

Public Transport Accessibility, Service Quality, and Commuter Satisfaction: A Comparative Qualitative Study of Indonesian Medium-Sized Cities

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ABSTRACT: Public transport is essential for sustainable urban mobility, yet its effectiveness depends on both physical accessibility and service quality. This study examines how accessibility influences commuter satisfaction in Indonesian medium-sized cities, focusing on the mediating role of service quality. Using a qualitative descriptive approach with a comparative multiple-case design, semi-structured interviews were conducted with fourteen public transport users of varying ages, occupations, and travel frequencies, and analyzed through thematic coding with cross-case comparison. Findings show that accessibility is multidimensional, covering network coverage, walking distance, first- and last-mile connectivity, route integration, frequency, operating hours, affordability, information, and infrastructure for vulnerable users. Accessibility was rated higher in central areas than peripheral ones due to weaker feeder connections. Service quality—particularly reliability, punctuality, comfort, safety, and staff assistance—strongly shaped satisfaction, with first- and last-mile conditions influencing overall travel experience. Priorities differed across commuter groups, with students valuing affordability, workers valuing reliability, shift workers needing extended hours, and older adults needing accessible infrastructure. The study concludes that satisfaction results from the interaction between accessibility and service quality, not accessibility alone. It recommends improving reliability, feeder integration, real-time information, pedestrian infrastructure, and inclusive policies to strengthen public transport planning in Indonesian medium-sized cities.

Keywords: Public Transport Accessibility, Service Quality, Commuter Satisfaction, First- And Last-Mile Connectivity, Sustainable Urban Mobility, Indonesian Medium-Sized Cities



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INTRODUCTION

Public transport has become a fundamental component of sustainable urban mobility because it facilitates access to employment, education, healthcare, and other essential services while reducing traffic congestion, environmental impacts, and dependence on private vehicles. As urbanization

continues to accelerate in many developing countries, particularly in Southeast Asia, medium-sized cities are experiencing increasing travel demand alongside rapid spatial expansion. These cities face unique transportation challenges because their public transport systems often evolve more slowly than urban growth, resulting in disparities in service accessibility and travel opportunities. Consequently, improving public transport accessibility has become a strategic priority for achieving inclusive, efficient, and environmentally sustainable urban development. Rather than being viewed solely as the physical distance between residential areas and transit stops, accessibility is increasingly understood as a multidimensional concept encompassing spatial, temporal, operational, financial, informational, and social dimensions that collectively determine whether people can conveniently and reliably reach their destinations.

Recent literature has substantially broadened the conceptualization of public transport accessibility. Contemporary studies describe accessibility as the combined outcome of service availability, network connectivity, multimodal integration, transfer quality, and users' perceived ease of accessing transport services (Bauchinger et al., 2021; Mitropoulou et al., 2020; Rodier et al., 2020; Rongen et al., 2022; Tang & Zhou, 2024). Within sustainable urban mobility frameworks, accessibility extends beyond fixed-route transit to include first- and last-mile connections supported by walking, cycling, feeder buses, mobility hubs, micromobility, and Mobility-as-a-Service (MaaS) concepts. Hub-and-spoke transport planning and multimodal integration are increasingly recognized as effective approaches for improving connectivity between origins, transit interchanges, and final destinations while expanding the functional catchment area of public transport systems (Rongen et al., 2022; Venter, 2020). Accordingly, accessibility should be interpreted not merely as infrastructure provision but as an integrated transport experience shaped by both physical and operational characteristics of urban transport systems.

Although many cities have invested in improving public transport infrastructure and operations, significant challenges remain in ensuring that accessibility translates into positive commuter experiences. Infrastructure expansion alone does not guarantee convenient travel when passengers continue to experience long walking distances, inconvenient transfers, unreliable schedules, limited operating hours, or inadequate travel information. These shortcomings are particularly evident in medium-sized cities, where transport networks often exhibit uneven spatial coverage and weaker multimodal integration than those of major metropolitan areas. Consequently, commuters frequently depend on supplementary transport modes, including motorcycle taxis, bicycles, or informal feeder services, to complete their journeys. Such conditions indicate that accessibility is influenced not only by network design but also by the quality of operational services that support seamless travel throughout the entire journey.

Previous research has proposed numerous approaches to improve accessibility through enhanced multimodal integration. Feeder buses, demand-responsive transport (DRT), autonomous mobility-on-demand services, shared mobility hubs, and ride-hailing integration have been identified as promising mechanisms for strengthening first- and last-mile connectivity and increasing the attractiveness of public transport (Aalipour & Khani, 2024; Bhatnagar et al., 2022; Carrese et al., 2023; Chatterjee & Paul, 2023; Klinkhardt et al., 2023; Pereira et al., 2023; Stevens et al., 2022). When these complementary services are effectively coordinated through integrated fares,

synchronized schedules, and supportive policy frameworks, they can expand accessibility, improve ridership, and reduce dependence on private vehicles (Reck & Axhausen, 2020; Yashiro & Kato, 2020). Conversely, fragmented implementation or inadequate policy coordination may intensify competition between transport providers, encourage private vehicle use, and weaken the overall effectiveness of public transport systems. These contrasting findings demonstrate that improving accessibility requires not only physical infrastructure but also coherent governance, operational coordination, and user-centered service design.

Beyond accessibility itself, commuter satisfaction has emerged as an important indicator of public transport performance because it reflects passengers' evaluations of their travel experiences. Existing studies consistently demonstrate that satisfaction is closely associated with service reliability, transfer convenience, waiting time, affordability, travel information, and perceived safety (Venter, 2020; Rodier et al., 2020; Lin et al., 2022; Yashiro & Kato, 2020). Reliable feeder connections, integrated fare systems, and accurate real-time passenger information reduce travel uncertainty and improve users' overall perceptions of service quality. In addition, equity-oriented policies, including targeted subsidies and integrated pricing strategies, have been shown to enhance accessibility for disadvantaged populations while promoting more inclusive public transport systems (Nesmachnow & Hipogrosso, 2024). These findings suggest that accessibility and service quality are mutually reinforcing components that collectively shape commuter satisfaction and continued public transport use.

Despite these advances, important knowledge gaps remain. Much of the existing literature has concentrated on large metropolitan regions or has relied predominantly on quantitative accessibility indicators such as travel time, network coverage, or spatial proximity. Comparatively fewer studies have examined how commuters themselves perceive accessibility and how these perceptions interact with service quality to influence satisfaction, particularly in medium-sized cities of developing countries. Moreover, research conducted in Southeast Asia remains relatively limited despite the region's distinctive transport characteristics, including rapid urban growth, mixed formal and informal transport systems, diverse governance arrangements, and substantial reliance on feeder services (Coenegrachts et al., 2021; Goyal & Rani, 2024). Existing studies therefore call for more context-specific investigations capable of capturing local travel behavior, institutional conditions, and social equity considerations within rapidly changing urban environments.

This study addresses these gaps by examining public transport accessibility, service quality, and commuter satisfaction in Indonesian medium-sized cities through a qualitative comparative approach. Rather than limiting accessibility to objective spatial indicators, the study adopts a multidimensional perspective that incorporates service availability, network coverage, first- and last-mile accessibility, route connectivity, operating hours, affordability, information availability, pedestrian infrastructure, and accessibility for vulnerable users. Simultaneously, it explores how commuters evaluate service quality through dimensions such as reliability, comfort, cleanliness, safety, staff behavior, and travel information, and how these evaluations influence overall satisfaction. By drawing on the lived experiences of commuters with diverse demographic and

occupational backgrounds, the study provides a richer understanding of the mechanisms linking accessibility and commuter satisfaction within the Indonesian context.

The objective of this research is to explore commuters' perceptions of public transport accessibility, examine how service quality influences commuter satisfaction, identify the accessibility dimensions that most strongly shape travel experiences, and formulate policy recommendations for improving public transport services in Indonesian medium-sized cities. The study is guided by the proposition that higher perceived accessibility contributes to greater commuter satisfaction and that service quality mediates this relationship. Its principal novelty lies in integrating multidimensional accessibility, perceived service quality, and commuter satisfaction within a qualitative comparative framework focused specifically on Indonesian medium-sized cities. By combining evidence from diverse commuter groups, the study contributes to the literature on sustainable urban mobility by extending understanding beyond conventional spatial accessibility measures and offering practical insights for designing more integrated, equitable, and user-centered public transport systems.

METHOD

Research Design

This study adopted a qualitative descriptive approach using a comparative multiple-case study design to explore how public transport accessibility influences commuter satisfaction in Indonesian medium-sized cities. The qualitative approach was selected because the research seeks to understand commuters' lived experiences, perceptions, and interpretations of accessibility and service quality rather than to quantify causal relationships. Public transport accessibility is recognized as a multidimensional phenomenon shaped by spatial, operational, informational, social, and institutional factors that are best examined through in-depth qualitative inquiry.

A comparative case study design provides an opportunity to investigate similarities and differences across multiple urban contexts while preserving the complexity of local transport systems. Previous methodological studies have shown that comparative qualitative designs enable researchers to examine how urban form, governance arrangements, transport policies, and infrastructure interact to shape accessibility and commuter experiences (Azpeitia et al., 2017; Montes et al., 2024). Cross-case comparison also facilitates the development of transferable theoretical propositions while acknowledging contextual diversity (Palencia et al., 2016). Accordingly, this research compares commuter experiences across Indonesian medium-sized cities to identify common accessibility challenges and context-specific service issues.

The study was guided by an interpretivist paradigm, which assumes that accessibility and commuter satisfaction are socially constructed through individual travel experiences and interactions with transport systems. Rather than treating accessibility solely as an objective spatial measure, the study recognizes that commuters evaluate accessibility through daily encounters with transport

infrastructure, operational performance, transfer experiences, affordability, and the surrounding built environment.

Research Setting

The research focused on Indonesian medium-sized cities that operate active public transport systems and exhibit varying levels of service development. Medium-sized cities were selected because they represent an important yet understudied segment of Indonesia's urban system, where increasing travel demand often exceeds the pace of transport system improvement.

Cities were selected based on several criteria: (1) the presence of an operational public transport network; (2) identifiable urban activity centers; (3) evidence of commuter travel demand; (4) availability of public transport routes and stops; (5) variation in network characteristics and service provision; and (6) feasibility of accessing commuters and relevant stakeholders. This comparative setting enabled examination of how different urban and operational conditions influence perceived accessibility and commuter satisfaction.

Participants and Sampling Strategy

Purposive sampling was employed to recruit participants with direct experience using public transport. This sampling strategy ensured that respondents possessed sufficient knowledge to discuss accessibility, service quality, and travel experiences.

Fourteen commuters participated in the study, representing diverse demographic and occupational backgrounds, including students, private-sector employees, civil servants, teachers, entrepreneurs, healthcare workers, technicians, consultants, freelancers, lecturers, market traders, and retirees. Participants also varied in age, travel frequency, and travel purposes, allowing the study to capture a broad range of commuter perspectives.

Variation in participant characteristics enhanced the richness of qualitative data and supported cross-case comparison among different commuter groups.

Data Collection

Primary data were collected through semi-structured interviews. This interview format allowed participants to describe their travel experiences in their own words while ensuring that all interviews addressed common research topics.

Interview questions explored:

- accessibility to public transport services;
- walking distance to stops or stations;

- first- and last-mile experiences;
- route connectivity;
- service frequency;
- operating hours;
- fare affordability;
- passenger information;
- safety and comfort;
- service reliability;
- overall commuter satisfaction; and
- recommendations for service improvement.

Interviews were conducted individually, audio-recorded with participant consent, and transcribed verbatim. The semi-structured format enabled participants to elaborate on issues that emerged during the conversation while maintaining consistency across interviews.

Data Analysis

Interview transcripts were analyzed using thematic analysis. This method was selected because it provides a systematic process for identifying, coding, organizing, and interpreting recurring patterns of meaning within qualitative data. In transportation research, thematic analysis has been widely applied to examine commuter experiences, accessibility barriers, transfer quality, safety perceptions, and social dimensions of mobility (Ayala et al., 2022; Carvajal & Mazo, 2019).

The analytical process consisted of six stages. First, all interview transcripts were read repeatedly to achieve familiarity with the data. Second, initial codes were generated to capture meaningful statements related to accessibility, service quality, and commuter satisfaction. Third, similar codes were grouped into broader categories through axial coding. Fourth, categories were refined into overarching themes representing the principal dimensions of commuter experience. Fifth, cross-case comparisons were conducted to identify similarities and differences among participant groups. Finally, themes were interpreted in relation to the existing literature on public transport accessibility and commuter satisfaction.

The thematic approach facilitated the identification of issues such as first- and last-mile accessibility, walking experiences, service reliability, passenger information, inclusivity, and perceptions of transport quality. Consistent with previous qualitative transport studies, thematic analysis supported the development of user-centered interpretations and policy-relevant insights concerning accessibility barriers and everyday commuter experiences (Ayala et al., 2022).

Qualitative data management and coding may be supported by software such as NVivo, ATLAS.ti, or MAXQDA to improve coding consistency, organize themes, and facilitate cross-case comparison.

Ensuring Research Trustworthiness

The trustworthiness of the study was established using the principles of credibility, dependability, confirmability, and transferability.

Credibility was strengthened through methodological transparency, systematic coding procedures, prolonged engagement with the interview data, and continuous comparison among participant accounts. Maintaining a clear audit trail of coding decisions and theme development is widely recommended to enhance the credibility of qualitative transport research (Ayala et al., 2022; Carvajal & Mazo, 2019; Palencia et al., 2016).

Dependability was supported by documenting each stage of data collection and analysis, including interview protocols, coding frameworks, analytical memos, and decisions made throughout the research process. Such documentation enables the analytical process to be reviewed and replicated by other researchers.

Confirmability was enhanced through triangulation of interview evidence and systematic linkage between participant quotations, emerging codes, and final themes. Maintaining explicit evidence trails reduces researcher bias and demonstrates that interpretations are grounded in empirical data rather than personal assumptions (Ayala et al., 2022; Carvajal & Mazo, 2019).

Transferability was addressed through rich descriptions of the study setting, participant characteristics, and urban transport context. Detailed contextual information allows readers to assess the applicability of the findings to other medium-sized cities with similar transport characteristics (Bosisio & Jiménez, 2023). Cross-case comparisons further strengthen transferability by distinguishing findings that appear consistently across cases from those that are context-specific.

Finally, the study acknowledges that qualitative thematic analysis involves interpretive judgment. Although thematic analysis is widely recognized as an effective approach for investigating commuter experiences, previous studies also recommend complementary qualitative approaches, such as phenomenology or narrative inquiry, when the objective is to capture deeper lived experiences (Ayala et al., 2022; García, 2018; Carvajal & Mazo, 2019). Nevertheless, thematic analysis combined with a comparative case study design was considered the most appropriate methodology because it balances analytical depth with the ability to generate transferable insights regarding public transport accessibility, service quality, and commuter satisfaction across Indonesian medium-sized cities.

RESULT AND DISCUSSION

Participant Characteristics and Analytical Overview

The analysis was based on interviews with fourteen public transport users aged between 20 and 61 years. The participants represented a diverse range of occupations, including students, private

employees, a civil servant, a teacher, an entrepreneur, a market trader, a nurse, a lecturer, a technician, a freelancer, a consultant, and a retiree. Their frequency of public transport use ranged from daily travel to one or two journeys per week. This variation provided a broad basis for examining how accessibility, service quality, and commuter satisfaction differed according to employment conditions, trip purposes, age, and travel frequency.

The thematic analysis generated three principal themes: perceived public transport accessibility, perceived service quality, and commuter satisfaction. These themes were interconnected rather than independent. Participants generally evaluated accessibility through their entire travel chain, beginning with the journey from home to the first stop, continuing through the public transport trip and any required transfers, and ending with access from the final stop to the destination. Service quality influenced how commuters interpreted these accessibility conditions, while satisfaction reflected the cumulative outcome of both accessibility and service performance.

Perceived Public Transport Accessibility

Network Coverage and Spatial Reach

Participants generally perceived public transport accessibility as stronger in central urban areas than in peripheral neighborhoods. AR, SP, HT, and LN reported that public transport routes provided relatively convenient connections to campuses, schools, markets, and other central destinations. In contrast, NP explained that services were adequate in the city center but remained limited in peripheral areas, requiring additional transport to complete some journeys. FH similarly observed that although network coverage had improved, not all residential areas were directly connected.

These findings indicate that spatial coverage was a foundational dimension of perceived accessibility. A transport route was considered accessible when it connected residential areas with employment, education, commercial facilities, and public services without requiring excessive detours or multiple transfers. This pattern is consistent with studies that identify network reach, travel time, and the ability to access urban opportunities as central components of public transport accessibility (Ibrahim et al., 2023; Majumdar et al., 2020; Malabanan et al., 2023; Minhans et al., 2014).

However, broader coverage did not automatically produce positive accessibility perceptions. Participants also considered whether services were sufficiently frequent, reliable, and well integrated. The evidence therefore supports the proposition that network coverage functions as a necessary but insufficient condition for accessibility. Previous studies similarly show that high spatial coverage may not improve perceived access when services are infrequent, indirect, or unreliable (Bhatnagar et al., 2022).

Walking Access and First-Mile Conditions

Walking access to public transport stops varied considerably. AR required approximately seven to ten minutes to reach a stop, while HT reported a five-minute walk. MR walked for about fifteen minutes, which remained manageable under ordinary conditions but became inconvenient when carrying goods. DS faced the most substantial first-mile barrier, as the distance from home to the first stop was almost two kilometers. She therefore relied on a motorcycle taxi for the initial stage of the journey.

The quality of pedestrian infrastructure also shaped perceived accessibility. AR noted that sidewalks were available but were sometimes obstructed by parked vehicles or street vendors. TI emphasized the need for more seating along pedestrian routes, particularly for older passengers. EJ identified inadequate lighting around some stops at night, while LN noted that several shelters did not provide sufficient protection during rain.

These experiences demonstrate that first-mile accessibility was influenced not only by distance but also by walking comfort, safety, physical condition, weather protection, and the availability of supporting infrastructure. This finding corresponds with literature that positions walking, cycling, micromobility, and feeder services as integral components of first- and last-mile accessibility (Aalipour & Khani, 2024; Carrese et al., 2023;).

Participants also used alternative feeder modes to overcome first-mile limitations. BW cycled to the stop because it was faster than walking, although limited bicycle parking reduced the practicality of this option. DS used a motorcycle taxi, while NP frequently combined public transport with other modes to reach changing work locations. These findings indicate that complementary modes can expand the practical catchment area of fixed-route transport, but their contribution depends on integration, affordability, parking facilities, and transfer convenience.

Route Connectivity and Transfer Experience

Route connectivity emerged as another major accessibility concern. FH reported that transfers were sometimes confusing because interchange points lacked clear information. MR emphasized the inconvenience of changing vehicles multiple times, while RK stated that modal transfers increased total travel time. EJ similarly identified intermodal integration and real-time information as priority areas for improvement.

Participants therefore evaluated transfers through both physical and informational dimensions. A transfer was perceived as convenient when routes were coordinated, interchange points were easy to navigate, and passengers could obtain reliable information about connecting services. Conversely, unclear transfer arrangements increased uncertainty and reduced overall accessibility.

These findings support previous research identifying transfer penalties, waiting time, interchange design, and fare integration as major determinants of perceived accessibility and satisfaction (Yashiro & Kato, 2020). They also reinforce the role of multimodal hubs and feeder services in

extending public transport catchment areas and facilitating more seamless journeys (Rongen et al., 2022).

Service Frequency and Operating Hours

Service frequency varied by time of day. AR reported that vehicles arrived relatively often during peak periods but that waiting times increased to approximately fifteen or twenty minutes outside those periods. HT found that early-morning services were useful for market travel but observed that frequencies declined around midday. LN considered morning services sufficiently reliable for commuting to school but wanted shorter intervals in the afternoon.

Operating hours were particularly important for YN, who worked rotating shifts. Public transport did not operate throughout the night, requiring her to use online transport for night shifts. Her experience illustrates how temporal availability can exclude commuters whose working hours fall outside conventional service periods.

These findings show that accessibility is temporal as well as spatial. A route may pass near a passenger's home and destination, but it remains inaccessible when services are unavailable at the required time. Previous studies similarly report that extended service windows and higher frequencies broaden effective accessibility, particularly for transit-dependent users and residents of less densely served areas (Andari et al., 2022).

The interview evidence also shows that frequency and reliability must be considered jointly. Frequent service reduced waiting time, but irregular arrivals still created uncertainty. This finding is consistent with research suggesting that nominally frequent services may still generate poor accessibility perceptions when punctuality is weak (Schorung, 2022).

Affordability and Inclusive Accessibility

Affordability was one of the most consistently positive dimensions. AR, SP, FH, BW, and TI explicitly described fares as inexpensive or affordable. For students and lower-frequency users, low fares reduced the financial burden of travel and made public transport preferable to private vehicles or online transport.

Nevertheless, accessibility remained uneven across commuter groups. CM observed that facilities for older adults had improved but that some approaches to stops were steep. TI valued staff assistance but needed more seating along pedestrian routes. LN noted that staff were helpful to older passengers. These accounts indicate that inclusive accessibility depends on both physical design and human assistance.

The literature similarly emphasizes that subsidies, fare integration, and inclusive service policies can improve accessibility for disadvantaged users, while uneven implementation may reinforce mobility inequalities (Nesmachnow & Hipogrosso, 2024).

Perceived Service Quality

Reliability, Punctuality, and Waiting Time

Reliability was the most frequently reported weakness. AR wanted more accurate timetables, FH described travel times as inconsistent, RK reported delays of approximately ten minutes, and EJ considered departure consistency insufficient. SP further noted that vehicle locations displayed in the mobile application did not always correspond with actual conditions.

These findings demonstrate that reliability shaped both service quality and perceived accessibility. Passengers were more satisfied when they could predict arrival and departure times, while irregular service increased uncertainty and made trip planning difficult. This supports previous studies identifying punctuality, schedule adherence, and dependable connections as leading determinants of service quality and satisfaction (Adenigbo et al., 2023; Hamdan et al., 2022).

The importance of reliability was particularly evident in multimodal journeys. When first-mile services, feeder routes, or transfers were delayed, the disruption affected the entire trip. Thus, even a comfortable main service could be evaluated negatively if supporting connections were unreliable.

Comfort, Cleanliness, and Crowding

Participants generally evaluated vehicle comfort positively. MR reported that air conditioning functioned well and that vehicles were clean. YN also described services during normal operating hours as clean and safe. BW and CM observed improvements in vehicle comfort and stop organization.

However, comfort deteriorated during crowded periods. DS reported that evening services were often full, requiring passengers to stand. LN also indicated that shelter quality varied, particularly during rainy conditions. These findings demonstrate that comfort included vehicle interiors, passenger density, seating availability, shelter protection, and the broader waiting environment.

This pattern aligns with previous studies showing that tangible service attributes, including cleanliness, vehicle condition, aesthetics, and interior comfort, are strongly associated with passenger satisfaction (Adenigbo et al., 2023; Hamdan et al., 2022).

Safety, Security, and Staff Assistance

Most participants felt safe while using public transport. FH, YN, EJ, and TI described the service as generally secure. Staff behavior was also evaluated positively. LN noted that staff assisted older passengers, while TI reported receiving help when boarding and alighting.

Nevertheless, safety conditions were not uniform throughout the journey. EJ raised concerns about insufficient lighting at some stops at night, while AR described obstructed sidewalks. These observations indicate that safety should be understood across the whole travel chain, including access routes, waiting areas, vehicles, and transfer points.

The findings correspond with studies that identify onboard security, station safety, and safe access and egress as influential dimensions of public transport quality (Adenigbo et al., 2023; Andari et al., 2022).

Passenger Information

Passenger information emerged as a critical but inconsistent service-quality dimension. SP appreciated the availability of an application but questioned the accuracy of vehicle-position data. FH found transfer information inadequate, while EJ prioritized real-time travel information as a key improvement.

Accurate information helped commuters estimate departure times, manage transfers, and reduce uncertainty. Inaccurate information had the opposite effect, weakening trust in the system even when services were physically available. This finding supports previous research identifying real-time passenger information as central to perceived reliability, decision-making, transfer convenience, and satisfaction (Adebisi et al., 2022; Verbich et al., 2017).

Commuter Satisfaction and Cross-Case Patterns

Overall satisfaction ranged from moderate to high. AR, LN, HT, CM, BW, SP, and TI expressed relatively positive evaluations, mainly because of affordable fares, safety, cleanliness, and comfort. FH, RK, EJ, NP, and YN reported moderate satisfaction, with concerns focused on reliability, operating hours, peripheral coverage, and information accuracy.

The results show that commuter satisfaction was cumulative. Physical proximity to a stop did not ensure satisfaction when frequencies were low or transfers were inconvenient. Similarly, comfortable vehicles did not fully compensate for limited route coverage or unreliable schedules. Accessibility and service quality therefore operated together in shaping overall experience.

Distinct patterns emerged across commuter groups. Students prioritized affordability, frequency, and travel information. Office workers focused on reliability and first-mile connectivity. Shift workers emphasized operating hours. Older adults valued staff assistance, seating, safe pedestrian routes, and gentle access to stops. Entrepreneurs and mobile workers were particularly concerned with route integration and the need for additional connecting modes.

The findings indicate that no single service-quality dimension was universally dominant in every context. Reliability was the most consistent operational concern, but comfort, information, safety, affordability, and accessibility varied in importance according to trip purpose and commuter

characteristics. This contextual variation is consistent with prior research showing that the relative influence of service attributes depends on transport mode, city conditions, governance, and user needs (Anastasya et al., 2024; Ibrahim et al., 2023).

In summary, the results demonstrate that commuter satisfaction in Indonesian medium-sized cities is shaped by the interaction of network coverage, first- and last-mile access, transfer quality, service frequency, operating hours, affordability, reliability, comfort, safety, and passenger information. Service quality functions as the experiential mechanism through which available transport infrastructure is translated into either satisfactory or unsatisfactory journeys.

The findings demonstrate that public transport accessibility in Indonesian medium-sized cities is not determined by physical proximity to stops alone. Rather, accessibility emerges from the interaction of network coverage, walking conditions, first- and last-mile connections, service frequency, operating hours, transfer arrangements, affordability, and passenger information. Participants who lived near routes or stops could still experience limited accessibility when services were infrequent, transfers were unclear, or operating hours did not correspond with their travel schedules. This interpretation is consistent with recent studies that conceptualize accessibility as a multidimensional antecedent of commuter satisfaction, incorporating spatial reach, multimodal integration, transfer quality, and the perceived ease of completing the entire journey (Molina et al., 2024; Tiwari et al., 2021). It also supports earlier arguments that mobility hubs, feeder systems, and transit-oriented planning can improve accessibility only when the different components of the travel chain function as an integrated network (Rongen et al., 2022; Rodier et al., 2020).

The contrast between relatively strong accessibility in central areas and weaker conditions in peripheral neighborhoods suggests that network expansion should be evaluated in relation to service usefulness rather than route presence alone. Several participants reported that peripheral journeys required additional modes, longer walks, or multiple transfers. This finding confirms that wider route coverage may not produce meaningful accessibility when it is not supported by adequate frequency, reliability, and transfer infrastructure. The literature similarly indicates that the practical value of network coverage depends on how efficiently users can reach stops, make connections, and arrive at destinations within acceptable time and cost constraints (Venter, 2020; Yashiro & Kato, 2020). In this study, the dependence on motorcycle taxis, bicycles, and walking to connect with fixed-route services illustrates both the flexibility and the fragmentation of current urban mobility systems.

First- and last-mile quality therefore represents a critical mechanism linking accessibility to satisfaction. Participants did not evaluate the main public transport service in isolation; they assessed the complete journey from their origin to their destination. A reliable and comfortable vehicle could still generate only moderate satisfaction when the user had to travel almost two kilometers to the first stop, navigate obstructed sidewalks, change routes without clear information, or use another paid mode to complete the trip. This result supports studies showing that transfer penalties, waiting times, feeder reliability, and fare coordination strongly influence perceived accessibility and satisfaction (Venter, 2020; Aalipour & Khani, 2024; Yashiro & Kato, 2020). Well-integrated feeder services, including demand-responsive transport, microtransit,

shared mobility, and on-demand shuttles, may expand public transport catchment areas, but their effectiveness depends on coordinated timetables, integrated fares, and clear information (Mitropoulos et al., 2023; Carrese et al., 2023).

Service quality emerged as the experiential mechanism through which accessibility was translated into satisfaction. Reliability was the most persistent operational concern across participant groups. Delayed arrivals, inconsistent departure times, and inaccurate real-time information reduced confidence in the system and made journey planning more difficult. These findings align with service-quality research identifying punctuality, schedule adherence, and dependable transfers as central predictors of satisfaction (Srivastava, 2021; Adenigbo et al., 2023). They also support the proposition developed in this study that service quality mediates the relationship between accessibility and commuter satisfaction. Physical access may enable the use of public transport, but operational reliability determines whether that access is experienced as convenient and dependable.

Nevertheless, reliability was not the only determinant of satisfaction. Participants positively evaluated affordability, cleanliness, comfort, safety, and staff assistance. These features partially offset dissatisfaction associated with waiting time or weak integration. The findings confirm that service quality is a composite construct whose dimensions vary in relative importance across contexts. Although reliability and information are often dominant, safety, comfort, cleanliness, fare value, and staff behavior may become more salient depending on transport mode, user characteristics, and local operating conditions (He et al., 2022; Adenigbo et al., 2023). This context dependence was visible in the different priorities expressed by students, office workers, shift workers, mobile workers, and older adults.

The importance of accurate passenger information deserves particular attention. Participants valued the availability of mobile applications but reported that inaccurate vehicle positions and inadequate transfer information weakened trust. Real-time information affects not only convenience but also perceived reliability because it allows users to adjust departure times, anticipate delays, and manage connections. This supports studies showing that digital information systems, mobile applications, and station displays can reduce uncertainty and improve decision-making confidence when the information is timely and accurate (Adebiyi et al., 2022). For Indonesian medium-sized cities, investment in intelligent transport systems should therefore prioritize data accuracy and usability rather than merely the presence of a digital platform.

The findings also reveal that accessibility and satisfaction are socially differentiated. Older participants emphasized seating, staff assistance, manageable walking routes, and gentle access to stops. Shift workers required services outside conventional operating hours, while students placed greater importance on affordability and frequency. These variations reinforce the need for inclusive, equity-centered planning. Barrier-free routes, adequate lighting, safe pedestrian networks, accessible information, age-friendly facilities, and targeted support for mobility-impaired or low-income users are central to equitable public transport systems (Nag et al., 2019; Montes et al., 2024). Without targeted subsidies or inclusive design, improvements in network coverage may disproportionately benefit users who already have better access to feeder modes, digital

information, and well-served neighborhoods (Gao & Li, 2023; Pereira et al., 2023; Nesmachnow & Hipogrosso, 2024).

For Indonesian medium-sized cities, policy should combine service improvement with place-based network integration. Priority actions include strengthening pedestrian access, providing secure bicycle parking, coordinating feeder and fixed-route services, improving transfer facilities, extending operating hours where demand justifies it, and integrating fares across modes. Mobility hubs and transit-oriented corridors may be useful, but they should be adapted to local urban form, governance capacity, and travel behavior rather than transferred uncritically from large metropolitan contexts (Molina et al., 2024; Yang & Liang, 2023; Saxena et al., 2024). Pilot programs for microtransit or on-demand feeders should be evaluated carefully because poorly regulated services may compete with rather than complement public transport (Reck & Axhausen, 2020; Carrese et al., 2023).

Overall, the study contributes to the literature by showing that commuter satisfaction is produced through the cumulative quality of the entire travel chain. Accessibility provides the opportunity to use public transport, whereas service quality determines whether that opportunity becomes a satisfactory experience. This relationship is shaped by local context, commuter characteristics, and the degree of integration among routes, modes, information systems, and public space. Public transport policy in Indonesian medium-sized cities should therefore move beyond isolated infrastructure or fleet improvements toward integrated, inclusive, and data-informed mobility systems that respond to the diverse conditions under which commuters travel.

CONCLUSION

This study examined how public transport accessibility and service quality shape commuter satisfaction in Indonesian medium-sized cities. The findings show that accessibility is a multidimensional condition rather than a matter of physical proximity to stops alone. Commuters evaluated accessibility through network coverage, walking distance, first- and last-mile connections, route integration, service frequency, operating hours, affordability, passenger information, pedestrian conditions, and access for vulnerable users. Accessibility was generally perceived more positively in central urban areas, while peripheral neighborhoods experienced weaker coverage, longer access journeys, and greater dependence on additional transport modes.

Service quality substantially influenced how commuters interpreted these accessibility conditions. Reliability, punctuality, waiting time, comfort, cleanliness, safety, staff behavior, and information accuracy jointly shaped the overall travel experience. Among these dimensions, reliability emerged as the most persistent operational concern. Inconsistent departure times, reduced off-peak frequency, unclear transfers, and inaccurate real-time information weakened users' confidence even when routes and vehicles were physically available. By contrast, affordable fares, clean vehicles, perceived safety, and helpful staff supported moderate to high satisfaction and encouraged continued public transport use.

The findings therefore indicate that service quality functions as an experiential mechanism connecting accessibility with commuter satisfaction. Physical access enables commuters to enter the transport system, but dependable operations determine whether that access is perceived as practical, efficient, and satisfactory. First- and last-mile conditions were particularly influential because commuters assessed the complete journey rather than the main vehicle service in isolation. Poor sidewalks, long distances to stops, limited bicycle parking, inadequate lighting, and dependence on motorcycle taxis reduced the benefits of otherwise acceptable public transport services.

The study also demonstrates that commuter priorities differ across social and occupational groups. Students emphasized affordability, frequency, and information; workers prioritized reliability and first-mile access; shift workers required longer operating hours; mobile workers valued route integration; and older adults highlighted seating, safe pedestrian routes, accessible stops, and staff assistance. These differences confirm that uniform service improvements may not adequately address the needs of diverse users. Public transport planning should therefore incorporate equity, age, occupation, physical ability, and travel schedule into service and infrastructure decisions.

The principal scientific contribution of this study is its integration of multidimensional accessibility, perceived service quality, and commuter satisfaction within a qualitative comparative framework focused on Indonesian medium-sized cities. It extends accessibility research beyond conventional spatial indicators by demonstrating how infrastructure, operations, information, affordability, and social inclusion interact across the entire travel chain. It also provides qualitative support for the proposition that service quality mediates the relationship between accessibility and satisfaction.

From a policy perspective, improvements should prioritize reliable timetables, stronger route and fare integration, accurate real-time information, safer pedestrian access, improved transfer facilities, secure bicycle parking, and service-hour extensions where demand warrants them. Inclusive design standards and targeted support should be incorporated to ensure that older adults, people with disabilities, low-income users, and shift workers benefit from transport investment.

Future research should test these findings across a larger number of cities and include explicit city-level comparisons. Mixed-method designs combining interviews, passenger surveys, geographic information systems, operational data, and accessibility indicators would provide a more comprehensive assessment. Longitudinal studies could also examine whether improvements in reliability, feeder integration, and passenger information produce sustained changes in satisfaction and continued public transport use.

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