How does transport poverty affect commuting in Vienna? Findings of a qualitative study on mobility disadvantaged groups, their perceptions and coping strategies

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SHORT SUMMARY

This study examines commuting-related transport poverty in Vienna, focusing on the experiences and coping strategies of affected groups. The study uses qualitative methods, including 26 semi-structured interviews and identifies key challenges associated with transport poverty, including time poverty, stress, limited mobility options, and social exclusion. The study categorizes coping strategies into spatial, temporal, financial, and transport mode adjustments, underpinned by specific skills such as digital navigation and language proficiency. Findings highlight the interplay of personal, mobility-related, and situative risk factors in shaping commuting experiences and the significant role of how individuals perceive and respond to these challenges.

Keywords: Commuting, transport equity, transport poverty, urban mobility

1. INTRODUCTION

Insufficient mobility options limit access to essential services, including employment, education, healthcare, and leisure, thereby reducing affected individuals' overall well-being and quality of life (Martiskainen et al., 2021; Van Dülmen et al., 2022). Challenges in commuting to work or educational institutions can restrict economic opportunities and hinder social mobility, perpetuating cycles of poverty and income inequality (Simcock et al., 2021; Van Dülmen et al., 2022). Furthermore, extended commuting times contribute to time poverty, as individuals spend a significant share of their day traveling, leaving little time for other activities (Lunke, 2022). Long commutes negatively impact health, well-being and quality of life, increasing stress levels and creating challenges in balancing work and family responsibilities (Mattioli et al., 2017). Addressing commuting-related mobility poverty is crucial for achieving transport equity, which ensures equitable access to transport and (job) opportunities for all individuals (Lunke, 2022; Pereira et al., 2017).

The definition of transport poverty can vary depending on the context and the specific research or policy focus. Ongoing research shows interrelated and overlapping concepts, including, transport poverty (Lucas et al., 2016), transport disadvantage (Currie et al., 2010; Lucas, 2012) and accessibility poverty (Martens et al., 2019). Lucas et al. (2016) define "transport poverty" as the inability to meet daily basic needs due to factors like inadequate transportation options, excessive travel time, safety concerns, or financial constraints. They see transport poverty as a result of the simultaneous occurrence of transport disadvantage and social disadvantage (Lucas, 2012). Dorantes et al. (2023) also highlight that *"Transport poverty does not have only one single*

cause or component, but rather the complex interaction between different causes and consequences" (Dorantes and Murauskaite-Bull, 2023).

Based on these different categorizations and previous studies on the topic (Martiskainen et al., 2023; Monyei et al., 2024; Rozynek et al., 2022; Rozynek and Lanzendorf, 2023), for our case study in Vienna we identified different groups of people that are particularly vulnerable to suffering from mobility poverty. These are: i) people with **insufficient language skills**, because orientation and navigation often rely on them; ii) **young people in education** (Van Dülmen et al., 2022), because they need to commute to their workplace, often with limited financial means and without driver's licence; iii) **single parents** (Wang et al., 2021), because of their time-consuming care duties on top of work and commuting times; iv) **people with high risk of financial or time-related poverty** (Van Dülmen et al., 2022; Wang et al., 2021), because people with low income tend to have fewer available alternatives and limited amounts of money to spent and time-related poverty also limits option, but because of lack of time. We excluded people with mobility disabilities, because they have been studied as mobility disadvantage extensively (Bezyak et al., 2017; Grisé et al., 2019; Iudici et al., 2017; Kett et al., 2020; Sze and Christensen, 2017).

While quantitative studies have pointed towards these groups as at risk of transport disadvantage, only little is known about their own perceptions of the matter and their coping strategies in response to their challenges (Ryghaug et al., 2023; Simcock et al., 2021; Verhorst et al., 2023). A more in-depth understanding of mobility poverty is needed to better understand the specific risk factors, vulnerability factors, experiences (and coping strategies) of affected individuals. Further research on this topic is crucial due to its implications for social participation and equitable access to essential services. Commuting trips are still understudied despite their pivotal role in enabling financial independence by providing access to the labour market. Ensuring inclusive and equitable commuting patterns is therefore essential for society as a whole, as it increases access to employment opportunities and reduces broader societal costs associated with unemployment and economic inequality.

The purpose of this qualitative study is to gain a comprehensive understanding of the conditions that contribute to transport poverty and the strategies that individuals use to navigate the challenges they experience. To fulfil this objective, this study addresses the following research question, using Vienna as a case study:

1. *What are different experiences and perceived impacts of people affected by transport poverty?*
2. *Which coping strategies do affected groups apply to minimize negative impacts on their lives?*

2. METHODOLOGY

For this study, we carried out semi-structured interviews to gain more information about the experiences of transport poverty in Vienna, focusing on challenges of commuting and the coping strategies of affected people. We chose a semi-narrative interview format to encourage participants to share personal experiences and in doing so, reveal underlying factors, such as emotional, social, or cultural elements that may influence their commuting choices and experiences (Carless and Douglas, 2017).

The semi-structured interview guideline consists of an introduction explaining the interview's purpose, a short questionnaire on the participant's overall life situation (e.g., age, education, living arrangements, mobility options), and a narrative section about daily commuting practices, focusing on routines, infrastructure, and impacts on work-life balance. Further sections explore perceptions of time and money spent on commuting, challenges in navigating commutes, safety and security concerns as well as coping strategies for adjustments in handling the experienced challenges.

Based on literature (Alonso-Epelde et al., 2023; Simcock and Mullen, 2016; Verhorst et al., 2023) we identified risks groups and selected those participants that fit in one or more of the following risk groups as discussed above: (i) migration background with little or no German speaking skills, (ii) apprentices, (iii) single parents and (iv) people at risk of (time) poverty. Subsequently, we contacted potential individuals via relevant institutions, such as language schools, educational and counselling centres for migrants, counselling centres for single parents, vocational schools, labour unions, and support centres for people with low income. In addition, we also collected participants via snowball technique, i.e. by recommendations of acquaintances by people who had already been interviewed (Flick, 2009).

With this approach, we recruited a sample of 26 people, who experience some kind of commuting-related transport poverty. All interviews took place in person between June and November 2024 in Vienna at various locations best suited for the interviewees, for example at their home, workplace, or in a public space. The interviews were recorded after securing consent with the data use and storage practices and ultimately subjected to a verbatim transcription.

The collected interview data were then analysed with a systematic qualitative content analysis following Mayring's methodology (Mayring et al., 2019). The interviews were analysed using MAXQDA software. The analysis involved an iterative coding process, starting with a coarse coding scheme informed by the interview guideline and initial interview notes. This coding scheme included main categories and subcategories, which were refined through a first coding of selected interview sections by the three involved researchers to ensure all relevant themes were adequately captured. Further adjustments to the coding scheme were agreed upon in the team, before applying the final coding scheme to the entire dataset (Kuckartz and Rädiker, 2023).

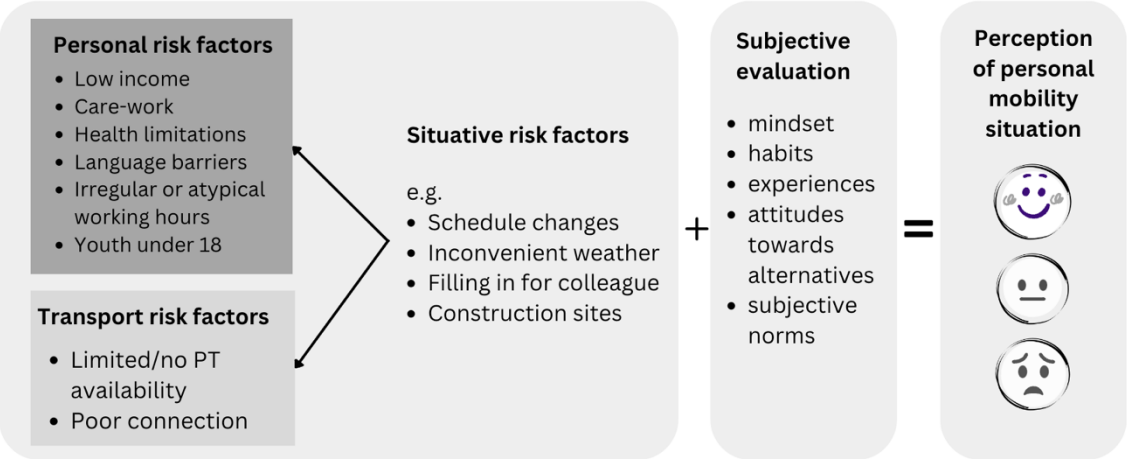
3. RESULTS AND DISCUSSION

Commuting trip-related experiences (RQ1)

The study included 7 migrants (15–45 years), 6 apprentices (16–23 years), 3 single parents (29–56 years), and 10 individuals at risk of (time) poverty (21–60 years). The interviews show that there are different ways how people perceive their commuting trip - neutral, negative or positive. This perception of personal mobility situation (Figure 1) depends on an interplay of three interconnected risk factors - i) personal, ii) mobility-related and iii) situative risk factors – as well as the subjective evaluation of the overall situation. **Personal risk factors** describe rather static, internal factors, that an individual often has limited power over. They include low income as a common denominator as well as additional aspects such as health limitations, care duties or atypical working hours (see figure 1 for the detailed list). Another influential factor are the **available transport options** – the available connection for the commute, which may not be ideal (mobility risk factors). These factors act as a static, external influence, which an individual has little to no power over. The last dimension are **situative risk factors**, also framed as unexpected changes, which reinforce personal and mobility risk factors and destabilize planned mobility practices. Examples include inconvenient weather situations, new construction sites, timetable

changes or filling in for a colleague and commute to work earlier than expected or staying at work longer and thereby reducing the commuting options - all requiring commuters to adapt quickly.

Figure 1: Interplay of different risk factors and subjective aspects leading to an overall positive/neutral/negative perception of the personal mobility situation



The more personal or mobility risk factors an individual experiences, the higher the overall vulnerability to suffering from mobility poverty (Dorantes & Murauskaite-Bull, 2023) and the lower the resilience to any unexpected changes. However, the interviews showed that the personal perception of the commuting experience is also a matter of cognitive appraisal (Lazarus, 1984). Cognitive appraisal is the psychological process through which individuals evaluate a situation to determine its significance for their well-being and their ability to cope with it. This includes people's previous experiences (i.e. with different transport modes), their social environment and related mobility attitudes as well as one's personal mindset, habits and attitudes. Ultimately, the combination of risk factors and subjective perceptions may lead to a positive, neutral or negative overall perception of one's commuting situation, as illustrated in Figure 1.

In this paper, we focus only on the negative perceptions since mobility poverty is often tied to some sort of strain or suffering. Within the interviews, these negative experiences included feeling unsafe while cycling (I01, I14, I20, I13) or in public transport, especially during darkness as a woman (I01, I12, I17), problems arising from the use of active mobility with young kids (I05, I13) or riding a moped (I07, I21), being under time pressure to get to work on time (I07, I19, I21) or picking up children on time after work (I07, I13). These perceptions of the commute to work can be assigned to the following categories: traffic safety, security concerns, stress while commuting/time pressure, tiredness/fatigue & exhaustions, connection quality, modification & connection and infrastructure (vehicles and bus/tram stops).

Impacts of commuting-related transport poverty (RQ1)

A detailed analysis was conducted to investigate the perceived negative impacts of commuting on people's lives. The findings were categorized into four major impact groups: time poverty and stress, discomfort and health related problems, limited options and social exclusion.

Time poverty and stress

Time poverty during commuting refers to the challenges individuals face when their daily travel consumes excessive amounts of time, leaving little room for other activities. It often results from factors such as long commutes, multiple transfers with waiting times, and complex trip chains (I02, I12, I15). Additionally, the interview results show that unreliable transport connections, such as delays and cancellations, may lead to time poverty and additional burdens, especially for people who are already affected by a time-consuming commute. People are affected by increased time poverty, if they have to leave earlier for commuting to have a time buffer. All of these time struggles disrupt the balance between private and work life and leave individuals with little or no time for leisure or relaxing activities. Moreover, parents of young children may struggle to pick up their children on time due to transport delays. Moreover, participants reported that delays in public transport are a multifaceted stress factor. Such delays not only disrupt personal schedules but also have repercussions at work. For instance, colleagues waiting for shift handovers may experience setbacks, and bosses might perceive unpunctuality as a sign of unreliability, potentially jeopardizing job security (I15, I21, I24).

Discomfort and health related problems

Beyond this, the physical conditions of commuting, such as overcrowded vehicles, lack of seating, and short intervals between connections, exacerbate discomfort, particularly for individuals with caregiving duties, mentally demanding jobs, or health limitations (I05, I18, I25).

Limited options

Limited transport options significantly restrict commuters' ability to navigate their daily routines efficiently. Poor public transport connectivity, especially during atypical hours, leaves individuals with few viable alternatives (I02). People working night shifts are particularly affected, as public transport schedules often fail to accommodate their needs (I19). In such cases, commuters are forced to rely on expensive and less accessible modes of transportation, such as airport shuttles, rental vehicles, or taxis. The lack of affordable and practical options further entrenches the hardships associated with commuting (I02, I05, I15, I16, I18, I19, I20). Night shifts or atypical working hours may increase these burdens by making it difficult to rely on public transport, often necessitating costly alternatives such as taxis or rental scooters (I02, I15, I16). For many, these solutions impose additional financial burdens of up to €200 per month, further straining their resources (I12, I13, I20, I25).

Social exclusion

The interview results show that transport poverty contributes to social exclusion by isolating individuals from resources and opportunities. Time consuming commutes reduce time for social interactions, leisure activities, and personal relationships. Moreover, the physical and mental exhaustion caused by long journeys diminishes individuals' capacity to participate in their communities (I15, I06, I07, I19).

Coping strategies to minimize negative impacts of commuting-related transport poverty (RQ2)

A variety of coping strategies have been employed by the interviewees. They can be categorized into five key areas: spatial adjustments, temporal adjustments, person-related adjustments, financial adjustments and transport mode adjustments. All of these coping strategies require a

certain set of skills and competencies including digital navigation or language skills. To better understand these strategies, skills and competencies are recognized as a crossover category, underpinning the ability to adapt effectively in each of these areas.

Person-Related adjustments

One significant coping strategy involves seeking support from others when public transport is unavailable or unreliable. Partners, bosses, or cab drivers may step in to provide transportation (I23, I02). Family and friends may also assist with shorter commutes or substitute for public transport. However, such support is limited by factors like cost-saving measures, such as reducing fuel expenses (I07), or unavailability due to conflicting schedules, in case of partner's earlier working hours (I25, I02). In addition to transport, family and friends may also help with other responsibilities, such as grocery shopping or picking up children (I25). Support from family members also plays a role, especially in situations like commuting delays, where they step in to pick up children from kindergarten or school. As children grow older and become more independent, they may take over some responsibilities, reducing the burden on parents (I05, I25). In general, support from family and friends stretches over all coping strategies, as they add additional means of transport, financial support and temporal adjustments, such as leaving earlier, but can share a ride (I06).

Temporal or spatial adjustments

To reduce delays and ensure punctuality, commuters adjust their schedules temporal by opting for earlier connections, even if it lengthens their overall travel time (I01, I04, I20, I21). In cases of extreme delays, individuals may resort to alternative measures such as walking longer distances or paying for taxis (I02, I04, I15, I16, I18, I20). However, these solutions often come with additional financial burdens, adding to the overall strain of commuting (I02, I15, I16, I18, I19, I20).

The interview results show that spatial adjustments while commuting to or from work include changes in routes or modes of transport due to delays, cancellations, or limited availability, such as missing or late buses (I02, 14, I20, I24, I25). Additionally, options like remote work (I14, I20, I22, I29) or even changing jobs to reduce travel distance or improve accessibility are potential strategies to adapt to commuting challenges (I21).

Transport Mode adjustments

Using alternative routes or modes of transport is another key strategy expressed in the interviews, but this requires specific skills and resources. For example, commuters may rely on apps to access real-time information about routes or transport schedules (I02, I15). Alternatively, some have detailed knowledge about alternative transport options through experience (I12).

Financial adjustments

For individuals facing high mobility costs, financial adaptation becomes a critical coping strategy. To offset commuting expenses, participants often reduce spending in other areas of life, such as leisure activities or shopping. Others may decrease car usage as a way to save on fuel and maintenance costs (I18, I21). These adjustments, while effective in managing financial strain, often come at the expense of personal well-being and quality of life.

Conclusions

Transport poverty is a multifaceted issue shaped by the interplay of personal, mobility-related, and situative risk factors. These interconnected dimensions significantly impact commuting experiences, with vulnerable groups such as migrants, apprentices, single parents, and individuals with financial or time-related constraints disproportionately affected. Personal risk factors in accordance with Lucas (2012), transport poverty is composed of various components and building blocks (Dorantes & Murauskaite-Bull, 2023) which adds up to an increased limitation of resilience to unexpected changes and therefore increases the vulnerability to commuting related transport poverty. As seen in literature, extended commuting time contributes to time poverty (Mattioli et al., 2017; Lunke, 2022). The findings confirm that personal resilience to unexpected changes, such as delays or cancellations, is increased by factors such as low income, caregiving responsibilities, or inadequate public transport options. Consistent with prior literature, this research highlights that time poverty caused by extended commutes limits individuals' opportunities to balance professional and personal responsibilities, leading to a reduced well-being and limitation in social participation.

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