


## Article

# Influence of Social Context and Gender Gap Awareness on Women's Mobility on Public Transportation

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**Abstract:** A gender gap in mobility, although with different levels, exists everywhere. Several factors are linked to this gap, such as females' daily schedules and duties, economic aspects, or preferences. Women's personal risk perception and its counterpart, i.e., actual (in)security in the transportation system, are related aspects as well. This research focuses on these last factors and adds a novel perspective: the influence of the social context and its awareness of the gender gap. To this end, a twofold methodological approach was applied to the cities of Barcelona and Budapest. It included the comprehensive evaluation of local policies aimed at closing gender gap in mobility as well as the distribution and analysis of an ad hoc developed survey. The main research findings indicate that harassment on public transportation is associated with general societal gender dynamics and behaviors. Actions taken by local administrations in the pursuit of gender equality in mobility become effective in the medium term, leading to a decrease in severe aggressions. Among these actions, awareness-raising plays a key role. First, women gain self-confidence and increase their own commitment to the cause; second, a snowball effect takes place, causing the rejection of harassment and the fight against it to spread across different social spheres.

**Keywords:** mobility; gender gap; harassment; awareness raising; societal constructs



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## 1. Introduction and Background

The existence of gendered mobility patterns is well-documented in the literature. Overall, a female's mobility tends to be more constrained compared to men's due to household responsibilities, economic disparities, and societal norms. Women are more likely to perform chained trips combining multiple destinations related to different activities (e.g., work, caregiving, household). Therefore, they are more prone to engage in intermodal mobility and to travel in off-peak hours. Conversely, men tend to commute directly for work purposes, usually by means of a single mode of transport [1,2]. These disparities, although at different levels, exist across developed and developing countries, reflecting persistent gender inequalities in domestic and labor roles. Particularly in low-income contexts, females have limited access to private vehicles (either absent in the family or used by men). Indeed, for their shorter, more frequent trips, women use public transportation more often than men [3,4]. Although this fact is positive from the point of view of their greater contribution to sustainable mobility, the reality is that women more often face compounded mobility challenges, due to a rigid public transportation system, that do not align with their needs [5,6]. In Europe, a study in France found that men are more likely to travel by car, while women often rely on slower, more inefficient public transit [7]. In Scandinavian countries, despite more progressive gender policies, gendered patterns continue to exist, taking women shorter and more local trips compared to men, who tend to dominate the use of longer-distance travel modes such as cars and planes [8]. Another study performed in Chile found that a wider mobility gap was associated with lower income

and lack of public and private transportation options, corroborating a complex interplay between gendered mobility patterns, socio-economic factors, and urban affordances [9]. In terms of digital connectivity as a substitute for physical connectivity (i.e., mobility), telework is eminently masculine [10]. Although a priori women might be more interested in adopting it in order to better reconcile their work and family life, they continue to perform mostly tasks that require physical presence (e.g., nurses, cleaners, cashiers, etc.).

Back to mobility, security concerns during their journeys (i.e., out and in-vehicle) significantly influence women's mobility choices (note that, even both terms are usually treated as equivalent in the literature; in this research we use the term security to refer to the absence of personal threats or damages beyond the driving itself, in contrast to safety, which would be linked to the absence of accidents [11]). Indeed, women's perception of security, particularly in public spaces, shapes their travel behavior [12,13]. For example, women in the United States often avoid poorly lit or isolated bus stops, preferring alternative routes even if these require longer travel times [14]. In urban and suburban contexts across North America and Europe, fear of crime, harassment (understood as any behavior that intimidates, degrades, and humiliates a person [14–16]) and general discomfort in public spaces deter women from using public transportation at certain times or in particular areas [15]. Racial and economic factors intersect with gender, with women from marginalized groups facing even greater mobility constraints due to heightened security concerns in certain urban areas [12,16].

Focusing only on transportation, studies consistently show that sexual harassment on public transit is one of the most significant deterrents for female passengers, also in Europe. For example, Ref. [17] found that women in the UK frequently experience unwelcome verbal comments, physical gestures, and sexual advances while using public transportation, leading many to alter their travel patterns or avoid public transit altogether. A study conducted in Paris revealed that over 87% of women surveyed had experienced some form of harassment on public transportation, ranging from catcalling to physical assault [18]. These experiences contribute to an ongoing sense of vulnerability among women, which discourages them from using public transit during non-peak hours or traveling alone at night. Similar patterns have been documented across Europe, North America, Asia, and Latin America, highlighting the global pervasiveness of the issue. Ref. [19] studied gendered attitudes towards public transportation in Shenzhen by analyzing 44,257 social media microblogs. While men directed their attention to e-payment services and traffic incidents, women were mostly concerned about security, especially at night, together with crowdedness and comfort. In developing countries, the security issue is even more pronounced, exacerbated by overcrowded and poorly regulated public transport systems. A study conducted in India showed that women frequently avoid public transportation during early mornings or late evenings due to the perceived risk of harassment or violence [20]. Similarly, in Latin American countries like Brazil, women's use of public transport is strongly influenced by the fear of sexual harassment, which restricts their mobility and access to economic opportunities [21]. In Cairo, Egypt, 98% of female commuters reported experiencing harassment on public buses, with many opting to travel in female-only compartments or directly avoid public transportation [22]. Similarly, studies in cities like Delhi and Karachi in South Asia have shown that women often face groping, staring, and inappropriate comments, which not only restricts their use of public transit but also affects their social and economic participation [23].

Governments and organizations worldwide are taking steps to address this issue, but challenges remain. For instance, the introduction of female-only transport services in countries like Japan, Mexico, and India has provided safer opportunities to women, but critics argue that such measures fail to address the root causes of harassment and segregation [24]. Emerging modes of transportation such as mobility as a service (MaaS) could also help to close this gap. For example, MaaS concept supporting multi-modal, non-car travel aligns with women's travel patterns. However, security problems would still remain if no additional measures or policies are integrated into its design [25]. Overall,

previous studies suggest that comprehensive policies targeting public awareness, law enforcement, and infrastructural improvements are necessary to mitigate harassment and reduce its impact on women's mobility [26]. This research considers all these points but puts special emphasis in analyzing the role of societal awareness as a vector for more decisive policies and actions in the fight against harassment in transportation and, ultimately, for mobility without (unwanted) gender disparities. To this end, the current situation of harassment on public transport in two culturally diverse European cities at different stages of the struggle for gender equality is analyzed. It is important to clarify that the term societal awareness is used in this article in its broadest meaning, referring to society's awareness and conviction that all people, regardless of age, gender, race, etc., should have the same opportunities (equality, [4,7]), as well as knowledge of existing disparities. The application of this term to the field of mobility in general and specifically to public transport is a particularization of the previous meaning.

The remainder of this paper is as follows: Section 2 explains the research methodology used; Section 3 introduces the case studies; Section 4 presents the results obtained, which are discussed in Section 5. Finally, the main conclusions of this research are included in Section 6.

## 2. Methodology

This section succinctly presents the methodology followed in this research. Each step is further explained while applied to the case studies.

### 2.1. Overall Research Design

Considering the nature of the objective, linked to diverse disciplines such as transportation engineering, policymaking, sociology, and psychology, among others, a twofold methodology comprising both qualitative and quantitative analyses has been chosen. This methodology is shown in Figure 1 within the overall context of this research.

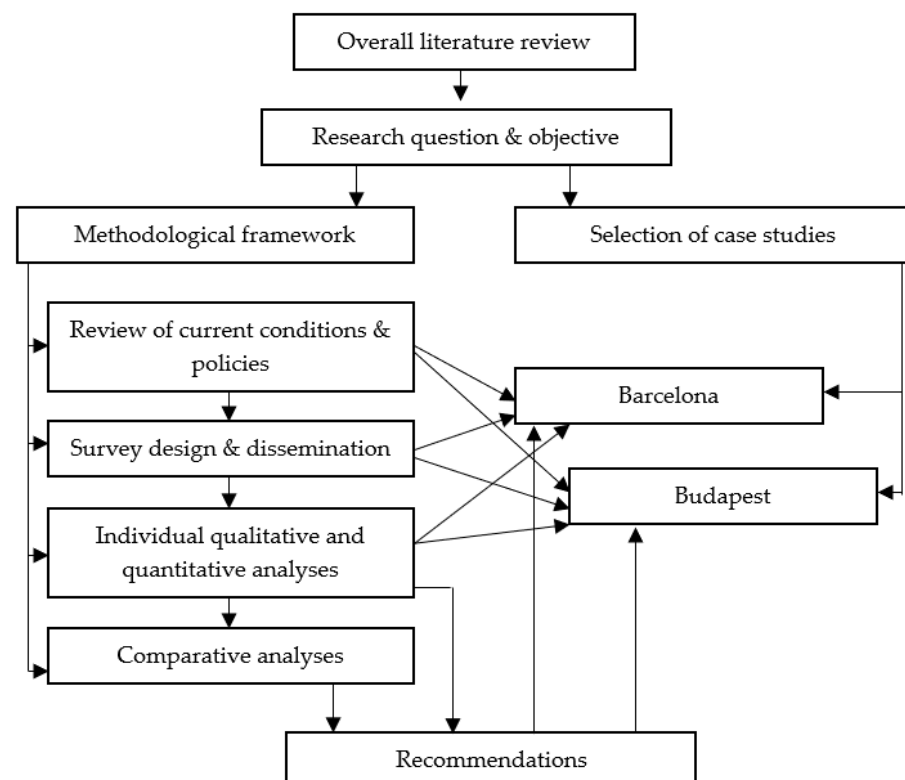


Figure 1. Research outline.

The review of the state of the art summarized in the previous section gave rise to the definition of the research objective, which, as indicated above, seeks to determine whether there is a uni- or bidirectional relationship between social awareness of gender equality, specifically, the fight against gender violence and the real situation experienced by women users of public transport and the policies implemented by public administrations in this regard.

## 2.2. Data Collection

The next methodological step consisted, thus, of reviewing both general gender-related policies and those specifically linked to mobility in the chosen cases studies, as well as analyzing the reported cases of harassment on public transportation. The acquired knowledge as well as the identified research gaps were the basis of the next step. It consisted of obtaining first-hand information from female public transportation users, in order to perform a more comprehensive assessment of their experiences, perceptions, and fears. This was performed by defining and disseminating a survey, which contained some general questions related to mobility patterns but also other more specific ones linked to harassment, not only including experiences but also opinions on the measures against it that were in place or should be put in place (see Appendix A).

## 2.3. Analysis Methods

The joint analysis of all this information made it possible to reveal the existing gaps in the protection of women during their use of public transport. Additionally, it allowed checking of the effectiveness of the measures already implemented and to derive the weight that the fight against harassment in transport has both for society as a whole, mainly represented by the regulatory administrations, and for the users themselves. The methodologies chosen to analyze the survey data were diverse. First, an exploratory analysis allowed for the extracting of the respondents' main features as well as to detect some trends in their answers; second, the chi-squared test of independence was used to explore associations between variables; third, ordinal logistic regression was applied aiming to assess the influence of sociodemographic features, travel patterns, and actual experiences on female's way of facing harassment on public transportation; finally, textual data analysis [27] was used to assess the answers to free-response questions, which together represented a kind of interview. As will be explained in Section 3, the choice of two case studies located in areas with different maturity and sensitivity in their gender policies enriched the analysis. Proposals for the reduction of harassment in transport, some of which may lead to an increase in social awareness of gender equality in general, are finally proposed.

## 3. Case Studies

In order to better analyze the influence of social involvement in the reduction of harassment on public transportation, two different case studies in terms of gender policies and effective gender equality were chosen. The study took place in 2022, and the authors decided on the cities of Barcelona and Budapest, both for practical reasons (their relationship with both cities and the possibility of obtaining data) and because of their differences in terms of equality.

The World Economic Forum's Global Gender Gap Report 2023 [28] ranked Spain 6th globally with regard to gender equality. Spain excels in areas like educational attainment and health and survival, reaching almost complete parity, and it performs well in political empowerment, with women holding significant representation in national politics. For its part, the European Institute for Gender Equality [29] also places Spain in 2024 among the top countries in Europe for gender equality, in the 6th position, scoring highly in work-life balance and political participation.

Conversely, Hungary ranks 105th in the Global Gender Gap Report 2023 [28], far behind Spain. It struggles with gaps in economic participation and political empowerment,

though it performs relatively well in education and health. According to the European Institute for Gender Equality [29], Hungary's 25th position among the 27 European countries in 2024 also reflects deeper challenges in gender equality, particularly in leadership and workforce inclusion.

At the city level, Barcelona leads significantly in gender equality compared to Budapest. Barcelona is known for progressive gender policies, including strong representation of women in local government and active gender-inclusive urban planning. In contrast, Budapest has not advanced gender equality to the same extent, facing critiques for slower progress in integrating women into political and economic roles. These contrasts mirror the national differences between Spain and Hungary. In general, it can be stated that in Barcelona, a city in southern Europe with a high level of internationalization, gender issues have been on the table at both the citizen, political, and business levels for many years. For its part, Budapest, like so many other Eastern European cities, is comparatively recent in its analysis of these issues.

### 3.1. Barcelona

Barcelona is a city located on the northeastern coast of Spain. With more than 1.6 M inhabitants, it is the capital and largest city of the Catalonia region. Indeed, it is home of 21% of the Catalan population, the second most populous municipality of Spain and one of the densest European cities. Additionally, it is one of the most important destinations of urban tourism worldwide and an important focus of business attraction.

Barcelona is very attractive to young people that want to study or start working in the city. That is why the average age of its population is 44.2 years old, quite low when compared to other Spanish and European cities. Barcelona is a globalized city and, in fact, 22.2% of its inhabitants were not born in the city. Apart from Spanish people, 176 other nationalities live in the city.

The 53% of the population living in Barcelona are women. This percentage increases with age progressively until the 45–49 years old range. From this range and especially from 75 to 79 years old on, the number of females is higher than that of males.

#### 3.1.1. Gender Gap in Barcelona in Transportation and Beyond

Barcelona is not a city free of sexism, but it is in the way, as the local administration, important institutions (including the Polytechnic University of Catalonia), and a remarkable number of civil associations have been fighting for gender equality for many years. Still, the percentage of men working is around 72% versus 62% of women and the salary gap of Barcelona's population is around 19%, reflecting the general Spanish trends. This is linked to the known horizontal segregation, with women having jobs with low remunerations and social prestige, usually related to cleaning or care, but also to vertical segregation, with men occupying 63% of decision-making positions in private companies [30–33]. The situation is much better in decision-making positions in administration, with women and men at a similar level [29]. Regarding education, women are majority, both in the highest (e.g., PhD) and lowest levels.

Regarding personal security, women suffer in a higher proportion robbery or attempts of robberies and sexual harassment, while men suffer more intimidations, coercions, and threats and physical aggressions or muggings. The city security level is worse valued by women than by men [34].

Gender mobility patterns in Barcelona correspond to the majority trends in the most-developed European cities. According to the 2023 Workday Mobility Survey for the Metropolitan Area of Barcelona [35], women make more short-distance trips and with a greater fragmentation of the trip (e.g., shopping trips, care for people, or visits to services), which is known as "chained trips". These routes are usually more local and related to the organization of daily life. On the other hand, men make more long-distance trips, mostly related to work (56% of their trips). This gender difference in travel purposes becomes more pronounced after age 30, when major changes typically occur in an individual's

life [36]. Women tend to use more sustainable modes of transport than men. In total, 54% of women prioritize public transport and active mobility (walking or cycling), while men show a greater preference for the use of private vehicles, with 33% of them using cars or motorcycles compared to only 28% of women.

### 3.1.2. Implemented Measures to Close the Gender Gap in Transportation in Barcelona

In recent years, Barcelona has implemented various measures aimed at closing the gender gap in mobility, primarily in terms of ensuring the real and perceived security of women. In reality, these measures benefit all transport users. Some of them seek security in public spaces, including access to transport stations or last-mile journeys, while others are limited to the interior of the vehicle.

Among the first, it is worth highlighting the improvement of visibility in the streets in general, and especially at transport stops, mainly through the installation of lighting but also by avoiding any obstacles that hinder visibility. Some means of transport have adopted more specific measures for the hours of least visibility and public affluence, as is the case of the Nitbus lines, the Barcelona night bus with stops on demand. Both feminist and neighborhood associations collaborate with the administrations with awareness-raising activities and also with others of a practical nature. For example, it is very common to organize the so-called “exploratory marches”, in which female users and representatives of the corresponding entities (e.g., administrations and transport operators) make journeys in groups either on foot or using particular means of transport, so that during the journey they can report deficiencies and discuss options for improvement.

Examples of measures in-vehicle are the installation of surveillance cameras and SOS poles, as well as drivers’ training on how to react when a case of harassment occurs in the vehicle and how to properly care for the victim if it could not be avoided. The treatment of victims has also been contemplated in transport stations and police stations, so that the process of reporting is made more bearable.

These measures are just some of those already in place. Various administrations are gradually proposing specific plans with a pre-established budget to close the gender gap in mobility. Examples of recent plans are the Plan 2022–2024 of Measures Against Sexual Harassment on Public Transport of the Catalan Department of Territory and the Barcelona Metropolitan Transport Authority [37] or the Recommendations for Mobility by Bicycle and Personal Mobility Vehicles with a Gender Perspective in Catalonia in 2023 [38], of the same department.

### 3.1.3. Barcelona Survey

The Barcelona survey was prepared in Google Forms both in Catalan and in English. The survey, targeting only women, consisted of five parts. The first one was aimed at knowing the personal profile of the respondent; the second at understanding her travel patterns; the possible influence of gender issues in the former patterns was addressed in part three. The former sections were mandatory. Two more parts were included; the fourth part contained detailed questions about possible harassment episodes suffered/observed on public transportation and the last one included three open-answer questions asking about improvements, suggestions, and opinions on the topic.

Trying to overcome the unavoidable bias of online questionnaires, it was disseminated not only on social media but also through direct contact with associations and organizations of different nature such as Secció de Mobilitat Sostenible d’AMB, Young It Girls, Oficina d’Igualtat UPC, Secció de Gestió de la Diversitat de TMB, Plataforma Somdones.cat., Col·lectiu Punt 6, Centre Cívic i Casal de Gent Gran Baró de Viver, Associació Women in Motion, etc. The total number of valid answers was 224.

## 3.2. Budapest

Budapest, the capital of Hungary, is located in the central northern part of the country along the Danube. It is the most populated city of the country, with almost 1.8 M inhabitants

(17% of the country's population). The city's population is decreasing with the years, as Hungary is not so attractive to migrants compared to other European countries. Hungarian descendants represent the 95.5% of the population, followed by Romans and Germans (3% each), Slovaks and Romanians (0.03% each), and Croats (0.02%).

In total, 54% of the people living in Budapest are women and their average life expectancy is 79 years, while that of men (46%) is 75.7 years.

### 3.2.1. Gender Gap in Budapest in Transportation and Beyond

The data available about gender gap in Budapest and, in general, in Hungary, are scarce and mostly related to European analyses. This fact already indicates that the fight for gender equality is still in its early stages. According to these data, the gender gap in Budapest mirrors broader Hungarian trends with some specific urban dynamics. The city has achieved near gender parity in education. Indeed, women make up approximately 56% of students enrolled in Hungarian universities. The employment rate in 2023 was around 82% for men and 70% for women, and the gender wage gap was around 17% [31]. In the private sector, women are often underrepresented in high-paying leadership roles, accounting for only around 33% of managerial positions [28]. The situation is worse in the administrations, being women between 7 and 15% [29].

Regarding general security, women tend to experience greater concern than men, particularly when it comes to mobility at night. Nationally, around 58% of women in Hungary report avoiding certain areas after dark [31].

The mobility trends are said to be similar to those of Barcelona and other European cities, with women in Budapest tending to make shorter, more frequent trips within the city, highly linked to caregiving responsibilities and part-time employment, also using public transport more often than men. However, to the best of our knowledge, no official statistics or proven research confirm these assumptions. In fact, official statistics rarely divide results by gender.

### 3.2.2. Implemented Measures to Close the Gender Gap in Transportation in Budapest

In line with the lack of open data with a gender perspective on Hungary, both in general and related to mobility, it has also not been possible to find action plans to close the gender gap in transport in Budapest. However, the authors have counted on the collaboration of Budapesti Közlekedési Központ (BKK), the company which manages public transport in the city, to shed light on the subject. BKK does not apply specific policies for women, but it works on adopting a so-called gender lens. When applying this lens to security, sexual harassment pops up, and it primarily affects women. BKK have recently closed a survey aimed at studying sexual and non-sexual harassment on public transportation, which meant a great advance, given that most of the studies carried out so far by the company did not allow for gender analysis. The company expected to obtain the necessary data to implement appropriate measures that complement the ones already underway, which are reduced to surveillance cameras in vehicles or security personnel in night buses.

In more general terms, it is important to note that Budapest's transit policies encounter unique structural constraints compared to Barcelona, impacting the extent and effectiveness of security interventions. Unlike Barcelona, where there is a coordinated approach among local government departments for transit policy, Budapest's public transit governance is fragmented, with decision-making often divided between municipal authorities and national entities. This multi-tiered governance complicates policy implementation, as funding and strategic priorities may not align across levels. Additionally, Budapest's transit funding relies heavily on state resources, with limited municipal budget flexibility, which restricts investment in new infrastructure and safety upgrades. In contrast, Barcelona benefits from a more autonomous and financially robust transit authority, allowing for targeted interventions and gender-sensitive planning. This disparity highlights the systemic constraints on policy development in Budapest, where police involvement becomes a

default security measure due to limited alternative resources for structural upgrades or policy expansion.

### 3.2.3. Budapest Survey

The Budapest survey was prepared in Google Forms both in Hungarian and in English. It contained the same parts and questions as the Barcelona questionnaire.

Again, an attempt was made to overcome the unavoidable bias of online questionnaires, and the survey was disseminated in social media but also directly targeting BKK, the Association IAECs LC, Women of Budapest, the International Women's Community Hub Budapest, etc. The total number of valid answers was 229.

## 4. Results

The next sections present the results of the quantitative and qualitative analyses performed with the survey data.

### 4.1. Exploratory Analysis

As indicated, the sample sizes in both cities were similar. However, there were some differences with regard to the socioeconomic characteristics of the respondents, as can be seen in Table 1. In the Barcelona sample, the age of the respondents, who were mostly Spanish, was spread across all age groups. Just over half belonged to the middle class and around 35% considered themselves to be working class. The majority did not have a university degree but instead had professional training. In the case of Budapest, 56% of the participants were non-Hungarian. The vast majority were adult females under 30, while the sample of women over 50 was small, at nearly 4%. The percentage of women with a university degree was again very small, at 19%. However, a large majority, 72%, considered themselves middle class.

**Table 1.** Main sociodemographic features of both samples.

Main Sociodemographic Features	Barcelona	Budapest
<b>Age</b>		
18–30 years old	38.12%	56.33%
30–50 years old	30.74%	39.74%
50–>70 years old	31.14%	3.93%
<b>Nationality</b>		
Spanish/Hungarian (respect.)	89.34%	44.10%
Others	10.66%	55.90%
<b>Highest education level</b>		
Professional training or lower	80.00%	81.00%
Bachelor's degree or higher	20.00%	19.00%
<b>Status (linked to average household income)</b>		
Working class	34.43%	13.10%
Middle class	56.56%	72.05%
Upper class	3.69%	6.99%
I prefer not to answer	5.33%	7.86%

There were also some differences with regard to mobility patterns (Table 2). For example, more than  $\frac{3}{4}$  of the respondents in Barcelona had a driving license, but only about 58% had access to a car (mainly voluntarily). In Budapest, those women with a driving license did have a car. However, like the Barcelona females, they frequently used public transportation both on weekdays and weekends. In fact, the number of women not using public transport was higher in Barcelona, although still low, at around 7%. However, this does not mean that they used private cars. Although it is out of the scope of this paper, several studies have shown that active mobility levels are quite high in the city [39,40].

Thus, most of these women probably walked or used bikes or scooters. The most used mode in Barcelona was the metro followed by the bus, accounting together almost 80% of the respondents' trips. The share was more divided in Budapest with metro, bus, and tram each accounting for almost 30% of the public transport use.

**Table 2.** Respondents' travel patterns.

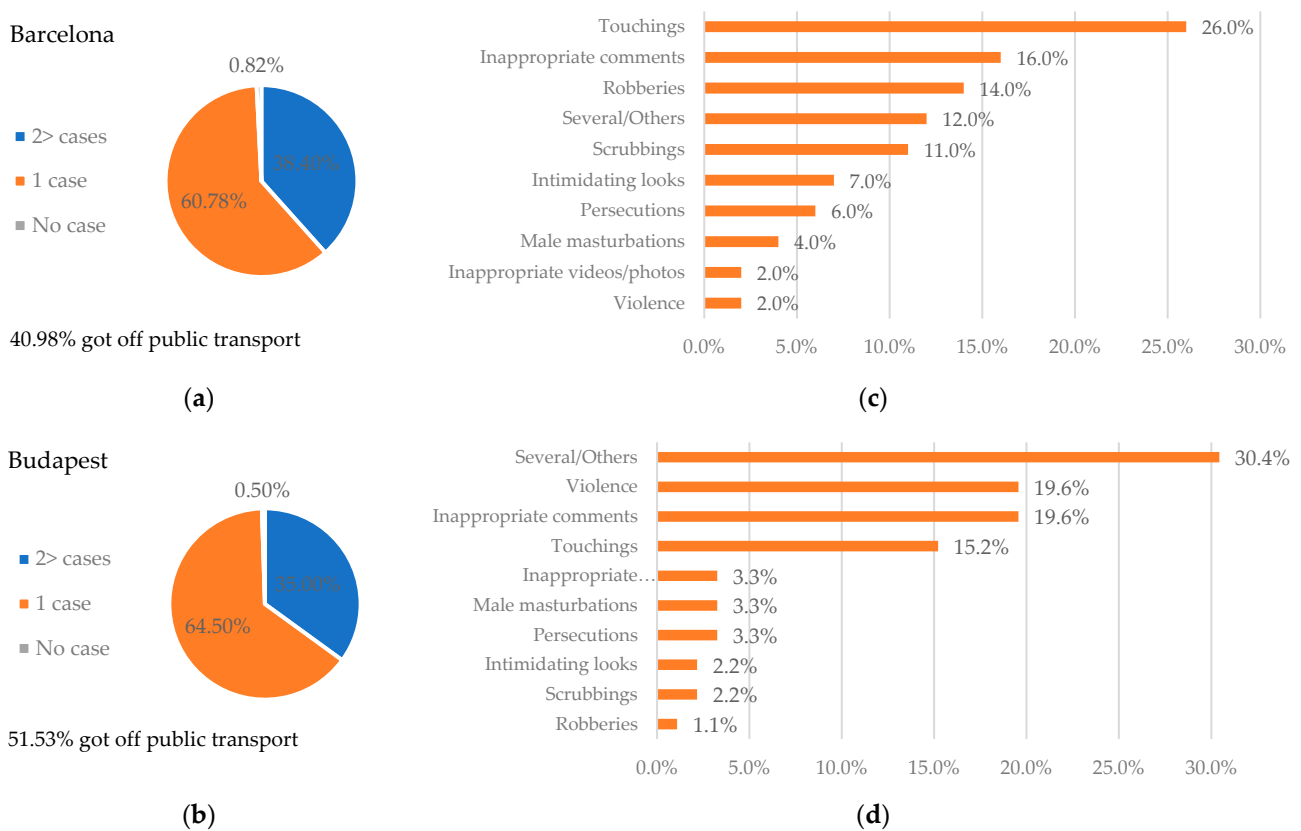
Travel Patterns	Barcelona	Budapest
<b>Use of public transport during the week</b>		
During weekdays	26.64%	10.48%
During the weekend	4.10%	1.75%
Both during weekdays and weekend	61.89%	83.84%
I do not usually use public transport	7.38%	3.93%
<b>Frequency of use of public transport</b>		
Between 2 and 6 times per week or more	85.00%	90.00%
Once a week and hardly ever	14.59%	10.00%
Never	0.41%	0.00%
<b>Public transportation services used</b>		
Bus	37.14%	28.13%
Tram	6.64%	29.76%
Metro	42.32%	27.72%
Train	13.90%	9.78%
Others	0.00%	4.62%
<b>Driving license</b>		
Yes	76.23%	63.76%
No	23.77%	36.24%
<b>Access to car</b>		
Yes	57.79%	63.76%
No	42.21%	36.24%

The answers to some questions related to women's security perception while using public transportation can be seen in Table 3. In both cities more than 60% of women traveled alone fearless on public transportation. However, they tried to avoid isolated stations (around 28% of the respondents) and streets (29% in Barcelona and 36% in Budapest) in dark hours.

**Table 3.** Main questions related to females' security on public transportation.

Security Perception and Consequences	Barcelona	Budapest
<b>Situations that respondents try to avoid</b>		
Travel alone at night on public transport	19.90%	20.25%
Waiting alone in a stop/station at any time	5.06%	3.93%
Waiting alone in a stop/station if it is dark	27.90%	27.69%
Walking alone from/to the stop/station at any time if the area is quite isolated	14.68%	12.19%
Walking alone from/to the stop/station at any time if the area is quite isolated and dark	29.04%	35.95%
I do not care about these situations	3.43%	0.00%
<b>Attempt, not to travel alone on public transport</b>		
During the day	3.24%	0.44%
During the night	36.03%	33.19%
No problem with travelling alone	60.73%	66.38%

With regard to actual experiences, Figure 2 shows that almost all respondents in both cities had experienced or observed unwanted behaviors on public transport or as part of a woman’s journey. Indeed, most of them (more than 60%) have suffered or seen them more than once. More than 50% of these women in Budapest left the vehicle, with the percentage in Barcelona being a bit lower (40.98%). The frequency of each possible type of unwanted behavior was different in each city. It is worth highlighting that severe harassment linked to violence was reported by 20% of the Budapest respondents, in comparison to 2% in Barcelona. It was also very common in Budapest (>30%) that women suffered unwanted behaviors involving several inappropriate conducts (e.g., inappropriate comments followed by persecution and touching). Both touching and inappropriate comments were quite common in both cities. Conversely, the rate of robberies (note that women argued that they felt like more accessible victims) was higher in Barcelona (14% in comparison to 1.1%).



**Figure 2.** Exploratory analyses of key questions related to harassment. (a) Proportion of Barcelona respondents experiencing/observing none to several unwanted behaviors; (b) Types of unwanted behaviors experienced/observed by Barcelona respondents; (c) Proportion of Budapest respondents experiencing/observing none to several unwanted behaviors; (d) Types of unwanted behaviors experienced/observed by Budapest respondents.

The boundary conditions of harassment as well as its consequences also showed differences between the cities (Table 4). For example, most cases in Barcelona took place during the day and in rush hours, especially in the metro, while Budapest cases were reported equally throughout the day, with trams being the least safe means.

However, in both cities, women below 30 years old were the main victims and the presence or absence of the public seemed to play no role. Barcelona women reacted to aggressions, usually quickly changing their place (recall that the percentage of these women that left the vehicles was lower than in Budapest). Although they showed their indignation and complained in public (e.g., with family or friends), they only reported the aggression to the police if something had been subtracted. Conversely, not all Budapest women were

able to react (apart from leaving the vehicle), with some of them remaining shocked. They rarely reported the case to the police, and they showed a kind of resignation towards these behaviors, which they came to see as “habitual” or “habits”. In Barcelona, aggressions (e.g., persecutions, touching) led to a change in the victim’s travel patterns in more than 60% of the cases. This percentage was much lower in Budapest, not even reaching 30%. Overall, almost no women investigated if administrations were planning to set up any measures to improve their security on public transportation.

**Table 4.** Similarities and differences reported by participants from Barcelona and Budapest having suffered/observed harassment.

Barcelona		Budapest
During the day and in rush hours	≠	No pattern regarding moment of the day
Metro the least safe. Tram the safest	≠	4–6 trams the least safe
No special zone of the city	≠	Central square Blaha Lujza Tér
Women under 30 years old	≈	Women under 30 years old
No pattern in public affluence	≈	No pattern in public affluence
Reaction	≠	Too shocked to react
Change of place as instinct reaction	≈	Change of place as instinct reaction
No report except for robberies	≈	Only 1 report in addition to robberies
Indignation and awareness of the problem	≠	Normalization of these situations
Impact on travel patterns	≠	No impact on travel patterns
Not aware of future measures	≈	Not aware of future measures

Very interesting findings are related to what these women were willing to do to avoid harassment on public transportation (Table 5). In both cities they would make a longer journey, i.e., invest more travel time, if this would ensure higher security levels. However, 67.21% of Barcelona women would not pay more to increase their security, and only 5.33% would accept a clearly higher cost (>30% increase).

**Table 5.** Women’s trade-off between security perception and other aspects.

	Barcelona	Budapest
<b>Willingness to make a longer trip to increase the security perception</b>		
Yes	83.20%	78.17%
No	16.80%	21.83%
<b>Willingness to pay to increase security measures</b>		
10–30% more	27.46%	55.87%
30% more–the double	5.33%	28.49%
I would not pay more	67.21%	7.26%
<b>Influence of security perception in job acceptance</b>		
It could make me reject a job	5.74%	4.37%
As important as other typical aspects such as salary or position	37.7%	41.48%
A variable to consider but only after others such as salary or position	40.57%	49.34%
It would have no influence	15.98%	4.80%

Conversely, in Budapest, only 7.26% of the respondents would neglect investing more money to increase their security and, in fact, 28.49% would be willing to pay even double. When asking about consequences of harassment on public transportation beyond the trips themselves, only a minority of the respondents would reject a job if feeling insecure during commute, but 37.7% in Barcelona and 41.48% in Budapest considered the security perception variable as important as the particular position or the salary when looking for a job. Almost 16% of the Barcelona females stated that security perception would play no role in their decision, compared to 4.8% in Budapest.

#### 4.2. Chi-Squared Test of Independence and Ordinal Logistic Regression

Considering the insights provided by the exploratory analysis as well as the sample size limitations, a set of key variables was chosen for the next quantitative analyses (Table 6). Note that two of them were included twice, both in their original form and also in a binary form. For example, the original answers to “Willingness to pay” were 6, and they were aggregated into “yes” or “no”. Something similar was conducted with the number of unwanted behaviors seen or experienced.

**Table 6.** Variables assessed with the chi-squared test of independence and ordinal logistic regression.

Variable	Type	Denomin.
Age	Ordinal	Age
Education level	Ordinal	Education
Average household income	Ordinal	Income
Access to car	Binary	AccessCar
Average trip duration in PT	Ordinal	tt
Having to leave PT for security reasons	Binary	LeavePT
Willingness to extend the average trip for security reasons	Binary	LongerTrip
Willingness to pay	Ordinal	WTP
Willingness to pay (aggregated)	Binary	WTP2
Frequency of unwanted behaviors seen/experienced	Ordinal	FreqUnw
Frequency of unwanted behaviors seen/experienced (aggregated)	Binary	FreqUnw2

First, the existence of possible significant relationships between the former categorical variables was assessed using the chi-squared test of independence. These are shown in Tables 7 and 8, respectively for the case of Barcelona and Budapest.

**Table 7.** Significant relationships among variables for the case of Barcelona.

Variable 1	Variable 2	Pearson’s Chi-Squared	Significance
WTP2	Education	5.329	0.021
WTP2	LeavePT	3.794	0.051 *
FreqUnw	LeavePT	24.137	0.000
FreqUnw	LongerTrip	7.757	0.021

\* near significance.

**Table 8.** Significant relationships among variables for the case of Budapest.

Variable 1	Variable 2	Pearson’s Chi-Squared	Significance
WTP2	LeavePT	6.224	0.013
WTP	LeavePT	14.422	0.006
LongerTrip	WTP	15.088	0.005
FreqUnw	Education	6.371	0.041
FreqUnw	LeavePT	9.945	0.007

As it can be observed, the willingness to pay (WTP and WTP2) in order to improve women’s security on public transportation is related in both cities with the possibility of these women having suffered previous bad experiences that obliged them to get of the vehicle (LeavePT). Additionally, it was also related to the education level (Education) for the case of Barcelona and to the willingness to accept a longer journey for the sake of security (LongerTrip) in Budapest. The number of harassment episodes seen/suffered (FreqUnw) was shown to be related with the fact of abandoning the vehicle due to fear in both cases. Additionally, with the acceptance of longer journeys in Barcelona and the education level in Budapest.

Ordinal logistic regression was next applied trying to infer a relationship, respectively, between three dependent variables, WTP and its binary form WTP2, and LongerTrip, with the rest of variables in Table 6. Note that, given the binary nature of WTP2 and LongerTrip, a binomial logistic regression was applied in these cases. Due to sample size limitations in both cities, only one model for the city of Budapest was found to give useful insights (Table 9).

**Table 9.** Result of the ordinal logistic regression for Budapest.

Dependent Variable	Independent Variables	Model-Fit Data			Goodness-of-Fit		Pseudo-R	
		−2Loglikel.	Chi-Squared	Sig.	Chi-Squared	Sig.	Nagelkerke	
WTP	Age * (+) LongerTrip (+)	Income (+) LeavePT (+)	119.219 (inst. 153.067)	33.847	0.000	60.476	0.832	0.151

\* Age intervals reduced for the analysis to 0–29, 30–49, 50–69 and  $\geq 70$ .

In this model, WTP is explained by the independent variables Age, Income, Longer-Trip, and LeavePT. The sign “+” near the variable refers to the sign of its coefficient in the model. The model’s goodness-of-fit was first evaluated using the  $-2\log$ -likelihood metric. The likelihood function quantifies the probability of the observed data given the model’s parameters. When comparing multiple models, the one with the lower  $-2\log$ -likelihood value is typically considered to better fit the data. In the present analysis, this model was compared against an intercept-only model, which does not include any predictor variables. Additionally, the model demonstrated a significant chi-squared statistic ( $p < 0.0005$ ), indicating it provides a better fit than the baseline intercept-only model.

To further assess goodness-of-fit, Pearson’s chi-squared test was used. This test evaluates whether the observed data are consistent with the predictions made by the model. Under the null hypothesis that the model fits well; a high  $p$ -value suggests that there is no significant difference between the observed and expected frequencies, thereby supporting the model’s adequacy.

Finally, we examined the proportion of variance in the outcome variable explained by the independent variables using the Nagelkerke pseudo- $R^2$ . A higher Nagelkerke  $R^2$  value indicates that the model has a stronger predictive capability. Thus, the proportion of the explained variable was quite low in this case (15.1%). In other words, there is a substantial portion of unexplained variance, indicating that other factors (not included in the model and perhaps not even in the survey) may influence the WTP. For this reason, the coefficients of the independent variables have not been included in Table 9, as the model could have difficulties in providing accurate results. However, considering the complexity of the phenomenon being studied, and as it is frequently made in behavioral research, the validity of the model, not in numerical terms but to indicate directional relationships, is not disregarded.

#### 4.3. Textual Data Analysis

As explained, the survey contained some open-answer questions, which were not mandatory. These questions mainly focused on the cases of harassment that the respondents had experienced or seen, their reaction, and their proposals to avoid this unwanted phenomenon. Participants were also given the opportunity to include free reflections. It should be noted that the women who answered these questions generally achieved so by elaborating on their answers. Therefore, the questions were read several times, and notes and associations were made, which will be explained in more detail in Section 5. In addition, a word frequency analysis was carried out for the answers to some key questions. The obtained results can be visualized in Figure 3.



**Figure 3.** Results of word frequency analyses for free answer questions related to (a) harassment episodes suffered/observed in Barcelona; (b) harassment episodes suffered/observed in Budapest; (c) reaction to harassment episodes suffered/observed in Barcelona; (d) reaction to harassment episodes suffered/observed in Budapest; (e) women's proposals to avoid harassment on public transportation in Barcelona; (f) women's proposals to avoid harassment on public transportation in Budapest.

In both cities, the words "I", "me", "man", and "he" were cited very frequently. This indicates that most harassment episodes reported had been suffered by the respondents themselves and that the aggressor had usually been a (single) man. The term "they" appeared more in Barcelona, indicating potential group aggressions. Regarding those words related to transport, "subway" was the most common one in Barcelona, followed by "bus", which was the most named means of transport in Budapest. When focusing on words describing harassment, "touching", "touch", and "touches" were by far the most

common in Barcelona, followed by “told”. Conversely, “grabbed” was the most frequent in Budapest.

When analyzing those answers related to women’s reactions after suffering/observing harassment, it was noticed that the words “off”, “away”, or “leave” were very common in both cities, indicating that these women changed their travel patterns to avoid more aggressions. “Run” and “move” were also frequent in Barcelona. However, other terms like “tried”, “afraid”, or “ignore” appeared to be common only in Budapest, which suggests that some Budapest women could not properly react or even that they did not try to.

The word frequency analysis of those questions asking for proposals to end harassment on public transportation led to interesting results as well. For example, some words such as “more”, “security”, “transport”, and “cameras” appeared often in both cities. This indicates that women were unsatisfied with the current situation and required more security measures to be put in place. Indeed, other words like “vigilance”, “surveillance”, or “cameras” were also quite frequent. However, the word “police” was much more frequent in Budapest than in Barcelona. Even though it appeared, others like “personnel” were more frequent in the Catalan city. Thus, Barcelona women seemed to have thought first about personnel from the operator to control harassment, while Budapest women immediately thought about the police. “Night” and “subway” were frequently cited in Barcelona. In Budapest, “night” was also very repeated, but “stops” was the spatial term most frequently used. “Penalties” was another interesting word appearing only in Barcelona.

Beyond actual security, Barcelona women very usually proposed educational, i.e., preventive, measures. In fact, words such as “education”, “campaigns”, and even “awareness” or “schools” appeared in high number. Conversely, the frequency of use of “education” and “awareness” was much lower in Budapest, and children (schools) were not targeted. It is also worth highlighting that the words “respect” and “equality” appeared quite often in Barcelona but never in Budapest.

## 5. Discussion

After analyzing the above results and taking into account the state-of-the-art review carried out both in general and in relation to both cities, their gender perspective, and the introduction of the same in transport, it can be derived that the social situation is directly and indirectly related to the level of harassment of women on public transport.

As it was explained in Section 3, the fight for gender equality is a topic that has been worked on in Barcelona for a long time and at all levels, from education to business, including the administrative and, of course, political spheres. Specifically for the transport sector, there are numerous awareness-raising campaigns launched, aimed at different groups, but also active policies translated into specific plans and investments that seek, firstly, to prevent harassment of women on public transport and, secondly, to facilitate reporting and the capture and punishment of the aggressor. It is important to note that men are also involved in these efforts.

Barcelona women are aware of their rights in this regard and claim them, and each case of harassment represents a significant loss of credibility on the part of transport operators and the political entity responsible. Conversely, the approach to gender issues in Budapest, both in general and in particular in the area of mobility, is comparatively younger. Measures and plans are in development and have a smaller scale. Also, they are at the moment less known or less significant for the city’s inhabitants. Administrations and operators are making great efforts to advance in this area, but this evolution will require commitment, money, and time.

The results included in the previous section indicate that both the reality of harassment of women on public transport and the perception of it are different in both cities. Regarding its patterns, most cases of harassment in Barcelona did not involve serious personal harm to the victims, but were in the form of touching, unwanted comments, or petty theft. This is why they occurred mainly during the day, taking advantage of rush hours, with a large influx of users. The metro was the place where these unwanted situations occurred most.

As regards Budapest, grabbing, which already represents a higher level of severity, was the most frequent type of harassment. It occurred on public transport but also frequently on the streets, on the way to/from the corresponding stops, and it occurred regardless of the time of day.

Even though harassment cases in Budapest were generally more serious, most women in Barcelona knew how to react to defend themselves or avoid them, in contrast to a significant percentage of women in Budapest who were shocked or even unaware of the seriousness what was happening to them. The contrast between indignation in Barcelona and (partial) normalization in Budapest was clear.

Women in Budapest saw lack of security primarily as a police issue. That is, they assumed that these types of aggressions exist and demanded more police presence to prevent them. On the contrary, women in Barcelona put the focus of responsibility first, on the transport operator itself, assuming that women's security must be part of the service offered and, second, on society. Women in Barcelona valued the role of education to reduce cases of harassment and promote respect and equality between genders. That is, they demanded the promotion of preventive measures rather than palliative measures, without disregarding the latter when necessary.

Therefore, personal integrity during mobility was seen as a right by the majority of women in Barcelona. In fact, most would refuse to pay an additional cost to reduce cases of harassment, because they consider it an obligation of the operator and the administration to avoid them and not an extra to the service that they can opt for. They did admit, with the current situation, to changing their travel patterns even at the cost of increasing travel times to avoid unwanted situations, arguing that it would be a personal decision. In Budapest, the extension of travel time was also widely accepted. Moreover, only a minority of women refused to pay more to increase their personal security, and those women who had experienced or seen more cases of harassment were the most willing to make this outlay, which was also more acceptable for women with medium-high incomes.

All the above shows that the policies implemented years ago in Barcelona are successful: women in the city are aware of their rights and demand to be able to travel safely, just like their male counterparts; on the other hand, society as a whole is increasingly aware of the need to achieve equality and harassment of women is denounced, which also causes the number of cases, especially the serious ones, to decrease. The lack of mature policies on the topic in Budapest means that the scourge of harassment of women is still normalized in certain circles in the city, especially when it does not cause serious physical harm. Women themselves accept these cases with resignation and do not vehemently demand active policies to fight against it, being even willing to pay special services to avoid becoming victims. Such impacts of contrasting ideologies in the East and in the West of Europe have been observed for years. For example, Ref. [41] examined how gender equality and women's advancement in post-war Europe were hindered by heavy industry in Pernik, Bulgaria, while in Basildon's (UK), housing program and diverse industries stimulated women's employment without prioritizing gender equality.

This paper puts the focus on policies and social awareness on the gender gap in public transportation. Note that operational factors like transit infrastructure quality and service frequency, which play a substantial role in influencing actual and perceived security, can and, in fact, should be included in such policies. In Barcelona, high-frequency service and well-maintained, brightly lit stations contribute positively to users' sense of security, especially among women. The extensive metro and bus systems, integrated with trams and bicycles, encourage more consistent ridership and active use of transit spaces, factors that studies have linked with reduced risk perception in public transit. Conversely, Budapest's transit system, while comprehensive, faces limitations in frequency and upkeep due to constrained budgets. Older infrastructure, dim lighting in some metro stations, and infrequent night services can detract from women's feeling of security, especially in less populated transit spaces during off-peak hours.

The authors have focused on two European cities, aware that certain sectors are reluctant to accept the existence of the gender gap in mobility, also in developed countries. The research carried out has shown that such a gap does exist, although, fortunately, it is not as large as in cities and countries outside this continent. For example, in South and Southeast Asia, women face significant barriers to public transportation due to inadequate inclusive policies and protective laws. These obstacles are largely rooted in patriarchal societal norms that not only perpetuate sexual harassment on public transit but also contribute to victim-blaming if incidents are reported. Policies that specifically address women's needs in the transport sector are sparse, with Bangladesh being a notable exception. When gender policies do exist, they are often developed in isolation from broader transportation planning, rendering them largely theoretical and ineffective. Furthermore, these policies generally focus only on public transportation, overlooking the fact that much of the transportation fleet in developing countries is privately owned and exempt from regulatory requirements like police verification. This gap leaves women vulnerable, as these operators are not accountable under the same standards as public entities [42]. Additionally, penalties for minor harassment are often too lenient to serve as effective deterrents. International organizations, such as the World Bank and United Nations, have worked to advance gender inclusivity in transport in these areas; however, implementation challenges remain significant. A study of policymakers and transport professionals in Delhi, India, for example, highlighted a reluctance to view women as a distinct user group, mainly due to the male-dominated nature of the sector. Instead, women are categorized under broader "vulnerable user" categories, leaving gender-specific needs unaddressed in policy and practice. Additionally, challenges such as interdepartmental coordination issues, limited resources, and constrained data access further hinder the practical implementation of gender-sensitive transport plans at the local level [43]. This does not mean that such efforts are ineffective. Indeed, they work, but they must be sustained on time so that awareness on gender gap reaches decision-making people and society. Going back to India, it can be considered a clear example of the importance of education and awareness. Until a few years ago, it was one of the archetypal examples when it came to pointing out women's difficulties in getting around. As said, these difficulties have not disappeared, but they have been alleviated in comparison to other neighborhood countries thanks to the struggle of the women themselves and the involvement of international organizations. Ideal or not, India was one of the first countries to introduce women-only transport and to promote the presence of female drivers. Measures such as these, initially controversial, are now accepted by a majority of the population, especially females [44].

Therefore, it is clear that the information and awareness of society about the scourge of harassment is necessary so that gender policies in transportation are, first, materialized and, second, result-effective. However, it is also clear that the commitment to this fight must be decisive: social changes require time, and any measures put into practice must be maintained over long periods and updated as necessary. The intensity of these measures should be higher at the beginning and can be progressively reduced as the goals are achieved. Transportation policies alone will not be able to solve the problem. Ideally, gender equality education, in general and in mobility, should begin at an early age, at school. However, different campaigns aimed at different target groups are necessary. Indeed, campaigns should target the whole of society, not just females, so that women are empowered, and society as a whole stands up against harassment and does not accept it in any form or under any circumstances. The collaboration of public administrations with other social sectors is also key to the success of these measures. In Hungarian-like societies, other basic steps are also needed. For example, the collection of gendered data that allows for analysis of the actual level of gender gap and to evaluate its progress after different measures are put in place.

Fostering the presence of women in decision-making positions in mobility is also essential. Some administrations have already launched policies in this sense, such as the organization of specific apprenticeship and training courses for women, the establishment

of quotas for hiring, or recruitment positive discrimination. There is enough evidence that these policies are helpful. A recent example can be found in the Danish context [45].

Finally, other aspects to be explored for those entities or individuals for whom awareness raising is not sufficient are incentives and punitive measures. In the case of public transport operators, the introduction of these aspects is straightforward. For example, by making it a requirement in the contracting specifications to effectively establish measures aimed at closing the gender gap in transport, compliance with which must be monitored. In the case of private operators or individual citizens, the key solution is to tighten existing legislation.

## 6. Conclusions

This research has used a mixed methodology, quantitative and qualitative, in order to analyze the influence of the social context on the gender gap in mobility, focusing especially on the issue of women's security and harassment. Two case studies have been chosen, representative of societies in which the fight for gender equality in general, and particularly in the area of mobility, is at different stages of maturity. On the one hand, the city of Barcelona, where feminism in its broadest sense has been a reality for many years and is fully integrated into public and private policies. On the other hand, the city of Budapest, where this issue is still not a priority and is the subject of attention only for very specific groups.

The study has shown that, although women's mobility patterns are similar in both cities, females' attitude are not, nor are the harassment situations they experience (see Figure 2 and Table 5). In Barcelona, women consider that ensuring their security in the area of mobility is an obligation of transport operators and, therefore, is ultimately a responsibility of the administration. They reject the role of victims and prefer that of fighters for the cause, and they are not willing to make major changes in their mobility patterns, much less incur expenses, to protect their personal security. Harassment situations that could be considered comparatively "mild", such as comments or intimidating glances, are already the subject of social denunciation by these women. This is why the percentage of harassment cases reported in Barcelona are similar to that in Budapest; Barcelona women do not tolerate any kind of undesired behavior. Conversely, in Budapest, attacks more frequently involve the invasion of the woman's body (touching) or threats (chasing). Still, a considerable percentage of women in this city adopt a defeatist attitude, assuming that the problem exists and that they have to resign themselves to accepting it. They take on a certain responsibility for avoiding it, for example, by agreeing to pay more than their male colleagues to ensure their security. They rarely hold transport operators responsible for this problem. Additionally, women interviewed in Barcelona showed great confidence in education as a way of achieving gender equality, while in Budapest they mostly thought of the role of the police in containing an "inevitable" phenomenon (Figure 3).

As described in Section 3, Barcelona and Budapest each possess specific characteristics that can facilitate extrapolation of findings to other cities with similar socio-economic, spatial, and transit conditions. In terms of a social mindset, Barcelona is known for its high degree of internationalization and for being a pioneer in the fight for the social rights of different groups and in different areas. These changes are slower in Budapest, where the more traditional mentality typical of Eastern countries still prevails. In terms of infrastructure and operational factors, Barcelona's compact, high-density layout and emphasis on pedestrian-friendly spaces make it representative of Mediterranean cities with similar historical urban design, like Valencia or Naples. This layout, combined with Barcelona's comprehensive transit network, allows for a high frequency of services, which impacts accessibility and perceived security in ways that are relevant to cities with similar high-density structures. Budapest, on the other hand, reflects traits common to many Central and Eastern European cities, with post-socialist infrastructure challenges, lower densities, and a transit system largely dependent on state funding and legacy transport assets. These characteristics are shared by cities like Warsaw and Prague, where economic constraints and

evolving governance structures also shape policy limitations and operational challenges. Note that these features also depend on social interests and priorities, which ultimately define what and how public funds are spent.

All of the above indicates that, indeed, the social context and its awareness of the gender gap are vital to reach gender equality, also in the transportation domain. Without ignoring the need for control and punitive measures to prevent and/or punish harassment of women in mobility, raising awareness in society through education and information is the best weapon to end this problem in the medium term.

This research has some limitations. The most obvious one is related to the representativeness of the samples of the two surveys carried out, both in terms of the number of responses obtained and the fact that they were mostly (not only) disseminated online, which introduces a certain bias, as it leaves out some profiles of women. That is why, as has been indicated in the corresponding sections, the numerical results should not be taken literally, but only as indicators of trends. Additionally, it is very likely that the majority of respondents were women who were particularly interested in the subject, either because they were committed to the fight for equality or because they had suffered or had known cases of harassment on transport. Only the replication of the research with a more powerful data collection method in terms of both the ability to attract participants and the way to find them (e.g., by conducting questionnaires on the street or at home, after the corresponding sample design) would allow validation of numerical results. Leaving aside the former issues, this fact does not diminish the importance of the results of the research. On the contrary, the participation of these women in the study enriches it given their direct or indirect relationship with the subject and, therefore, their greater knowledge of it. It is also important to note that the surveys were launched in 2022. Especially in the case of Budapest, things may have changed in this period. As mentioned above, the main public transport operator cooperated with this research and was just starting to design its plans for integrating the gender perspective into mobility. Numerous researchers in Hungary are also working on gender equality in different areas. It would be of particular interest to be able to carry out another, more comprehensive study with their collaboration and to be able to evaluate the progress achieved. The performance of similar research in other scenarios, e.g., cities of other continents with other cultural backgrounds, would also shed light to the topic and help in evaluating the role of societal constructs in the gender gap in mobility.

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## Appendix A. Survey

This appendix contains the English version of the survey.

### SURVEY SECTION 1 (mandatory)

1. Do you identify as a woman?
  - Yes

- No
2. What is your age?
    - <18 years old
    - 18–25 years old
    - 25–30 years old
    - 30–40 years old
    - 40–50 years old
    - 50–60 years old
    - 60–70 years old
    - >70 years old
  3. What is your nationality?
    - Spanish
    - Others (write)
  4. For how long have you been living in Barcelona?
    - Less than one year
    - Between one and three years
    - Between three and ten years
    - More than ten years
    - All my life
  5. Which is your highest education level?
    - High school
    - Vocational Training
    - Bachelor's degree
    - Master
    - PhD
  6. Based on your average household income, would you say you belong to:
    - Working class
    - Middle class
    - Upper class
    - I prefer not to answer

#### SURVEY SECTION 2 (mandatory)

7. When do you use public transport?
  - During weekdays
  - During the weekend
  - Both during weekdays and weekends
  - I do not generally use public transport
8. In which frequency do you use public transportation?
  - 4–6 times per day
  - 1–2 times per day
  - 2–3 times per week
  - Once per week
  - Hardly ever
  - Never
9. Mark the public transportation services you usually use: (allowed multiple choice)
  - Bus
  - Tram
  - Metro
  - Train
  - Suburban railway (in the case of Budapest)

10. Do you own a driving license?
  - Yes
  - No
11. Do you have access to a car?
  - Yes
  - No
12. What is the main purpose of using public transportation?
  - Studies or work
  - Shopping
  - Leisure activities
  - Care
  - Others (write)
13. How long in minutes is your most frequent trip considering one direction?
  - 5–15 min
  - 15–30 min
  - 30–45 min
  - 45–60 min
  - More than one hour

#### SURVEY SECTION 3 (mandatory)

14. When looking for a job, and assuming you must use public transport to get there, to what extent would transport conditions in terms of security (e.g., available timetables, areas covered, need for transfers, distance from/to the stop/station to your origin/destination) influence your decision?
  - It would not condition me at all
  - It would influence my decision, but not as much as other aspects such as salary, position, etc.
  - It would be an important aspect to take into account, at the same level as other aspects such as salary, position, etc.
  - It could make me reject a certain job
15. Would you rather make a longer trip if the security of the travel is known to be high than a short trip if you are not sure about your personal safety?
  - Yes
  - No
16. Do you generally try not to travel alone on public transportation? (Allowed multiple choice)
  - Yes, I try not to travel alone during the day
  - Yes, I try not to travel alone during the night
  - No, I don't have problems in travelling alone
17. Which of the following situations would you try to avoid? (Allowed multiple choice)
  - Travel alone at night on public transportation
  - Waiting alone in a stop/station at any time
  - Waiting alone in a stop/station if it is dark
  - Walking alone from/to the stop/station to your origin/destination at any time if the area is quite isolated
  - Walking alone from/to the stop/station to your origin/destination if the area is quite isolated and it is dark
  - I do not care about these situations
18. Do your travel patterns (way, mode of transport) depend on any of the following issues? (Allowed multiple choice)
  - Timetable

- 
- Itinerary
  - My clothing
  - Whether I am going alone or accompanied
  - The price of the ticket
  - Length of the trip
  - Traffic
  - Weather
  - These issues do not affect my choice
19. What is the frequency of experiencing or seeing unwanted behaviors in the context of transport systems?
- Often
  - Several times per year
  - Few times per year
  - Just a few times in my life
  - Never in my life
20. What are the types of unwanted behaviors you have experienced or seen when accessing/travelling on public transportation? (Allowed multiple choice)
- Someone touched me
  - Intimidating looks
  - Strangers come to talk to me
  - Manspreading: the practice whereby a man, especially when traveling on public transportation, adopts a sitting position with his legs wide apart, in such a way as to encroach on an adjacent seat or seats.
  - Others (write)
  - None
21. If experienced or seen, when do these experiences more often happen? (Allowed multiple choice)
- During the day in rush hours
  - During the day out of rush hours
  - During the night
  - At any time
22. If experienced or seen, where do these experiences more often happen? (Allowed multiple choice)
- On board
  - At the station/stop
  - In the way to the station/stop
  - In the way from the station/stop to my final destination
23. Have you ever had to get off the transport because of an unwanted behavior (either suffered by you or by another woman)?
- Yes
  - No
24. How much more would you be willing to pay for your public transport journey if safety measures for women were to be increased?
- I would not pay more
  - 10% more
  - 20–30% more
  - 30–50% more
  - >50–75% more
  - The double

## SURVEY SECTION 4 (non-mandatory section)

25. What is the most severe unwanted behavior you faced in the context of transport? (Please, specify if you have been a victim or a witness)
  - Written answer
26. What was the approximate hour of the day?
  - Written answer
27. Which was the public transportation means on which you were travelling?
  - Written answer
28. Where did it take place? (Please include the zone of the city and also if it happened on board, at the station/stop or in the way to/from the station/stop)
  - Written answer
29. What was your age? (Or the approximate age of the victim if you have been a witness)
  - Written answer
30. What was the purpose of your trip?
  - Written answer
31. What was the level of crowdedness of the transportation mode?
  - It was full
  - Intermedium crowdedness
  - There were just a few people
32. What was your instinct reaction to the incident?
  - Written answer
33. Did you report the incident to the police?
  - Yes
  - No
34. Why?
  - Written answer
35. Did this event affect your future use of transport?
  - Yes
  - No
36. Why?
  - Written answer
37. Have there been any measures implemented since the event that would help to avoid other woman go through this situation?
  - Yes
  - No
  - I don't know
38. If yes, which?
  - Written answer

## SURVEY SECTION 5 (non-mandatory section)

39. Which proposals would you suggest in order to reduce or end the gender gap in mobility regarding personal security?
  - Written answer
40. Do you have additional proposals that could help to reduce other issues related to gender gap in mobility (e.g., comfort, attractiveness, usefulness)
  - Written answer

41. Write any comment, opinion, etc. related to this topic you want to share.
  - Written answer

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