et al., 2019; Rodríguez-Rodríguez et al., 2020). Aranda-Balboa et al. (2020) reviewed 27 studies about the main barriers for parents in relation to active transport to school among their children, and the authors reported that they didn't identify a specific or common framework for parental barriers, arguing that there is a need for more research in this area (Aranda-Balboa et al., 2020).

3. Methods

To understand parental decision-making processes about how children commute to and from school, we used a mixed-methods approach, sequentially, where the qualitative approach supports and deepens the results obtained through a quantitative study.

Several methods were employed in this study, spread over two steps: (a) an online survey, and (b) a set of two focus groups and two interviews with school directors. The methods were applied sequentially in this order. For the survey, five schools were involved, three in Matosinhos and two in Braga. Two of these schools, one in Matosinhos and another in Braga (e.g., Figure 1 for context), provide the empirical focus for this study and the context of the two focus groups. The two in-depth studied schools have similar profiles (both are private, catering to specific student/parent interests) and are located in these two similar medium-sized cities in Portugal, each with a population between 150,000 and 200,000 inhabitants. Residents in both cities rely

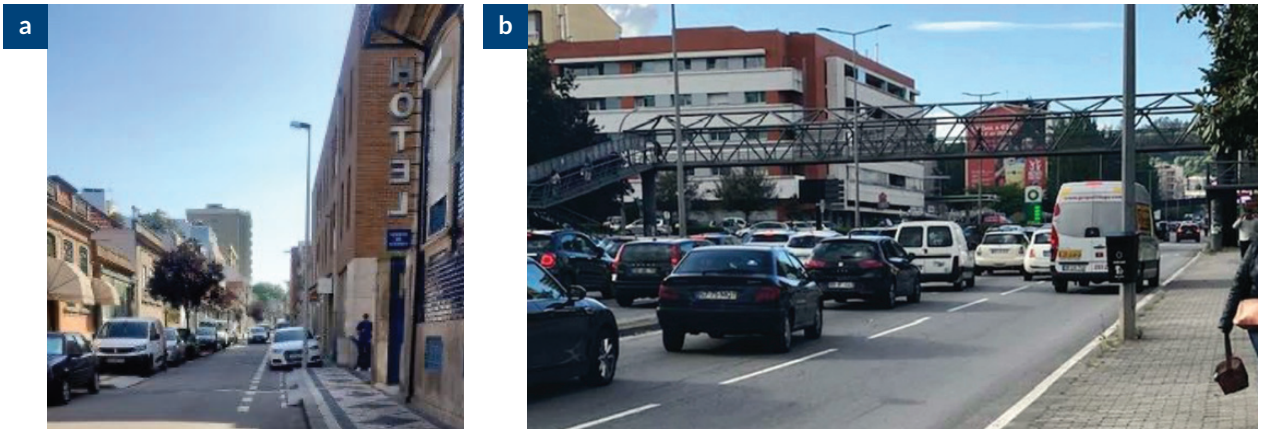

Figure 1. Urban environment near studied schools in Matosinhos (a) and Braga (b).

principally on car-use for mobility: in Matosinhos 65.8% and in Braga 69.7% (both increasing more than 4% between 2011 and 2021). Both schools are located near the city centre in residential neighbourhoods, though with some local mixed-use. Note that the nature of these schools made them more accessible for an in-depth study. At the same time, the specific nature of the schools also allowed us to explore the trade-offs parents make between the choice of school and the distance that would need to be travelled to reach it, among other issues. Throughout data collection, analysis, and interpretation, we remain conscious of this specificity. Table 1 provides an overview of the themes discussed and how they were measured. The survey was carried out in the first two months of 2023. Respondents' profiles are presented in Table 2.

During the second phase of this research, we conducted in-depth qualitative interviews and focus groups at two of the surveyed schools, inspired by the previous findings. We conducted interviews with the school directors of each school to gain a broader school-wide understanding of their perception of parents' choices for their children's mobility and the steps each school potentially takes to encourage certain travel behaviour, or to facilitate car parking, bicycle parking, etc. Furthermore, during this step, we conducted one focus-group per school with seven parents each to understand and explore more deeply how they make their daily choices, and what their fears and experienced barriers are for possibly encouraging more independent and/or active mobility for their child. An overview of the structure of the focus group and the themes discussed are presented in Table 3. The role of safety concerns was zoomed in on especially, as a gap in understanding about this had been identified through the literature review and high importance had been given to this by parents participating in the survey.

Table 1. Survey: Overview.

Indicator	Variable	Measurement					
Transport	mode of transport	walking alone, walking with an adult, bicycle alone, bicycle with an adult, public transport, public transport accompanied by an adult, transport provided by the institution, e-scooter alone or accompanied, by car					
(i) Children's characteristics	child age	scale					
	child gender	1: male	2: female	3: prefer not to reply			
(ii) Built environment	distance to school (reported)	0: < 1 km	1: 1 to 2 km	2: 2 to 4 km	3: 4 to 8 km	4: > 8 km	5: prefer not to reply
(iii) Safety perceptions	hit cross street	1: no concern	2: some concern	3: concern	4: a lot of concern	5: extreme concern	
	hit scooter sidewalk	1	2	3	4	5	
	hit bike sidewalk	1	2	3	4	5	
	hit car sidewalk	1	2	3	4	5	
	violence	1	2	3	4	5	
	pollution	1	2	3	4	5	
	litter	1	2	3	4	5	
	disease public transport	1	2	3	4	5	
	car crash	1	2	3	4	5	

Table 1. (Cont.) Survey: Overview.

Indicator	Variable	Measurement				
(iv) Children's behaviour in free time	sport time	scale				
	screen time	scale				
	time play near house	scale				
	time play outside	scale				
	play outside unsupervised	1: never	2: rarely	3: sometimes	4: often	5: very often
	travel outside unsupervised	1	2	3	4	5
	time screen unsupervised	1	2	3	4	5
	play inside unsupervised	1	2	3	4	5
(v) Adults' socioeconomic characteristics	adult gender	1: male	2: female	3: prefer not to reply		
	adult age	scale				
	degree	1: primary	2: secondary	3: higher	4: prefer not to answer	
	nationality	1: Portuguese	2: Brazilian	3: other		
	postcode city	(will inform GIS study)				
	postcode street					

Table 2. Survey: Respondents' profiles.

		(N) Matosinhos	(N) Braga
Children age	mean	(85) 5 years	(84) 6 years
Children gender	female	(43) 50%	(40) 47%
	male	(42) 49%	(44) 52%
	prefer not to reply	(1) 1%	(1) 1%
Parents age	mean	38 years	40 years
Parents gender	female	(70) 81%	(68) 80%
	male	(15) 17%	(16) 18%
	prefer not to reply	(1) 1%	(1) 1%
Parents education	higher education	(66) 77%	(61) 72%
	secondary	(18) 21%	(22) 27%
	primary	(2) 2%	(1) 1%
Parents nationality	Portuguese	94%	95%
Distance to school	I live 1 km from the school	(23) 27%	(8) 9%
	I live between 1 and 2 km from the school	(19) 12%	(15) 18%
	I live between 2 and 4 km from the school	(17) 20%	(32) 38%
	I live between 4 and 8 km from the school	(10) 12%	(19) 22%
	I live more than 8 km from the school	(23) 28%	(11) 13%

Table 3. Focus groups: Participants and structure/questions.

	Questions guiding the focus groups
Part 1	*Introduction and consent*
Part 2	*Background*: sharing with all. • How did you choose this school? Was its location important for you? Did you for example choose your home after the school so you could live close by? • What is the transport mode that you tend to use? Is it always the same mode or does it change often? Do you always use the same path? • Does the choice of school/home relate to the choice of mode? • Have you often thought about this topic of home–school–home mobility or not really?
Part 3	*Mobility choice*: individual exercise of writing 3 post-its as answers, one idea per post-it, indicating what is most important to the participant in response to each question (see questions below). After answers to all three questions are noted down in this fashion, everyone's post-its are sorted jointly on A3 papers indicating "like" or "don't like/would rather change." Then the responses are shared and discussed per question and sorting. • What are your motivations for this kind of mobility (the path you take, the mode of transport)? • How does this mobility, the path home–school–home, impact your relationship with your child? • And do you feel that this path/mobility has an impact on your child's experience? • Organize the post-its by what you are happy about and what you would like to change. If change: What would you like to be different, why, and how?
Part 4	*Safety*: joint discussion. First only as open question, then prompting with additional questions. • What is the role of safety? And what kind of safety? Traffic safety? Stealing? The child being taken away or mistreated?

4. Results and Discussion

The research revealed a series of themes worth highlighting, which structure this section: distance, independence, safety, perceived benefits of walking, and awareness of diverse possibilities. These differ somewhat from what Aranda-Balboa et al. (2020) and others discuss, though some similar themes emerge, including distance as one major one. We now turn to discussing each of our themes in turn.

4.1. Distance

To contextualize the theme of distance, it is important to note that 27% of the participants in Matosinhos live within a 1 km radius from the school; in Braga this figure was 9%. In Portugal, school choice policies have gone from a relatively strict requirement for children to go to a school within their district, to policies more focused on freedom of choice. Nowadays, parents may thus choose their children's schools according to their values or needs (e.g., schools with disability-specific programs or different learning methods concerned with environmental or music programs). They are allowed to choose a school in their work district or in another city, and between public and private schools, for example. In Portugal, then, most children are allowed to live substantially more than 1 km away from their school (and many do). In our study, children living within a radius of 1–2 km or more from school are usually driven to school by private car, both in Matosinhos (71%) and in Braga (81%).

Generally, the literature states that within about one kilometre, it is more likely that parents will structure their child's trip to school via active mobility (Macdonald et al., 2019). While our results confirm this (65% in Matosinhos and 89% in Braga), a substantial number of parents in Matosinhos (30%) and Braga (13%) still use the car even at these short distances. This challenges the idea that it would be "obvious" or inevitable for active travel to be undertaken when the radius is under 1 km. Other studies also reveal up to 20% of non-active travel being used despite those trips covering under one kilometre of distance (Macdonald et al., 2019). In this study, we dug a little deeper to understand what led parents to avoid active travel even at such short distances.

In the focus groups, most parents elucidating this situation referred to time constraints or convenience. For example, in the focus group in Matosinhos, a parent said, "I just leave my house and drop the children off before I go to work, it's simpler just to use the car" (FG1, P7). We found similar attitudes in the focus group held in Braga. Space-time-geography (Hagerstrand, 1982), then, seems to play a crucial role here: If the car is required for the parents' trip following school drop-off—for work or groceries for example—then the car is quickly chosen also for the drop-off itself. Another space-time geography reason named in one case was that the car provided the parents some alone-time together after bringing their child to school, as they struggled to find this time in other moments. Despite big challenges with parking the car for this purpose near the school (thus often leading to congestion as parents stop on the road while they rush their children out of the car), most parents still choose this over an active mode. However, this may also be due to the relatively young age of the children of parents interviewed (under 10, most 6 or under), as this might impede independent mobility. According to Rothman et al. (2018), parents' attitudes towards the acceptable distance for independent mobility of their children have changed over time. Today, they are more restricted and relate to parental fears and structures of their daily lives. This brings the discussion to themes beyond distance that came up as important in choosing the mode for home–school trips.

4.2. Independence

No children in our sample from pre-school or primary school commute alone or independently to school. The most common age of the children of parents surveyed and interviewed for this study was between 5 and 6 years old. Previous studies suggested that the barriers parents perceive decrease as children get older (Aranda-Balboa et al., 2020; Forman et al., 2008). Although we found some parents who suggest that their children wish to commute in an independent way by walking or cycling, those parents' fears of car crashes or dangerous behaviours prevented them from ultimately allowing this for their child. Trust can work as a catalyst defining whether parents would be willing to let their children walk or cycle to school, alone or with a group of children or another adult. One participant argued, "She doesn't know how to cross the road on her own, let alone get to school" (FG2, P5), and another said, "The problem isn't the kids, it's the drivers who have no respect or consideration for the people on the street" (FG2, P8). One school's director emphasised that the school itself has a strong policy of teaching children to walk and take public transport safely, both of which they do during relatively frequent outings where older children (around 8–10) are paired with younger ones (from 3 years old) to walk hand-in-hand. They notice that, for many children, walking outside—let alone with relative independence—is very unusual.

4.3. Safety

The main concern identified in the survey was about the risk of a child being injured in a traffic accident when crossing a road. The concern next in line was a car crash. As a parent argued, "Often we see people stopping with their car on the sidewalk to leave their child" (FG1, P3), and another parent noted, "People often stop or park near or on the crosswalks" (FG2, P4), highlighting this as a problem for the visibility of children. The parents from Braga who participated were more afraid of a car crash or being hit by a scooter on the sidewalk. Electric scooters are frequently found driving on the sidewalks in both cities, because of the lack of (perceived) safety for them on the roads. During the focus group in Braga, the lack of safety for cycling was especially highlighted, with wishes for (respecting or increasing the amount of) cycling infrastructure high. Several parents there noted that an improvement in conditions for cycling would seriously encourage them to use this option and allow it for their children (also independently).

4.4. Benefits of Walking and Related Perceptions

Increasing rates of walking and cycling can promote the development of social engagement and help create stronger, more trustful, and liveable local communities (Nikitas et al., 2019). Improvements in reducing traffic speeds through street design and regulation can alleviate some of the concerns about road safety and sense of neighbourhood safety. However, most of the obstacles mentioned by parents, such as parking on the pavement or pedestrian crossings or misuse of pedestrian infrastructure, are also civic issues that will likely require more than regulations that are frequently not enforced (as is the case with stopping on the pavement to drop off children: this is not permitted and yet a very frequent practice). In this sense, schools can act as facilitators of active school travel interventions by providing safe and supportive experiences and environments (Buttazzoni et al., 2018; Crawford et al., 2015; N. Ikeda & Nishi, 2019). The schools researched for this study make quite some attempts in this regard, yet there are of course also limits to the immediate impact some of these measures can have. The survey also revealed that the children appearing in the survey spent the majority of their non-school time on screens, and only approximately 10% of their time was spent outdoors, either playing in playgrounds, etc., or doing sports. Their overall relationship with spending time outdoors is thus severely limited, also beyond the commute to school. Schools on their own may thus face this extra challenge when trying to connect the children to civil, relational, and spatially/locally aware behaviour.

Interestingly, awareness of health and well-being issues concerning time spent outside, as well as the physical and mental benefit of walking or other active mobility, is considered important by most parents. Many surveyed and interviewed parents who drive their children to school feel a degree of guilt about it, believing that for various ethical and health reasons, driving is not the "right" thing to do. Nevertheless, the perception that this is the most practical and straightforward thing to do wins out. To some extent, there does seem to be a "cultural" or else perhaps "21st-century" aspect here, as many parents noted that they had witnessed and sometimes even themselves experienced much more active mobility in other countries or, within Portugal, several decades ago, but that this was no longer sufficiently *done* or *encouraged* in contemporary (urban) Portugal, or at least in the studied cities.

4.5. Awareness of Alternatives

It is notable that, during both focus groups, without prompting, parents highlighted examples from abroad or from their own childhood (in Portugal or abroad), where or when they witnessed or experienced travel to school in a much more active and independent way for children. They used descriptions of these experiences, for instance in the Netherlands or Sweden, to explain that they enjoyed that and would like to offer their children similar experiences. However, they also highlight that the (current) situation in Portugal does not allow for this. At the same time, the detailed knowledge the parents shared about the local context showed a high awareness of simple steps that could improve conditions.

5. Conclusion

The analysis suggests that mobility planning in Matosinhos and Braga, similar to other areas in Portugal and Europe, is primarily car-centric and adult-oriented. It often caters specifically to single adult workers, focusing mainly on commuting between home and work. One could speak of a kind of "adultism" (see Smith, 2024) in current mobility and land-use planning. Due to this, parents are pushed to choose the car instead of active mobility to take their children to school. Even when schools are nearby, parents often need cars for subsequent tasks like going to work. This need is widely accepted, leading to behaviours like parking on sidewalks or blocking roads to drop children directly at school entrances—practices less tolerated by childless adults. This situation increases the risks of walking and cycling, discouraging parents from promoting their children's independent mobility. Thus, even parents who prefer active mobility drive their children, perpetuating a vicious cycle. This problem is compounded by increasing screen time and decreasing outdoor activity, utterly detaching children from their bodies and urban environment while reducing their physical activity and physical, spatial, and civic awareness.

Recognising the interconnectedness of these factors can help policymakers, school leaders, and school transport providers understand the feasibility of adding new programmes to their transport agendas and identify ways to introduce and improve uptake (see Nikitas et al., 2019). Several participants of the focus groups said that some of the questions or tasks proposed made them look at the subject from a new perspective. In this sense, the focus groups pointed to the potential of discussion forums for motivating change. However, perhaps these would also need to be performed with mobility planners in the given cities and countries so that action could be taken to facilitate non-car-based trips, especially trips to school. The focus groups suggested that a combination of context-specific knowledge and awareness of alternatives can be relevant for opening avenues of possibility. However, seen more critically, the alternatives perceived in other times and places are sometimes also used to argue that ideal conditions here and now are not sufficiently met by comparison.

The material from this study is much richer than what could be presented in a single article. We chose to focus on the interconnectedness of factors that, while forming a complex situation, seem to have a joint root cause in how mobility *and* land-use planning have prioritised car-based mobility for employed adults. We have also shown several ways this seems to impact children's (and parents') health and well-being and how this current set-up will remain in a vicious cycle if not decisively interrupted. Decarbonising cities and making them more child-friendly seem to go hand-in-hand, and creating a more child- and parent-centred planning system might be key to achieving both.

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Conflict of Interests

The authors declare no conflict of interests.

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