Original Research

Demographic influences on sustainable mobility adoption in rehabilitation

Denis Arsovski[1], Natasha Chichevska Jovanova[2], Viktorija Prodanovska Stojchevska[1], Tanja Jovanovska[1], Izabela Filov[1], Angelka Jankulovska[1], Daniela Petkovska[1]

[1]University St. Kliment Ohridski Bitola, Higher medical school Bitola, Department of Physical therapy
[2]University Ss. Cyril and Methodius Skopje, Faculty of Philosophy, Institute of Special education and rehabilitation

Correspondent:
Denis Arsovski, University St. Kliment Ohridski Bitola, Higher Medical School Bitola, Department of Physical Therapy, Bitola, North Macedonia, +38978828530 denis.arsovski@uklo.edu.mk

Article info:

Received: November 4, 2024

Received in revised: June 28, 2025

Accepted: July 15, 2025

Published: August 25, 2025

Cite this as: Arsovski, D., et.al. Demographic Influences on Sustainable Mobility Adoption in Rehabilitation. SPMRJ Vol. 7 No. 2. 182-201. https://e-journal.unair.ac.id/SPMRJ/article/view/65019.

Abstract

Background: The integration of sustainable mobility within rehabilitation combines environmental and health-focused strategies to reduce the carbon footprint of healthcare and improve the results of the patients. This approach shows the need for environmentally friendly transport options such as walking, cycling, public transport, and carpooling within various rehabilitation programs.
Aim(s) (including purpose setting): This study aimed to explore the influence of demographic factors such as age, gender, and mobility restrictions on the willingness of patients to adopt sustainable mobility options during rehabilitation treatment.
Material and methods: A cross-sectional survey design was used, with 85 participants receiving rehabilitation. Data were collected with a structured electronic questionnaire consisting of demographic data and attitudes toward different sustainable transport methods. Statistical analyses included Chi-Square tests, analysis of variance with post-hoc Tukey, independent samples t-tests, Mann-Whitney tests, and two-way analysis of variance to assess the main and interaction effects.
Result: Younger participants within 18-30 years and female participants showed a higher willingness to use public transport compared to older age groups and male participants (analysis of variance $p = 0.008$, $\eta^2 = 0.13$; t-test $p < 0.01$, $d = 0.72$). No significant interaction between age and gender was found, suggesting additive effects.
Conclusions: Demographic factors can affect sustainable mobility preferences in rehabilitation, necessitating individualized interventions to improve the adoption. Programs should consider age, gender, and mobility limitations to promote sustainable transport. Defining these factors can improve rehabilitation outcomes and support environmental sustainability

goals. Future research should investigate long-term impacts and the role of additional variables such as socioeconomic status and infrastructure.

Keywords: *demographic factors, rehabilitation, public transportation, sustainable mobility, transportation methods, physiotherapy*

İNTRODUCTION

Sustainable mobility in rehabilitation is a known field that combines the principles of environmental sustainability with rehabilitation practices focused on the health of the patients.[1] As the global awareness of climate change and its bad effects continues to grow, there is an increasing need to reduce carbon emissions across all sectors, including healthcare.[2] The traditional dependence on motorized vehicles for transportation to and from rehabilitation centers contributes to the carbon footprint of the healthcare industry.[3,4] By adopting sustainable mobility practices like active transportation and the use of low-emission vehicles, rehabilitation programs can promote environmental management while improving patient care.[5]

This dual approach to rehabilitation promotes the integration of sustainable, patient-oriented transit methods into daily rehabilitation activities such as walking, cycling, and the use of electric or hybrid vehicles into patient routines.[6] These methods not only help in reducing gas emissions, but also contribute to the physical and psychological well-being of the patients.[7] For instance, activities like walking and cycling are not only sustainable modalities of transport, but also valuable therapeutic exercises that improve cardiovascular health, muscle strength, and general mobility.[8] Participating in these activities frequently shows greater outdoor exposure and social interaction, which can improve mental health and promote a sense of community.[9]

Incorporating sustainable mobility into rehabilitation programs line up with a holistic approach to healthcare, where the well-being of patients is considered beside the health of the planet.[10] By promoting a culture of sustainability within rehabilitation, healthcare workers can set a model for patients and the wider community, showing that individual and environmental health are correlated.[11,12] This integration defines a proactive attitude against

climate change while supporting patients in achieving their rehabilitation goals.[13] Sustainable mobility in rehabilitation offers an opportunity to promote both environmental and health results, strengthening the importance of multidisciplinary approaches in addressing contemporary challenges.[14,15]

MATERIAL AND METHODS

Participants

A total of 85 participants were recruited for this research through convenience sampling from rehabilitation centers and within participants' homes. The inclusion criteria were adults aged 18 and above, currently part of a rehabilitation program after injury or disease, and participants able to comprehend and respond to a structured questionnaire in English. Participants were stratified into four age groups (18-30, 31-50, 51-70, and over 70) to examine age differences in attitudes toward sustainable mobility. The sample consisted of 29 males and 56 females, with varying stages of rehabilitation, ranging from early (first 1-2 weeks) to late stages (more than 6 weeks).

Study design

This research used a cross-sectional survey design to find the attitudes and willingness of participants to use sustainable mobility options in rehabilitation. This research aimed to assess the influence of demographic factors such as age, gender, and mobility restrictions on the willingness to adopt sustainable transportation methods, including walking, cycling, public transport, and carpooling.

Data collection

Data was collected with a self-administered questionnaire distributed in electronic formats. The questionnaire was designed to collect demographic information, current stage of rehabilitation, and attitudes towards different modes of sustainable transport. Participants were asked to rate their willingness to use various forms of transportation on a Likert scale from 1 to 5.

Additionally, participants were asked about their perceived benefits and barriers to using sustainable mobility options during rehabilitation. The questionnaire was reviewed by experts in the rehabilitation field to guarantee content validity and was pilot tested with a small group of participants to improve clarity and relevance.

Reliability testing

To ensure the reliability of the questionnaire, a Cronbach's alpha test was performed on the Likert-scale items measuring willingness to use different transportation methods. A Cronbach's alpha value of 0.82 was secured, indicating good internal consistency among the items.

Statistical methods

Data were analyzed with SPSS version 27. Descriptive statistics included means, standard deviations, and percentages to summarize the demographic characteristics of the participants and their responses to the questionnaire. To assess the influence of demographic factors on willingness to use sustainable mobility options, it chi-square test was used. Also, analysis of variance was performed to compare willingness scores among different age groups. Following the analysis of variance, Tukey's test was performed to precise specific differences between age groups in their willingness to use public transport. This post-hoc analysis showed multiple comparisons while controlling the general type I error rate. Independent samples t-tests were used to compare the willingness to use public transport between male and female participants. The Mann-Whitney test was used to compare the willingness to use carpooling or shared rides between participants with and without mobility restrictions, as the data did not meet the assumptions of normality required for parametric tests. For all statistical tests, a p-value of less than 0.05 was considered indicative of statistical significance. In addition to the main effect's

analysis, a two-way analysis of variance was performed to find potential interaction effects between age group and gender on willingness to use public transport. Due to the aggregate nature of reported data, these effects were interpreted descriptively rather than confirmed statistically using cell-level data. Data visualizations were generated using SPSS.

Data processing

Before analysis, the data were screened for completeness and accuracy. Missing data were handled using pairwise deletion to maximize the use of available data. Outliers were assessed, and none were considered extreme enough to warrant exclusion. Normality checks were conducted using Shapiro-Wilk tests and Q-Q plots; non-normally distributed data were analyzed using appropriate non-parametric tests.

Ethical considerations

All participants provided informed consent before participating in the study. Confidentiality and anonymity were maintained throughout the research process, with all data securely stored and accessible only to the research team.

RESULTS

Table 1 shows the demographic distribution of participants by age and gender. The majority of the participants were in the 18-30 age range (45.9%), followed by 31-50 years (29.4%), 51-70 (20.0%), and over 70 (4.7%). In terms of gender, this research had more female participants (65.9%) than male participants (34.1%). The mean age of the participants was 38.4 years, with a standard deviation of 14.2, indicating a moderately wide range of ages represented in the research. The degrees of freedom for this sample size are 84, defining the total number of participants minus one.

Table 2 shows the distribution of participants based on their current stage of rehabilitation. Most participants were in the mid-stage of their rehabilitation (44.7%), and the next most represented were in the late stage (29.4%) and

the early stage (25.9%). The mean value for the rehabilitation stages, based on an ordinal scale, is 2.04. The rehabilitation stage was numerically coded as 1 for early (first 1-2 weeks), 2 for mid (2-6 weeks), and 3 for late (more than 6 weeks), enabling calculation of mean stage values.

According to Table 3, the results from the analysis of variance show a statistically significant difference in willingness to use public transport among different age groups ($p=0.008$).

Table 4 shows the significant difference post-hoc test conducted on the willingness to use public transport among different age groups. This test was performed after the analysis of variance, which indicated significant differences in willingness among age groups. Significant differences ($p < 0.05$) were found between most age groups, except between the 51-70 age group and the over 70 years age group. Younger participants have a higher willingness to use public transport compared to all older age groups. The 31-50 age group also shows higher willingness than both the 51-70 and over 70 age groups.

Table 5 summarizes the results of the independent samples t-test comparing the willingness to use public transport between male and female participants. Female participants reported a higher mean willingness score ($M = 3.7$, $SD = 0.9$) than male participants ($M = 3.0$, $SD = 1.1$), $t(83) = -3.14$, $p < 0.01$. The difference corresponded to a Cohen's d of 0.72, reflecting a medium-to-large effect size. Additionally, Figure 1 further visualizes this difference using a violin plot. The figure shows the higher and more consistent willingness scores among female participants, with fewer extremely low values compared to males.

Figure 2 visualizes the distribution of willingness to use carpooling or shared rides among participants with and without mobility restrictions. Participants with mobility restrictions have a lower median willingness score to use carpooling or shared rides. The interquartile range shows a relatively narrow

spread, indicating that most participants in this group have similar responses. Participants without mobility restrictions show a higher median willingness score to use carpooling or shared rides. Here, the upper quartile extends higher, showing that many participants are quite willing to use shared rides. This figure also aligns with the results of the Mann-Whitney test, and this test confirmed a statistically significant difference in willingness between these two groups, focusing on the impact of mobility restrictions on transportation preferences during rehabilitation.

Based on Table 6, the two-way analysis indicated significant main effects for both age group ($p = 0.008$) and gender ($p < 0.05$), consistent with previously reported single-factor variance analyses. The effect of age group corresponded to a partial eta squared (η^2) of approximately 0.13, showing a medium effect size. No significant interaction effect between age and gender was observed, suggesting that the age trend toward higher willingness among younger participants was consistent across both genders. Also, the higher willingness among female participants was apparent regardless of age group.

Figure 3 shows that female participants consistently reported higher mean willingness scores across all age groups compared to male participants. The largest gender difference is observed among participants within the 18-30 years, while differences narrow in older age groups. Also, Figure 4 shows a visualization of mean willingness scores by rehabilitation stage using a heatmap format. The figure shows that participants in the mid-stage of rehabilitation reported slightly higher willingness to adopt sustainable mobility options compared to those in early and late stages. This trend may indicate greater readiness or confidence to engage in alternative transportation methods as patients progress through their rehabilitation program.

DISCUSSION

The results of this study show significant information about the factors influencing the willingness of persons in rehabilitation to

adopt sustainable mobility options. The results indicate that demographic factors such as age, gender, and mobility restrictions shape perceptions of various transportation options. This research showed that younger participants were more willing to use sustainable mobility options, especially public transport, compared to older age groups. This trend was confirmed by analysis of variance and subsequent post-hoc test, which showed differences in willingness between younger and older aged participants.

One study examines the relationship between active commuting (walking and cycling) and psychological well-being using data from 17,985 adult commuters over eighteen waves of the British Household Panel Survey (1991/2-2008/9). By using fixed effects regression models, this research analyzes how travel mode choice, commuting time, and transitions to active commuting affect general psychological well-being and specific psychological symptoms. The study found a positive association between active travel modes and psychological well-being. Compared to car travel, both active travel and public transport were associated with improved well-being scores.[16] Compared to our research results, both studies contribute information on the benefits of sustainable mobility, although in different contexts and populations.

Another research study shows information about the importance of adopting both passive and active measures to improve energy efficiency in healthcare buildings. The research shows user behavior as a key component in energy conservation and discusses the role of various design elements like solar power, automated shading, and geothermal sources in minimizing carbon emissions. This approach aligns with the need for a balance between comfort and sustainability while involving different partners to improve healthcare infrastructure.[17] When compared, both studies agree on promoting sustainability within the healthcare sector.

One study focuses on the transition from traditional mobility guarantees, which focus on socioeconomic benefits, to sustainable mobility guarantees aimed at promoting non-car-based travel to achieve environmental sustainability. The research shows the necessity for policy adaptations that motivate shifts away from automobile dependency, especially in rural contexts. It discusses the financial feasibility of implementing such a guarantee and suggests that it can be financed by reallocating existing subsidies from automobile use, maintaining economic balance.[18]

Another study reviews existing literature on mobility apps and their role in promoting sustainable mobility behaviors such as walking, cycling, and using public transport. The research aims to investigate the extent to which health-related information is incorporated into these apps and how this information influences user behavior. The study finds that while many mobility apps provide environmental information like CO2 emissions, they often lack comprehensive health-related content. Health components in these apps are represented by metrics such as physical activity levels or calories burned. However, critical aspects like exposure to air pollution, noise, heat, traffic injuries, and access to green spaces are rarely addressed.[19]

The research on sustainable mobility in Kaunas city, Lithuania, shows that while there is an increasing emphasis on sustainable commuting options such as walking and cycling, the majority of participants still use passenger vehicles (61.1%), with only 13.5% engaging in active travel. Key incentives for walking included safer pedestrian crossings and more comfortable paths, whereas cycling was promoted through an expanded cycling network and improved bicycle safety.[20]

One research study about sustainable mobility as a service is focusing on integrating sustainability into urban transportation, and shows that optimized mobility services are important for societal quality of life. The research framework includes elements such as a decision support system for public

administrations and a comprehensive evaluation of intervention policies, focusing on a systematic approach to sustainable mobility.[21] Aligning with our research, key thematic overlaps and separations appear. Both studies show the need for systemic approaches.

Another study focuses on the challenges in aligning regional low-carbon transport strategies with daily mobility practices. A key finding of their research is the observed disconnections between transport planning and lived experiences, which can obstruct the adoption of sustainable mobility behaviors. This gap between policy and everyday use focuses on the importance of crossing these scales through adaptive, participatory planning approaches.[22] In comparison, our study identifies discrepancies between conceptual understanding and practical implementation. In the healthcare context, these disconnections manifest as limited awareness and application of eco-integration among healthcare workers, influenced by inadequate training and institutional support.

Implications for practice

The results of this study have important implications for rehabilitation programs aiming to incorporate sustainable mobility practices. By understanding the demographic factors influencing transportation preferences, rehabilitation workers can develop more individualized interventions that consider the specific needs and preferences of different patient groups. For instance, younger patients may be more receptive to programs that encourage public transport use, while older patients might benefit from initiatives that focus on safety and comfort. Also, the significant gender differences identified in this research suggest that rehabilitation programs should consider gender-specific strategies when promoting sustainable mobility. Women may respond more positively to programs with public transport's safety and environmental benefits, while men may need education to increase awareness and acceptance of these options.

Ġ Limitations of the study

This study faced several limitations that should be considered. Firstly, the sample size of 85 participants may not be fully representative of the broader population undergoing rehabilitation, which limits the generalizability of the findings. Also, the use of convenience sampling may have introduced selection bias, as participants were recruited from specific rehabilitation centers and home environments, potentially biasing the results toward certain demographic characteristics. The self-reported nature of the data collection through questionnaires poses a risk of response bias, where participants might not accurately show their true willingness or experiences with sustainable mobility options. At the end, the study focused on demographic factors such as age, gender, and mobility restrictions without exploring other influential variables like socioeconomic status, access to transportation infrastructure, or environmental attitudes that could impact transportation preferences.

External validity of the study

The results from this study show important information about demographic influences on the willingness to adopt sustainable mobility options within rehabilitation. However, the external validity of these results warrants careful consideration. The sample was composed of participants from specific rehabilitation centers and home-based environments in North Macedonia, showing particular sociocultural, infrastructural, and healthcare system characteristics. These contextual factors, including regional differences in public transport accessibility, cultural perceptions of sustainable practices, and the availability of supportive infrastructure for persons with mobility restrictions, may limit the direct generalization of the results to other populations or healthcare environments. While the demographic trends observed, such as higher willingness among younger participants and gender differences, may resonate with broader patterns reported in other studies, they should be interpreted within the specific context of

this research. To improve generalizability and confirm the applicability of these results among various environments, future studies should include larger, more heterogeneous samples across different geographic regions and healthcare systems. Such investigations would provide a more comprehensive understanding of how demographic variables interact with environmental and systemic factors to define mobility preferences in rehabilitation.

Future research directions

Future studies should aim to address the limitations in this research by expanding the sample size and using random sampling methods to ensure a more diverse and representative participant pool. Longitudinal studies would be valuable to examine the long-term effects of integrating sustainable mobility options in rehabilitation programs and track changes in attitudes and behaviors over time. Also, future research should investigate the interplay of other variables, such as socioeconomic factors, urban versus rural environments, and environmental awareness, to provide a more comprehensive understanding of the determinants influencing sustainable mobility adoption.

CONCLUSION

This study focuses on the importance of integrating sustainable mobility options into rehabilitation programs on both health benefits and environmental sustainability. The findings show that demographic factors such as age, gender, and mobility restrictions influence the willingness of patients to adopt sustainable transportation methods like walking, cycling, public transport, and carpooling. Younger participants showed a higher willingness to use sustainable mobility options, especially public transport, compared to older age groups. This trend suggests that younger persons may be more open to adopting environmentally friendly transportation due to greater environmental awareness and fewer ingrained transportation habits. In contrast, older persons might require

interventions focusing on comfort and safety to encourage the use of sustainable transport. Gender differences also play an important role, with female participants being more ready to use public transport. This finding suggests that women might prioritize safety and environmental benefits more than men, who might need additional education and encouragement to increase their acceptance of sustainable mobility options. Mobility restrictions impact transportation preferences, with persons facing such restrictions being less likely to consider active transportation methods like walking and cycling. This defines the need for rehabilitation programs to address accessibility issues by providing suitable infrastructure and support systems to encourage sustainable mobility among patients with mobility impairments. This study shows the need for individualized, inclusive strategies in rehabilitation to promote sustainable mobility effectively. By understanding the different needs and preferences of different patient groups, rehabilitation workers can develop interventions that support both patient recovery and environmental goals. This approach will not only improve the health outcomes for the patients, but also will contribute to wider efforts to reduce the carbon footprint of the healthcare sector.

DISCLOSURES

Conflict of Interest

The authors declare no conflict of interest.

Author contributions

Preparation: DA, TJ, VPS; Data gathering and analysis: AJ, DP, IF, DA, NCJ; Drafting: DA, NCJ, IF; Approval: DA, NCJ, VPS, TJ, IF, AJ, DP.

REFERENCES

1. Gallo, Mariano, and Mario Marinelli. "Sustainable Mobility: A Review of Possible Actions and Policies." Sustainability 12, no. 18 (2020): 7499. https://doi.org/10.3390/su12187499
2. Or, Z., & Seppänen, A.-V. (2024). The role of the health sector in tackling climate change: A narrative review. Health Policy, 143, 105053. https://doi.org/10.1016/j.healthpol.2024.105053
3. Jing, Qin-Lei, Han-Zhen Liu, Wei-Qing Yu, and Xu He. "The Impact of Public Transportation on Carbon Emissions—From the Perspective of Energy Consumption." Sustainability 14, no. 10 (2022): 6248. https://doi.org/10.3390/su14106248
4. Zhao, X., Hu, H., Yuan, H., & Chu, X. (2023). How does adoption of electric vehicles reduce carbon emissions? Evidence from China. Heliyon, 9(9), e20296. https://doi.org/10.1016/j.heliyon.2023.e20296
5. Papadakis, Dimitrios Minas, Andreas Savvides, Aimilios Michael, and Apostolos Michopoulos. "Advancing Sustainable Urban Mobility: Insights from Best Practices and Case Studies." Fuel Communications 20 (2024): 100125. https://doi.org/10.1016/j.jfueco.2024.100125
6. Nesmachnow, S., & Hipogrosso, S. (2024). Assessment of sustainable mobility initiatives developed in Montevideo, Uruguay. Urban Science, 8(2), 52. https://doi.org/10.3390/urbansci8020052
7. Maizlish, Neil, James Woodcock, Steven Co, Bart Ostro, Ana Fanai, and David Fairley. "Health Cobenefits and Transportation-Related Reductions in Greenhouse Gas Emissions in the San Francisco Bay Area." American Journal of Public Health 103, no. 4 (2012): 703-9. https://doi.org/10.2105/AJPH.2012.300939
8. Pinckard, K., Baskin, K. K., & Stanford, K. I. (2019). Effects of Exercise to Improve Cardiovascular Health. Frontiers in cardiovascular medicine, 6, 69. https://doi.org/10.3389/fcvm.2019.00069
9. Shilton, Trevor, Adrian Bauman, Barbara Beger, Anna Chalkley, Bruce Champagne, Michael Elings-Pers, Billie Giles-Corti, Shifalika Goenka, Margie Miller, Karen Milton, Adesola Oyeyemi, Rosemary Ross, James F. Sallis, Kathleen Armstrong-Walenczak, Jo Salmon, and Laura P. Whitsel. "More People, More Active, More Often for Heart Health - Taking Action on Physical Activity." Global Heart 19, no. 1 (2024): 42. https://doi.org/10.5334/gh.1308
10. Elsamani, Y., & Kajikawa, Y. (2024). Envisioning the future of mobility: A well-being-oriented approach. Sustainability, 16(18), 8114. https://doi.org/10.3390/su16188114
11. Ronen, Tammie, and Dorit Kerret. "Promoting Sustainable Wellbeing: Integrating Positive Psychology and Environmental Sustainability in Education." International Journal of Environmental Research and Public Health 17, no. 19 (2020): 6968. https://doi.org/10.3390/ijerph17196968
12. Shaban, M. M., Alanazi, M. A., Mohammed, H. H., Mohamed Amer, F. G., Elsayed, H. H., Zaky, M. E., Ramadan, O. M. E., Abdelgawad, M. E., & Shaban, M. (2024). Advancing sustainable healthcare: a concept analysis of eco-conscious nursing practices. BMC nursing, 23(1), 660. https://doi.org/10.1186/s12912-024-02197-0
13. Lippi, L., de Sire, A., Folli, A., Turco, A., Moalli, S., Ammendolia, A., Maconi, A., & Invernizzi, M. (2022). Environmental Factors in the Rehabilitation Framework: Role of the One Health Approach to Improve the Complex Management of Disability. International journal of environmental research and public health, 19(22), 15186. https://doi.org/10.3390/ijerph192215186
14. Fox, Mary, Caroline Zuidema, Benjamin Bauman, Timothy Burke, and Molly Sheehan. "Integrating Public Health into Climate Change Policy and Planning: State of Practice Update." International Journal of Environmental Research and Public Health 16, no. 18 (2019): 3232. https://doi.org/10.3390/ijerph16183232
15. Hariram, N. P., Mekha, K. B., Suganthan, V., & Sudhakar, K. (2023). Sustainalism: An integrated socio-economic-environmental model to address sustainable development and sustainability. Sustainability, 15(13), 10682. https://doi.org/10.3390/su151310682
16. Martin, Adam, Yevgeniy Goryakin, and Marc Suhrcke. "Does Active Commuting Improve Psychological Wellbeing? Longitudinal Evidence from Eighteen Waves of the British Household Panel Survey." Preventive Medicine 69 (2014): 48-53. https://doi.org/10.1016/j.ypmed.2014.08.023

17. Silva, B. V. F., Holm-Nielsen, J. B., Sadrizadeh, S., Teles, M. P. R., Kiani-Moghaddam, M., & Arabkoohsar, A. (2024). Sustainable, green, or smart? Pathways for energy-efficient healthcare buildings. Sustainable Cities and Society, 100, 105013. https://doi.org/10.1016/j.scs.2023.105013
18. Shibayama, T., & Laa, B. (2024). Sustainable mobility guarantee: Developing the concept from a transport planning perspective. Transport Policy, 155, 287–299. https://doi.org/10.1016/j.tranpol.2024.07.003
19. Marquart, Heike, and Julia Schuppan. "Promoting Sustainable Mobility: To What Extent Is 'Health' Considered by Mobility App Studies? A Review and a Conceptual Framework." Sustainability 14, no. 1 (2021): 47. https://doi.org/10.3390/su14010047.
20. Dėdelė, A., & Miškinytė, A. (2021). Promoting Sustainable Mobility: A Perspective from Car and Public Transport Users. International journal of environmental research and public health, 18(9), 4715. https://doi.org/10.3390/ijerph18094715
21. Vitetta, A. (2022). Sustainable mobility as a service: Framework and transport system models. Information, 13(7), 346. https://doi.org/10.3390/info13070346
22. Wikstrøm, R. D., & Røe, P. G. (2022). Sustainable mobility transitions in suburbia – Exploring (dis)connections between transport planning and daily mobility. Urban Research & Practice, 17(1), 72–95. https://doi.org/10.1080/17535069.2022.2119430

TABLES AND FIGURES

Table 1. Distribution of age and gender among participants.

Characteristic	Category	Number of participants	Percentage	SD
Age	18-30	39	45.9%	
	31-50	25	29.4%	
	51-70	17	20.0%	
	Over 70	4	4.7%	
Gender	Male	29	34.1%	
	Female	56	65.9%	
Age (Mean)				38.4 (14.2)
df				84

Table 2. Current rehabilitation stage.

Rehabilitation stage	Number of participants	Percentage	Mean
First 1-2 weeks – early rehabilitation	22	25.9%	
2-6 weeks – mid rehabilitation	38	44.7%	
More than 6 weeks – late rehabilitation	25	29.4%	
Total			2.04 (0.76)

Table 3. Age and willingness to use sustainable mobility.

Source of variation	SS	df	MS	F	P-Value
Between groups	10.24	3	3.41	4.15	0.008
Within groups	66.56	81	0.82		
Total	76.80	84			

Table 4. Post-hoc test results for age groups.

Group 1	Group 2	Mean difference	p-adj	Lower	Upper	Reject
18-30	31-50	-1.0333	0.0087	-1.8514	-0.2152	True
18-30	51-70	-2.2083	0.0000	-3.0804	-1.3362	True
18-30	Over 70	-2.4583	0.0000	-3.3304	-1.5862	True
31-50	51-70	-1.1750	0.0069	-2.0813	-0.2687	True
31-50	Over 70	-1.4250	0.0009	-2.3313	-0.5187	True
51-70	Over 70	-0.2500	0.8937	-1.2053	0.7053	False

Table 5. Independent samples t-test results for gender differences in willingness to use public transport.

Group	**Mean**	**SD**	**N**
Male	3.0	1.1	29
Female	3.7	0.9	56
Statistics		**Value**	
t-value		-3.14	
Df		83	
p-value		< 0.01	
Cohens d		0.72	

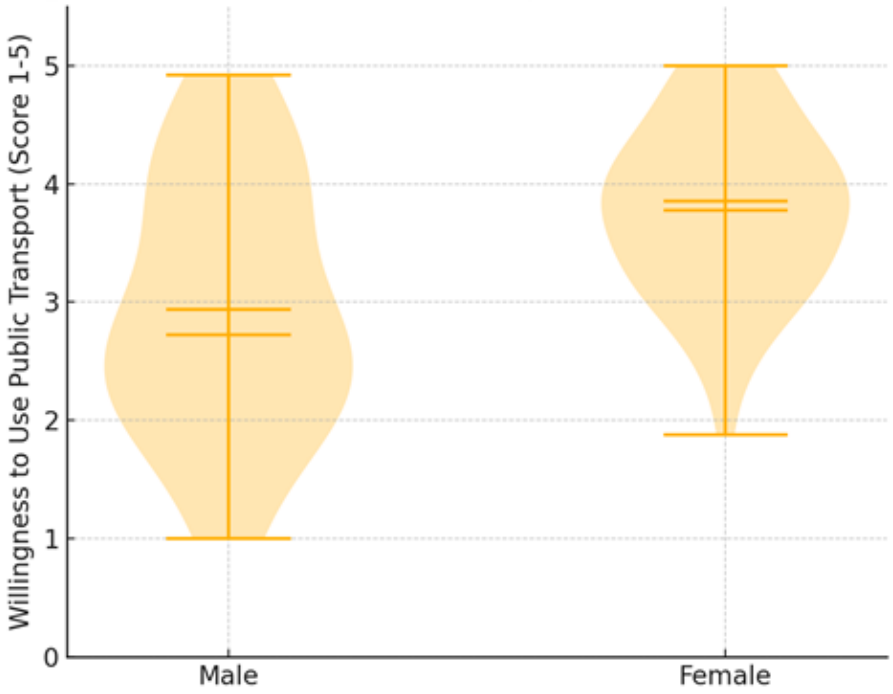

Figure 1. Distribution of willingness to use public transport by gender.

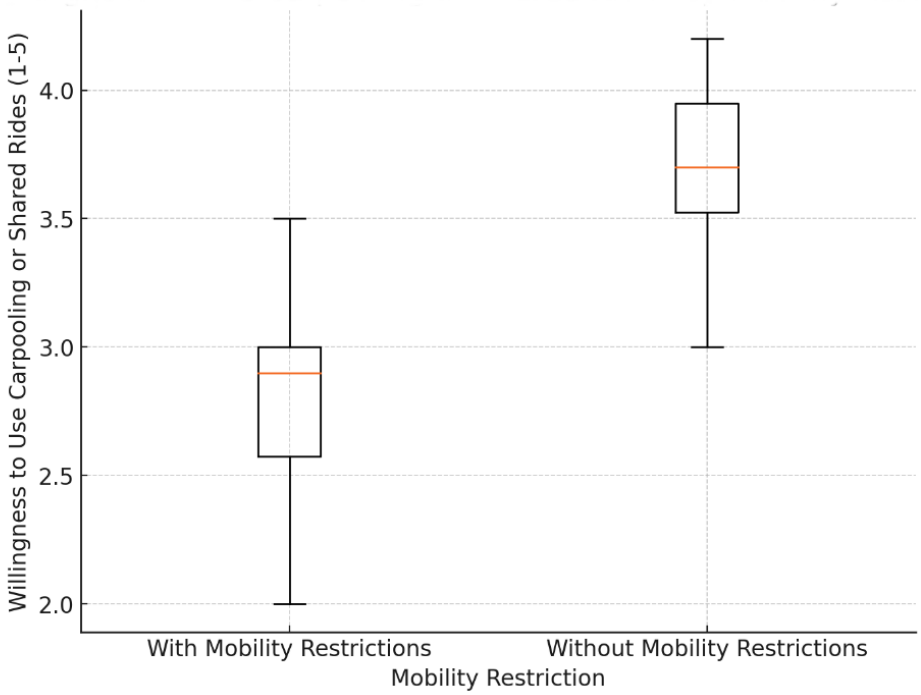

Figure 2. Willingness to use carpooling or shared rides due to mobility restrictions.

Table 6. Summary of effects of age and gender on willingness to use public transport.

Factor	Effect on willingness	Significance
Age	Younger participants show higher willingness	$p = 0.008$
Gender	Females show a higher willingness	$p < 0.05$
Age & gender	No significant interaction	Not significant

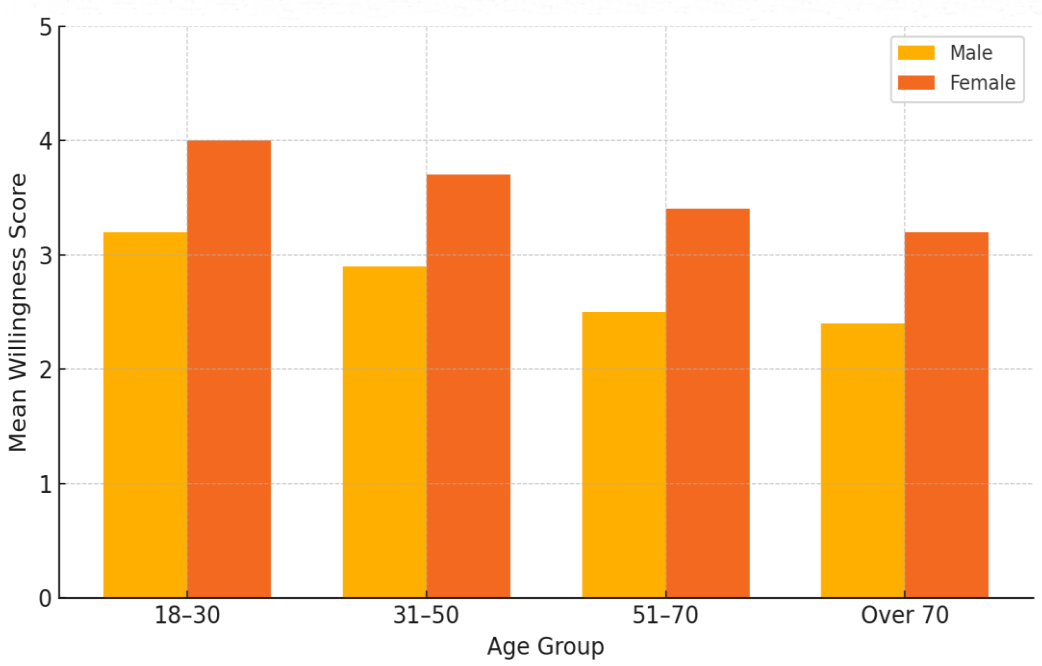

Figure 3. Willingness to use public transport by age and gender

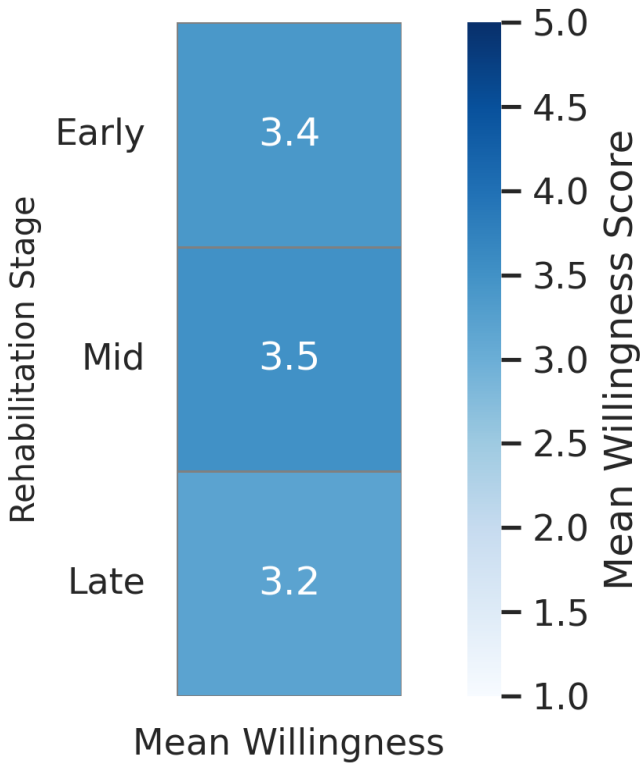

Figure 4. Mean willingness to use sustainable mobility options by rehabilitation stage.