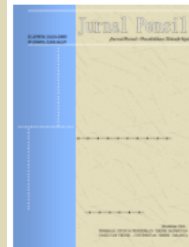


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## ANALYSIS OF USER CHARACTERISTICS AND TRAVEL BEHAVIOR OF TRANSJATIM BUS CORRIDOR V

*Abhista Nanda Tri Ariesta*<sup>1\*</sup>, *Hera Widyastuti*<sup>2</sup>

<sup>1,2</sup> Department of Civil Engineering, Faculty of Civil Engineering, Planning and Geo-Engineering, Institut Teknologi Sepuluh Nopember  
Jl. Raya ITS, Keputih, Sukolilo, Surabaya, East Java, 60111, Indonesia

\*<sup>1</sup>[6012241123@student.its.ac.id](mailto:6012241123@student.its.ac.id), <sup>2</sup>[hera@ce.its.ac.id](mailto:hera@ce.its.ac.id)

### Abstract

Daily mobility in the Gerbangkertosusila region requires public transportation services that are accessible and able to serve diverse user groups effectively. TransJatim Bus Corridor V (Cakraningrat) plays a strategic role in connecting Bangkalan and Surabaya, serving passengers with varying travel characteristics. This study aims to identify user characteristics and travel behavior of TransJatim Bus Corridor V passengers and to analyze the relationship between sociodemographic characteristics and travel behavior. A quantitative approach was employed through a questionnaire survey of 100 regular passengers at Purabaya Terminal, Surabaya, conducted from September to November 2025. The data were analyzed descriptively and using Crosstabs analysis with the Chi-Square test. The results indicate that passengers are predominantly young individuals with relatively low income levels, primarily traveling for school and work purposes. Passenger travel patterns are generally characterized by short first-mile and last-mile distances, with walking as the dominant access mode. The Chi-Square test results reveal that only gender has a significant relationship with the mode of transport used prior to utilizing TransJatim, while other sociodemographic variables show no significant relationship with travel behavior. These findings suggest that passenger travel behavior is relatively homogeneous across sociodemographic groups, highlighting the importance of providing affordable and easily accessible public transport services to support daily mobility.

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**Keywords:** Public Transportation, TransJatim Bus, Customer Satisfaction, Service Quality

## **Introduction**

The Gerbangkertosusila agglomeration area, which includes Gresik, Bangkalan, Mojokerto, Surabaya, Sidoarjo, and Lamongan, is a metropolitan region in East Java Province characterized by high levels of population mobility (Herlynawati et al., 2024) (Utomo & Winarno, 2023). As the main economic and social center, Surabaya attracts substantial daily trips from surrounding areas, increasing the demand for an effective and integrated public transportation system (Thoyibah et al., 2016)(Musthofawi et al., 2022).

One of the corridors with high travel intensity is the Surabaya–Bangkalan corridor, particularly following the operation of the Suramadu Bridge, which significantly improved accessibility between Madura Island and Surabaya City (Azhar Alwi et al., 2024) (Putra & Salim, 2022) (Badan Pusat Statistik Kota Surabaya, 2023). This improved connectivity has encouraged a growing number of routine trips from Bangkalan to Surabaya for various purposes, such as work and education (Natalya & Rachmawati, 2024) (Syifa Nurfadillah & Agustina, 2023). Consequently, reliable public transportation services are required to accommodate daily cross-regional mobility (Saputra & Savitri, 2020)(Irsan Delu et al., 2025).

TransJatim Bus Corridor V (Cakraningrat) serves as one of the main public transportation services connecting Bangkalan Terminal and Purabaya Terminal (Amri et al., 2024) (Muh. Alip Azhar Alwi et al., 2024). This corridor accommodates passengers with diverse socioeconomic backgrounds and varying travel characteristics (Nur et al., 2021) (Dube, 2021). In this context, understanding user characteristics and passenger travel behavior is essential to describe public transport utilization patterns along the corridor (Sari et al., 2021).

User characteristics in public transportation studies are commonly examined through sociodemographic aspects, including gender, age, education level, occupation, and income, as well as travel behavior aspects such as trip purpose, access mode prior to using the main service, first-mile and last-mile travel patterns, travel distance, and travel companions (Tuames & Widiyastuti, 2019) (Ingrid et al., 2024) (Ilmiah et al., 2022). Analyzing these characteristics provides insights into passenger mobility patterns and their relationship with public transport usage (Nasmirayanti, 2017) (Syifa Nurfadillah & Agustina, 2023).

Although numerous studies have examined user characteristics and travel behavior in urban bus services, research that specifically analyzes the relationship between sociodemographic characteristics and travel behavior of TransJatim Bus Corridor V passengers remains limited (Ananda Upa et al., 2022). Therefore, this study focuses on identifying user characteristics and passenger travel behavior on TransJatim Bus Corridor V and analyzing the relationship between sociodemographic characteristics and travel behavior using statistical approaches (Wahyuni & Utomo, 2022). The findings of this study are expected to provide a clearer understanding of passenger mobility patterns along the corridor.

## **Research Methods**

This study employed a quantitative research approach using a questionnaire-based survey to examine user characteristics and travel behavior of passengers using TransJatim Bus Corridor V (Zhu et al., 2025). The study was conducted on TransJatim Bus Corridor V (Cakraningrat), which connects Bangkalan Terminal and Purabaya Terminal and serves daily cross-regional travel between Bangkalan and Surabaya (Setyarini & Iskandar, 2023)(Yang et al., 2023). Primary data were collected from passengers at Purabaya Terminal, Surabaya, between September and November 2025, targeting regular users of the service (Yusuf Bachtiar et al., 2022) (Ilmiah et al., 2022).

A purposive sampling technique was applied to select respondents who routinely used TransJatim Bus Corridor V (Irawan, 2024). A total of 100 respondents participated in the survey, which is considered sufficient for descriptive analysis and exploratory examination of relationships between categorical variables (Junianto, 2020)(Syahputra, 2019)(Altarifi et al., 2023). The

predominance of respondents aged 17–25 reflects the actual passenger composition during the survey period, particularly students and young workers who frequently rely on the service for daily commuting.

The analysis was conducted in two stages. First, descriptive statistical analysis was used to summarize sociodemographic characteristics and travel behavior patterns (Arisandi et al., 2025) (Thahir et al., 2018). Second, Crosstabulation analysis and the Chi-Square test were employed to examine the relationships between sociodemographic characteristics (gender, age, education, occupation, and income) and travel behavior variables (trip purpose, access mode, first-mile and last-mile patterns, travel distance, and travel companions), using a significance level of  $\alpha = 0.05$  (Nanda, 2023) (Rizqi Maysyarah Hadi et al., 2025).

### Research Results and Discussion

The sociodemographic characteristics of TransJatim Bus Corridor V passengers show a predominance of female users, accounting for 63.0% of respondents. In terms of age, most passengers are within the 17–25 year age group, representing 43.0% of the sample. Regarding education level, the majority of users are high school graduates (52.0%). Students constitute the largest occupational group at 37.0%, while more than half of the respondents (55.0%) report a monthly income below IDR 2,000,000. See Figure 1- 5 below.

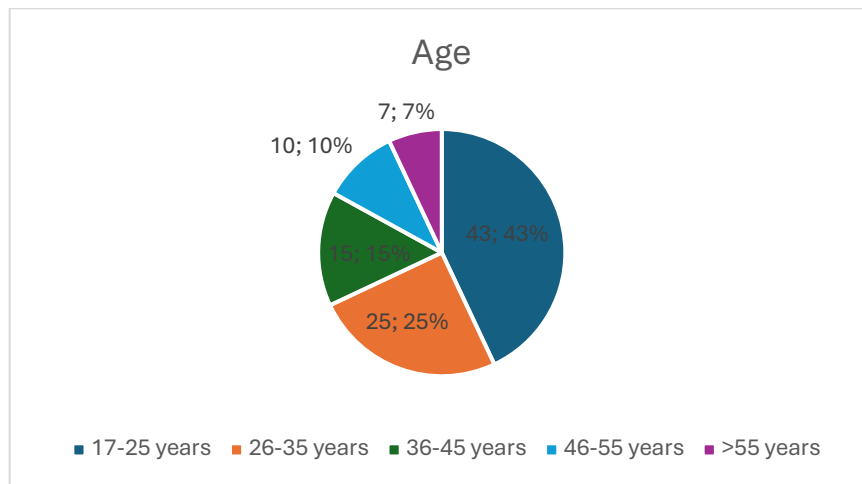


Figure 1. Age

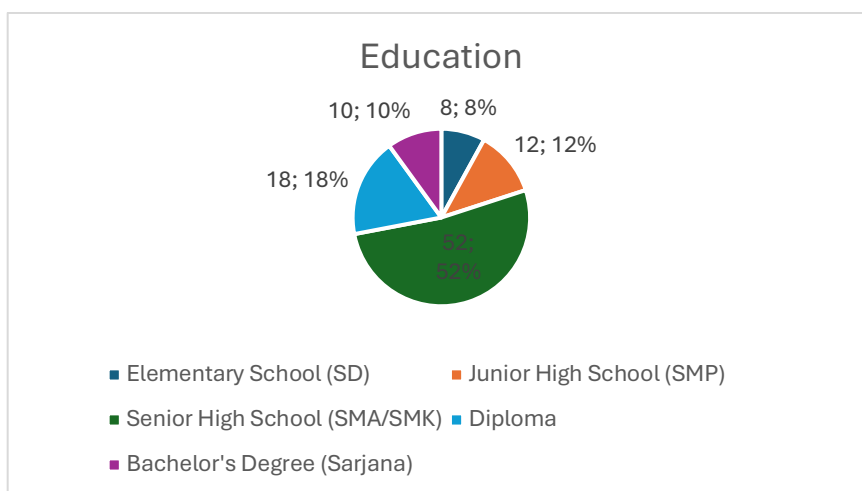


Figure 2. Education

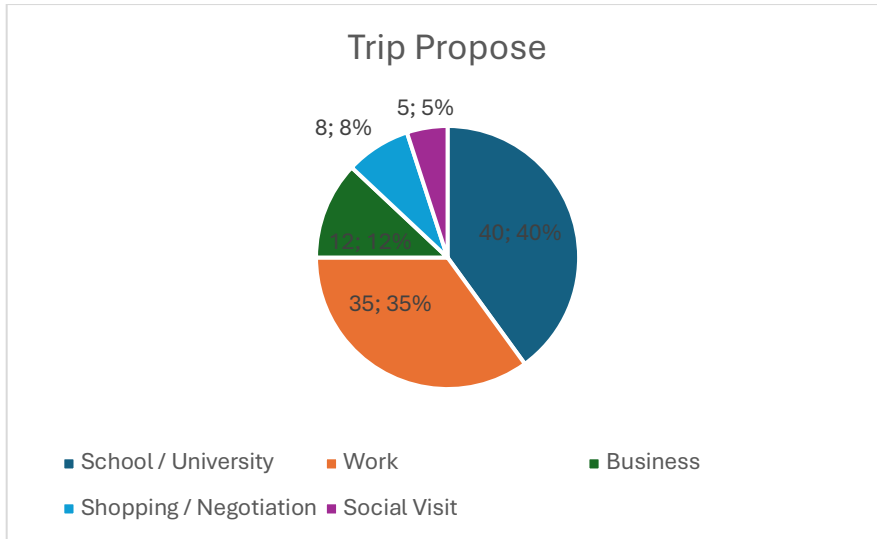


Figure 3. Trip Propose

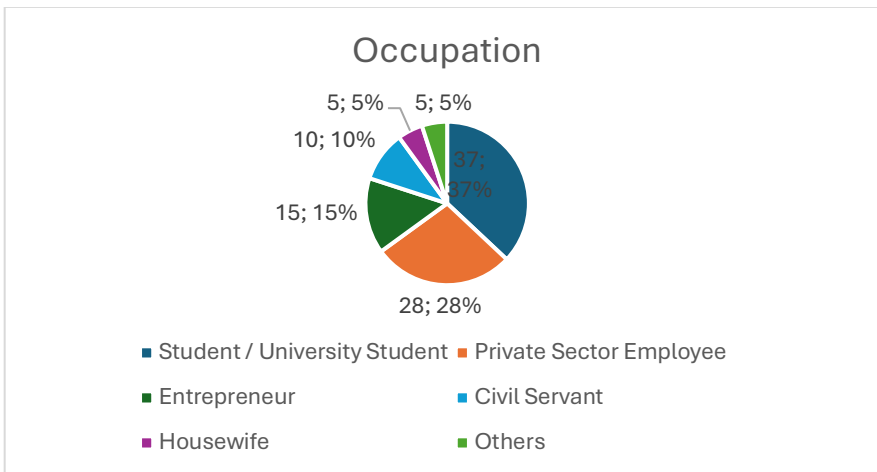


Figure 4. Occupation

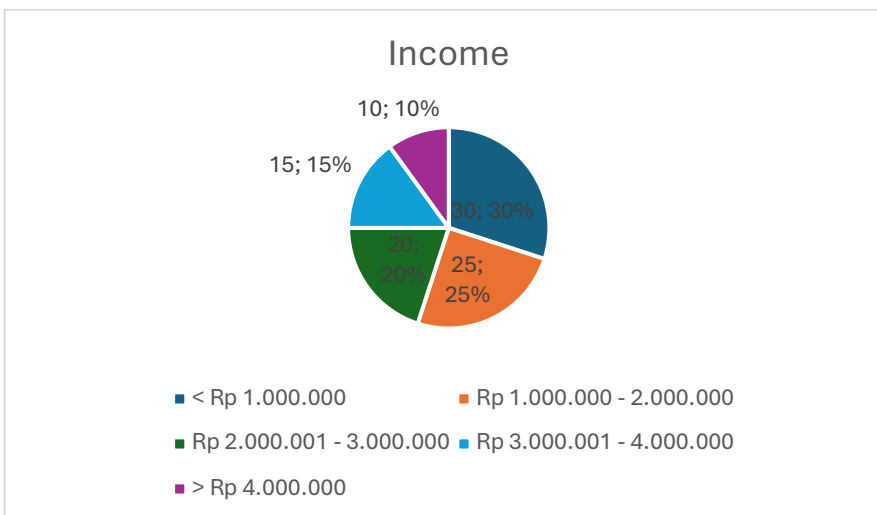


Figure 5. Income

The distribution presented in Figure 1-5 provides an overview of the sociodemographic profile of TransJatim Bus Corridor V passengers, which forms the basis for further analysis of travel behavior characteristics.

The travel behavior characteristics of TransJatim Bus Corridor 5 passengers including the modes used prior to switching, connection modes for home-to-shelter and shelter-to-destination segments, travel distances, travel companions, and walking motivations are presented in Figure 6-10. Prior to transitioning to TransJatim, the majority of passengers utilized city public transit at 45.0%, followed by motorcycle taxis at 30.0%, while the home-to-shelter connection is predominantly dominated by walking at 50.0% for distances of less than 1.0 km. Similarly, for the shelter-to-destination leg, walking remains the primary mode at 45.0% for distances under 1.0 km (55.0%). The majority of passengers travel alone (42.0%), with the primary motivation for selecting this service being the affordable fare of Rp 5,000 (60.0%), reflecting an efficient multimodal pattern among the youth demographic in the Surabaya–Bangkalan corridor (Kim et al., 2019).

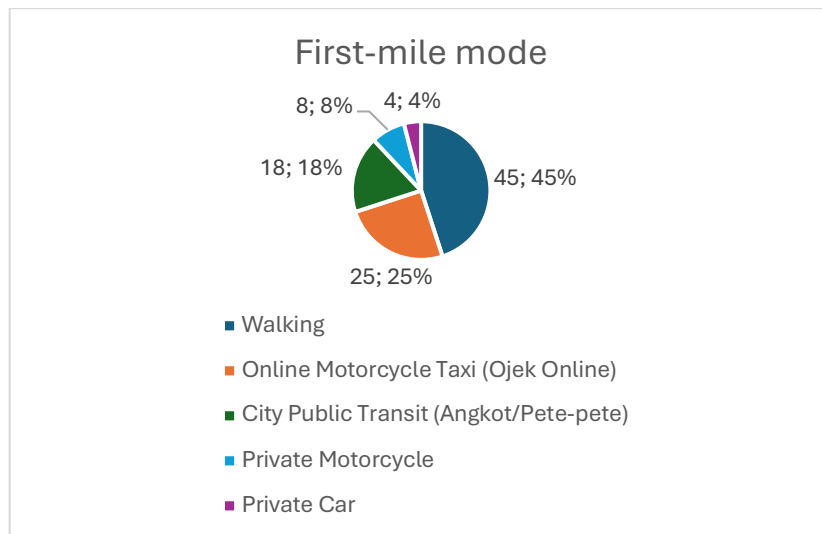


Figure 6. First- mile mode

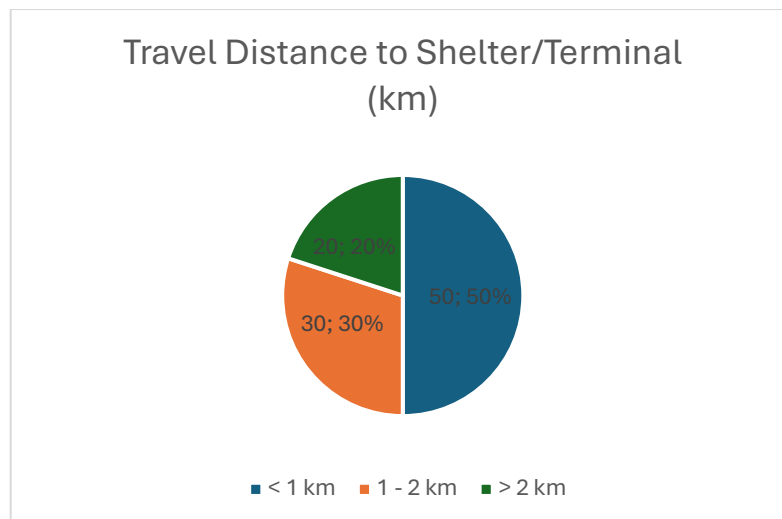


Figure 7. Travel distance to shelter

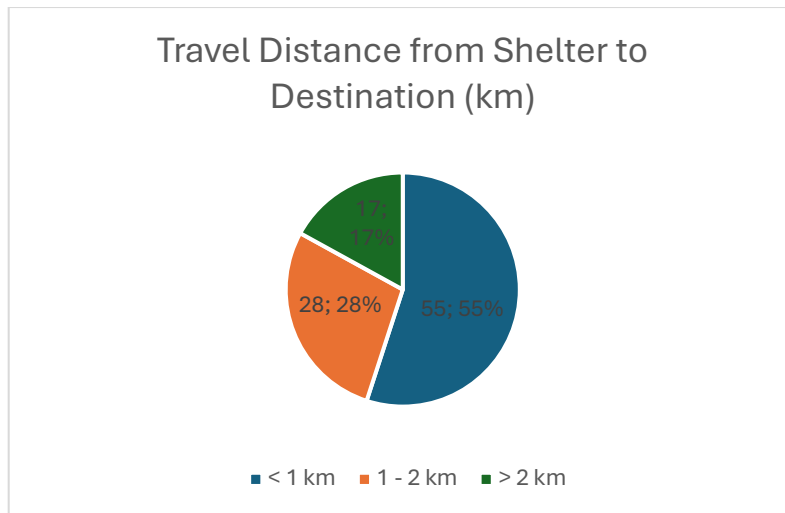


Figure 8. Travel distance to destination

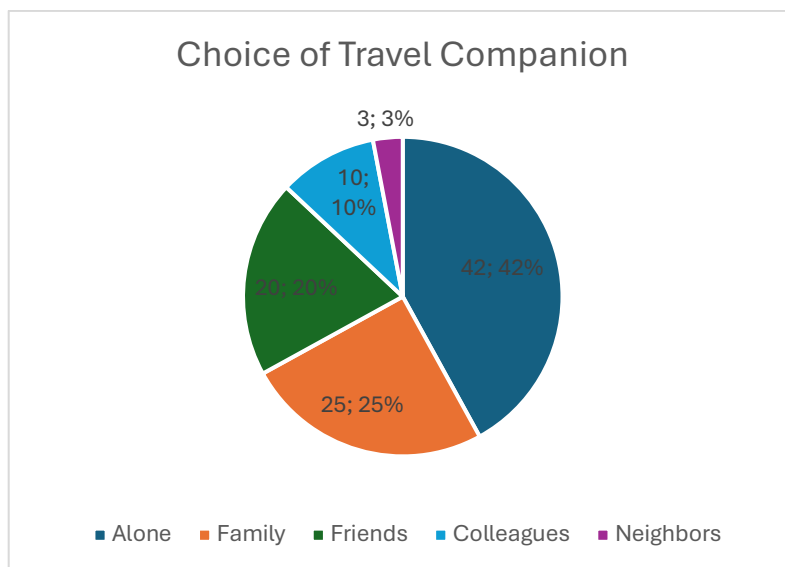


Figure 9. Choice of travel Companion

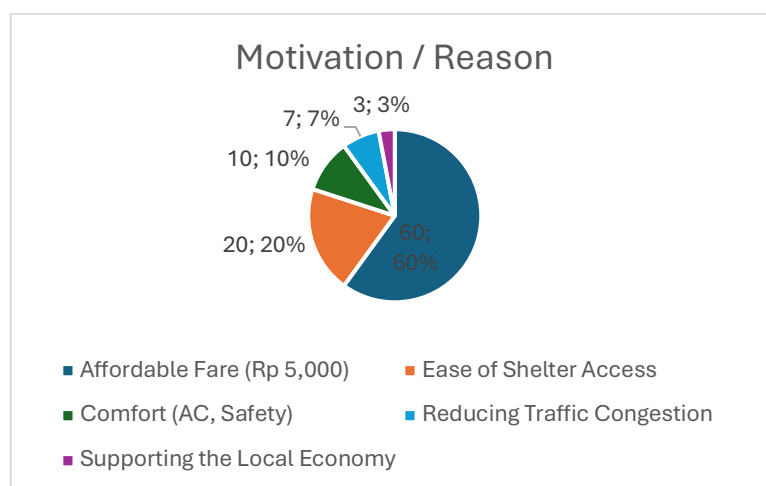


Figure 10. Reason

The analysis of the relationship between passenger characteristics such as gender, age, education, occupation, income, and trip purpose and travel behavior characteristics can be conducted using crosstabs analysis with the Chi-Square test (Musthofawi et al., 2022) (Syifa

Nurfadillah & Agustina, 2023). This Chi-Square test is employed to examine the significance of the relationship between two categorical variables, such as between gender and travel mode (Rudianto, 2024). The interpretation of the Chi-Square test results is based on the p-value; if the p-value is less than 0.05, there is a significant relationship between the tested variables, whereas a p-value greater than 0.05 indicates that no significant relationship exists (Ananda Upa et al., 2022) (Reizsky Reynaldy et al., 2022) (Salsabila & Namara, 2020). Consequently, this analysis is essential in determining which characteristic variables influence passenger travel behavior, such as mode choice, travel distance, and travel motivation.

Table 1. The relationship between passenger characteristics and travel behavior characteristics

Sociodemographic Variable	Travel Behavior Variable	$\chi^2$	df	P-value	Significance
<b>Age</b>	Previous transport mode before TransJatim	5.842	12	0.923	Not significant
Age	Home–shelter connection mode	11.267	12	0.504	Not significant
Age	Shelter–destination connection mode	9.731	12	0.642	Not significant
Age	Distance from home to shelter	6.384	9	0.702	Not significant
<b>Gender</b>	Previous transport mode before TransJatim	9.605	4	<b>0.048</b>	<b>Significant</b>
Gender	Home–shelter connection mode	9.256	4	0.055	Not significant
Gender	Shelter–destination connection mode	6.818	4	0.146	Not significant
<b>Education level</b>	Previous transport mode before TransJatim	8.732	12	0.726	Not significant
<b>Occupation</b>	Previous transport mode before TransJatim	11.384	12	0.497	Not significant
<b>Income</b>	Previous transport mode before TransJatim	10.947	12	0.535	Not significant

Table 1 presents the results of the Chi-Square analysis examining the relationships between sociodemographic characteristics and travel behavior variables. The findings indicate that gender is the only sociodemographic variable with a statistically significant relationship with the mode of transport used prior to accessing TransJatim Bus Corridor V ( $\chi^2 = 9.605$ ;  $p = 0.048$ ). Other variables, including age, education level, occupation, income, trip purpose, access modes, travel distance, travel companions, and walking motivation, do not show statistically significant relationships ( $p > 0.05$ ) (Rozandi et al., 2019) (Pontes et al., n.d.).

The absence of significant relationships for most sociodemographic variables suggests that passenger travel behavior on TransJatim Bus Corridor V is relatively homogeneous across different user groups (Anunciado et al., 2021) (Yang et al., 2023). From a transportation behavior perspective, this condition can be explained by the fact that travel behavior in corridor-based public transport systems is largely shaped by system-level characteristics, such as fixed routes, fixed stops, scheduled services, and uniform fare structures, which constrain individual behavioral choices (Luluk Nafilatur Rizqi et al., 2023) (Reizsky Reynaldy et al., 2022).

This finding is consistent with established travel behavior theories and previous studies on urban and intercity bus services, which indicate that sociodemographic factors tend to play a secondary role once users have decided to use a particular public transport service. In routine commuting corridors, access patterns and travel behavior often converge across different population groups due to similar spatial conditions and service availability.

In contrast, the significant relationship between gender and previous transport mode suggests that gender-related differences may influence access preferences prior to entering the public transport system, potentially related to differences in mobility patterns, vehicle availability, or safety perceptions (Reizsky Reynaldy et al., 2022). However, the lack of gender-related significance in first-mile and last-mile connection modes indicates that once passengers are within the TransJatim system, their travel behavior becomes more uniform.

Overall, these results demonstrate that travel behavior on TransJatim Bus Corridor V is influenced more by system structure and spatial accessibility than by individual sociodemographic differences, highlighting the importance of analyzing user characteristics and travel behavior together to better understand public transport utilization in cross-regional commuting corridors.

## Conclusion

Overall, the research demonstrates that passengers of TransJatim Bus Corridor 5 are dominated by the youth age group with secondary education levels, consisting primarily of students and workers with relatively low incomes. These passengers utilize the service mainly for school and work purposes, following a simple multimodal travel pattern: distances from home to shelter and from shelter to destination are generally less than 1.0 km, largely covered by walking, frequently traveling alone, and heavily influenced by affordable fares and easy access to bus stops.

Crosstabs analysis using the Chi-Square test reveals that among all tested socio-economic characteristics, only gender has a significant relationship with the mode of transport used before utilizing TransJatim. In contrast, age, education level, occupation, income, and trip purpose show no meaningful relationship with the previous mode, connecting modes, travel distance, choice of travel companions, or walking motivation. Therefore, it can be concluded that passenger travel behavior is relatively uniform across socio-economic groups, generally reflecting a strong preference for public transportation that is low-cost, easily accessible, and supportive of daily mobility.

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