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Leisure Mobility Among Young Urban Residents: A Case Study of the GZM Metropolis

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Abstract

Motivation: The post-pandemic shift in working patterns (the spread of remote and hybrid working) can lead to significant changes in daily mobility patterns. These changes may raise questions about their impact on leisure travel behaviour, modal choices and urban transport sustainability. Understanding how young citizens of the GZM Metropolis use their leisure time and how they fulfil their mobility needs is crucial for shaping policies that support sustainable mobility and urban development.

Aim: This study investigated how work organisation influences the leisure-time mobility patterns of residents of the GZM Metropolis, aged under 35. It investigated whether increased time autonomy have an impact on changes in leisure-time activity preferences, travel frequency and transport mode choice. The findings contribute to the discussion on sustainable urban mobility policy.

Results: The results indicate that while remote and hybrid work may increase flexibility in time management, it does not directly lead to more frequent leisure-related travel. Recreational mobility in the GZM area largely relies on car transport, posing a challenge to developing a sustainable urban mobility model that also considers leisure travel. The study



highlights the need for greater attention from policymakers to the impact of “unsustainable” leisure mobility on balancing urban transport systems. By linking changes in recreational behaviours with transport policies, it provides valuable insights for policymakers, planners, and researchers working on sustainable mobility and transport strategies.

Keywords: leisure mobility, sustainable mobility, mobility of young adults,

JEL: R49, Q01, R58

1. Introduction

Urban mobility is a manifestation of transportation needs related to the specific aspirations, preferences, and socio-economic conditions of urban area residents (Wojewódzka-Król K. & Załoga E., 2016). From the perspective of authorities involved in processes of urban mobility planning, the sources of transportation needs - particularly those arising from economic and social factors - are of key importance. They are result of the spatial distribution of places of residence, employment, and education, as well as locations for fulfilling daily needs and spending leisure time. They also play a crucial role in sustainability of urban transportation systems (Mendyk E., 2009).

It is generally assumed that travel related to work or education is mandatory mobility because this kind of trips are linked to the need to fulfil necessary daily obligations. This kind of trips dominate daily mobility patterns in urban areas, generating the highest levels of movement among city residents. Such travel is massive, regular, and relatively easy to manage. In contrast, leisure-related mobility is considered as optional movement which is a result of the subjective travellers preferences (Toger et al., 2023). This type of mobility is spatially dispersed and non-routine in nature, which significantly hinders the modelling of such movements. Leisure-time mobility is associated with individuals' need to access cultural services, as well as their engagement in social and physical activities. These journeys are characterized by lower regularity and are considerably more difficult to predict. As a result, they are often marginalized in the development of sustainable urban mobility policies.

Following the outbreak of the COVID-19 pandemic, widespread restrictions on physical mobility were introduced. One of the primary tools used to limit mobility was the broad implementation of remote work and education (Kos et al., 2021). Mobility data aggregated by Google LLC indicate that during the pandemic years, residents of Poland significantly reduced travel related to work. However, these restrictions did not result in a complete abandonment of physical leisure-time mobility. Available data suggest that, in the post-pandemic period, the number of movements in this area has

increased significantly. This indicates that, compared to the pre-pandemic period, there has been a shift in the structure of urban travel. Data generated by Apple further show that during the COVID-19 pandemic, there was a significant increase in the number of car journeys. These findings suggest that leisure mobility may potentially pose greater challenges in the development of sustainable urban mobility.

Pandemic experiences have shown that changes in the way city residents perform work can influence the structure of travel behaviour and increase the role of non-obligatory physical travel, particularly journeys related to leisure activities. The observed changes in urban travel patterns call for a new perspective on urban mobility planning. This includes a greater focus on the growing share of non-obligatory travel, the definition of the consequences of these changes, and the formulation of recommendations for integrating this issue into sustainable urban development policies.

The general objective of the study was to verify whether, within the GZM Metropolis (Upper Silesian-Zagłębie Metropolis), a change in the structure of travel occurred because of the shift in working patterns - specifically, whether there was an increase in leisure-related travel outside respondents' places of residence, and what impact this change has on sustainable urban mobility. GZM Metropolis (Upper Silesia-Zagłębie Metropolis) is a metropolitan association comprising 41 cities and municipalities in the Silesian Voivodeship, in southern Poland. It covers an area of 2,500 square kilometres and has a population of approximately 2.1 million. It has been operating since 2018 under the Act of 9 March 2017 on the metropolitan association in the Silesian Voivodeship. One of GZM's areas of activity is the planning, coordination, integration and development of public transport and sustainable urban mobility. This article focuses on issues related to leisure mobility among young adult residents of GZM. The study presents respondents' preferences regarding leisure activities and their preferred modes of travel related to these activities. The research aimed to identify the factors that may influence respondents' decision-making and assess whether the travel decisions related to leisure mobility are often lacking the attribute of "sustainability." The findings provide insights that may be valuable for planners and policymakers responsible for shaping sustainable urban mobility strategies.

The study adopts a qualitative approach, focusing on the attitudes and opinions of respondents regarding their travel behaviours during non-working hours. The analysis presented in the article is based on primary data collected in 2023 as part of a broader study on leisure-time mobility within the GZM area. The literature review outlines the theoretical context of the study. The methodology section details the research procedure. The results section presents key findings regarding the approach of young adult respondents residing in GZM. The research results were subjected to statistical analysis, which allowed for the identification of basic relationships between

the studied variables. In the discussion, the findings are compared with other results presented in the relevant literature. The study's limitations and possible directions for further research are also outlined.

It should be noted that this study is exploratory in nature, providing initial insights into leisure mobility patterns among young adults in the GZM Metropolis. The sample size limits the possibility of generalizing findings to the broader population. However, the results identify important trends and paradoxes that warrant further investigation. Based on the conducted analyses and discussion, practical recommendations were developed that may have real-world applications.

2. Literature review

A bibliographic analysis of the Scopus database conducted in March 2025 indicates that the topic of leisure time mobility is relatively new and under-researched. The first indexed publications on this subject date back to 1985. Since then, a total of 97 items have been published, with the highest number appearing in the past four years (2022–2025), amounting to 38 publications. Leisure mobility has most frequently been discussed within the fields of Social Sciences (75 publications), Business, Management and Accounting (22 items), and Environmental Science (18 publications).

In the Web of Science Core Collection, only 65 scientific publications relating to leisure mobility were indexed between 1993 and 2023. Most of these were categorized under Geography (17 publications), Hospitality, Leisure, Sport & Tourism (14 items), and Transportation (14 publications). The highest number of publications appeared in 2023 (10 publications), 2024 (9 publications), and in the years 2021 and 2015 (5 publications each). It should be noted, however, that many publications were indexed in both databases simultaneously.

Leisure mobility is spatially dispersed and non-routine, which makes it significantly more difficult to analyse compared to obligatory travel. Leisure travel lacks fixed spatial and temporal patterns (Ohnmacht et al., 2009). It is associated with the human need to engage in tourism and cultural activities, as well as social and physical engagement, making it considerably more flexible (Dubois & Ceron, 2006). It may also pertain to individuals who are no longer professionally active (Föbker & Grotz, 2006). However, similarly to mobility driven by obligatory needs, leisure mobility is also an important generator of external costs (Adamiak et al., 2016; Ceron & Dubois, 2005). Therefore, leisure mobility can be defined as voluntary travel, not related to professional or educational activities. It stems from individual preferences and needs regarding the form and location of leisure activities (Grubbe & Otto, 2011). For the purposes of this research, leisure mobility is understood

as voluntary travel unrelated to work and educational commitments. Leisure mobility is multidimensional phenomenon shaped by spatial flexibility, temporal variability and individual preferences. This conceptualization distinguishes leisure mobility from obligatory travel while acknowledging its complexity and multidimensional character.

An important issue discussed in the literature is the compensation of obligatory travel with voluntary travel (Næss, 2006). Based on the literature review, it was established that leisure mobility may depend on the following factors (Næss, 2006):

- social class of the respondents,
- income level,
- education level,
- age.

Studies indicate, for example, that individuals with higher education and income levels are more likely to engage in leisure industry services. People with lower income levels are more likely to spend their free time at home (Nessi, 2017) or closer to their place of residence. Leisure mobility in these cases tends to be more homogenous compared to individuals with higher incomes (Toger et al., 2023). Decisions about how leisure mobility is realized may also be influenced by whether children are being raised in the household (Jansson & and Sunding, 2024).

Other factors that can affect the frequency and distance of leisure trips include the day of the week, season, or place of residence. For example, individuals living in suburban areas may need to travel longer distances to engage in leisure activities (Toger et al., 2023).

Leisure mobility is strongly linked to car use (Tråsavik et al., 2024). The desire to spend free time outside the home is often used as a justification for car-based mobility, which can pose a significant challenge for the implementation of public policies aimed at developing sustainable urban mobility.

Among the most cited reasons for avoiding public transportation in the context of leisure mobility are:

- lack of suitable transport options (Tomej & Liburd, 2020),
- inadequate public transport connections (King et al., 2024),
- long travel times and reduced flexibility due to low frequency in remote areas (Bursa et al., 2022; Le-Klähn & Hall, 2015; Tomej & Liburd, 2020),
- low travel comfort (Juschten & Hössinger, 2021),
- the need for early planning because and low flexibility in case of changes (Juschten & Preyer, 2023),
- difficulties in organizing group travel (Juschten & Preyer, 2023).

It is important to note that even individuals who use public transportation for obligatory trips tend to prefer cars during their leisure time. Leisure activities often require transporting specific equipment, and in this regard,

private cars offer greater convenience than public transport (Tråsavik et al., 2024). Research shows that increased activity in areas with low public transport accessibility may result in increased reliance on private modes of transportation (e.g., cars, bicycles, or walking) (Östh et al., 2023). Interestingly, the spatial distribution of leisure destinations (e.g., recreational areas) also influences travel behavior—when such destinations are located near residential areas, leisure mobility tends to occur within the immediate vicinity of one's home (Türk et al., 2025).

One of the defining features of leisure mobility is its social character – studies indicate that only a small proportion of such trips are undertaken individually. This means that decisions regarding leisure travel must consider the individual needs and preferences of all participants involved. Furthermore, factors such as awareness of the location and attractiveness of leisure venues can influence how people spend their free time (Gramsch-Calvo & Axhausen, 2024).

The COVID-19 pandemic acted as a catalyst for changes not only in the way work is performed but also in how leisure time is structured. The pandemic altered patterns of leisure mobility, primarily due to fear of infection (Shakeel et al., 2023). Evolving work arrangements and the increasing emphasis on work-life balance may result in more individuals seeking to fulfill their leisure needs, thereby influencing the overall structure of urban travel.

Key trends in the development of leisure mobility in Poland include (CBOS, 2023; GUS, 2023; Łukaszewski, 2020):

- short-distance travel near the place of residence (e.g., for culture, entertainment, physical or social activity),
- short-term travel (private domestic and international trips lasting 2–4 days),
- long-term travel (private domestic and international trips exceeding 5 days for vacation purposes).

However, many people choose to spend their free time in ways that do not require leaving their homes - fulfilling their needs at home, including through the internet.

Data from the Transport Study of the Central Subregion of the Silesian Voivodeship (Transport study of the Central Subregion of the Silesian Voivodeship, 2020) show that approximately 45% of trips made in the central part of the Silesian Voivodeship, including the GZM area, are not related to work or education. Among those working from home, over 80% of their trips are connected to non-professional and non-academic activities. With current postulates to extend workers' free time and increase work time flexibility, it can be assumed that leisure mobility will present a significant challenge for shaping local sustainable urban mobility policies. In this context, research on leisure mobility can fill an important gap regarding the nature and role of voluntary travel in the balance of urban mobility systems. The data cited

above suggest that for individuals working remotely, voluntary travel (including leisure mobility) may constitute a significant share of urban travel. Therefore, the rise in remote work may be associated with a shift in the travel structure within the municipalities comprising the GZM.

Analysis of data from Statistics Poland (GUS) indicates that in 2022, as many as 81.1% of domestic leisure-related trips were made by car. In the medium term, a key challenge will be to reorient sustainable urban mobility models - which currently focus on obligatory trips - toward voluntary travel related to leisure activities.

A review of the literature indicates that studies on leisure mobility employ various techniques and methods. Most research in this area is qualitative in nature. Commonly used methods include cluster analysis, especially when examining preferred ways of spending free time and preferred mobility styles (e.g. (Ohnmacht et al., 2009; Strömblad, 2024)). In mobility geography studies, gravity models are applied to map preferences and related communication behaviors of selected social groups (Ghadiri et al., 2024; Türk et al., 2025). Sociological studies include video material analysis from specific locations (Normark, 2023), field studies (King et al., 2024), and in some cases, structural equation modeling (Shakeel et al., 2023). In addition to primary data collected through questionnaires, leisure mobility studies often use secondary data, including mobile network operator data (e.g. Toger et al., 2023; Talavera-Garcia et al., 2023).

3. Methods

The conducted study is qualitative in nature. Its geographical scope included the cities and municipalities that comprise the GZM Metropolis. For the purposes of this article, the following research questions were formulated:

- In the respondents' opinion, has the remote work model become more widespread after the COVID-19 pandemic?
- Do respondents feel they have more free time as a result of changes in the way they work?
- What are respondents' preferences regarding how they spend their free time?
- Which forms of leisure activities do respondents engage in most frequently?
- Does remote work influence the need to spend free time outside the place of residence?
- How do respondents travel for leisure-related activities?
- Can these trips be made using alternative means of transport?

The article presents selected results from the study that address the research questions. These results are based on a survey conducted in October 2023. The study involved a sample of 429 residents of the GZM, selected us-

ing a stratified quota sampling method. The general population was divided into strata based on age (age groups: 19-24, 25-34, 35-44, 45-54, 55-64) and the size of the municipality of residence (municipalities with up to 10,000 residents; up to 50,000; up to 100,000; and over 100,000 residents). These strata were defined proportionally to the share of each group in the overall population of GZM residents.

The following research techniques were used:

- Desk research - including a review of relevant literature and data from public opinion polls (e.g., by CBOS),
- Survey research using the CAWI method (Computer-Assisted Web Interviewing).

The survey questionnaire consisted of two parts:

- A demographic section with 10 questions to characterize the surveyed group,
- The main section containing 15 research questions, including items using a 7-point Likert scale.

The article focuses on the survey results for a subgroup of 121 GZM residents aged 18-34. Key data characterizing this subgroup are presented in Table 1. For the purposes of analysis, responses on the 7-point Likert scale were consolidated into 5 levels, by combining responses at levels 1 and 2, and likewise at levels 6 and 7. The study should be treated as a pilot study and cannot be generalized to the entire population. Nevertheless, the results provide exploratory insights that have become the basis for undertaking further, more extensive research on leisure mobility patterns in the GZM Metropolis.

4. Results

The conducted survey indicates that, according to 85.1% of respondents, the COVID-19 pandemic led to widespread adoption of remote and hybrid work models. Furthermore, 82.7% of respondents (61.2% answering “Yes” and 21.5% answering “Rather yes”) believe that the possibility of working remotely or in hybrid mode contributes to an increase in the amount of free time available to employees. Among the surveyed group, 69.4% of individuals declared that due to the COVID-19 pandemic, they changed their work model to fully or partially remote work. Among those who declared a change in their work model (84 people), 66.7% indicated that it led to an increase in the amount of free time available to them, 11.9% noted a slight increase in free time, 15.5% noticed no change, and 6% reported a decrease in available free time.

Respondents declare that the leisure activities they prefer are mainly carried out within the GZM Metropolis area (76.9% of respondents), although as many as 11.6% indicated that they do not spend their free time within the GZM Metropolis. The same percentage of respondents stated they were un-

sure how to answer this question. These responses may suggest that respondents are uncertain whether some of their leisure activities qualify as such, or they may only recognize tourism-related activities as leisure activities. Perhaps they are also unaware of the exact boundaries of the GZM.

Overall, respondents perceive a relationship between the form of work and the need to spend free time outside the home. 72.7% of respondents indicated that, in their opinion, the shift to remote work increases the need to spend free time outside the home. 17.4% of respondents had no opinion on this matter, and 7.4% believe that the work model does not impact the need for leisure activities outside the home.

The comparison of respondents' preferences (Figure 1) regarding how GZM residents spend their free time shows that they most frequently dedicate their free time to sports and recreational activities (55.7% of respondents) and activities at home (51.7% of respondents). Interestingly, activities related to using retail and gastronomy services ranked relatively low (18.9%). Spending leisure time using the Internet was indicated as a preferred activity by 38% of respondents. The Chi-square independence test results did not show a statistically significant relationship between leisure activity preferences and the respondents' place of residence, education level, wealth, or household size.

It should be noted that respondents far more often spend their free time on activities that do not require physical travel outside their homes (such as leisure activities at home and online) compared to activities that require even short trips (Figure 2). These findings are consistent with respondents' indications that their preferred leisure activities can mostly be realized at home - 81.8% of respondents confirmed this. Respondents declared that the most preferred active leisure activities are sports and recreational activities available within a 5 km radius and using retail and gastronomy services located no more than 5 km from their residence. These results suggest that young adults typically engage in leisure activities that either do not require mobility or can be accessed via sustainable travel modes. Most notably, leisure mobility is realized on foot - 57.0 % of respondents reported walking for leisure-related activities at least four times a week, while only 37.2% of respondents prefer to travel by car (as the driver) with the same frequency. Interestingly, the most frequently mentioned modes of transport that respondents never use are personal transport devices (62.8%) and bicycles (33.9%) (Figure 3).

This is surprising, considering that as many as 73.6% of respondents indicated that the distance to leisure activity locations and the existing infrastructure enable the use of such mobility options. Furthermore, 58.7% of respondents said that both the distance and the infrastructure conditions allow them to change their mode of transport if needed. Only 22.3% of respondents noted that rail transport could serve their leisure mobility needs. Chi-square independence analysis (value=31.085, df=8; $\alpha < 0.001$) shows that

the frequency of walking for leisure is significantly related to the respondents' level of education. Respondents with higher education levels exhibited a higher frequency of walking for leisure activities compared to other groups. Symmetric measures analysis ($\Phi=0.507$, Cramer's $V=0.358$, and contingency coefficient= 0.452) suggests that this relationship is moderate and may be influenced by the underrepresentation of respondents with education lower than secondary.

A similar pattern was observed regarding the relationship between education level and the frequency of using personal transport devices (PTDs) for leisure mobility. The Chi-square test (value= 36.769 ; $df=10$; $\alpha<0.001$) showed a significant relationship between these variables. Respondents with higher education levels were significantly less likely to use PTDs for leisure mobility than those with lower education levels. Symmetric measures ($\Phi=0.551$, Cramer's $V=0.390$, and contingency coefficient= 0.483) also indicated a moderate relationship, again likely influenced by the underrepresentation of lower-educated respondents. For other forms of leisure mobility, no significant relationship was found between usage frequency and respondents' education levels.

As part of the study, respondents were also asked whether they believe that the spatial and transportation policies of GZM and its member municipalities address residents' needs related to leisure mobility. Almost half (47.9%) positively evaluated the actions of GZM and its member municipalities, stating that leisure mobility needs are considered, while 21.5% believe these needs are not sufficiently addressed. The relatively high percentage of "No opinion" responses (30.6%) may result from respondents' insufficient knowledge about GZM's activities in shaping sustainable urban mobility.

5. Discussion and conclusions

The presented research confirms that the COVID-19 pandemic influenced the widespread adoption of remote and hybrid work, thereby impacting the available leisure time budget among young adults. The spread of remote and hybrid work required many groups to change their functioning both in private and public spaces. This, in turn, may contribute to changes in mobility patterns and daily practices related to leisure activities. Respondents observe that the remote work model facilitates an extension of leisure time, particularly the type used for short activities available locally, near one's place of residence. These activities do not require long-distance travel and can be performed using basic, more sustainable forms of mobility, such as walking. This finding is consistent with Swiss research conducted by Wöhner (2023). She indicates that remote workers are 21.5% more likely to walk and 40.3% more likely to cycle for leisure purposes compared to office-based employees. The author attributes this to three main factors: time saved on commuting,

greater spatial and temporal flexibility in organising the day, and a tendency to meet daily needs closer to home. Motte-Baumvol et al. (2025) shown that the rise of remote and hybrid working does not lead to a clear reduction in mobility but contributes to a significant reorganisation of it. This suggests that individuals working remotely are more likely to undertake daily activities near their place of residence on home-working days. Nevertheless, when people who work at least partly remotely are forced to travel for business purposes, the variety of non-work-related trips increases.

The conducted study indicates some paradoxes regarding the preferences for leisure activities among the surveyed respondents. Although 72.7% of respondents declared a noticeable increase in the need for outdoor activities, the preferred form of leisure time for them is activities carried out at the place of residence (81.8%). These results suggest that, despite the declared need to leave the house, respondents limit their mobility during leisure time. Other studies suggests that this phenomenon is not necessarily unique to the GZM area. For example, Morris et al. (2024) found that, compared to the pre-pandemic period, Americans are spending less time on outdoor activities, which may suggest that the post-pandemic trend of spending free time at home may represent a structural change rather than merely a temporary one. It should be noted that the presented study does not provide an explanation for this paradox, which points to the need for further exploration of this topic.

Among active forms of spending leisure time, respondents prefer sports or recreational activities. However, these are spatially limited to a 5 km radius from their place of residence. This may be related to the high availability of recreational areas in the GZM, which facilitates access to nearby venues for sports and outdoor activities and encourages the use of local facilities rather than longer trips (Nalej & Lewandowicz, 2024).

The relatively low use of bicycles and private transport found in this study is a cause for concern, despite the reported availability of infrastructure for these modes. This indicates a certain reluctance among respondents to use these forms of mobility; however, the study does not reveal what factors influence this attitude. This finding may serve as inspiration for further research in this area. The concentration of the respondents' leisure activities within a 5 km radius of their homes suggests that access to leisure facilities in the GZM potentially aligns with the concept of the '15-minute city' (Moreno et al., 2021), which postulates that residents should be able to meet most of their daily needs within a 15-minute walk or cycle ride from home. Future research could assess the degree to which GZM municipalities fulfil this standard in terms of residents' leisure needs.

The lack of strong relationships between leisure activity preferences and the socio-demographic characteristics of respondents may indicate a homogenization of lifestyles among young adult residents of the GZM Metropolis.

This phenomenon could be attributed to factors such as standardisation of consumption patterns or the influence of shared generational experiences (e.g. COVID-19 pandemic). At the same time, it may point to the need for further, in-depth research on the mechanisms shaping these leisure patterns among residents of highly urbanized areas, and the mobility associated with these patterns.

The finding that the greater amount of free time available to people working remotely does not necessarily translate into increased traffic during leisure hours can be explained by the relatively high availability of recreational facilities near respondents' homes, the widespread use of active forms of mobility for recreational purposes, and a tendency to spend leisure time at home. The recreational mobility of young residents of the GZM is concentrated around their place of residence, although this conclusion requires verification on a larger sample and comparison with other age groups. This is even more interesting because the residents of the Silesian Voivodeship are the third most active group in Poland in terms of the number of trips undertaken for recreational purposes [GUS, 2025].

It also remains an open question whether the observed changes in leisure mobility patterns should be interpreted as a temporary response to the pandemic or as a more structural transformation linked to the permanent adoption of hybrid and remote working models. The available data indicate an increase in the popularity of hybrid working, accompanied by a significant decline in interest in fully remote working (Grant Thornton, 2026). Also, whether the patterns identified in this study – in particular, preferences regarding forms of leisure activity and associated travel behaviour – are unique to the GZM metropolitan area or reflect broader trends in similar urban contexts remains an open question that warrants further comparative research.

The conducted study has certain limitations related to the sample size. Although the sample was proportionally selected according to the size of municipalities and age groups, it may not reflect all social aspects of the GZM Metropolis, especially in terms of income, education, or other demographic variables.

The study was exploratory in nature, and as such, it points to certain directions for future research. Future studies should focus exclusively on the analysis of leisure time mobility related to active forms of spending time. A valuable element of future research would be to combine quantitative methods (including statistical tests) with qualitative methods, which would, on the one hand, allow for the objectification of research results and, on the other hand, enable a better understanding of, among other things, the barriers associated with promoting the use of alternative means of transport for recreational travel. It would be worthwhile to expand the research by analysing the spatial location of leisure time venues and assessing the impact of this location on the commuting behaviours of GZM residents. The literature

analysis conducted indicates the possibility of extending the research in such a way as to allow cluster analysis to define existing mobility models of leisure time in the studied group (cluster analysis was used, for example, in the studies by Ohnmacht et al. (2009) and Strömblad (2024)).

Based on the results obtained, the following recommendations can be made to the GZM Metropolis and its constituent municipalities regarding the development of sustainable leisure mobility:

- Investment in high-quality walking and cycling infrastructure within a 5 km radius of residential areas should be intensified, as this corresponds to the range of recreational activities indicated by respondents; infrastructure improvements should also include better connections to parks, sports facilities, and cultural venues to encourage active mobility.
- The attractiveness of public transport for leisure travellers should be increased by tailoring services to the needs of young residents, including better connections to local leisure destinations, improved frequency during weekends and evenings, and easier access for short distance trips.
- The attractiveness of existing local venues for active leisure should be maintained and new ones created (e.g., parks, community forests, sports grounds, and cultural facilities) that are accessible within walking or cycling distance, reducing reliance on private cars and supporting active, sustainable leisure patterns.

The findings may also serve as inspiration for authorities responsible for shaping spatial policies, the development of urban areas, and sustainable urban mobility policy beyond GZM area. The research highlights the need to examine whether the available infrastructure and leisure activity offerings foster the development of an active, sustainable lifestyle among residents of urban areas. In particular, the results support the 15-minute city concept, which emphasizes that most daily and leisure needs should be accessible within a short walk or bike ride from one's home, promoting both convenience and sustainable mobility.

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Note: Preliminary findings from this research were presented at the 13th International Conference On Applied Economics Contemporary Issues in Economy 2025.

Appendix

Table 1. Characteristic of respondents

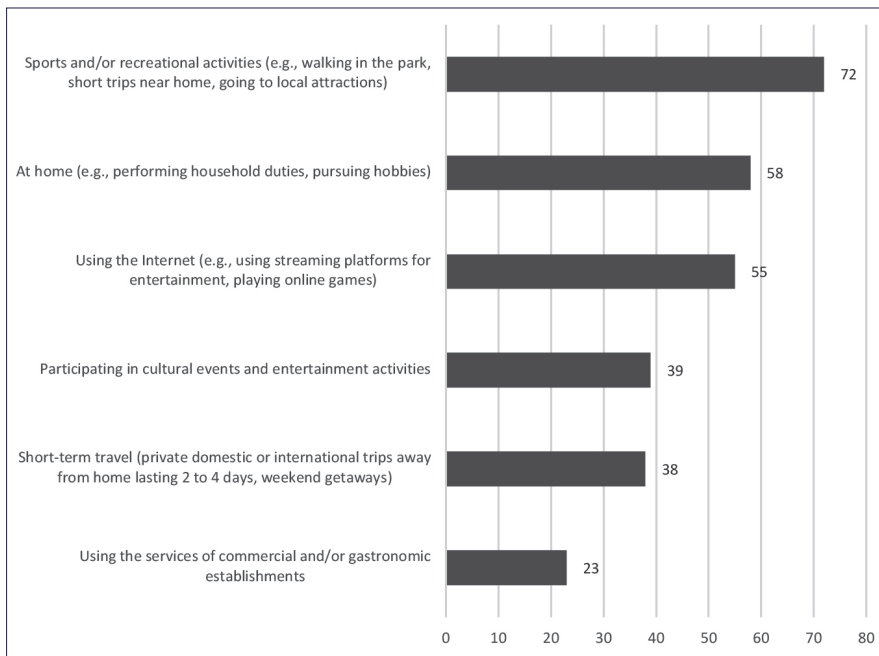
		Frequency	% of responses
Age:	19–24	38	31,4
	25–34	83	68,6
Gender:	Female	66	54,5
	Male	55	45,5
Level of education:	Vocational education	2	1,7
	Secondary education	47	38,8
	Higher education	72	59,5
The amount of average monthly gross income per household member:	Up to 2500 (PLN)	5	4,1
	2500–3500 (PLN)	19	15,7
	3500–4500 (PLN)	24	19,8
	4500–5500 (PLN)	20	16,5
	Above 5500 (PLN)	34	28,1
	Refusal to respond	19	15,7



		Frequency	% of responses
Place of residence:	Municipality with less than 10 thousand inhabitants	9	7,4
	Municipality from 10 to 50 thousand inhabitants	18	14,9
	Municipality from 50 to 100 thousand inhabitants	18	14,9
	Municipality with more than 100 thousand inhabitants	76	62,8
Work performance model:	Only stationary at the place of employment	54	44,6
	Mainly stationary at the place of employment, occasionally remotely	13	10,7
	Half stationary, half remote	16	13,2
	Mainly remotely, occasionally stationary	25	20,7
	Remote only	4	3,3
	Currently unemployed	9	7,4
Total:		121	100

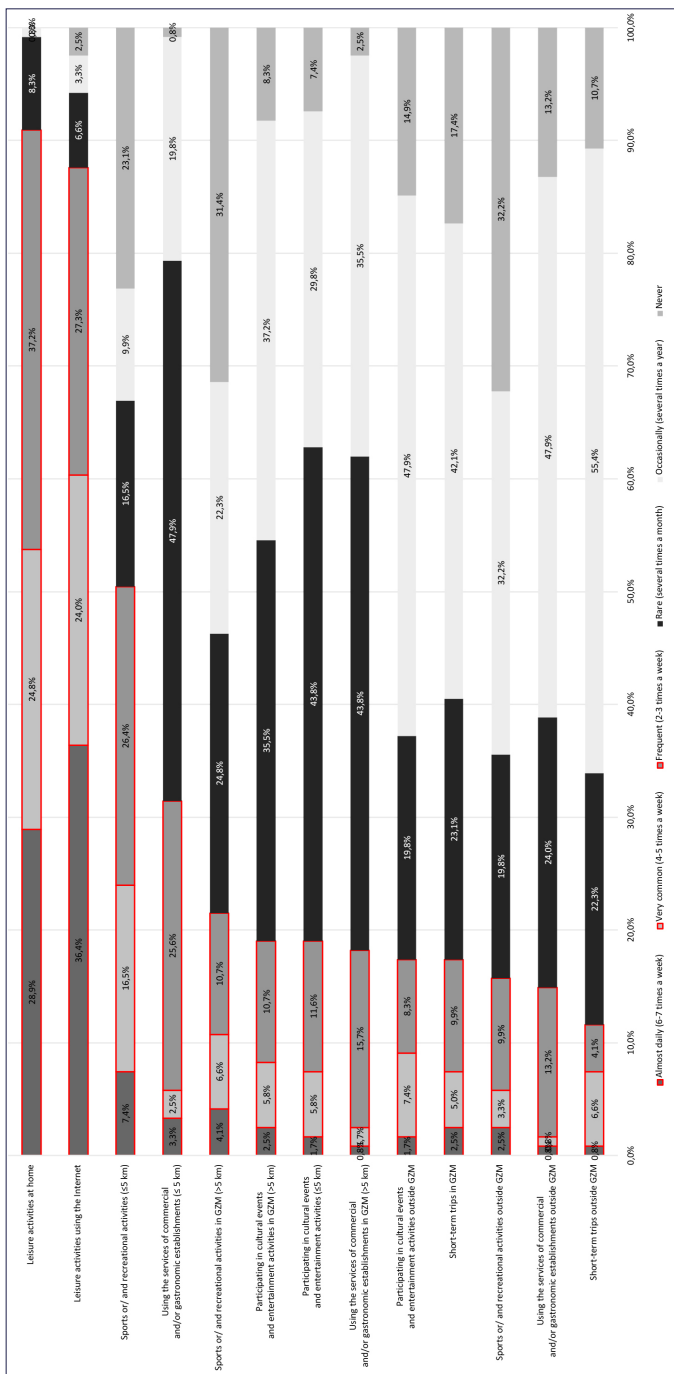
Source: own study.

Figure 1. Respondents' preferences regarding ways of spending leisure time (number of re-sponses)



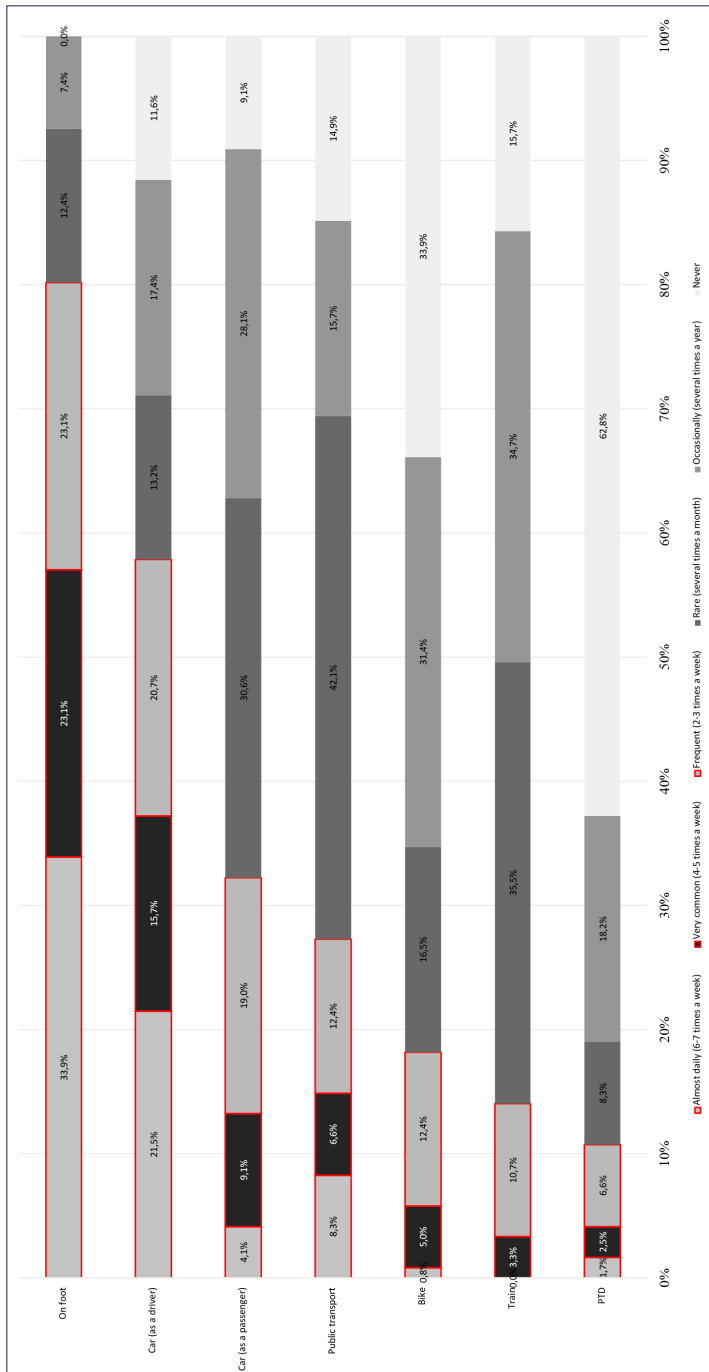
Source: own study.

Figure 2. Declared frequency and distance of leisure activities



Source: own study.

Figure 3. Declared frequency of using different mobility models during leisure time



Source: own study.