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Mobility Patterns and Behaviours from a Gender Perspective in Alba Iulia Metropolitan Area, Romania

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Abstract: Women's mobility patterns differ from men's regarding accessibility to the various transport services, transport safety, and personal security while travelling. These differences are explained by local transport supply, economic status, income, education level, perceptions or personal aspirations. By using GIS and Python coding, spatial analysis, descriptive statistics and statistical analysis, this chapter aims to analyse the mobility patterns and behaviours with an intersectional approach in Alba Iulia metropolitan area, highlighting the main differences between men and women on the most frequent journey without limitations associated with the COVID-19 pandemic. Results show that women in Alba Iulia metropolitan area travel shorter distances but spend more time travelling than men. Regarding car usage as drivers, approximately 2/3 are men, and 1/3 are women, with women more prone to use the car as a passenger. Additionally, women walk more than men and most likely use public transport services on their regular trips. In line with the literature, women stop more for shopping on the most frequent journey and men for work-related motives. Men are less satisfied with public transport services when compared to women. In contrast, when assessing private vehicle indicators, women are less satisfied than men in almost all aspects, namely park and ride locations, parking conditions, availability, safety, security, costs and congestion levels when using a private vehicle. A similar situation was observed regarding owned bicycles indicators, where women are less satisfied in almost all aspects analysed.

Keywords: women; mobility; transport systems; satisfaction level; gender equity.

1. Introduction

Women's mobility patterns and behaviours differ from men's regarding accessibility to the various transport services, transport safety, and personal security while travelling. These differences are explained by local transport supply, economic status, income, education level, perceptions or personal aspirations (Monteiro et al., 2016; Singh, 2019; Pirra et al., 2021). Consequently, women's daily movements are often disrupted by the perception of insecurity and the fear of physical or sexual violence in public spaces or while using public transport systems (Loukaitou-Sideris, 2014; Gauvin et al., 2020; Kalakou et al., 2021). Thus, at the present moment, women's mobility needs should require more attention.

Similarly to other regions (Thynell, 2016; Queirós et al., 2017; Arguello et al., 2021), Romania has no tradition of carrying out systematic studies on transport gender differences (Ilovan and Muntean, 2021). Although at a slow pace, this gap tends to be filled in by academic research (Queirós et al., 2017; Singh et al., 2019; Kalakou et al., 2021; Arguello et al., 2021) or European transport development projects from a gender perspective, such as TInnGO¹, DIAMOND² or EIT Urban Mobility³. Nevertheless, the lack of gender-disaggregated data currently limits understanding of gender aspects in urban mobility solutions. It affects the ability to design efficient gender equality policies and measures (Gauvin et al., 2020), thus affecting the transport systems and women in particular.

During the last years, Alba Iulia and its metropolitan area have struggled with serious transport difficulties due to parking lack within the core city, corroborated by increased heavy road traffic and motorisation rate (CIVITAS SUMP-PLUS, 2019). Efforts to tackle congestion and other transport-related issues have led Alba Iulia metropolitan area to try new mobility and transport planning solutions, including the Smart City 2018 pilot project and the elaboration of its first Sustainable Urban Mobility Plan (SUMP) in 2017. These actions connected the city's three main spheres: mobility, tourism and education. Nonetheless, no solutions were designed to implement efficient gender equality policies.

Nevertheless, the city aimed at filling this gap and joined a European Project named TInnGO – Transport Innovation Gender Observatory, developed to analyse and improve people's mobility experiences in ten European hubs from a gender perspective. Within this context and focusing on the Romanian experiences within the EU Project, this chapter aims to analyse the mobility patterns and behaviours with an intersectional approach in Alba Iulia metropolitan area. Therefore, disaggregated data were collected to investigate the main differences between men and women on the most frequent journey without restrictions or limitations associated with the COVID-19 pandemic.

GIS techniques, Python coding, spatial analysis, descriptive statistics and statistical analysis were used as the main research methods for the data analysis. Thus the analyses hereafter presented are based on the 254 answers obtained from Alba Iulia metropolitan area hub within the TInnGO project.

¹ TInnGO – Transport Innovation Gender Observatory. Available at: <https://www.tinningo.eu/>

² DIAMOND Project - Revealing actionable knowledge from data for more inclusive and efficient transport systems, November 2018 – January 2022. Available at: <https://diamond-project.eu/>

³ EIT Urban Mobility - Women in Urban Mobility – Promoting gender equality and female empowerment. Available at: <https://www.eiturbanmobility.eu/women-in-urban-mobility-promoting-gender-equality-and-female-empowerment/>

The chapter is divided into five main parts, namely (i) Introduction, (ii) Methodology and case study, (iii) Theoretical background (iv) Results and Discussion and (v) Conclusions. The second section presents the case study, and the methods used are designed and explained. The third section consists of a literature review that illustrates the gender gap existing in today's mobility systems and within academia. Further, the fourth part highlights the results focusing on mobility patterns, behaviours and satisfaction models. Finally, the research conclusions and further recommendations are drawn in the last section.

2. Theoretical background

Mobility is a human right essential to the citizens' well-being and quality of life (Hanson, 2010). This sector may lead to equity and social cohesion, fostering economic development simultaneously (Hanson, 2010; Lee and Sener, 2016, Harumain et al., 2021).

Complex mobility practices occur at different temporal and spatial scales and can define new relationships between people and territories (Manfredini and Dilda, 2012). For instance, mobility research includes studies mainly on migration, tourism and daily mobility (Gonzalez et al., 2008). Daily mobility refers to people moving among places daily, so the sum of their journeys defines it, the time spent travelling, and the chosen transport mode (Manfredini and Dilda, 2012).

Nonetheless, transport systems in both developed and developing regions are not gender-neutral. Women's mobility differs significantly from men's, and this situation is particularly reflected in their everyday mobility patterns (Monteiro et al., 2016; Singh, 2019; Pirra et al., 2021). Gender differences exist regarding access to transport and mobility, transport safety, personal security, and participation in the transport sector labour market. These differences are explained by a series of factors, such as demographic characteristics, labour feminisation rate, education level, income, personal aspirations, perceptions, as well as social and economic status, and local transport systems' offers (Cunha et al., 2014; Queirós et al., 2017; Carboni et al., 2022; Campisi et al., 2022), or demographic structure (e.g. having or not children or a partner) (Scheiner and Holz-Rau, 2015). It often leads to discrepancies in the quality of life, unequal opportunities and mobility segregation (Thynell, 2016; Boisjolyand Yengoh, 2017; Singh, 2019; Arguello et al., 2021).

Mechakra-Tahiri et al. (2012) assessed the mobility gender gap in 70 countries. They discovered that the gender gap is explained by sociodemographic and health factors, while the gender discrepancies seem to be greater in regions with the largest loss of human development due to gender inequality.

On the other hand, although women travel less frequently and cover shorter distances per day, their journeys are more complex, consisting of a larger number of stops (Monteiro et al., 2016; Queirós et al., 2017; Ng and Acker, 2018; Arguello et al., 2021; Carboni et al., 2022; Campisi et al., 2022). Additionally, Ng and Acker (2018) found some evidence regarding women's preferences in using public transport systems and shared taxi services rather than cars when compared with men.

The overall experience also differs in the sense of security. Studies have shown that women feel more insecure in transport, especially in the evening and at night, with the emotional aspects of travelling varying between anxiety, stress and fear (Campisi et al., 2022). Therefore, they further limit their mobility due to insecurity perceptions and to avoid dangerous situations (Thynell, 2016; Singh, 2019; Goel et al., 2022; Kalakou et al., 2021). Additionally, Stark and Meschik (2018)

found that women who experienced frightening situations while travelling tend to avoid certain destinations or routes and certain travel modes more than other women. Consequently, at the present moment, women are less satisfied with the existing transport services (Arguello et al., 2021; Carboni et al., 2022; Kalakou et al., 2021), and they generally have constrained travel behaviour because of personal security issues (Stark and Meschik, 2018). Under these circumstances, studies assume that urban transport solutions have mainly been designed to accommodate men's mobility patterns and behaviours (Singh, 2021; Uteng, 2021).

Thus, the gender perspective is a fundamental aspect of the current urban mobility agenda, as it can influence the vitality of citizens' public life (Carboni et al., 2021; Goel et al., 2022; Valera and Casakin, 2022). When the entire image of reality is absent, the possibility of bridging the existing gender gap is limited (Scheiner and Holz-Rau, 2015; Cresswell and Uteng, 2016; Gauvin et al., 2020). Therefore, to achieve more gender-neutral transport and mobility solutions, there is a need for mobility policies that consider women's particular needs. Despite the increasing number of cities around the world starting to pay more attention to women's experiences, patterns and behaviours while travelling, women's mobility needs are rarely taken into account by urban and transport planners (Stark and Meschik, 2018; Bilin Han et al., 2019; Hidayati, 2020; Carboni et al., 2022; Gauvin et al., 2020). The main reasons are the entrenched gender hierarchies in most modern societies. Hence, this study aims to contribute to the literature by analysing mobility patterns and experiences through the gender lens in Alba Iulia metropolitan area.

2. Methodology and case study

2.1 Case study

Alba Iulia metropolitan area includes Alba Iulia municipality (the largest city in the county), Sebeş municipality, Teiuş town and 8 adjacent rural localities, namely Berghin, Ciugud, Cricău, Galda de Jos, Ighiu, Meteş, Sântimbru and Vințu de Jos (see Figure 1).

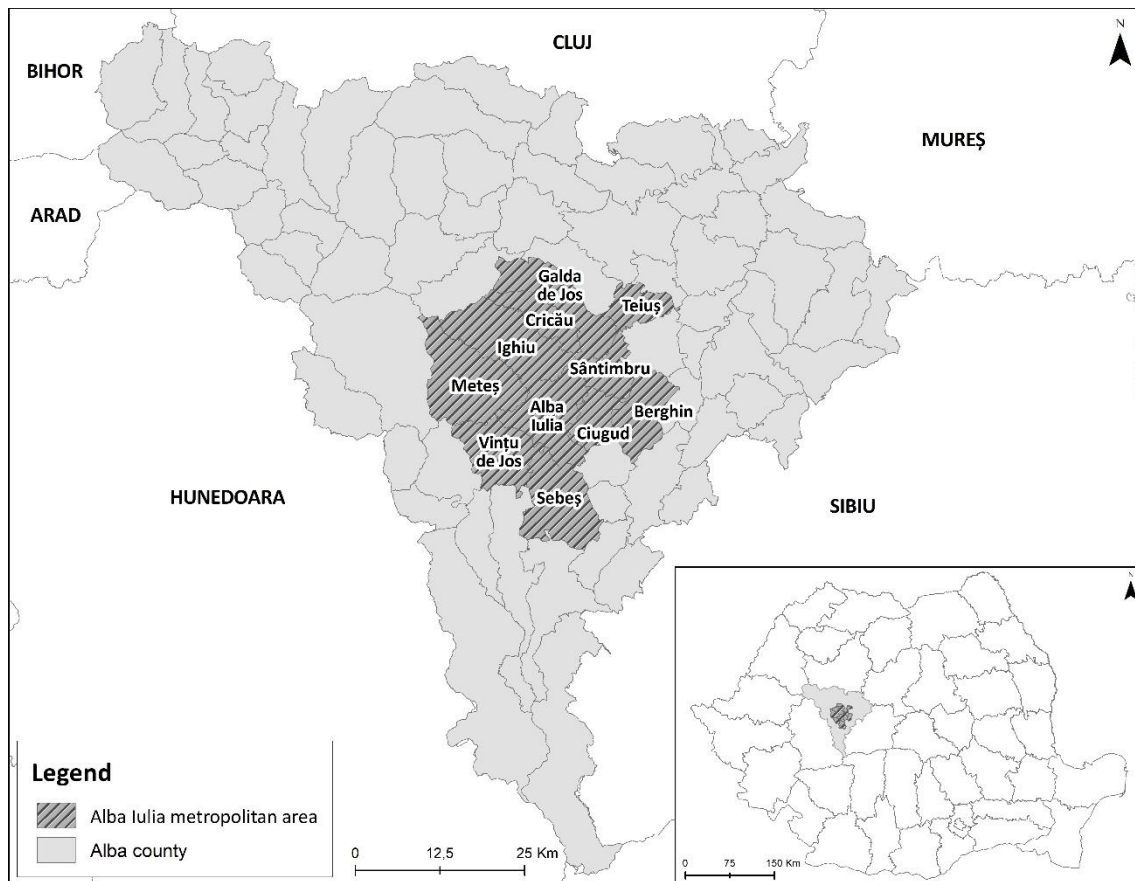


Figure 1 - Geographical location of Alba Iulia metropolitan area

The city of Alba Iulia is a medium-sized municipality in Transylvania with a total area of 102,5 km² (Botiș and Strîmbu, 2018). According to the National Statistics Institute of Romania (2022), the city of Alba Iulia is estimated to have approximately 74,653 inhabitants in 2021, while the metropolitan area with 938,3 km² is expected to have nearly 143,630 inhabitants. Women represent 53% of the total population in Alba Iulia municipality and 52% at the metropolitan level.

In 2012, Alba Iulia was the first metropolitan area in the country to introduce a metropolitan transport service. Since then, the municipality of Alba Iulia and its adjacent zones have made large investments in transport and derived infrastructures, currently having a modern public transport system. The Alba Iulia Public Transport Company (STP) is a private operator which provides public transport services in Alba Iulia metropolitan area. STP Alba has won several national and international recognitions that position Alba Iulia as the city with one of the best local public transport systems in Romania (STP, n.d.).

As can be observed in the pictures in Figure 2 and Figure 3, to preserve the Alba Carolina Citadel, the municipality has banned public transport inside the historic area, allowing only active modes (SMARTA, 2019). The total length of bike lanes in Alba Iulia municipality currently is around 19 km, and, in the metropolitan area, it is approximately 26 km.



Figure 2 - Soft modes and infrastructures inside Alba Carolina Citadel
 Source: Authors, December 2021



Figure 3 - Soft modes and infrastructures outside Alba Carolina Citadel
 Source: Authors, December 2021

Even though the municipality has made efforts to boost greener transport modes, Alba Iulia continues to have a high car ownership rate, as 55% of its inhabitants use the car as the main transport mode within the city, while the percentage in the metropolitan area is even higher (CIVITAS SUMP-PLUS, 2019). For this reason, this study attempts to provide evidence for the societal aspects of sustainable transport and insights for policymakers to consider in planning sustainable services.

2.2 Methodology

In the TInnGO project, an intersectional approach has been adopted to analyse people's mobility experiences in 10 TInnGO European Hubs in Spain, Portugal, France, Italy, Greece, Germany, Baltic States, Scandinavian Countries, United Kingdom and Romania. Due to the COVID-19 pandemic restrictions and limitations, data was only collected online through a mobility survey disseminated on TInnGO's social media channels, platforms, and networks and by using, when necessary, specialised companies to collect the data. It should be highlighted that people were asked to answer the questions without COVID-19 pandemic restrictions and limitations. Within this context, the Alba Iulia metropolitan area survey was available in English and Romanian, and the data collection went between August 2020 and June 2021. Two hundred fifty-four (254) replies were collected, with women representing 64% of the metropolitan area sample, as illustrated in Figure 4.

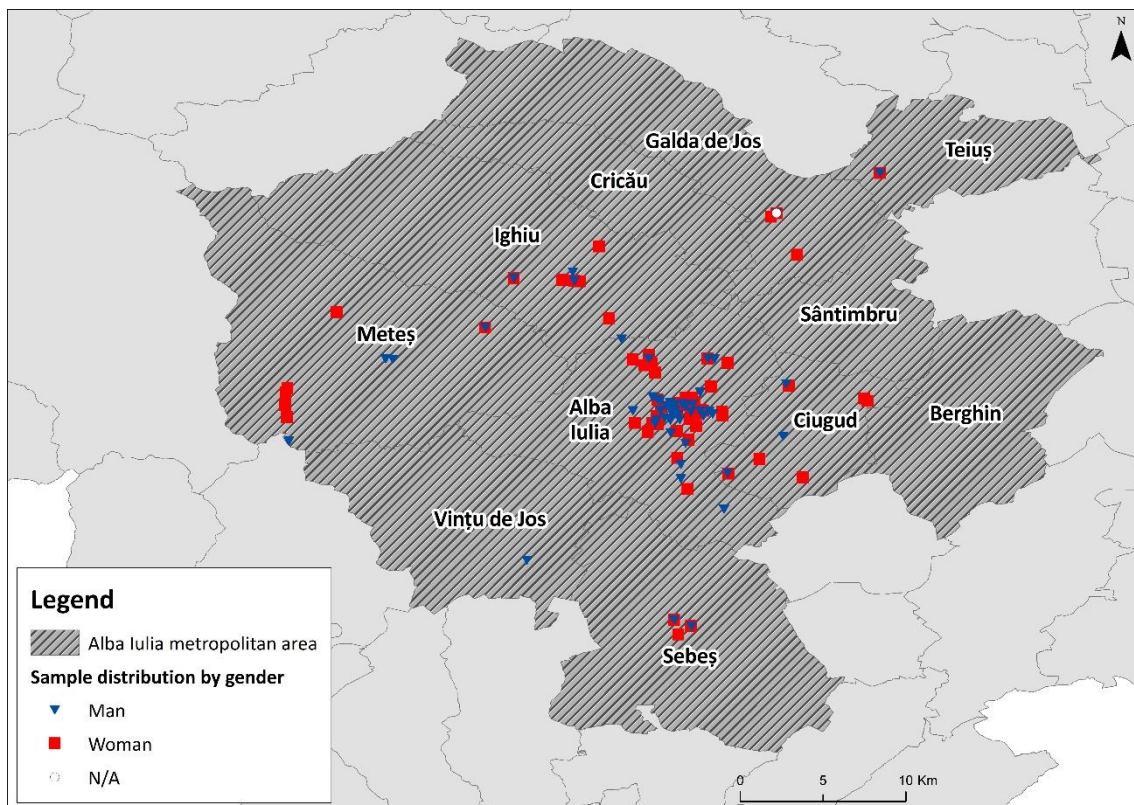


Figure 4 - Sample distribution by gender within Alba Iulia metropolitan area

GIS techniques and Python coding were used to conduct a spatial analysis of passenger behaviour, while descriptive statistics and statistical models were employed to assess the passenger experience and identify differences in the perceptions of men and women. The analyses were divided into two main parts: mobility patterns and behaviours characterisation and mobility satisfaction models analysis.

Firstly, in the stage of mobility patterns and behaviours characterisation, GIS techniques and Python codes were primarily used to validate data, with users' sociodemographic variables such as age, gender, and ethnicity (when available) assisting in the validation process of the sample.

At the same time, the representation of aggregated flows and the density of destinations for the most common journey was carried out through GIS techniques and spatial analysis, while the assessment and characterisation of the sample's most frequent trips were performed through descriptive statistics.

Secondly, in the section regarding mobility satisfaction models, customer satisfaction questions using a 5-point Likert scale were employed to evaluate transport infrastructure and mobility services' satisfaction levels regarding the transport mode used in the most frequent journey. Additionally, parametric and non-parametric statistical tests were conducted through SPSS to determine which variables influence each agent's daily mobility and users' perceptions. The data collected in this section helped identify user satisfaction levels, determinant aspects and how these vary in gender and age. This section also explored the passenger experience focusing on the perceptions regarding security aspects, integration, space availability, public transport services and infrastructure characteristics due to their relevance to mode choices.

4. Results and discussion

4.1 Sample characterisation

The Romanian hub collected 254 replies in Alba Iulia metropolitan area, with women representing 64% and men 36%, not representing the metropolitan area demographics. From the 254 replies, only one person did not indicate gender; thus, due to statistical significance, only specific genders of women and men were studied.

As shown in Figure 5, 72,7% of the population from the metropolitan area lives in the city of Alba-Iulia, Sebeş and Teiuş, while 27,3% live in the surrounding suburban and rural areas. It should be noted that the distribution by gender shows a higher percentage of women living in urban areas (74% compared to 70,3% of men).

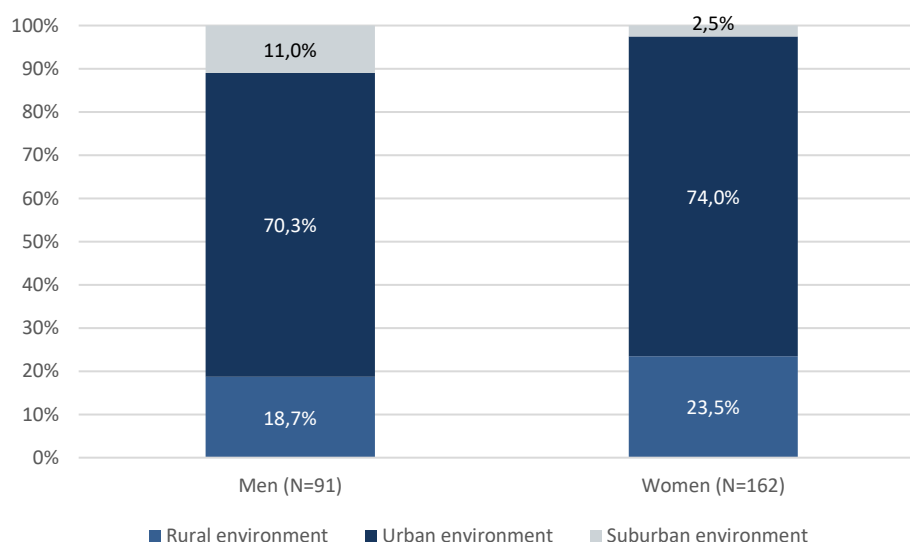


Figure 5 - Distribution of respondents by living environment

Regarding the age factor, the presence of the younger population (18-34 years old) is 21,7%, while the more senior people (+65 years old) represent 16,6%, as shown in Figure 6. The age groups between 35 and 44 years old represent 28,1%, from 45 to 54 years old constitute 18,6%, and between 55 and 64 years old count for 14,2% of the total. Thus, as expected, the young and adult group had a greater weight than the elderly population in this data set.

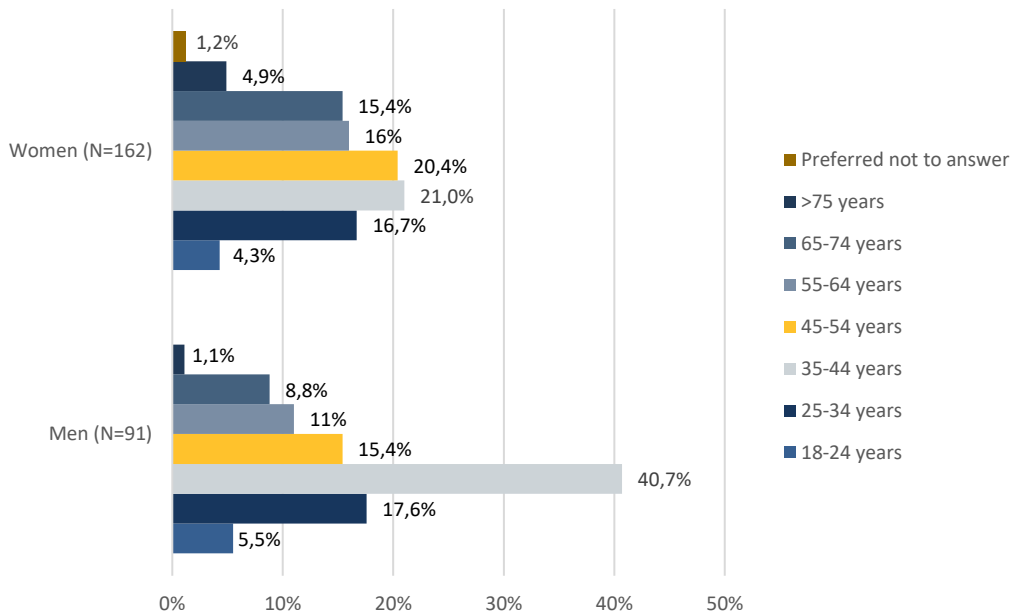


Figure 6 - Distribution of respondents by age

Regarding the sample's education level, the predominant groups hold Bachelor's and Master's degrees (61,7%), followed by post-secondary and short-cycle tertiary education with 25,7%, and 2,8% have a PhD degree (as illustrated in Figure 7). More than half of the women have a Bachelor's degree (35,2%) or a Master's degree (22,2%).

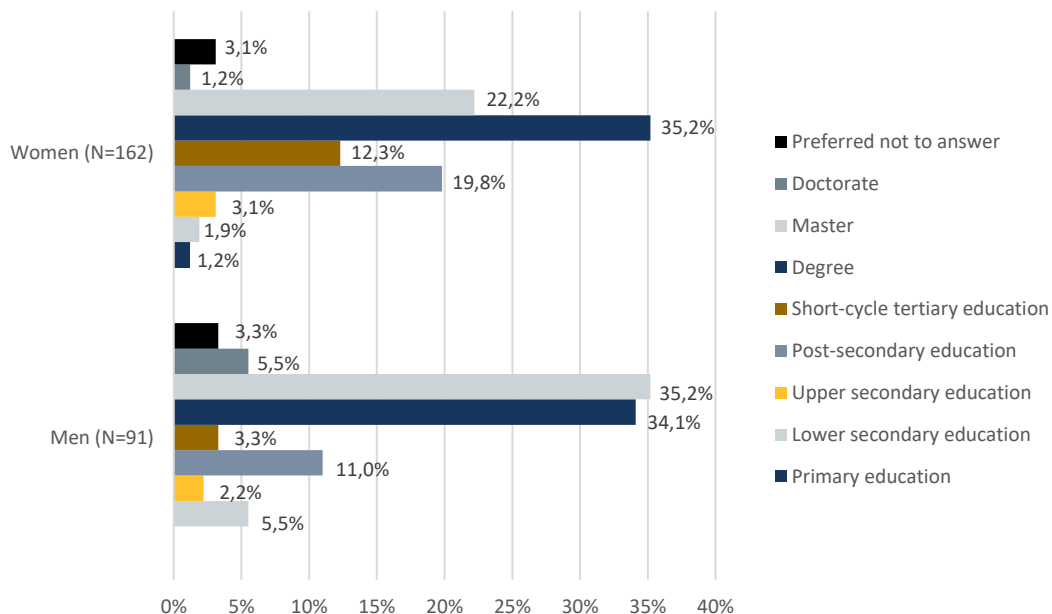


Figure 7 - Distribution of respondents by education level

Considering the distribution by working status (see Figure 8), 60,5% of the respondents are paid employees or office or plant workers. The percentage of retired people is also relevant, with 15% of the total, while 13% of the sample are students. The distribution by gender illustrates a higher number of retired women (18,5% of the women sample) and a lower representation of student females (2,5% of the women sample compared to 5,5% of the men sample).

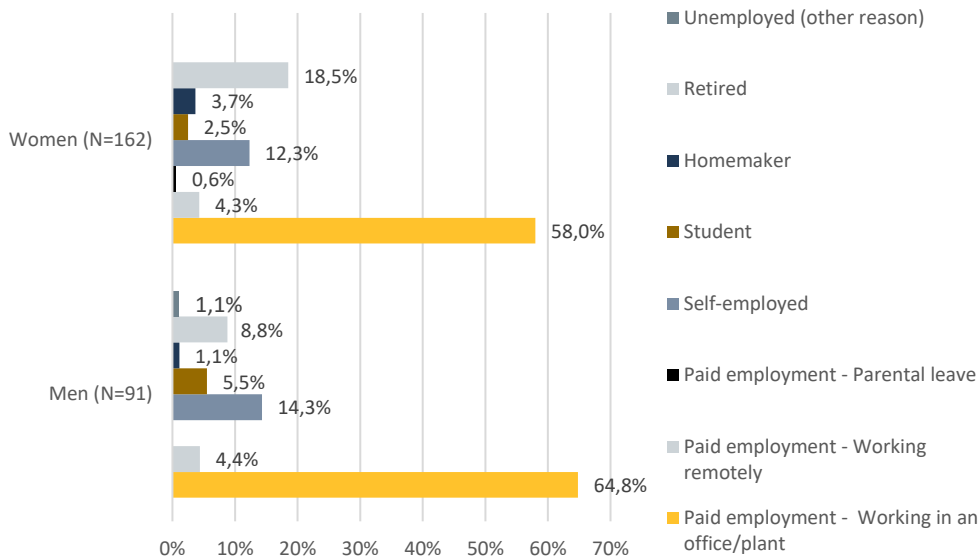


Figure 8 - Distribution of respondents by professional status

Figure 9 shows that 41,1% of the sample have monthly incomes below the average national salary, 43,2% women and 37,4% men. In contrast, only 15% earn above average, of which 23,1% are men and 10,5% are women.

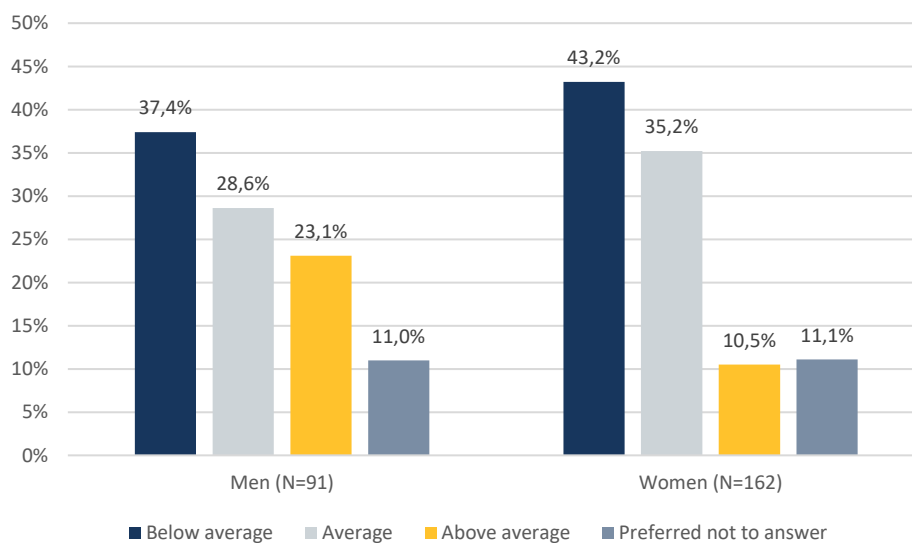


Figure 9 - Distribution of respondents by monthly income regarding 'Romania's national salary'

Of the 254 replies, 32,8% of the households analysed are composed of two elements, 32,8% of three, 21,7% of four people, and only 6,7% of the sample's households consist of five or more elements. Nearly 5,9% of the surveyees live alone. In the case of women, the data set shows a predominance of households with two people - 37% (compared to men - 25,3%), while households of four people are half the men's percentage (16,7% versus 30,8%), as shown in Figure 10.

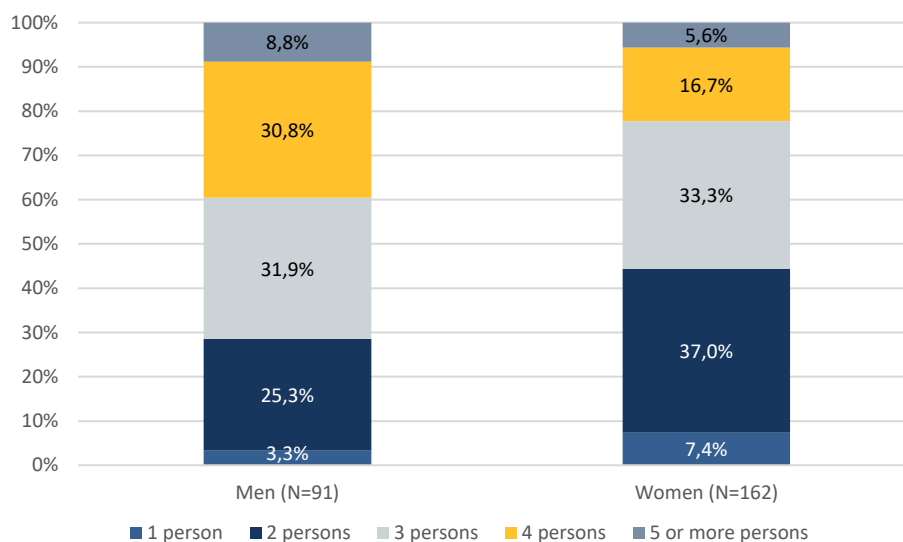


Figure 10 - Distribution of respondents regarding the number of elements per household

In this sample, 51,8% of the respondents (59,9% of women and 37,4% of men) do not have children in their households. In contrast, 25,2% of the sample (29,7% of men and 22,8% of women) have one child in the household, while 23% (33% of men and only 17,3% of women) have two or three children, as illustrated in Figure 11.

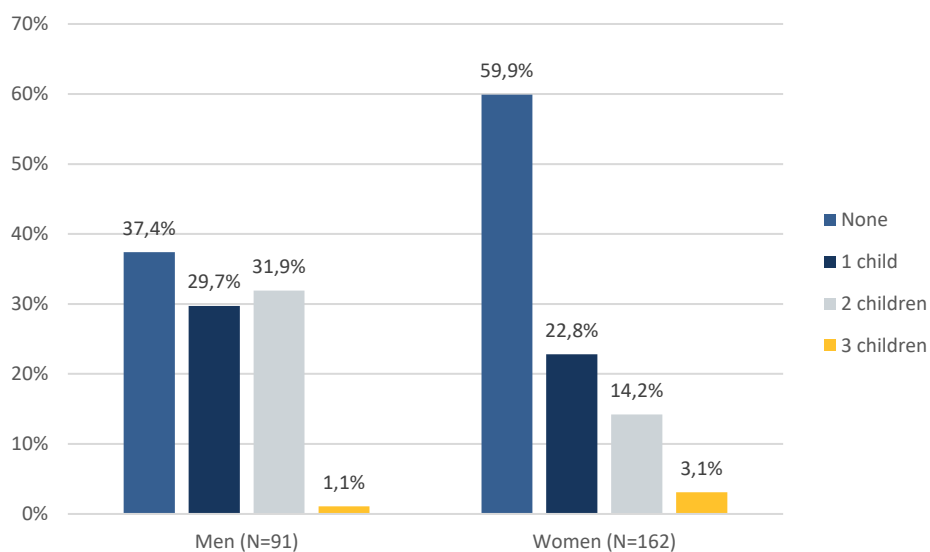


Figure 11 - Distribution of respondents regarding the number of children per household

According to Tiikkaja and Liimatainen (2021), men have access to the household car more often than women, influencing the trip modal share, trip frequencies, travel time and trip lengths. In this sample (see Figure 12), only 8,7% of the households (10,5% of women and 5,5% of men) do not have a driving licence. 58,1% of the respondents (73,6% of men and 49,4% of women) have more than two people with driving licences in their household, while 33,2% (40,1% of women and 20,9% of men) have only one person with a driving licence in the household.

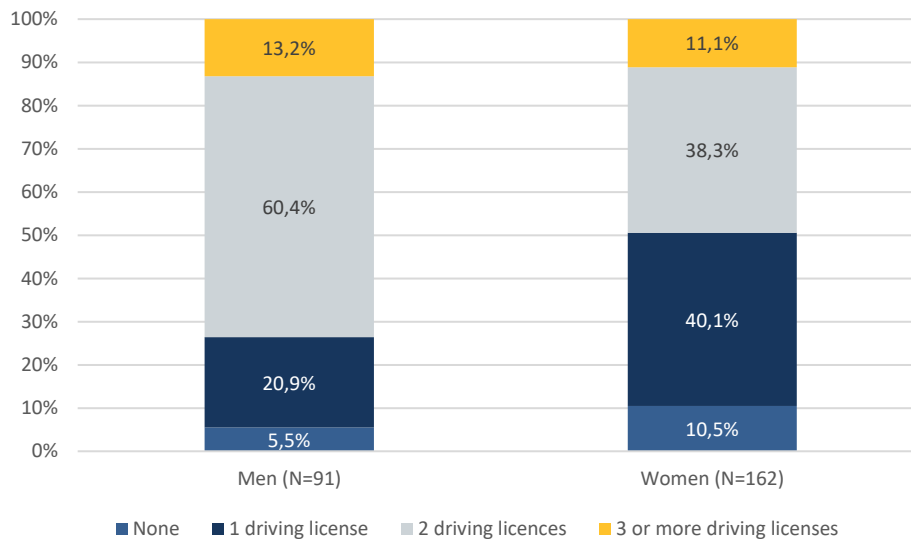


Figure 12 - Distribution of respondents regarding the number of driving licenses per household

Regarding the number of cars per household, 11,1% of women and 7,7% of men do not have any vehicles, as shown in Figure 13. Additionally, 55,6% of women affirmed having two cars in their household, and 6,2% said they have three or more cars. In the case of men, 44% stated having two cars in their household, 40,7% one, while 7,7% have three or more vehicles.

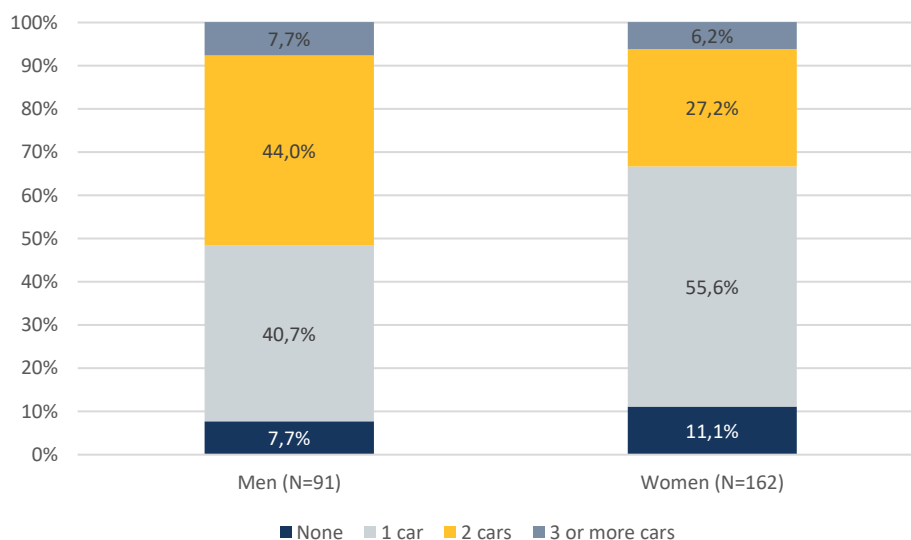


Figure 13 - Distribution of respondents regarding the number of cars per household

4.2 Assessing mobility patterns and behaviours from a gender perspective

During the data collection, the respondents could choose more than one transport mode to characterise their most frequent journey, as most trips are multimodal. In this context, 57,5% of the respondents travel by car for at least one leg of their most regular trip, as drivers (40,2%) or as passengers (17,3%), which other similar studies have confirmed. Regarding car usage as drivers, the values are quite distinct between genders, as 63,7% are male drivers and only 29,4% are women. These statistics demonstrate a strong preference of men toward private modes. In contrast, women are more prone to use the car as passengers (22,3%) than men (6,5%).

Generally women are more likely to walk and use public transport, while this proportion reverses in cycling, as women are less likely to cycle, except in mature cycling cities (Pollard and Wagnild, 2017; Goel et al., 2022). In Alba Iulia metropolitan area, walking comes second with 21,1%, with women (25,3%) stating that they walk more than men (12,1%), confirming the evidence of other international studies demonstrating that women mostly choose walking, as shown in Figure 14. Public transport weights only 12,5% in the overall sample, with only 6,5% of men using public transport on their regular trips in at least one leg. Taxis and bicycles have lower scores, with 4,1% and 3,6%, respectively.

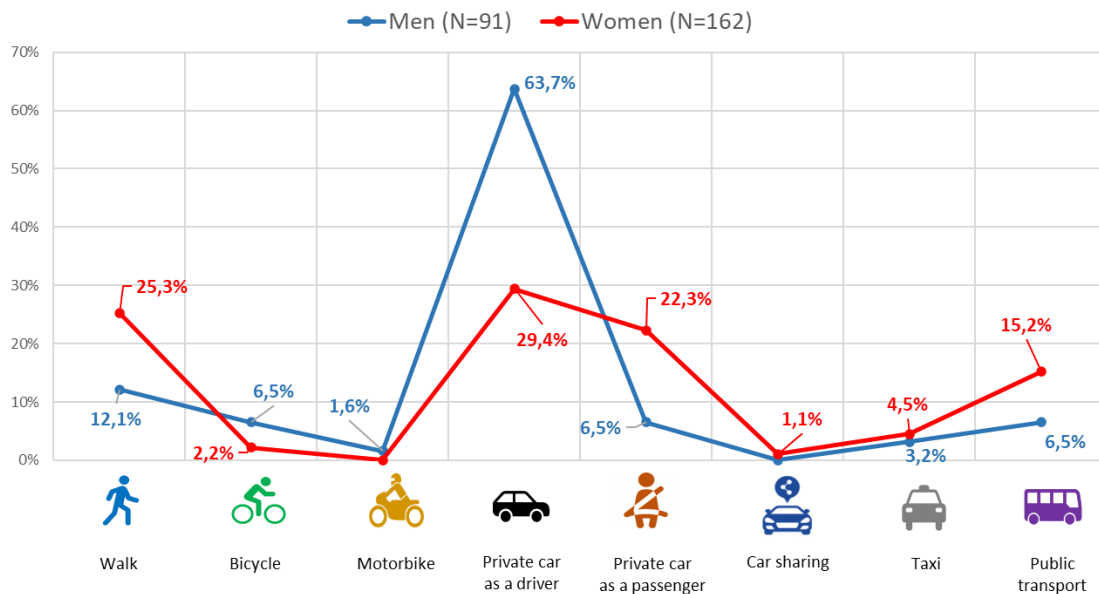


Figure 14 - Transport modes used in the most frequent journey by popularity

Generally, women's trips are shorter in distance and longer in terms of time travelled when compared to men (Queirós et al., 2017; Ng and Acker, 2018; Arguello et al., 2021; Carboni et al., 2022). In Alba Iulia metropolitan area, the average distance of the most frequent trips is around 23,51 km for both genders. As expected, women travel shorter distances than men, as shown in Table 1. It should be highlighted that only 69 respondents from Alba Iulia metropolitan area answered this specific question.

	Average distance (km)
Women (N=31)	21,99
Men (N=38)	25,02
Sample (N=69)	23,51

Table 1 - Average distance travelled during the most frequent trips

The average time respondents spend on their more frequent journey is 27 minutes. In line with the literature, women spend more time travelling than men. When travelling by taxi, men spend approximately double the time (41 minutes) as women. Men spend more time travelling by car (driver or passenger) and on active modes on their most frequent journey. On the contrary, women take more time travelling on public transport (31 minutes) than men (25 minutes) on their most regular trip, as shown in Table 2.

Modes of transport	Men (N=91)	Women (N=162)	Sample (N=253)
Walk	39min33	24min02	28min42
Bicycle	34min38	13min33	29min04
Motorbike	10min00		10min00
Private car as a driver	29min08	27min20	27min36
Private car as a passenger	39min38	28min41	30min22
Car sharing		20min00	20min00
Taxi	41min25	23min33	28min21
Public transport	25min00	30min35	29min14
Average time	26min42	27min43	27min13

Table 2 - Average time spent by modes of transport per gender

Concerning the origin and destination of the respondents' most frequent trips, it was possible to determine an aggregation of flows mostly towards the Alba Iulia city centre, as shown in Figure 15 and Figure 16. No relevant gender correlation was found in the origin and destination of flows.

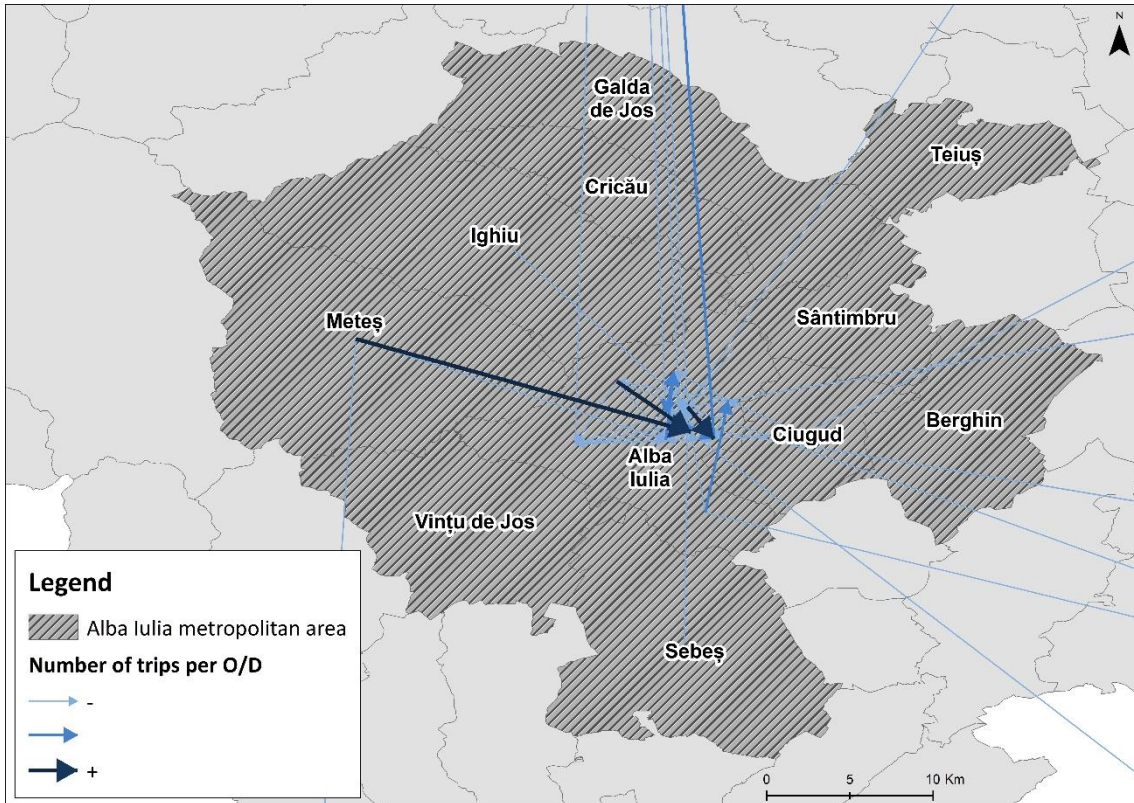


Figure 15 - Aggregated flows for the most common journey in Alba Iulia metropolitan area

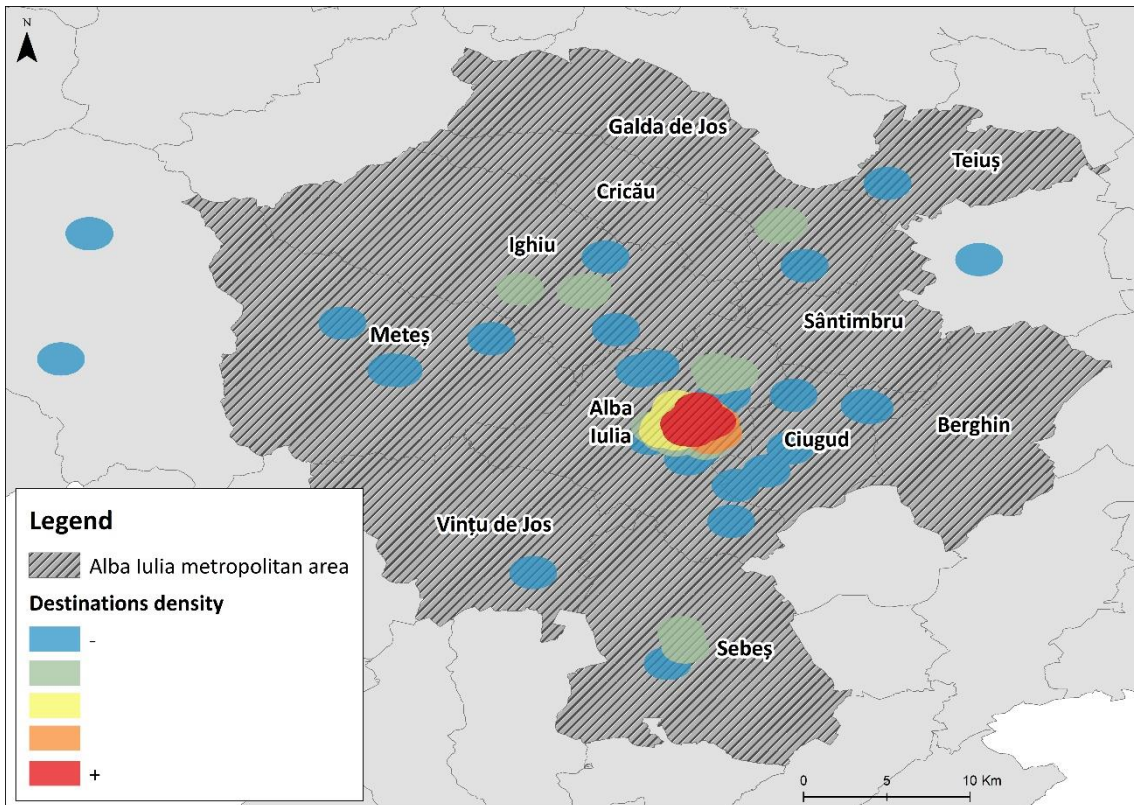


Figure 16 - Density of destination locations for the most regular trip in Alba Iulia metropolitan area

According to some researchers, women stop more than men during their daily journeys (Ng and Acker, 2018; Bilin Han et al., 2019; Carboni et al., 2021). In Alba Iulia metropolitan area's sample, 23,3% of the respondents (26,5% of women and 17,6% of men) affirmed that they stopped at least once during their most frequent trips. The reasons for the stops are related to shopping (22,8%), work (11,9%), medical/social care appointments (11,9%) and leisure (7,5%). Women stop more for shopping (24,2% of women compared to 20% of men), medical/social care appointments (10,4% of women compared to 7,3% of men), and leisure (7,1% of women compared to 3,6% of men), as shown in Figure 17. On the contrary, men are more prone to stop during their regular journeys for work-related motives (18,7% of men compared to 8% of women) and education (3,3% of men compared to 1,9% of women).

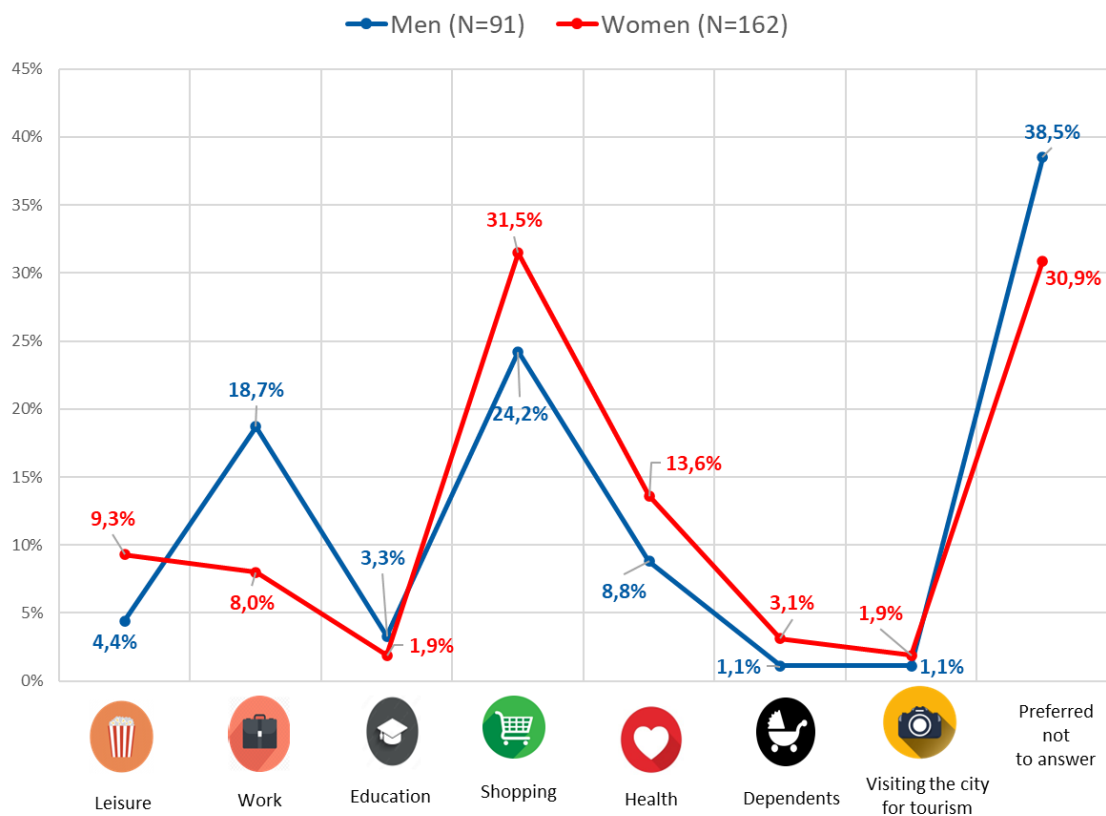


Figure 17 - Reasons for stops during the most frequent trips

92,1% of the respondents (93,8% of women and 89% of men) do not travel with dependents. Women were more prone to travel with dependents (Bilin Han et al., 2019; Goel et al., 2022); however, in this sample, 9,9% of men and 4,3% of women affirmed they normally travel with dependents on their most frequent trips. This situation could be related to the sample's education level and the fact that a high percentage of women and men stated not having children. As mentioned previously, in this sample, approximately 61,7% of the respondents hold a Bachelor's or a Master's degree. According to Bilin Han et al. (2019), gender equity in escorting is achieved only if both parents have a full-time job and higher education. Otherwise, traditional gender roles prevail, with mothers taking primary responsibility for escorting children.

4.3 Assessing transport satisfaction from a gender perspective

The TInnGO project analysed the satisfaction levels with the transport modes used in the respondents' most frequent journeys across the 10 TInnGO European hubs. Overall, the Romanian results showed significant differences between genders regarding perceptions of their most frequent journey depending on the mode of transport used. In this context, the tendencies observed in the entire hub should be of value for Alba Iulia but require further research.

In general, all 10 hubs' results showed lower levels of public transport satisfaction for women when compared to men. Nonetheless, in the Alba Iulia metropolitan area sample, men always showed lower levels of satisfaction with public transport compared to women, particularly in the following aspects: services, safety, security and infrastructure. In addition to the gender differences, there is evidence that satisfaction also changes with age. Younger men tend to be less satisfied than older men and younger women tend to have lower levels of satisfaction than older women.

Regarding pedestrians' perceptions, Carboni et al. (2022) have found that women are less satisfied than men with the safety level during walking. Additionally, women do not appreciate sharing space with other motorised vehicles, so they are more worried about safety while walking or riding a bike (Carboni et al., 2021). Nonetheless, and despite the opposite tendency in other European cities analysed in the TInnGO project, men in Alba Iulia metropolitan area are less satisfied with all aspects such as accessibility to public stations or stops, safety, security, maintenance and quality of the pavement. Future work could further analyse these aspects and the impact these results have on the final mode choice.

In contrast, when assessing private vehicle indicators per hub, women living in Alba Iulia metropolitan area are less satisfied than men in almost all aspects, namely park and ride locations, parking conditions – availability, safety, security, costs and congestion levels when using a private vehicle. Furthermore, when assessing satisfaction levels between men and women related to owned bicycles indicators, the analysis showed that women are less satisfied than men in 12 out of 13 aspects surveyed: the easiness of connecting to modes and carrying bikes in public transport, the behaviour of drivers and overall safety, the conditions of cycle lanes and the sharing space with pedestrians, the coverage of cycle lanes, the bike parking availability and the availability of information for bikers. Additionally, no significant differences between the two genders in Alba Iulia metropolitan area hub regarding shared modes indicators were found. Finally, when comparing the walking experience, women indicated that they were more satisfied with the coverage of pedestrian areas, their connectivity to transport stops, and the pavement condition compared to men. This result has been surprising as other studies showed the opposite; thus, further research is necessary.

Conclusions

In recent years Alba Iulia has been transformed into a touristic attraction pole due to the valorisation of the Vauban fortification and many other historical buildings and monuments inside the Alba Carolina Citadel. These transformations have led to improvements in transport and mobility services within the metropolitan area. Despite the efficient mobility measures implemented during the last few years, no solutions to mitigate mobility gender segregation have been implemented.

In line with the literature, namely in the Alba Iulia metropolitan area's sample analysed in this study:

- Women travel shorter distances but spend more time travelling than men;
- 2/3 of men and 1/3 of women use the car on their most frequent journey, with women more prone to use the car as a passenger;
- Women walk more than men and most likely use public transport services on their regular trips;
- Women stop more for shopping on the most frequent journey and men for work-related motives.

In contrast with other studies, results showed that men are less satisfied with public transport than women, particularly regarding services, safety, security and infrastructure indicators and pedestrians, especially concerning the accessibility to public stations or stops, safety, security, maintenance, and pavement quality. Nevertheless, when assessing private vehicle indicators per hub, women are less satisfied than men in almost all aspects, namely park and ride locations, parking conditions – availability, safety, security, costs and congestion levels when using a private vehicle. A similar situation was observed regarding owned bicycle indicators, where women are less satisfied than men in almost all aspects analysed, in line with other studies.

The lack of gender-disaggregated data limits the understanding of gender requirements in the urban mobility systems and affects the ability to design efficient gender equality policies and measures. The tendencies observed in Alba Iulia metropolitan area should be of value for the municipality but require further research. Nevertheless, the results achieved may be useful for policymakers and transport planners to develop guidelines for sustainable gender smart mobility with an intersectional approach.

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