Exploring Sustainable Urban Mobility through the lens of Theory of Planned Behaviour

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DECLARATION

I declare that this is my own work and this thesis/dissertation does not incorporate without acknowledgment any material previously submitted for a degree or diploma in any other University or Institute of higher learning and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgment is made in the text. I retain the right to use this content in whole or part in future works (such as articles or books).

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The above candidate has carried out research for the Master's thesis/dissertation under my supervision. I confirm that the declaration made above by the student is true and correct.

Name of Supervisor: Prof. Udayangani Kulatunga

Signature of the Supervisor: Date: 05/11/2025

DEDICATION

I dedicate this piece of research,

Specially to

My parents

And

All the kind hearts and helping hands,

Together with me,

From the beginning to now,

Of the journey of life…

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Finally, I offer my special thanks to nature itself for providing us with the space and peace to dwell, reflect, and grow.

Jayalath. J. A. C. D

05th November 2025

ABSTRACT

Urban areas worldwide face significant challenges in achieving sustainability, particularly within the urban transportation sector, which profoundly impacts economic, environmental, social, and mental well-being. In Sri Lanka, these challenges are exacerbated by unsustainable urban planning practices and mobility policies that inadequately reflect the context-specific factors influencing urban mobility behaviours. Therefore, the concept of sustainable urban mobility is critical for addressing these multifaceted issues, as it is fundamentally grounded in human-centred, economically viable, and environmentally responsible approaches.

When implementing the most effective sustainable urban mobility approaches, active mobility and public transport often encounter challenges arising from numerous influencing factors. In this context, the study extends the Theory of Planned Behaviour (TPB) as a framework to systematically explore and deepen the understanding of these factors shaping urban mobility practices. Accordingly, through a mixed-method approach involving a literature review and focus group interview, six key variable categories were identified as influencing commuters' transport mode choice. A single case study, centred on a documentary review, observations, and a questionnaire survey, was conducted to investigate the most influential variables within these categories, along with their magnitude of influence and the nature of their interrelationships in the Sri Lankan context. Subsequently, expert interviews were carried out to develop thirty strategic themes directly addressing the TPB variables that shape transport mode decisions.

The resulting strategies emphasise that, beyond physical infrastructure development, context-specific interventions including age- and gender-responsive policies as well as strategies sensitive to environmental, social, and cultural values, are essential for the optimal performance of sustainable urban mobility. Ultimately, this study proposes a new paradigm in urban transport planning, arguing that sustainable urban mobility is not merely about planning for people, but people for planning, through the deep integration of environmental, social, cultural, and economic realities.

Keywords: Active Mobility; Public transport; Sustainable Urban Mobility; Theory of Planned Behaviour

TABLE OF CONTENTS

LIST OF FIGURES

Figure **Description** **Page**

LIST OF TABLES

Table **Description** **Page**

LIST OF ABBREVIATIONS

Abbreviation	Description
GHG	Greenhouse Gas
PT	Public Transport
SDG	Sustainable Development Goals
SUM	Sustainable Urban Mobility
SWB	Subjective well-being
TPB	Theory of Planned Behaviour

LIST OF APPENDICES

CHAPTER 1

1. INTRODUCTION

1.1 Background

By 2050, it is projected that nearly 70% of the world's population will reside in urban areas (Department of Economic and Social Affairs, 2023). Yet, even today, the high concentration of people and activities in cities is a major driver of global environmental challenges, including air pollution, biodiversity loss, and GHG emissions (Pobrklić et al., 2022). These conditions directly affect quality of life and public health, as 9 out of 10 people breathe polluted air, leading to an estimated 4.3 million deaths annually worldwide (Ileperuma, 2020). In addition, recent studies highlighted that common mental disorders are more prevalent in urban environments compared to rural ones, with the risk of mood disorders such as depression being 39% higher among urban residents (Tonne et al., 2021).

Upon closer examination, the transport system emerges as one of the primary drivers of these urban challenges, spanning environmental, social, and economic dimensions (Torrisi et al., 2020; Raza et al., 2022). Accordingly, human mobility has been recognised as a critical factor in addressing urban issues, placing transport decision-making at the forefront of debates on how to build sustainable cities (Wang et al., 2022; Brůhová Foltýnová et al., 2020). Extensive literature highlights transportation as one of the most pressing challenges of urban form (Chen & Felkner, 2020; Raza et al., 2022), as it contributes to air pollution, noise, congestion, the occupation of public spaces, and accidents (Brůhová Foltýnová et al., 2020). Currently, urban transport accounts for 64% of the global transport network, and projections suggest this could triple by 2050 (Pawlyszyn & Ryzhkova, 2021). Dissatisfaction with transport systems not only undermines the quality of urban life (Mouratidis, 2021) but also exacerbates risks of poor mental health, including depression, among city dwellers (Tonne et al., 2021).

Considering all factors together, the traditional, generic approach of constructing infrastructure has failed to resolve traffic congestion issues in urban areas (Ortúzar, 2019). This situation suggests that conventional mobility practices pose a significant threat to urban sustainability (Ortúzar, 2019). Accordingly, to meet the Sustainable Development Goals by 2030 and to advance resilient and sustainable urban development, prioritising efficient and sustainable urban transportation systems is imperative (UN, 2023; Ravazzoli & Torricelli, 2017). Therefore, the concept of sustainable urban mobility became a discourse among the experts, which derived from sustainable development, to ensure that

the transport system meets the environmental, economic, and social needs (Gallo & Marinelli, 2020).

Sustainable urban mobility refers to a transportation system that enables individuals to move, access services, interact, conduct business, and build social connections, while ensuring that these activities do not compromise critical human or environmental needs, now or in the future (Ravazzoli & Torricelli, 2017). Additionally, offering secure, affordable, reliable, and comfortable mobility for all users, traveling satisfaction, fewer road crashes, cleaner air, and decreased energy consumption can be identified as essential factors for sustainable urban mobility development (Chatziioannou et al., 2023). Taken together, all these conditions advocate that on the path towards a sustainable urban city, it is needed to focus on sustainable urban mobility, which leads to the economic, environmental, social, mental, and cultural well-being of the people. Research indicates that approaches such as urban form changes, active mobility, enhanced public transport systems, and advancements in urban mobility policies are among the leading approaches to achieve sustainable urban mobility (Newman et al., 2022; Chen & Felkner, 2020).

Among the available approaches, active mobility and public transport have consistently remained at the forefront, serving as key components in achieving sustainability in urban environments (Saranjan & Bandara, 2024; Kasim et al., 2023). These two modes are critical because they strengthen the contribution of transport to sustainable development (Elkafoury et al., 2023; Giles-Corti et al., 2020). The public transport system, in particular, is essential for creating sustainable cities, as it is widely regarded as one of the most effective and established tools for advancing urban sustainability (Saranjan & Bandara, 2024; Diab et al., 2017). At the same time, urban planners have emphasised the importance of walkable environments in towns and cities, noting that walking is not only a sustainable form of transport but also significantly enhances physical, mental, and economic well-being (Mandal et al., 2023). Taken together, active mobility and public transport represent vital approaches for achieving sustainability in urban mobility in the global context (Giles-Corti et al., 2020).

In this sense, to effectively implement active mobility and public transport, recent studies have carefully considered the numerous factors that influence the performance of these two mobility approaches. According to Mandal et al. (2023), not only environmental characteristics (such as sidewalk width, continuity, and cleanliness) but also psychological aspects influence commuters' travel behavior. Moreover, the subjective norm (social influencing factors) associated with travel behaviours also has an impact on commuters' transport mode choice (Neto, 2020). Taken together, these findings suggest that achieving sustainable urban mobility with strong public engagement requires addressing the diverse influences shaping both active mobility and public transport practices within cities (Tong & Maliki, 2024; Distefano et al., 2023). Accordingly, compared to traditional transport

planning, which primarily focuses on traffic congestion, a key distinction in sustainable urban mobility planning is its emphasis on social, environmental, and human characteristics during the planning stage (Pawlyszyn & Ryzhkova, 2021; Torrisi et al., 2020).

Consequently, integrating an established theoretical framework to examine these influencing factors would facilitate the provision of a systematic structure to ensure no critical aspects are overlooked and to gain a deeper understanding of how these factors influence sustainable urban mobility. This process of understanding the driving forces of travel behaviour and cognitive frameworks can enable the development of unique and sustainable urban mobility solutions (Ateş, 2020). Among the various theories developed to predict and explain human behaviour, the Theory of Planned Behaviour (TPB) stands out as one of the most established frameworks applied across multidisciplinary contexts (Siqueira et al., 2022; Ajzen, 2020).

TPB enables researchers to explore how variables such as attitudes, subjective norms, and perceived behavioural control influence human behaviour, and how understanding these factors can support the development of sustainable urban mobility systems that meet both performance standards and human needs (Hu et al., 2021). Yuriev, Dahmen, and Paille (2020) further explained that these factors are indirectly influenced by psychological variables, such as behavioural, normative, and control beliefs. In this regard, recent studies have increasingly applied the TPB framework to advance sustainable practices within communities (Yuriev et al., 2020). The TPB framework has also been widely employed in transport research to investigate mode choice behaviour across different contexts worldwide (Ali et al., 2023). Given that travel behaviour is influenced by multiple factors, including personal attitudes, subjective norms, cultural values, and psychological aspects, the TPB provides a robust and suitable foundation for analysing and shaping commuters' behavioural choices in urban mobility (Ali et al., 2023).

In developing strategies and policymaking, it is essential to follow this process of detailed examination of context-specific factors influencing travel behaviour, as it enables the formulation of effective and efficient approaches to sustainable urban mobility (Abdulmughni et al., 2021; Perera, 2016; Wang et al., 2022). Therefore, before planning for sustainable urban mobility in any given context, it is crucial to recognise that challenges, cultural backgrounds, and historical experiences vary across regions (Sillitoe, 2006).

1.2 Research Problem

In recent years, Sri Lanka has faced severe economic challenges, prompting the government to prioritise sustainable development initiatives that maximise returns on investment (Samarasekera et al., 2023). Alongside these economic pressures, the country also grapples with urban sustainability concerns, compelling policymakers and urban planners to consider road infrastructure investment as critical to promoting sustainable and equitable urban growth (Manesha & Jayasinghe, 2023). While the transport sector contributes significantly to the national economy, it is also a leading source of GHG emissions and other pollutants. Urban residents, particularly those living near congested roads, are disproportionately exposed to air pollution, which contributes to respiratory illness, cancer, cardiovascular disease, and diabetes (Ileperuma, 2020). Moreover, the transport sector accounts for nearly one-third of Sri Lanka's total energy consumption (SLSEA, 2015), and by 2020, its energy demand exceeded 30% of the national total, driving substantial imports of diesel and gasoline (Sri Lanka Sustainable Energy Authority, 2020).

Due to the underperformance of the public transport system, private vehicle ownership has risen to 28%, although ideally it should be maintained at around 10% given Sri Lanka's current per capita GDP (Samarasekera et al., 2023). As a consequence, Kumarage (2012) projects that the average network speed during peak commuter hours to Colombo will decline to just 9.1 km/h by 2031. This trend illustrates the profound impact of the transport sector on citizens' daily lives, affecting not only time and finances but also health and social well-being. Accordingly, a well-functioning, sustainable, energy-efficient, low-emission, and livable mobility system has been identified as essential for Sri Lanka (Fernando, Liyanage, & Samarasekara, 2018). The country, therefore, finds itself at a pivotal and urgent moment in its pursuit of sustainable urban mobility.

Despite the urgency and relevance of sustainable urban mobility in Sri Lanka's urban context, existing data and past research highlight that promoting sustainable mobility remains a significant challenge (Samarasekera et al., 2023). Sustainable transport modes, such as public transport, walking, or cycling, should provide not only a functional means of travel but also an enriching experience, allowing people to engage with their environment and with one another (Ravazzoli & Torricelli, 2017). However, Sri Lanka reports an average of 38,000 road crashes annually, resulting in the highest fatality rate (17.4 per capita) in South Asia (World Bank, 2020). To meet the Sustainable Development Goal of halving road traffic fatalities and enhancing sustainable transportation, Sri Lanka requires nearly US $2 billion in additional investment (World Bank, 2020). Simultaneously, promoting public transport use has become increasingly difficult due to its deteriorating quality (Samarasekera et al., 2023). However, these challenges should not be attributed to individual road users but rather to systemic shortcomings in planning and infrastructure (Khayesi, 2020).

Many historical urban development failures in Sri Lanka can be attributed to the insufficient integration of context-specific features, such as environmental factors, local behavioural norms, and socio-cultural values. Notable failed projects include the Rathnapura New City Development, the Moratumulla Retail Outlet Project (1998), and the Radampola Mini-Town Scheme, each of which was implemented without an adequate understanding of social behaviour and the cultural meanings attached to place (Jayalath et al., 2021; Perera, 2016). In contrast, historic urban design models that safeguard identity, memory, and a sense of belonging (Shehab El-Deen et al., 2024) demonstrate that effective urban planning must embrace context-specific socio-cultural, environmental, and economic features and local knowledge systems, including geomorphological understanding and community-shared experiences passed down through generations (Tran et al., 2009). Thus, there is an urgent need to understand the drivers of human behaviour and cognition, and to formulate distinctive, context-sensitive strategies for urban mobility systems to achieve optimal performance within the Sri Lankan Context.

Although numerous studies have explored sustainable urban mobility, both globally and in Sri Lanka, a critical gap remains in understanding how it can be enhanced through strategies that address the context-specific socio-cultural, environmental, and economic features influencing its performance within communities. This gap is particularly pressing in the Sri Lankan context, where urban mobility challenges persist and urban development planning has often failed to capture localised conditions adequately.

1.3 Research Questions

Based on the identified challenges in Sri Lanka's urban mobility system, including congestion, underperformance of public transport, increasing private vehicle dependency, and the lack of context-specific planning, this research seeks to address how sustainable urban mobility can be effectively enhanced through a human-centred and context-sensitive approach.

Accordingly, the study was guided by the following key research questions:

1. What is the concept and what are the core principles of Sustainable Urban Mobility (SUM)?
2. What approaches are most commonly applied in SUM globally?
3. What are the factors that influence the choice of public transportation and active mobility?
4. What is the most suitable theoretical framework to analyse the identified influencing factors?
5. How can these influencing factors be systematically categorised using the Theory of Planned Behaviour?
6. What strategies can be formulated to implement Sustainable Urban Mobility in Sri Lanka by addressing the key influencing factors?

These questions collectively form the foundation for the research aim, objectives and the overall methodological framework presented in Chapter 3.

1.4 Aim

To enhance sustainable urban mobility in Sri Lanka by identifying and addressing the key factors influencing sustainable urban mobility performance, framed within the Theory of Planned Behaviour.

1.5 Objectives

- To critically review the concept of sustainable urban mobility.
- To examine key approaches to achieving sustainable urban mobility.
- To investigate the factors influencing the choice of public transportation and active mobility, based on global and Sri Lankan studies.
- To critically review the Theory of Planned Behaviour and assess its relevance to travel behaviour.
- To map the factors influencing active mobility and public transport using the Theory of Planned Behaviour in Sri Lanka.
- To formulate strategies for enhancing sustainable urban mobility in Sri Lanka

1.6 Research Methodology

The initial stage of this research involved identifying the research problem, establishing the knowledge gap, and clarifying the research aim and objectives. The literature review sought to examine the concept of sustainable urban mobility, including indices and strategies established globally. Furthermore, it aimed to identify the factors influencing sustainable urban mobility practices and to explore how context-specific features interact with strategy development and city planning. To gather information, multiple sources were consulted, including books, peer-reviewed journals, dissertations, articles, and electronic media. Considering the aim and objectives established and overall information collected from international and domestic literature, a mixed-methods approach was employed in this research.

Following the comprehensive literature review, a focus group discussion was conducted to obtain expert opinions and to validate the literature findings related to variables influencing commuters' transport mode decisions. Subsequently, a single case study was undertaken, incorporating document review, observation, and a questionnaire survey targeting commuters in a city aiming to implement sustainable urban mobility. This questionnaire survey sought to gather data on failures in sustainable urban mobility and to identify passengers' requirements from the general public's perspective. Furthermore, based on the survey findings, expert interviews were conducted to gain an in-depth

understanding of the complexities underlying urban planning failures and to develop potential solutions.

1.7 Scope and Limitations

The geographical scope of this research is confined to the urban area of Kiribathgoda, Sri Lanka, with a particular focus on the transport sector. The findings are intended to be applicable to the broader Sri Lankan urban context, which is characterised by a tropical climate, a lower-middle-income economy, and a commercially active setting. Furthermore, Kiribathgoda exhibits a linear urban development pattern, making it a representative case for similar urban forms within the country.

1.8 Chapter Breakdown

Chapter 1 – Introduction

Chapter 1 of this thesis outlines the broader research context, defines the research problem, and presents the aim, objectives, methodology, scope, limitations, and overall structure of the study.

Chapter 2 – Literature Review

Chapter 2 provides a detailed literature review that explores the theoretical foundation underlying the research issues.

Chapter 3 – Methodology

Chapter 3 outlines the research design and process adopted in this study, with a detailed explanation of the data collection and analysis methods employed.

Chapter 4 – Findings and Analysis

Chapter 4 presents the findings derived from the focus group discussions, single case study, and expert interviews, with an in-depth analysis conducted both within individual cases and across them. The collected data were analysed manually and with the aid of Excel software.

Chapter 5 – Conclusion and Recommendations

Chapter 5 concludes the study by addressing the key research questions, outlining the practical implications of the findings, and discussing the study's limitations along with potential avenues for future research in this field.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of the existing literature relevant to the research area. It explores the concept of sustainable urban mobility, examines current urban mobility challenges, and discusses the application of the Theory of Planned Behaviour in promoting sustainable urban mobility within the Sri Lankan context. This chapter serves as the foundation for further analysis and the development of strategies in the subsequent chapter.

2.2 Status of Global Urban Mobility

In the current climate of the unprecedented urbanisation of the world, it may be more challenging for cities to face increasing energy consumption, pollution, inefficient management of urban infrastructures and facilities, and saturated transport networks (Bibri et al., 2020). Among those challenges, the urban transport network extends the harmful effects far beyond the city limits by contributing to environmental, economic & social aspects (Brůhová Foltýnová et al., 2020).

Transport is the key element in shaping a city's economy, health, and quality of life (Chatziioannou et al., 2023). Today, the global transport sector consumes massive amounts of energy, second only to the industrial sector. This directly affects the global economy, and motor vehicle emissions cause air pollution, which is harmful to human health (S. Li & Yue, 2023). In absolute terms, the transport sector accounts for roughly 15% of total GHG emissions, and this number has increased faster than any other sector, with an average annual growth of 1.8% (Newman et al., 2022). This directly contributes to global warming, and the frequency and magnitude of climate disasters are expected to increase significantly (Gao & Zhu, 2022).

In addition, traffic congestion and delays remain persistent issues across cities of all sizes, ranging from mega to small urban areas, largely driven by the overuse of private vehicles (Abeysinghe et al., 2023). This traffic congestion leads to an annual economic loss estimated at USD 12 trillion globally (Gao & Zhu, 2022). When considering the future transport network, numerous studies reveal that by 2050, an additional 1.2 billion cars will be on the road, nearly doubling the current total (Bebber et al., 2021). In particular, this increasing trend of private vehicle ownership becomes a significant challenge for countries, as they must allocate substantial funds not only for importing vehicles but also for importing fossil fuels.

Road vulnerability has also become a global challenge, and policymakers need to pay attention to road safety. According to data from previous studies, 1.35 million road traffic deaths occur every year, with 23% being pedestrian deaths and 3% bicyclist deaths

(Khayesi, 2020). The number of deaths caused by road accidents averages more than 3000 people every day across the world & the global loss is about USD 518 billion, accounting for about 3% of the GDP of the relevant countries (Gao & Zhu, 2022).

Therefore, to address these pressing challenges, it is necessary to implement a farsighted policy to achieve efficient transportation for city planning (UN, 2023). The European Union has proposed that by ensuring a sustainable transport system within urban city areas, the identified challenges related to economic, social, and environmental aspects can be minimised (Gao & Zhu, 2022). As such, the concept of sustainable urban mobility must be brought to the forefront of policy discourse and planning frameworks. A comprehensive understanding of this concept is essential to address urban mobility challenges and guide future development toward holistic sustainability.

2.3 Concept of Sustainable Urban Mobility

A definition of sustainable urban mobility can be derived from the sustainable development definition formulated by the UN, as it has not agreed global definition (Brůhová Foltýnová et al., 2020). Sustainable urban mobility can be construed as a complex concept that aims to meet the transportation needs of society to move freely, gain access, communicate, trade, and establish relationships without sacrificing other essential human or ecological requirements today or in the future (Ravazzoli & Torricelli, 2017). In the same way, Bibri (2020) identified Sustainable mobility as a "transportation service that balances the needs for mobility and safety with the needs for access, environmental quality, and neighborhood quality livability. However, this concept means different objectives to different groups and regions based on economic, social, and environmental values and beliefs (Bebber et al., 2021). Even if sustainable urban mobility becomes more challenging, this concept becomes the forefront of creating attractive streets, and sidewalks that offer secure, affordable, reliable, and comfortable daily (Ravazzoli & Torricelli, 2017). Moreover, fewer road crashes, cleaner air, and decreased energy consumption also can be identified as essential factors for sustainable urban mobility development (Chatziioannou et al., 2023).

Consequently, a working definition of sustainable urban mobility is a transport approach that ensures safe, accessible, and comfortable movement within cities, while promoting active social relations, human satisfaction, and efficient mobility. It aims to minimise environmental impact and support social and economic well-being for both present and future generations. Thus, implementing sustainable urban mobility will gain manifold benefits for both human and environmental beings.

Importantly, the influence of sustainable urban mobility extends beyond urban boundaries, shaping environmental, social, and economic dimensions of sustainable development. Given this wide-ranging impact, current discourse increasingly questions how far sustainable urban mobility can contribute to advancing global sustainable

development goals. The following section discusses the potential benefits of sustainable urban mobility in supporting holistic sustainable development.

2.3.1 Benefits of implementing sustainable urban mobility

Sustainable urban mobility plays a pivotal role in advancing global sustainable development. In alignment with the United Nations Sustainable Development Goals (SDGs), it directly contributes to achieving SDG 11 (Sustainable Cities and Communities) by promoting inclusive, safe, resilient, and sustainable urban transport systems. It also supports SDG 3 (Good Health and Well-being) through reduced pollution and enhanced physical activity, SDG 7 (Affordable and Clean Energy) by encouraging energy-efficient transport modes, and SDG 13 (Climate Action) through the mitigation of greenhouse gas emissions. It is founded on the three key pillars of sustainability, economic, social, and environmental, often referred to as the "triple bottom line" (Brůhová Foltýnová et al., 2020).

For instance, the European Union has established ambitious objectives to reduce transport-related greenhouse gas (GHG) emissions by 90%, with the ultimate aim of achieving net-zero carbon emissions while safeguarding ecosystems from being pushed beyond their ecological limits (Rai & Fulekar, 2023). Furthermore, mitigating air and noise pollution, preserving biodiversity, and promoting cleaner urban environments are recognized as major environmental benefits of sustainable urban mobility (Pawlyszyn & Ryzhkova, 2021).

Beyond environmental protection, sustainable urban mobility also embodies an economic dimension by promoting efficiency and productivity within the transport system. It plays a critical role in shaping a city's economy and overall quality of life (Chatziioannou et al., 2023). The transport sector is a leading determinant of a nation's economic trajectory due to its substantial influence on oil consumption and energy dependency. Additionally, sustainable mobility fosters economic growth by facilitating trade, lowering transportation costs, enhancing market integration, and improving social welfare outcomes (Jawed et al., 2019).

From a social perspective, sustainable urban mobility contributes to improved security, health, and overall human well-being (Pawlyszyn & Ryzhkova, 2021). It enhances community connectivity and ensures equitable access to reliable, high-quality transport services, both of which are critical determinants of social inclusion and quality of life (Tennakoon & Kulatunga, 2020).

Collectively, the reviewed literature underscores that sustainable urban mobility simultaneously supports the three fundamental pillars of sustainable development: environmental integrity, social equity, and economic viability. Nevertheless, despite these recognized contributions, traditional development frameworks often overlook aspects such as community satisfaction and mental well-being (Sangasumana, 2019; Thinley & Hartz-Karp, 2019; Nusantara & Nawatmi, 2023). In response, new development

paradigms increasingly adopt frameworks such as subjective well-being (SWB) and gross national happiness, which measure both life satisfaction (how individuals evaluate their lives overall) and emotional or psychological well-being (positive emotions, happiness, and meaningful mental experiences) with the development goals globally (Nusantara & Nawatmi, 2023).

Sustainable urban mobility can influence all these subjective well-being components, namely, life satisfaction (by affecting leisure, work, health, and residential wellbeing), emotional well-being (by generating emotional responses such as stress and pleasure), and eudaimonia (Mouratidis, 2021). Moreover, to fulfil eudaimonia, sustainable urban mobility can facilitate opportunities for social interaction, access to workplaces, shopping, and engagement in cultural facilities and services (Mouratidis, 2021).

The temporal aspect of mobility is equally important: transport systems determine how individuals allocate time, which is a key measurable index of happiness (Keiff, 2022). By reducing travel time, sustainable urban mobility frees hours for leisure and social activities, thereby improving leisure quality and life satisfaction (Mouratidis, 2021). Consequently, the benefits of sustainable urban mobility extend far beyond traditional concerns of health, safety, and affordability, encompassing economic well-being, environmental well-being, mental well-being, cultural vitality, and quality of life (Yannis et al., 2020; Abdulmughni et al., 2021).

Despite the numerous benefits identified in the theoretical background, translating these goals into real-world outcomes requires a clear understanding of how sustainable urban mobility can be effectively operationalized and measured. This highlights the need to develop robust and context-sensitive measurement tools, which are capable of capturing the multifaceted nature of sustainability. Accurate assessment of sustainable urban mobility is not only vital for monitoring progress but also essential for ensuring that environmental, social, economic, cultural, and mental well-being objectives are pursued in a balanced and integrated manner.

2.3.2 Measurement Indicators of Sustainable Urban Mobility

The goal of any plan is to achieve outcomes that are specific, measurable, achievable, relevant, and time-bound (SMART) (Pawlyszyn & Ryzhkova, 2021). Accordingly, measurement indicators have been developed worldwide to assess the performance of urban mobility systems. The proposed indicators by studies related to sustainable urban mobility have mainly focused on four groups, economic (growth in business activities), logistics (number of vehicles per unit of time passing the road, number of passengers transported in public transport), social (number of accidents, human well-being, number of diseases associated with air pollution), and environmental (level of noise and air pollution) (Pawlyszyn & Ryzhkova, 2021). In detail, the following sustainable urban

mobility measurement indicators and assessment methods have been summarised from various sources (Tafids, 2017; Ravazzoli & Torricelli, 2017; Chatziioannou et al., 2023).

Table 2.1 Sustainable urban mobility measurement indicators

Group	Indicator
Economic indicators	Direct user cost referring to private vehicles/ public transport, investment of transport infrastructure, taxation of vehicles, total per capita transport expenditures
Logistics indicators	Average passenger travel time, average speed of private vehicles, number of vehicles, frequency during peak-hour, public transport capacity in relation to population, Average age of public transport fleet, private car ownership, road network density, road network length, traffic congestion, capacity of park and ride facility, daily passengers-km by means of public transport & private vehicles, length of paved roads
Social indicators	Affordability, contribution of the transport sector to employment growth, Population density, Traffic safety, comfort, and satisfaction with public transport, occupancy, reliability, security, Road traffic fatalities, road safety, and vulnerable users, traffic accidents involving injuries, Access to basic services and public transport, quality of transport for disabled people
Environmental indicators	CH4 emissions, Co emissions, Co2, No, O3 emissions, Use of renewable energy sources, land use mix, rate of use of urban land, and land taken by transport infrastructure mode, Level of air and noise pollution, Cases of chronic respiratory diseases due to vehicle pollution, fuel consumption of private vehicles,

However, to achieve strong performance against these indicators, authorities have recognised the need for innovative approaches that move beyond traditional mobility practices. These approaches are grounded in alternative perspectives and philosophical understandings of urban mobility challenges, seeking to address them more sustainably. In this sense, before focusing on modern approaches, it is essential to understand the philosophical and conceptual differences between traditional and sustainable mobility approaches.

2.3.3 Differences in the Perspectives of Sustainable Urban Mobility

A sustainable urban mobility is inherently interdisciplinary, focusing on core objectives such as economic, environmental, and social well-being (Pawlyszyn & Ryzhkova, 2021). Unlike traditional transport planning, which increases the road supply based on demand, this multi-criteria analysis plan focuses on how to manage the demand for mobility within urban areas (Torrisi et al., 2020). Additionally, it always promotes sharing vehicles and active mobility options as alternatives to private vehicle use (Torrisi et al., 2020). In

addition to these practical factors, sustainable urban mobility's philosophical and theoretical foundation also significantly differs from traditional approaches. These distinctions can be effectively illustrated through a schematic comparison between the two approaches (Figure 2.1).

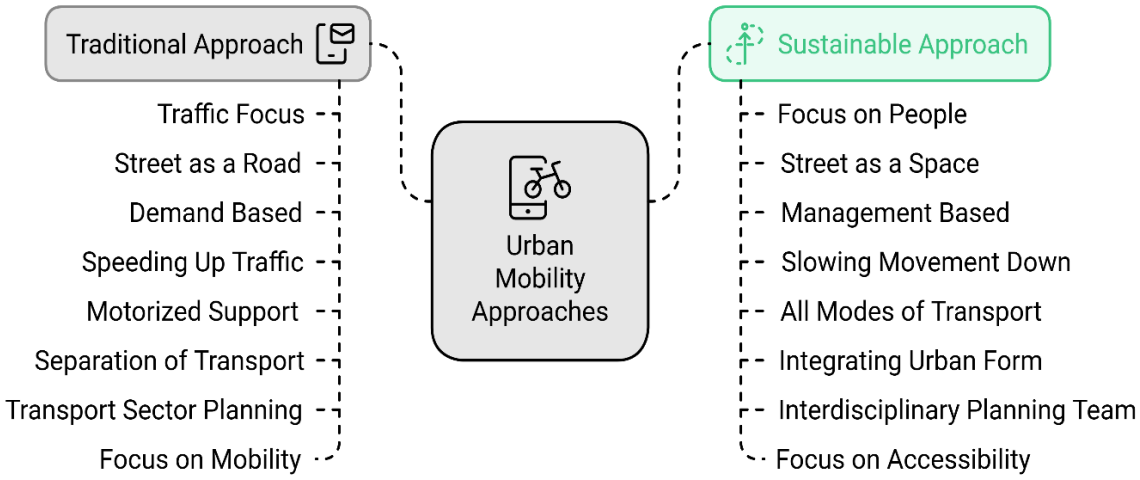

Figure 2.1 Conceptual differences between traditional & sustainable mobility approaches

Source: (Pawlyszyn & Ryzhkova, 2021; Torrisi et al., 2020)

Given this diversity, along with the varying perspectives and conceptual differences, a range of modern approaches is employed worldwide to achieve sustainable urban mobility.

2.3.4 Sustainable urban mobility approaches

The character of mobility, including transportation, serves as the backbone of a city, and streets in the city are also not merely traffic channels; they can be identified as the lifeblood of cities (Marshall, 2004). However, previous studies have confirmed that investing in road infrastructure always leads to induced travel, and thus, traffic congestion will not be alleviated (Gao & Zhu, 2022). Road expansion and land density developments, which were trending solutions for transportation, have become backward, as they lead to unsustainable urban mobility and encourage automobile culture within city areas (Hidayati et al., 2021). In this context, low-carbon transport, active transport, improved public transport systems, policy changes, and advances in vehicle technology are among the top transport-related topics being discussed to achieve sustainable development goals (Newman et al., 2022). These approaches were profoundly explored by recent studies highlighting their necessity.

Table 2.2 Sustainable urban mobility approaches

SUM approach	Implementation procedure	References
Integrated Urban form with mobility plan	Integrating mixed land use can shorten the distance between residential areas, workplaces, and recreational facilities, thereby lowering overall travel demand.	(Newman et al., 2022), (Chen & Felkner, 2020), (Mouratidis et al., 2023) (Mohareb et al., 2016)
Enhancing Active Mobility	Improving infrastructure to support active transport modes (walking and biking)	(Newman et al., 2022), (Abeysinghe, Saparamadu, & Hewawasam, 2023).
Improving the public transport system	Replacing 20% of private car trips could result in a 12% reduction in GHG emissions	(Newman et al., 2022), (Abeysinghe, Saparamadu, & Hewawasam, 2023), (Gao & Zhu, 2022)
Changing Policies and Regulations	Introducing variable working hours, more efficient traffic management, and better routing for light- and heavy-duty transport could reduce emissions, promote teleworking	(Newman et al., 2022), (Gao & Zhu, 2022)

As summarised in Table 2.2, sustainable urban mobility can be pursued through multiple approaches, and each of these approaches targets different aspects of urban mobility, aiming to reduce environmental impacts, enhance accessibility, and promote healthier travel behaviours. The following sections discuss these approaches in detail, highlighting their implementation strategies and potential benefits.

2.3.4.1 Improving the Public Transport Sector

Recent studies highlight various strategies to enhance public transport, as it represents a key and widely established approach to sustainable urban mobility globally (Saranjan & Bandara, 2024; Diab et al., 2017). One important strategy for promoting public transport while reducing private car use is to provide high-quality services and simultaneously encourage pedestrian mobility (Abeysinghe et al., 2023). The Downs-Thomson paradox finds that the equilibrium speed of private vehicles depends on the efficiency of public transport (Gao & Zhu, 2022). If public transport is efficient, the number of private cars will decrease; otherwise, more people will shift to using private vehicles, leading to increased traffic congestion. Therefore, different cities around the world have restricted the use of private vehicles and promoted public transport, as an initial step of travel

demand management (Elkafoury et al., 2023). Apart from the obvious effects of reducing congestion, public transport can contribute to reducing air pollution (Sopiana et al., 2023).

Accordingly, the promotion of public transport requires targeted improvements to enhance passenger experience and overall service attractiveness. Key strategies include increasing service frequency across all routes, reducing walking distances to stops, minimising delays, ensuring the provision of adequate and accurate travel information, and improving safety, comfort, and seating availability (Saranjan & Bandara, 2024). Incorporating passenger feedback mechanisms to identify real-time issues and needs can facilitate continuous service enhancement (Su et al., 2023). Empirical evidence suggests that initiatives such as implementing real-time bus information systems, offering affordable fare schemes or discounts, reducing waiting times, and running public awareness campaigns can significantly enhance public transportation (Diab et al., 2017). Additionally, regulatory measures such as increasing parking costs in urban centres have been shown to discourage private vehicle use and shift travel behaviour towards public transport (Ali et al., 2023).

Considering all these findings together, the following strategies can be identified for improving the public transport sector:

- Provide high-quality public transport services while encouraging pedestrian mobility.
- Restrict private vehicle use in urban areas as a form of travel demand management.
- Increase service frequency and reduce walking distance to stops.
- Minimise delays and ensure accurate, real-time travel information.
- Improve safety, comfort, and seating availability for passengers.
- Establish passenger feedback systems for continuous improvement.
- Implement real-time bus information systems.
- Offer affordable fare schemes or discounts to encourage ridership.
- Conduct public awareness campaigns promoting public transport use.
- Use regulatory measures (e.g., higher parking costs) to discourage private car dependency.

2.3.4.2 Enhancing Active Mobility

Numerous studies reveal that active mobility, including walking, is also a sustainable mode of transportation (Kasim et al., 2023). Not only public transport but also active mobility helps reduce road traffic noise and improves the health of both travelers and city residents (Tonne et al., 2021). Active mobility, such as cycling and walking, can be improved as a sustainable urban mobility approach, which reduces reliance on private vehicles and alleviates traffic congestion (Tachi et al., 2024). Furthermore, if a person walks more than 3,800 steps per day, it directly helps to decrease the obesity rate in the community (Abdulmughni et al., 2021). Therefore, walking and cycling are a form of

active mobility, strongly linked to many health benefits for travelers (Tonne et al., 2021). In light of the World Health Organisation's declaration that " health is one of the most effective markers of any city's successful sustainable development", the concept of active mobility has become a key component in achieving sustainability in urban environments (Giles-Corti et al., 2020).

Moreover, Jacobs has pointed out that if there are lots of human activities in the street instead of vehicles, then the city will be more interesting (Fauzi & Aditianata, 2018). In line with Jacobs, adding shading materials that help to create comfort for pedestrians, the presence of physical factors to divide the street and pedestrian way can be identified as physical factors that directly enhance active mobility (Fauzi & Aditianata, 2018). Many studies discuss the benefits of planting trees as a shading material, including improving air quality, reducing stress, promoting outdoor activities, and more (Yu, 2017). Additionally, livable streets should offer a comfortable environment where people of varying ages, backgrounds, and levels of understanding can experience and appreciate both the natural surroundings and the social fabric of the neighborhood (Yu, 2017). Moreover, crossing facilities, density of street lamps, and facilities for disabled people can also be noted as physical characteristics of a livable street (Abdulmughni et al., 2021).

Figure 2.2 Components of a sustainable urban street

Additionally, apply wide sidewalks in areas where street blocks have become interesting, expanding public spaces across the streets to create dead ends that prevent the vehicles from using the street as a throughway, use of short blocks creates more areas where pedestrians can cross to slow down traffic and creating inconveniences for cars also can be identified as several actions to promote active mobility (Smith, 2009). Consequently, studies unveiled that safety, comfort (including appropriate widths and heights), connectivity, support facilities (including signboards), and landscape are the main elements that need to be focused on when developing a walkable street (Kasim et al., 2023). Researchers also noted that streets with slow-moving traffic, good environmental

qualities, and limited space for parking always offer good opportunities for personal development and social integration (Yu, 2017). Based on these theoretical strategies, various assessment methods have been developed to translate them into practice. According to Abdulmughni (2021), the following methods can be used to evaluate the status of strategies implemented to enhance active mobility in relevant cities.

Table 2.3 Methods for Assessing Active Mobility Strategies

Desirable characteristics for a urban street	**Implementation Process**	**Standard value/ Actual assessment method**
Accessible to all (walkability)	Proper width for walking paths	• 3.5m (4 elders walking in parallel) 2.5 m- 3.5 m (3 elders walking in parallel) 1.5 m- 2.5 m (2 elders walking in parallel) 1.5m (1 elder safety)
Comfortability & relaxing	Shadiness, shaded seating areas	• Seating facilities within less than 150m, more than 150m, or no seats • Shelters for protecting against bad weather (Along the street, less than 150m, more than 150, or none)
Safety & secure	Safety barriers, signage, safe crossing, pathway area covered by streetlight, personally feel safer (no threats)	• Crossing facilities (Lights & zebras, only lights or zebras, no crossing facilities) • Streetlights (less than 15m, 15 to 30m or more than 30m) • Image analysis, surveys or interviews
Cleanness, healthy & well-maintained		• Air pollution %, Noise pollution %, waste management • Image analysis
Connectivity	Grade consistency, walkways with bus stops	• One entry for each 100m/ 100m to 200m/ 200-300m / more than 300m
Multi-functional activities/ Appealing people to be outdoors	Sunshade, free Wi-Fi, dining out, social-cultural activities,	• Image analysis, surveys, or interviews

These assessment methods provide measurable criteria for evaluating active mobility environments, ensuring that strategies for sustainable urban streets can be systematically monitored and adapted to local urban contexts.

2.3.4.3 Integrated Urban form with mobility plan

Unsustainable mobility is always a result of poor planning within urban form (Smith, 2009). At the same time, transport and land use policies, which are the city's backbone, impact the urban form & people's behaviour (Hidayati et al., 2021). In this context, extensive studies advocate that there is a correlation between urban form & sustainable mobility.

Jane Jacobs, who individually challenged the established urban planning ideas, has noted that a city is made up of intricately interconnected and understandable relationships (Smith, 2009). By analysing and observing her theories, it becomes evident that to create a vibrant city, full of community life and economic success, each city must focus on urban form and mobility within the city area. Encouraging pedestrian traffic that persistently uses streets for as many hours of the day as possible, economic decay, crimes, and a sense of safety, mixture of building ages to offer the opportunity for tenants from a broader economy and promote heterogeneity & active mobility, sufficient density of people, both residents and non-residents, which must be followed in vibrant and low-carbon urban cities that support to the sustainable urban mobiltiy (Mohareb et al., 2016).

The application of these strategies may be deferred based on the unique urban forms, which are shaped by the era of origin and the economic, climatic, and political conditions (Mohareb et al., 2016). According to those findings, mixed land use, higher density, and connectivity encourage active mobility and discourage automobile use due to the reduced trip distance (Chen & Felkner, 2020). Therefore, well-planned urban forms that help reduce the trip length always become a great strategy for sustainable mobility (Brůhová Foltýnová et al., 2020). Even though conventional zoning practices are troublesome and inflexible, it is also an important aspect of city planning. According to Jane Jacobs, to overcome problems of zoning, it is needed to focus on performance zoning rather than spot or land use zoning, which would allow flexibility and options for recovery, change, and improvement (Smith, 2009).

Considering all these findings together, the following strategies can be identified for integrating urban form with mobility planning:

- Encourage pedestrian-friendly urban environments that promote continuous street activity throughout the day.
- Prevent economic decay and crime by fostering vibrant, safe public spaces.
- Promote a mixture of building ages and types to support heterogeneity and active mobility.
- Maintain sufficient population density (residents and non-residents) to create vibrant, low-carbon cities.
- Encourage mixed land use, higher density, and strong connectivity to reduce trip distances and discourage car dependency.
- Develop well-planned urban forms that inherently minimize travel distances.
- Apply performance-based zoning instead of traditional zoning to allow flexibility, adaptability, and resilience in city development.

2.3.4.4 Changing Policies and Regulations

Nowadays, there are different regulations and policy instruments have implemented across the world in order to efficient automobile usage, such as Variable Work Hours aim to avoid congestion, promoting teleworking activities, imposed tax based upon the

possession of motorised vehicles, the establishment of fares for commuters that circulate within specific parts of a city, at certain times and days, fuel taxes based on environmental parameters (Chatziioannou et al., 2023). Additionally, scaling up the use of low-emission alternative energy sources, moving towards zero-emission vehicles, integrating intelligent transportation systems with traffic control, encouraging electric car usage, and promoting public transport and active mobility are also widely applied in Western countries to implement sustainable urban mobility (Gallo & Marinelli, 2020). All these policies and regulations should be formulated on the foundation of the main pillars of economic, social, and environmental sustainability (Raza et al., 2022).

Considering all these approaches, promoting active mobility, enhancing public transport systems, integrating urban form with mobility planning, and introducing policy and regulatory reforms, it is evident that they are deeply interconnected and collectively shape the foundation of sustainable urban mobility. Among these, public transport and active mobility consistently emerge as the most effective and widely adopted strategies (Saranjan & Bandara, 2024; Diab et al., 2017). These two approaches are also well-recognized among policymakers, urban authorities, and local communities. By promoting active mobility alongside public transportation, urban planners can significantly reduce car dependency, thereby advancing the transition toward holistic and sustainable urban mobility (Neto et al., 2020). Consequently, this study focuses on active mobility and public transport as the most impactful and actionable pathways for achieving sustainable urban mobility.

Although both approaches are well-established at the theoretical level, their practical implementation continues to face significant challenges. Therefore, identifying the key barriers and influencing factors affecting their performance and developing effective strategies to ensure successful realization is essential. Before implementation, it is also crucial to examine the contextual and behavioural factors that influence their effectiveness to maximise potential benefits.

2.4 Influencing factors on sustainable urban mobility

Recent studies highlight numerous challenges in implementing sustainable urban mobility, particularly in advancing active mobile and public transport services.

2.4.1 Factors influencing active mobility

Active mobility exposes individuals to air pollutants during travel, and it will harm human well-being (Tonne et al., 2021; Gamage et al., 2022). Moreover, some tropical countries across the world face elevated temperatures and pervasive humidity, which contribute to making outdoor walking more uncomfortable (Kasim et al., 2023). Similarly, insufficient walking infrastructure, high car traffic, and illegal street parking always lead to less satisfaction and less safety in active mobility (Mouratidis et al., 2023). Therefore, at the same time, these pedestrians and cyclists are considered vulnerable road users who are consistently at risk regarding road safety (Hejazi & Bokor, 2024). Active mobility,

including pedestrians, has become a significant portion of road traffic injuries (RTIs), and RTIs are ranked as the 8th leading cause of death globally (Hsu & Rodríguez, 2024).

In addition to these influencing factors, urban planning literature has revealed that psychological aspects and the built environment influence active mobility travel behaviour (Mandal et al., 2023). Recent studies focused on predicting active mobility behaviour (walking or cycling) stress the importance of perceived behavioural control and attitudes in the intention to walk (Neto et al., 2020). Accordingly, the purpose of walking (health, economic, and environmental), and their attitudes/ personal beliefs (wise and beneficial, enjoyable and pleasant), perceived control variables for the built environment (connectivity, safety, pleasantness), all affect their walking behaviour (Mandal et al., 2023).

According to Tong & Maliki (2024), in addition to the aforementioned perceived control variables, urban infrastructure that supports easy and comfortable walking pathways is also important to have a strong intention to walk. In this context, several studies revealed that the building environment of sidewalks with physical separation from traffic, sidewalk width, sidewalk continuity, and sidewalk cleanliness play a critical role in enhancing willingness to walk (Distefano et al., 2023). Nevertheless, aesthetic and recreational features in urban planning that enhance attractiveness and enjoyment also significantly influence favorable attitudes toward walking in the city (Tong & Maliki, 2024). Furthermore, studies noted that personal attributes such as gender, age, and educational level also influence the creation of positive or negative attitudes toward walking (Neto et al., 2020). Therefore, it is crucial to understand that factors affecting people's willingness to walk are subject to different personal attributes. As an example, feeling unsafe from traffic & crime discourages old people from walking, while benches and shady covers positively relate to their walking behaviour (Liu et al., 2022). In line with Jacobs, the availability of seats to function as a spot to sit, gather, chat, and rest can be identified as a physical factor that directly affects pedestrians (Fauzi & Aditianata, 2018). However, planting street trees for shading purposes also faces many different challenges in practice, such as blocking wind, interfering with city ventilation, damaging the pavement & underground pipes by roots, providing habitats for unwanted wildlife, reducing shop appearance, and causing injuries by felling branches (Yu, 2017).

The subjective norm (Social influencing factors) associated with walking behaviour is contradictory, as some articles found it as a significant predictor, while others have not (Liu et al., 2022). But, according to Neto (2020), even though subjective norm seems to have a lesser impact on walking intention, previous findings suggest that seeing other people walking, others' recommendations can stimulate walking behaviour, as people's behaviour is influenced by what they observe in others. However, pedestrians have different perceptions of walking experience under similar pedestrian path conditions, as a result of their past experiences and culture (Distefano et al., 2023).

Attachment to a particular place may also influence physical activity decision-making and encourage people to adopt and maintain physical activity routines (Koohsari et al., 2023). Place attachment refers to a psychological connection tied to a specific location, which plays a key role in shaping environmentally responsible behavior and how individuals react to changes in their local surroundings. This emotional bond typically strengthens over time, encouraging people to remain connected to the place (van den Berg et al., 2024). In this sense, place attachment stimulates people to city walking, since a strong connectedness to a place is associated with more self-reported pro-environmental behaviours (Sun, 2020). On the other hand, walkability directly contributes to enhancing place attachment by developing social interactions in the living environment form (van den Berg et al., 2024). However, place attachment could be split into three variables, including process (behaviour, cognition & length of time that a person spends to get involved in a place), Person, and place (cultural factors, interaction factors, social factors, satisfaction) (Purba, 2022). These influencing factors link to positive emotions such as happiness, self-improvement, self-growth, and comfort of security by enhancing place attachment (van den Berg et al., 2024).

2.4.2 Factors influencing public transport

Even though public transport has been identified as a sustainable urban mobility approach, in 2022, only half of the world's urban population had convenient access to public transport (UN, 2023), and across the world, travel satisfaction on public transport has become the lowest due to very long travel times (Mouratidis et al., 2023; Saranjan & Bandara, 2024). Because human mobility is not limited to the movement of human beings in space, but expands to the movement in time (Wang et al., 2022). In addition, promoting public transportation has become a challenge today due to its poor quality (Samarasekera et al., 2023; Kmarage, 2012).

Therefore, to overcome those challenges, various measures have been implemented worldwide, such as providing incentives for the use of public transit on days when heat levels are high, designing streets that help transform the surface microclimate by providing shade and modifying radiative, thermal, moisture, and aerodynamic processes, and using permeable or cool pavements that are lighter in color to reflect more sunlight and reduce road surface temperatures (Hsu & Rodríguez, 2024). Additionally, to overcome these influencing factors & establish sustainable urban mobility, it warrants upgrading walking facilities and infrastructures to ensure a comfortable, safe, and accessible mobility system (Kasim et al., 2023). Accordingly, it is needed to focus on enhancing the frequency of the fleet on every route, reducing the walking distance, providing well-connected transfer points, and providing a user-friendly environment to enhance public transport by giving a better experience for the passengers (Saranjan & Bandara, 2024).

A traveler's choice of transport mode is influenced trip maker characteristics (gender, age, income, car ownership, driving license availability), trip characteristics (trip purpose, trip origin, trip destination, trip time throughout the day) and transportation mode characteristics (travel time, trip cost, availability, parking cost, frequency, comfort, and safety) (Elkafoury et al., 2023). The existing literature highlights that passengers' thinking patterns, such as their symbolic (status in society) and affective purposes (driving is viewed as enjoyable), have also influenced their desire to use the public transport system (Saranjan & Bandara, 2024).

To establish public transport use as a common behaviour among the majority of the community, planners and policymakers should identify ways to attract a reasonable number of car users to public transport (Ali et al., 2023), while also retaining existing users (Diab et al., 2017). Generally, by making the same choice over time, it becomes habitual, and people will not tend to evaluate the pros and cons of available transport modes (Neto et al., 2020). However, new users often change their mode due to lifestyle changes, such as income variation, residential relocation, family structure, or (un)availability of alternative options (Diab et al., 2017). Additionally, to adopt a novel behaviour, people must be both motivated and capable of acting on that motivation (Ajzen & Schmidt, 2020) and those who place high belief in environmental concerns are more likely to adopt sustainable transit modes over private vehicles (Ali et al., 2023).

Some change their mode of transit because of the service attractiveness and the service recommendation given by their social group (Diab et al., 2017). Marketing researchers have emphasised that customers' positive reviews play a crucial role in promoting a good or service (Yuda Bakti et al., 2020). Perceived service quality and satisfaction are the two main constructs supporting this positive promotion (Diab et al., 2017). However, the service quality desired by users always emphasises the waiting time, travel time, occupancy level, cleanliness, comfort, and travel cost (Diab et al., 2017). Among the positive promotions, word-of-mouth communication (WoM) positively influences consumer attitudes and behaviour (Yuda Bakti et al., 2020). In public transportation research, the term "WoM" can be identified as the willingness to recommend a service, which is affected by satisfaction with waiting time, travel time, and on-board experiences (Yuda Bakti et al., 2020). Moreover, many studies have revealed that loyalty, which acts as a precursor to WoM, is influenced by attitudes and subjective norms (Yuda Bakti et al., 2020). In addition, running campaigns to create more awareness about environmental concerns, and controlling the use of private vehicles by increasing parking costs in the city have been suggested by studies to promote public transport in the town (Ali et al., 2023). Additionally, personal norms such as moral norms, which are the perception of the degree of moral correctness of behaviour, and environmental norms reflect right or wrong behaviour regarding environmental issues in society, also drive passengers to promote public transportation (Yuda Bakti et al., 2020).

Ultimately, addressing these influencing factors enables the effective implementation of sustainable urban mobility with strong public engagement, thereby advancing holistic sustainable development goals. Figure 2.3 presents a summary of the identified factors influencing the performance and practice of both active mobility and public transport within the city.

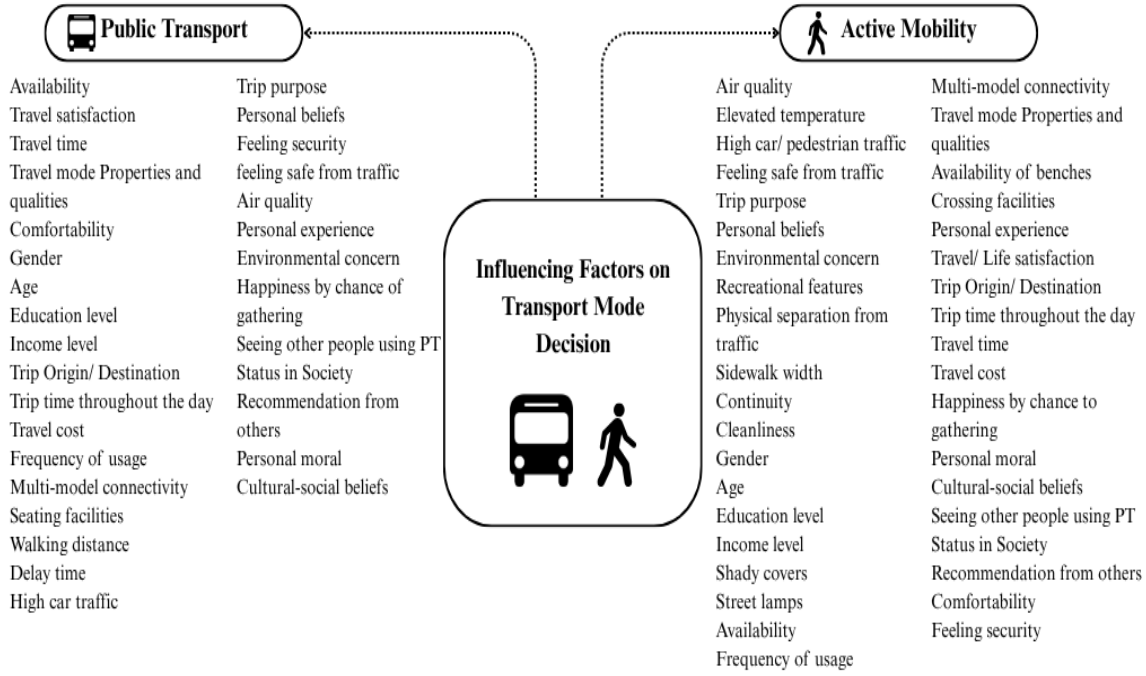

Figure 2.3 Summary of the Factors Influencing Active Mobility & Public Transport

While policymakers worldwide emphasise the integration of these key factors into mobility strategy formulation for achieving sustainable urban mobility, Sri Lanka faces comparable challenges and shortcomings within its urban mobility system. An analysis of the nation's current urban mobility landscape, together with its National Policy 2050, is essential to understand urban mobility issues and determine how best to align future strategies with the principles of sustainable urban mobility.

2.5 Urban Mobility in Sri Lanka

Rapid urban growth has posed a number of problems in the urbanised provinces in Sri Lanka (Hemakumara et al., 2020), and most of them are intertwined with urban transport systems. The Sri Lankan urban transport sector causes environmental pollution and other severe challenges that directly impact humans, animals, and the environment (Gamage et al., 2022). Among those challenges, air pollution is a growing problem in the Sri Lankan context due to the increase in the number of motor vehicles and traffic congestion & it causes the rapid growth in health hazards in Sri Lanka (Ileperuma, 2020). The transport sector accounts for almost one-third of the total energy consumption in Sri Lanka (SLSEA, 2015). Due to this rapid increase in energy demand of the transport sector in Sri Lanka,

the government needs to spend a considerable amount of money to import diesel & gasoline (Sri Lanka Sustainable Energy Authority, 2020). Furthermore, according to the World Bank report, Sri Lanka has an average of 38,000 crashes annually, which result in around 3,000 fatalities, and the majority of them are pedestrians (World Bank, 2020). This annual road crash death rate (17.4 per capita) is the worst in the South Asian region. These studies revealed that urban mobility in Sri Lanka negatively affects not only the economy of the country but also environmental and human well-being.

Sri Lanka transport sector policy note also reveals that due to an outdated transport network, vehicle km doubles every 8 years & rapidly increasing motorisation (Kumarage, 2012). On the other hand, there has been rapid growth in private vehicles after 2010 when the vehicle import tax was heavily reduced and vehicle ownership has been widely promoted politically, especially as an indicator of a growing economy (Samarasekera et al., 2023). Even though the Sri Lankan transport sector strives for effective and efficient mobility solutions, public transport continues to decrease because of deterioration in the service quality of all transport systems (Samarasekera et al., 2023). As a result, motorcycles & motor tricycles have rapidly grown in recent years, and three-wheeler, a Sri Lankan form of paratransit, is a popular and important mode of transport in Sri Lankan cities due to largely insufficient public transport systems (Kawasaki et al., 2019). When looking at the increasing number of vehicles in Sri Lanka, up until 2021, there was a rapid rise in private vehicles, including motor cars, motor tricycles & cycles. The following figure shows the vehicle distribution in 2022, highlighting one of the main challenges related to the transport sector in Sri Lanka, as motorcycles and motor tricycles have become the overwhelming majority of vehicle distribution in Sri Lanka (Highways, 2024). At the same time, according to the Ministry of Transport, after 2019, there is still no satisfactory level of train usage by people following the COVID-19 pandemic situation (Highways, 2024).

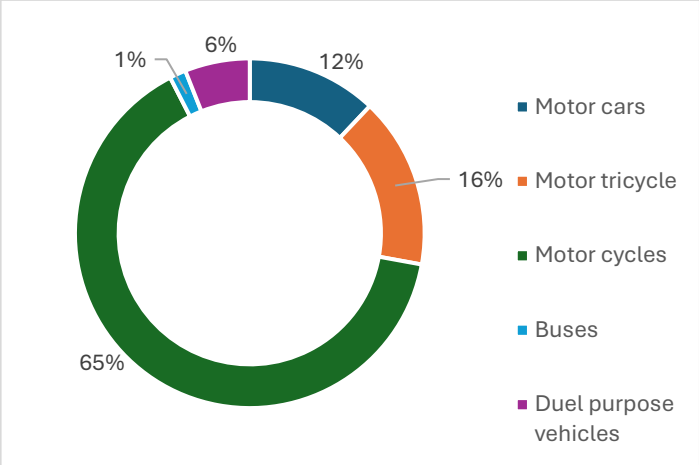

Figure 2.4 Vehicle Distribution in Sri Lanka
Source: (Highways, 2024)

However, more than 50% of the population uses public transport within Colombo, and the majority of the passengers are unsatisfied with the waiting time, safety & comfort level of a passenger while waiting for the bus (Amarasingha & Malagalage, 2023). Consequently, due to these poor transport policies, Sri Lanka has a higher vehicle ownership rate compared to other countries at similar purchasing power parity adjusted per capita, and it will continuously increase in the next decades (Kumarage, 2012). Interestingly, a notable observation is that the increase in private vehicles has been limited due to government-imposed vehicle import restrictions, creating an opportunity to promote public transport as more people turn to it following the sharp rise in fuel costs over the past two years in Sri Lanka.

Moreover, as a tropical country, Sri Lanka potentially experiences a higher number of road injuries due to distraction, slower response times, and driver fatigue caused by elevated temperatures (Hsu & Rodríguez, 2024). This elevated temperature and pervasive humidity also contribute to making outdoor walking more uncomfortable in tropical countries (S. Li & Yue, 2023). Furthermore, for nearly twenty years, infrastructure projects with strong political appeal, such as expressways primarily benefiting the corporate sector and high-income groups, have often received priority in budget allocations over investments in public transportation (Samarasekera et al., 2023). Therefore, to implement sustainable and balanced urban development, policymakers and urban planners in Sri Lanka need to focus on the best investment strategies in road infrastructure thoroughly (Manesha & Jayasinghe, 2023).

2.5.1 National Physical Planning Policy 2050

The national physical planning policy has estimated that three hundred trillion rupees are required for immediate investments in road development, transportation, health, education, urban facilities, agriculture, and social welfare. The debt burden on Sri Lanka's economy for the next twenty to thirty years, combined with insufficient attention to active mobility in existing road development projects, necessitates conducting profound feasibility studies for future investment projects aimed at creating sustainable urban cities. In this context, the policy and plan have targeted establishing sustainable urbanisation by 2050, with a medium-term target to improve quality of life and social status by 2030-35. Additionally, it expects to invest most economically, ensuring optimum utility of the physical, social, and economic resources and urbanising future populations in less vulnerable environments. To address those targets relevant to urban development, a comprehensive guideline has been developed by considering the following aspects.

- **Safe and secure localities**: A safe environment for all citizens from frequent road accidents and public nuisance
- **Sustainable environment and economically feasible projects**: Compulsory for all construction, ensures environmental sustainability. Optimisation of the utility of the available infrastructures and investment in projects that address people’s lifestyles and travel behaviour to get optimised benefits from the investment.

- **Improved public transport mode:** Heavy investments in high-tech transportation solutions & infrastructure development may not be economically viable. Thus, it necessitates improving public transport modes by reorganising mode integration and systematising operations along with state-of-the-art passenger services (improving waiting facilities, comfortability, and smart services such as e-ticketing).
- **Space for physical developments**: Social infrastructure situated in core urban areas should be strategically relocated to nearby locations to reduce overcrowding, minimise traffic congestion, and enhance user safety. Furthermore, new physical developments must be planned in alignment with suitable density levels and floor area ratios that reflect the demands of economic activities.
- **Improved pedestrian spaces**: This should be the priority in all urban development programs, as walking is the best solution for most issues such as traffic congestion, unauthorised parking, and accidents. Thus, appropriate designs shall be developed in order to enhance pedestrian friendliness even the tropical weather conditions.
- **Pro-active approaches:** Develop sustainable transportation based on avoiding (settlement distribution in the desired direction), shifting (from private to public), and improving (efficiency and reliability).

The National Physical Planning Policy 2050 and the existing shortcomings in Sri Lanka's urban mobility system indicate that future interventions must extend beyond conventional infrastructure development. This context highlights the necessity of implementing sustainable urban mobility in Sri Lanka to address current challenges and achieve holistic well-being in the future. Establishing such a system requires the adoption of modern sustainable urban mobility approaches (see Section 2.3.4). Similar to global trends, recent studies have identified public transport and active mobility as high-priority areas for public investment and as key components for achieving Furthermore, Dilini et al. (2021) emphasise that the Western Province must increase the public transport mode share to ensure sustainable mobility. The recent economic crisis has intensified this need, as rising fuel prices have driven a significant increase in demand for public transportation (Monetary Board CBSL, 2022). This situation presents a timely opportunity to encourage and normalise the use of public transport among Sri Lankan citizens. In this context, policymakers must clearly recognise the importance and role of the influencing factors outlined in Section 2.4 within the Sri Lankan context, as these factors directly affect the performance of sustainable urban mobility by shaping commuters' transport mode choices and behavioural patterns.

It is, therefore, crucial to establish these influencing factors within a theoretical framework, not only to gain a deeper understanding of their impact on sustainable mobility but also to ensure that no critical aspects are overlooked. Such categorisation facilitates both the explanation and prediction of their roles, while also supporting the development of robust, evidence-based strategies for Sri Lanka. Consequently, mapping these

influencing factors within a theoretical framework ensures systematic organisation and conceptual clarity.

2.6 Application of the Theoretical Framework to Organize SUM Influencing Factors

Understanding the behavioural foundations of mobility choices is crucial for explaining and predicting transport decisions influenced by social, psychological, and contextual factors (Siqueira et al., 2022). Several behavioural theories have evolved to interpret human decision-making, including the Theory of Reasoned Action (TRA), the Value-Belief-Norm (VBN) theory, and the Theory of Planned Behaviour (TPB).

The Theory of Reasoned Action (TRA) explains that behavioural intention is shaped by attitudes and subjective norms (Fishbein & Ajzen, 1975). However, it assumes complete volitional control, limiting its applicability to real-world mobility contexts where individuals face structural and situational constraints. To address this, Ajzen (1991) extended the TRA into the Theory of Planned Behaviour (TPB) by incorporating perceived behavioural control, enabling consideration of both internal and external influences on behaviour.

In parallel, the Value-Belief-Norm (VBN) theory highlights moral obligations and environmental values as drivers of pro-environmental behaviour (Stern et al., 1999). While VBN effectively explains environmentally motivated actions, it provides limited insights into intention–behaviour relationships in contexts requiring both psychological and infrastructural considerations, such as urban mobility.

Given these distinctions, the TPB offers a more comprehensive and context-sensitive framework for this study, integrating cognitive, social, and situational determinants of sustainable mobility. Simultaneously, the TPB has been extensively applied in transport research, particularly in studies exploring travel behaviour. Moreover, considering that Sri Lanka's collectivist culture places strong emphasis on social norms and perceived behavioural control in shaping intentions (Samarasinghe, 2012; Beckett, 2023), the TPB offers a theoretically robust foundation for analysing sustainable urban mobility behaviour.

2.6.1 Theory of Planned Behaviour

According to TPB, behavioural intentions are shaped by three direct variables: attitude toward the behaviour, subjective norm, and perceived behavioural control (Yuriev et al., 2020). In order to get profound knowledge, those terms can be defined as follows (Ajzen, 2020),

- **Attitude toward the behaviour:** interest of behaviour which will lead to a certain outcome or provide a certain experience.

- **Subjective norm**: The overall perceived social pressure to engage in the behaviour. There are mainly two types of normative belief, namely injunctive (expect approval or disapproval from a given individual or group) and descriptive normative (more important is others themselves perform the behaviour).
- **Perceived behavioural control:** Factors that can facilitate or impede the performance of the behaviour, including skills and abilities, availability, experience, lack of time, and money.

The Theory of Planned Behaviour (TPB) has been widely applied across various disciplines to explain and predict human actions. In marketing, it helps understand consumer purchase intentions and technology adoption (Yousafzai et al., 2010). In health, TPB guides interventions encouraging physical activity and healthy behaviours (Plotnikoff et al., 2015). In transport research, it is used to analyse mode choice and promote active or public travel options (Murtagh et al., 2012). Policymakers have also applied TPB to promote sustainability, particularly through pro-environmental behaviours such as recycling, energy conservation, and green consumption (Yuriev et al., 2020; Tamar et al., 2021). Overall, TPB remains a versatile and evidence-based framework for understanding behavioural intentions across diverse fields.

Recent studies explore this theory in depth, and according to their findings, human behaviour is always guided by beliefs about the consequences of the behaviour (behavioural belief), beliefs about the normative expectation of society (normative beliefs), and beliefs about the factors that may facilitate the performance of the behaviour (control belief) (Bosnjak et al., 2020). According to Yuriev, Dahmen & Paille (2020), behavioural, normative, and control beliefs can be noted as indirect variables. The identified direct and indirect variables that impact a person's intention to perform the behaviour can be represented in the following schematic representation.

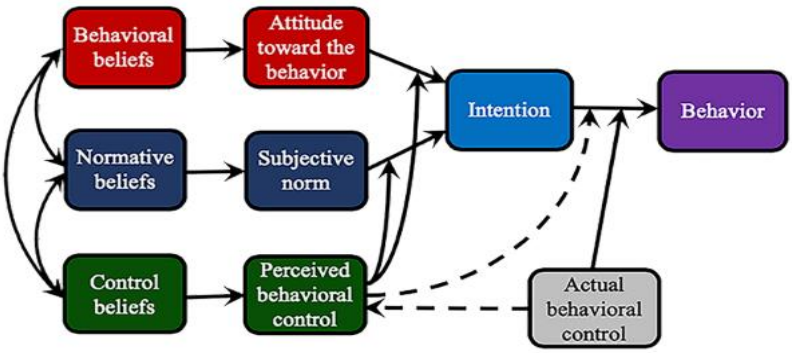

Figure 2.5 Graphical depiction of the theory of planned behaviour

Source: (Ajzen,2020)

Accordingly, behavioural beliefs shape a person's attitude toward a behaviour, normative beliefs influence subjective norms through perceived social expectations, and control beliefs affect perceived behavioural control by shaping one's sense of ease or difficulty in

performing the behaviour. However, these three types of beliefs are not isolated; they are interrelated and interconnected, jointly influencing an individual's intention

In this context, according to TPB, planners can change people's behaviour by addressing behavioural, normative, and control beliefs related to behaviour that is going to be established in the community (Ajzen & Schmidt, 2020). In countries that embody an Eastern, collectivistic culture, normative beliefs take the forefront in shaping human behaviour (Chwialkowska et al., 2020). However, TPB primarily focuses on psychological variables, providing a limited explanation of the objective variables influencing actual behaviour. Therefore, the present study aims to explore how TPB can be effectively applied to promote behavioural change towards sustainable urban mobility by conducting an in-depth investigation and extending the theory to uncover further grounded variables that influence commuters' travel behaviour.

2.6.2 Extended theory of planned behaviour

A profound examination of TPB relevant to investigating intention to choose sustainable urban mobility warrants focusing on both subjective and objective variables. According to Hu Song (2021), objective variables such as individual attributes, travel characteristics, and the built environment (density, land use, connectivity) also play a role in travel decision-making. The individual attributes demonstrate the population diversity (gender, age, education level, monthly income, occupation), which are considered influencing factors of travel behavior (Shu et al., 2018; Sarkar & Mallikarjuna, 2018). Second, travel characteristics also affect to travel behaviour as an external (objective) variable (Yu et al., 2019). Lastly, residential environmental factors have also been proven to have a significant positive influence on travel choice behaviour (Ding et al., 2017). Accordingly, by combining these objective variables with the aforementioned subjective variables (Figure 2.5), a clearer understanding of behaviour related to the intention to choose sustainable urban mobility can be achieved. In this sense, this study introduces an extended Theory of Planned Behaviour conceptual framework that synthesises both subjective and objective grounded variables relevant to transport mode decisions. Accordingly, multiple grounded factors that affect the selection of a transport mode can be represented by the following conceptual framework.

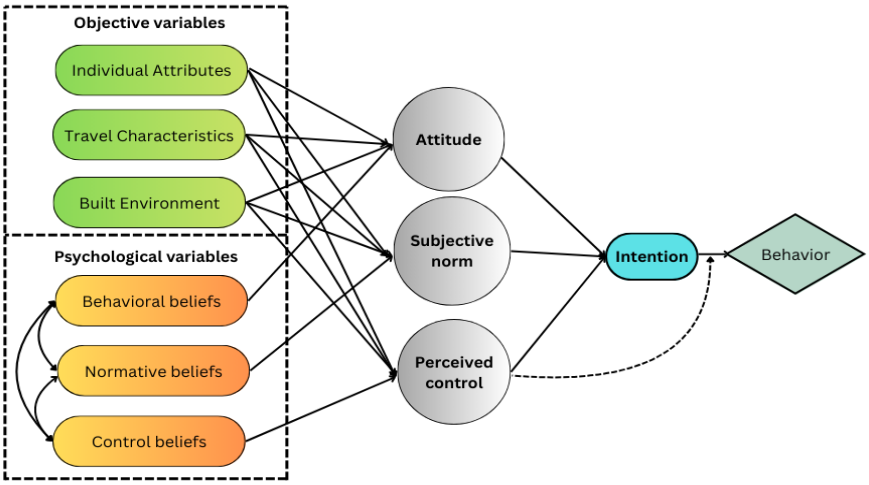

Figure 2.6 Extended theory of planned behaviour

Based on the extended Theory of Planned Behaviour (TPB), six key variables, categorised as subjective and objective, can be identified, all of which directly influence human intention in transport mode selection. However, before applying TPB to gain deeper insights into the factors influencing sustainable urban mobility, it is essential to examine its applicability in predicting sustainable behaviours that fulfill social needs.

2.6.3 Applicability of the Extended theory of planned behaviour in Sri Lanka

Previous studies demonstrate that pro-environmental behaviours—such as sustainable urban mobility practices—are influenced by multiple factors, including social, religious, and cultural values and beliefs (Han & Xu, 2020), thereby validating the applicability of the extended Theory of Planned Behaviour (TPB). When promoting such behaviours, it is essential to consider the underlying cultural orientations shaped by collectivist or individualist traditions (Chwialkowska et al., 2020). Social psychologists have long highlighted that Eastern cultures are predominantly group-oriented (collectivist), whereas Western societies tend to be individual-oriented (Beckett, 2023). Within this context, research in Sri Lanka has shown that collectivism positively correlates with pro-environmental attitudes among citizens (Samarasinghe, 2012). Accordingly, social human behaviours, such as pro-environmental behaviours, are easier to promote in Sri Lanka, as it has a collectivist culture, whose beliefs, values, and perspectives always come to the forefront.

A deeper analysis of human behaviour reveals several indirect variables that further enhance the understanding of behavioural intention and action. These include past behaviour, self-identity, anticipated emotions, environmental awareness, environmental values, and sense of community (Yuriev et al., 2020), all of which are encompassed within the extended TPB framework. Even in contexts where environmental concern may be limited, cultural values play a pivotal role in shaping attitudes and bridging the gap between environmental awareness and pro-environmental behaviour (Chwialkowska et

al., 2020). In Sri Lanka, this connection is exemplified by the story of Adam's Peak, a sacred mountain with a sensitive ecosystem believed to be under the protection of the deity Saman (Raikar, 2025; Living Heritage Trust, 2017). This deep cultural reverence has fostered a strong sense of environmental responsibility, discouraging damage to the area through a shared cultural and emotional respect rooted in Sri Lanka's collectivist traditions. Similarly, ancient spatial planning placed religious sites on rock formations to protect ecosystems by preventing settlements nearby (Jayalath & Jayalath, 2018). These examples highlight how social and cultural values, supported by collectivistic community networks, play a crucial role in shaping behaviour and environmental conservation in Sri Lanka (Chwialkowska et al., 2020).

Accordingly, many studies have revealed that addition to objective variables, other factors, such as attitudes, subjective norms, and PBC, pro-environmental activism, cultural values, environmental values, moral norms, social responsibility, and service recommendations, also influence human intention and behaviour (Ali et al., 2023). However, upon closer examination, all these factors can be categorised under the variables identified within the extended theory of planned behaviour. Accordingly, as previously discussed, this extended theory of planned behaviour can be effectively applied to investigate and shape commuters' behavioural choices (Ali et al., 2023). In this context, it is worthwhile to explore the applicability of employing the extended Theory of Planned Behaviour to promote sustainable urban mobility, a type of pro-environmental behaviour.

2.6.4 Mapping Influencing Factors with the Theory of Planned Behaviour

According to the literature, the Extended Theory of Planned Behaviour identifies six key variables that influence commuters' travel behaviour (Figure 2.6). To further examine its applicability in promoting sustainable urban mobility, this section categorises the influencing factors identified in Section 2.4 under these six variables. A notable finding is that all the identified factors align with these categories, confirming that the Extended Theory of Planned Behaviour is highly suitable for analysing and predicting human behaviour patterns in relation to sustainable urban mobility.

Table 2.4 Mapping Influencing Factors with TPB

Type of Variable	Type of indirect variables	Identified influencing factors	Public transport (PT)/ Active Mobility (AM)	Direct variable	References
	Individual attributes	Gender, Age, Education level, income	PT & AM	Attitude, Subjective norm, Perceived control	(Neto et al., 2020), (Hu Song, 2021)

Objective variables	Travel Characteristics	Trip origin & destination, Trip time throughout the day, travel time, travel cost, availability, frequency, connectivity, Travel mode properties and Qualities	PT & AM	Attitude, Subjective norm, Perceived control	(Elkafoury et al., 2023), (Hu Song, 2021), (Diab et al., 2017), (Ali et al., 2023), (Mandal et al., 2023).
	Built environment	Recreational features, physical separation from traffic, sidewalk width, continuity, cleanliness, Availability of benches, shady covers, street lamps, crossing facilities, quality air, elevated temperature, high car traffic	AM	Attitude, Subjective norm, Perceived control	(Fauzi & Aditianata, 2018), (Abdulmughni et al., 2021). (Yu, 2017), (Tong & Maliki, 2024), (Distefano et al., 2023), (Mouratidis et al., 2023)
		Seating facility, reducing the walking distance and delay times, high car traffic	PT		(Saranjan & Bandara, 2024), (Diab et al., 2017).
Psychological variables	Behavioural beliefs	Purpose, Personal beliefs (enjoyable or beneficial), Personal experience, Travel satisfaction, Life satisfaction, stress releasing, Environmental concerns, enhancing happiness by chance to gather, Personal moral	PT & AM	Attitude	(Yu,2017), (Mouratidis, 2021), (Mandal et al., 2023), (Distefano et al., 2023).
	Normative beliefs	Cultural/social beliefs, seeing other people walking or using PT, their status in society, recommendations from other users	PT & AM	Subjective norm	(Saranjan & Bandara, 2024), (Ali et al., 2023), (Yuda Bakti et al., 2020), (Neto, 2020)
	Control beliefs	Comfortability, security, and safety for traffic	PT & AM	Perceived control	(Diab et al., 2017), (Mandal et al., 2023), (Liu et al., 2022).

When examining the factors influencing transport mode decisions, it becomes evident that these are shaped by the surrounding environmental, social, cultural, and economic contexts. The economic, social, and environmental features are also uniquely dynamic across the regions, countries, and other local contexts (Hossain & Jami, 2023). Therefore, these factors and their influence may not be universally applicable, making it essential to understand people's psychological and physical needs within each context (Liu et al., 2022).

In this regard, the development of effective, locally adapted sustainable urban mobility strategies is essential to address the identified influencing factors. Without such contextual

alignment, improvements may end up being only surface-level changes, such as platform expansions or minor streetscape enhancements, without delivering meaningful change (Abdulmughni et al., 2021). Consequently, the sustainable urban mobility strategies of any city depend on multiple elements, including the condition of the road network, the availability of public facilities, environmental characteristics, lifestyles, cultural traditions, and prevailing social activities (Pawlyszyn & Ryzhkova, 2021). Accordingly, before formulating context-specific sustainable urban mobility strategies for Sri Lanka, it is essential to examine the foundational principles, core process requirements, and potential benefits of adopting a tailored development framework that can maximise the effectiveness of these strategies.

2.7 Necessity of a Unique Strategy Development

Modern social and environmental sciences increasingly emphasise rethinking humanity's role within interconnected social and ecological systems. In this context, the concept of the noosphere, a global sphere of collective wisdom, culture, and human thought, has gained significant popularity (Ouyang, 2021). Today, it encompasses not only knowledge but also behaviours and beliefs shaped by our environment, which in turn influence culture and actions. Closely linked to the biosphere, the noosphere reflects humanity's spiritual and practical response to global challenges, drawing from daily experiences, memories, and folklore to form identity, values, and responsibilities (Bellaubi, 2021). Every community has its own ways of thinking, shaped by religious, regional, and cultural features, which help solve problems in ways suited to its context (Gubanov et al., 2019). In Sri Lanka, this idea "*sthanochitha prachnava*" highlights practical, context-specific solutions rooted in an understanding of local ecosystems, culture, and society.

Urban thinker Jane Jacobs viewed cities as a blend of cultural openness, strong social capital, economic vibrancy, and local charm (Ravazzoli & Torricelli, 2017). In Sri Lanka, the *handiya*, more than just a crossroads, is a vibrant social hub shaped by activities and interactions, often challenging conventional urban planning (Perera, 2016).

2.7.1 Implementation of a Unique Sustainable Urban Mobility Strategies

As a response to this situation, a sustainable urban mobility strategy formulation requires acknowledging that people's desires, values, and priorities differ across groups, shaped by evolving perceptions (Ahmed et al., 2019). Accordingly, one core principle in this process is public participation, enabling policymakers to refine strategies by incorporating diverse social values, perceptions, and behaviours (Pawlyszyn & Ryzhkova, 2021). The following principles further illustrate the developing unique mobility strategies, the principles that should be considered in the strategy development process, and their advantages.

- **Spatial design with social values**

In Eastern collectivist cultures, public spaces that foster gathering and interaction are essential, unlike in individualistic Western cultures (Beckett, 2023; Nisbett, 2004). Streets in such contexts serve not only as transport corridors but as social and economic hubs, supporting walking, eating, meeting friends, and shopping (Abdulmughni et al., 2021).

Moreover, Eastern thinking often views the world as an interconnected system, where change in one element affects the whole (Nisbett, 2004). This perspective calls for function-oriented rather than purely object-oriented planning, especially in Sri Lanka. Following Eastern cultural logic and Jane Jacobs' principles, authorities should adopt performance zoning, organising urban features for functional synergy, comfort, and cultural acceptance, in line with place attachment theory (Smith, 2009).

- **Emotional attachment to place**

Place attachment is "a set of feelings about a geographic location that emotionally binds a person to that place as a function of its role as a setting for an experience (Sun, 2020). It includes place identity (emotional meanings, rules, regulations, norms, behavioural intentions, attitudes, beliefs, knowledge), and place dependence (functional relationships with settings) (Koohsari et al., 2023). Recent studies found that the degree of attachment has been influenced by physical attributes and characteristics (Purba, 2022). Moreover, various emotional perceptions are developed within the same physical settings, since place attachment relates to people's "incidences" that have three dimensions, including physical, environmental, and social incidences (Sun, 2020). In Eastern cultures, attachment to places and their functions is typically stronger than in Western contexts, making it a vital consideration for urban form and mobility planning.

- **Behavioural Ecology**

In addition to social values, emotional values, and priorities, behavioural factors also vary from region to region, and they must be thoroughly considered when developing unique sustainable urban mobility. For instance, walking preferences differ by country, culture, climate, socioeconomic status, and safety conditions (Perera, 2016). Moreover, studies have shown that the travel behaviour of citizens is also shaped by several factors such as culture, personal habits and preferences, socioeconomic status, climate, transportation management, transportation frequency, and general safety (Chen & Felkner, 2020). In this sense, combining social values, emotional attachment, and behavioural tendencies creates a foundation for human-centred transport and land-use designs tailored to specific contexts (Hidayati et al., 2021).

- **Current policy and design gaps with human behaviour**

Despite growing evidence, many authorities fail to account for the complex interplay of social, physical, and economic factors. The Rathnapura relocation project, intended to

avoid flooding, relocated key functions to higher ground, yet the new town remains inactive outside office hours, while floods persist (Edirisooriya et al., 2018; Bandara et al., 2010). Similarly, the Radampola mini town plan imposed strict behavioural rules and wide, interaction-limiting roads, resulting in spaces that feel unwelcoming. Such cases highlight the cost and ineffectiveness of ignoring human and cultural factors in urban planning (Perera, 2016).

Considering all together, urban mobility can be defined as "a complex system of social, economic & spatial interactions" (Wang et al., 2022). Literature findings highlight that, since each city possesses inherent social, cultural, and environmental characteristics, strategies tailored to these unique features are more effective and efficient in achieving sustainable urban mobility. This study, therefore, emphasises the necessity of establishing distinctive sustainable urban mobility strategies shaped by the social, cultural, environmental, and economic characteristics of Sri Lanka to yield more meaningful results.

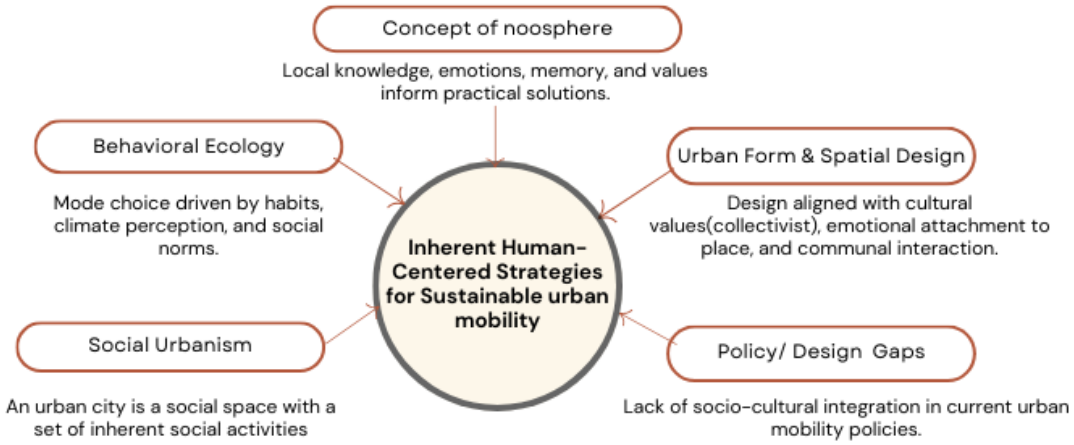

Figure 2.7: The Necessity of an Inherent Human-Centered strategies to Sustainable Urban Mobility

Accordingly, in formulating sustainable urban mobility strategies for the Sri Lankan context, the influencing factors on commuters' transport mode decisions (Table 2.4) should be contextually validated and prioritised by analysing their influence levels based on commuters' perspectives. Incorporating public participation into the strategy formulation stage ensures optimal performance of sustainable urban mobility while fostering meaningful public engagement.

2.8 Conceptual Framework

The conceptual framework addressing the first four objectives and the literature-identified research gap is presented in Figure 2.8. The literature highlights sustainable urban mobility as a solution to the complex challenges intertwined with urban transport systems, particularly in highly urbanised provinces. This review explored the concept of sustainable

urban mobility, its measurement indicators, goals, and modern approaches aimed at maximising its benefits. Among these approaches, such as government policy reform, changes in urban form, enhancement of public transportation, and implementation of active mobility, public transport and active mobility enhancement consistently emerge as the most prominent and effective tools in the global context.

When promoting these two mobility practices within a city, it is essential to address the factors that influence commuter behaviour and mobility patterns. To ensure no critical aspects are overlooked and to gain a deeper understanding of how these factors influence sustainable urban mobility, the Theory of Planned Behaviour (TPB) was adopted to categorise them systematically. This categorisation supports explanation and prediction of their roles, thereby aiding in the development of robust, evidence-based strategies.

In line with this, the current study developed an extended TPB model that defines six key variables and maps the identified influencing factors accordingly. However, the degree and manner in which these factors influence mobility may vary across regions, given differences in social, cultural, environmental, and economic characteristics, as well as local values and beliefs. Therefore, strategies aimed at addressing these influencing factors must be contextualised. Before formulating such strategies, these factors must be thoroughly analysed from the commuters' perspective.

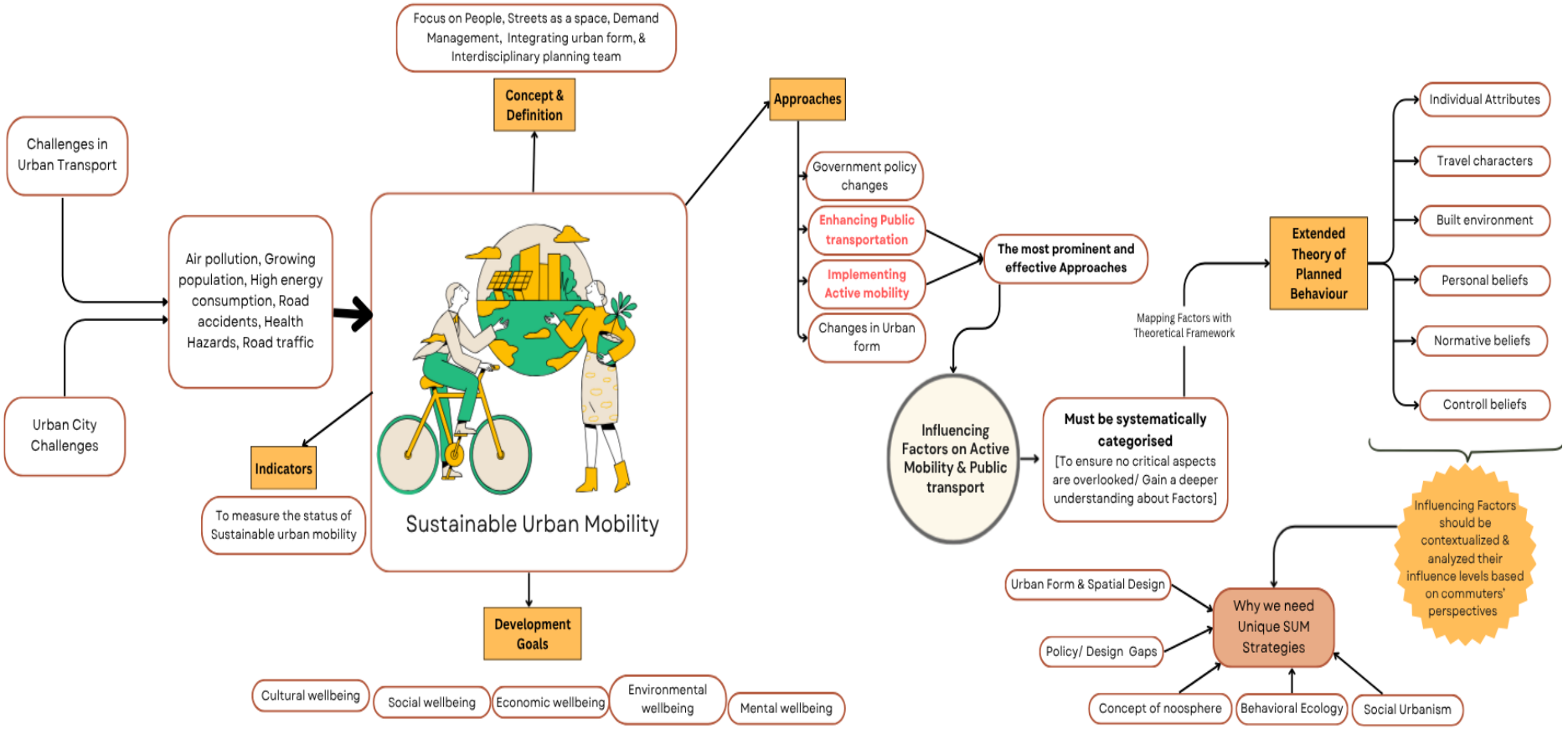

Figure 2.8 Summary of the literature findings

2.9 Chapter Summary

This chapter aimed to achieve the first four objectives of the research and establish a foundation for the fourth objective. It emphasised the need for sustainable urban mobility (SUM) to address the complex and interrelated issues in Sri Lanka's most urbanised provinces, many of which are closely linked to urban transport systems.

First, the concept of SUM and its measurement tools were critically reviewed (Objective 1). Second, key approaches to achieving SUM were examined, with active mobility and public transport identified as the most effective strategies (Objective 2). Third, factors influencing these practices were explored to enable their effective implementation and optimal performance (Objective 3). Finally, as the fourth objective, the Theory of Planned Behaviour (TPB) was critically reviewed to evaluate its relevance to travel behaviour.

Since the extended TPB provides a robust explanation of commuter travel behaviour, the identified influencing factors were systematically mapped to its six variables. This categorisation ensured no critical dimensions were overlooked, offered deeper insights into behavioural determinants, and supported the contextualisation of these factors for assessing commuter perspectives before strategy development. The detailed analysis of these factors and the resulting strategies are presented in the data collection chapter.

Together, these discussions form a foundation for a holistic vision of sustainable urban mobility, integrating economic, social, environmental, and mental well-being.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

According to Socrates (469–399 BC), life without inquiry is not worth living for a human being (Naidoo, 2011). Research is one of the inquiring tools that is not just limited to gathering the information relevant to a topic. It is about inquiring, answering unanswered questions or implementing something new. Furthermore, research involves knowledge building, carrying out experiments to find out the cause and effect of something, as well as to provide the basis for further studies (Apuke, 2017). The purpose of this chapter is to illustrate the path of achieving the aim and objectives of this research following a methodological approach. Kothari (2004) stated that a research design is a well-structured framework to collect and analyse data in order to achieve the aim and objectives of the research. Among various frameworks, the Research Onion and the Nested Approach are widely used to provide structured guidance for selecting research philosophies, approaches, and methodologies, thereby helping researchers systematically design their studies (Saunders et al., 2019). Specifically, the Research Onion framework guides decisions on which philosophy, approach, and methodology to adopt in order to fulfill the scientific requirements of good research (Mardiana, 2020).

3.2 Research Design

The research onion model's outermost layer illustrates research philosophies that shape fundamental beliefs about knowledge and guide the overall research design (Saunders, Lewis, & Thornhill, 2019; Creswell, 2014; Yin, 2018). This model explains three philosophical dimensions, namely: ontology (concerning the nature of reality and its characteristics), epistemology (addressing assumptions about what constitutes valid knowledge and how it can be obtained), and axiology (relating to the values and ethics researchers apply throughout the research process) (Yin, 2018; Mendis et al., 2023). Additionally, each research philosophy is associated with different worldviews: positivism focuses on quantifiable facts, interpretivism emphasises subjective experience, realism recognises an independent reality shaped by perception, and pragmatism blends multiple elements.

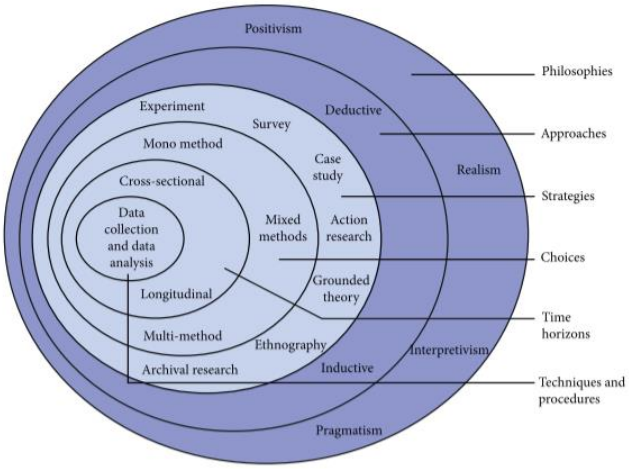

Figure 3.1 Research Onion

However, in pragmatism, researchers are allowed to combine research approaches, methods, and strategies for better applicability (Alturki, 2021). As set out in the aim and objectives, this study explores individuals' perspectives, ideas, and responses to mobility challenges in their lived environments to identify policy–practice gaps and propose strategies for optimal use of sustainable urban mobility. It adopts a pragmatic research philosophy, as it enables the integration of qualitative and quantitative methods to address real-world problems, with interpretivist approaches in the qualitative stages to capture the complexity of human experiences in Sri Lanka's urban mobility context.

3.2.1 Research approach

The research approach is the movement trend between research and theories. Two predominant approaches are commonly discussed: inductive, which begins with specific observations and seeks to develop broader generalisations or theories, and deductive, which starts with established theories or concepts and then tests these through empirical data collection (Saunders et al., 2019; Creswell & Creswell, 2018). The combination of these two approaches (abductive) also has advantages, including flexibility for both exploratory and explanatory parts of the research (Alturki, 2021). While this study is initially grounded in the theory of planned behaviour, an existing theoretical model, it subsequently also seeks to contextualise this framework and revise existing policies to fit the local context through primary data analysis. In this sense, the study follows an abductive approach, which integrates both deductive reasoning (employing an existing theoretical framework) and inductive insights (emerging from qualitative expert opinions and contextual observations).

3.2.2 Research strategy

The general plan of how to answer the research question, which includes research objectives and the source of data collection, is covered under the research strategy (Al-

Ababneh, 2020). According to research onion, several research strategies can be employed to collect data, including experiments, surveys, case studies, action research, grounded theory, ethnography, and archival research (Mphale et al., 2024). Action research is a type of collaborative research strategy that is useful for both practitioners and scholars by integrating theory and practice, and enabling practitioners to investigate and improve their own work (Casey & Coghlan, 2021). Additionally, grounded theory facilitates the explanation and prediction of behaviour or social phenomena, while ethnographic research focuses on investigating meaning rather than using a scientific approach to measure phenomena with participant observation (Mphale et al., 2024). Another qualitative research strategy can be identified as archival research, and it uses longitudinal data from primary and secondary sources, such as personal diaries, letters, and pre-existing documents, to generate new theories and improve the validity of findings (Briere, 2021).

Survey research is widely used to collect data on attitudes, opinions, and behaviours through structured questionnaires (Creswell & Creswell, 2014). The method, called "case study," has its roots in sociology and has also been used a great deal in anthropology, law, and medicine. Case study research enables an in-depth investigation of a specific context using multiple sources of evidence (Yin, 2018). According to Yin (2018), there are four classic types of case study design: single-holistic, single-embedded, multiple-holistic, and multiple-embedded, each chosen based on the study's purpose and analytical needs. A single case study is appropriate when the case represents a critical, unique, or typical example that can provide valuable insights into the phenomenon under investigation (Yin, 2018). Given these considerations, the current study adopts a single-holistic case study strategy, focusing on Kiribathgoda City, a suburban linear city identified as a high-priority area for public transport improvements. This city serves as a critical and representative case for examining sustainable urban mobility challenges in Sri Lanka. The case study defines its boundary as Kiribathgoda City, with urban mobility practices as the unit of analysis. Within this single case study, documentary review, observations, and a questionnaire survey were used as data collection techniques.

3.2.3 Research Choice

Research choice depends on the quantitative or qualitative choice used throughout the research process. Quantitative method is a fact-finding process using numerical data, which could be analysed using mathematically based methods (Muijs, 2011). In contrast to quantitative research, in the qualitative method, the findings are gathered using non-numerical data, and the problem can be reformulated after the data collection (Kumar, 2020). The case study research strategy enables the integration of both qualitative and quantitative insights to address the complexities of sustainable mobility in a real-world urban setting.

The research choice can be classified as mono-method (using a single data collection method), mixed-method, or multi-method. Both mixed and multi-methods utilise various methods to gain data, while the multi-method approach focuses on a single paradigm (quantitative or qualitative) and mixed-methods integrates both qualitative and quantitative methods throughout the research process (Mphale et al., 2024). Since this study combines a focus group discussion, single-case studies, and expert interviews, it is supported by a mixed-methods research design. This integration provides comprehensive insights and enhances the validity of findings.

3.2.4 Time Horizon

Moreover, the time horizon is described as the duration of the research, and cross-sectional is very common as the time arrangement for both quantitative and qualitative studies (Mardiana, 2020). Since the study is conducted at a single point in time to capture current challenges and mobility behaviours, the time horizon aligns with the cross-sectional method.

3.2.5 Research techniques

Finally, the center of the onion illustrates that the core of the research includes data collection techniques and procedures of data analysis (Al-Ababneh, 2020). The collection of data plays a vital role in the research process. Unless the correct data is gathered, there is no way of fully answering the research problem. Data can be either primary or secondary (Rabianski, 2003). In this research, secondary data were collected through literature synthesis in Chapter Two, including academic sources and policy documents.

A literature review is an important chapter in the thesis, where its purpose is to provide the background, research problem, and justification for the research undertaken (O'Gorman & Maclntosh, 2015). In this research, information required for the literature review was collected from academic journals, reports, government publications, and digital sources. This phase addressed the first four objectives of the research by reviewing the concept of sustainable urban mobility, investigating key approaches to sustainable urban mobility, examining factors that influence the choice of public transport and active mobility in the global context, and reviewing the Theory of Planned Behaviour and assess its relevance to travel behaviour. Furthermore, this phase involved developing a theoretical foundation to explore how these influencing factors impact the optimal performance of sustainable urban mobility, utilising the Theory of Planned Behaviour as a framework to categorise the identified factors systematically. Accordingly, 42 variables affecting commuters' transport mode decisions were identified and grouped under six constructs derived from the Theory of Planned Behaviour (Table 2.4), forming the basis for the subsequent data collection process.

Subsequently, with respect to the research topic, primary data were collected using five main techniques: focus group interviews, documentary review, observations, questionnaire surveys, and expert interviews. In particular, the documentary review, observations, and questionnaire survey were undertaken within a single case study framework.

3.2.5.1 Stage I: Focus Group Discussion

Focus group interviews involved small, diverse groups of experts in city development discussing specific integrations of human behaviour with sustainable urban mobility. This focus group comprised eight experts from various fields, including town and country planning, engineering, quantity surveying, and academia, all specialising in urban development. This discussion aimed to validate and map the factors influencing active mobility and public transport using the extended Theory of Planned Behaviour, while offering a deeper understanding of sustainable urban mobility challenges and solutions with particular reference to the Sri Lankan context. This discussion was planned to gather expert opinions and validate the 42 variables identified from the literature review (Table 2.4). Accordingly, the primary focus of this part of the research was to investigate the applicability of the Theory of Planned Behaviour, allowing experts to revise, combine, or discard variables based on relevance, feasibility, and practical applicability to the Sri Lankan context (Figure 4.1). This involves identifying and interpreting concepts, theories, and professional experiences to generate meaningful insights. The insights gathered ensured that the variables reflect both theoretical frameworks and practical realities, providing a robust basis for further analysis. Qualitative data obtained from the focus group discussion were analysed using manual content analysis.

3.2.5.2 Stage II: Documentary review

Within the single case study framework, the documentary review was conducted to collect data related to urban mobility practices, including the current public transport services, as well as influencing factors such as environmental conditions, road accidents, and socio-cultural characteristics in Kiribathgoda City. The data were obtained from recent academic studies, reports issued by the Road Passenger Transport Authority (Western Province), and records from the Kiribathgoda Police. These documents were systematically examined and analysed using manual content analysis.

3.2.5.3 Stage III: Observations

Along with document reviews, observations were carried out using a structured checklist, which was designed based on the literature findings presented in Table 2.4. The checklist enabled systematic assessment of built environmental features that influence urban mobility practices in Kiribathgoda City, focusing on infrastructure, land use, and

environmental conditions. These observations, together with the secondary data, provided an in-depth examination of the existing urban environment, offering a detailed understanding of the urban mobility influencing factors in Kiribathgoda City. The observation checklist is attached as Annexure A.

3.2.5.4 Stage IV: Questionnaire Survey

To examine commuter behaviour, a structured questionnaire survey was administered to frequent users of Kiribathgoda's transport system. A total of 160 responses were collected through a proportionate stratified sampling method, as it is an effective method for studying societal trends with minimal sample sizes (Kolenikov & Griva, 2016). This sampling technique ensured demographic representation by age and gender consistent with the actual population profile. Accordingly, 46% of respondents were under 30 years of age, 35% were between 30 and 55 years, and 19% were over 55 years, reflecting the real age distribution in the city area (National Secretariat for Elders, 2022).

Age groups were classified based on life-stage stability and behavioral flexibility, informed by prior research. Individuals under 35 typically show high adaptability and openness to various transport modes due to transitional life phases (Delbosc & Nakanishi, 2017). Those aged 35–55 tend to follow stable routines but remain open to change, while individuals over 55 often exhibit lower flexibility due to physical or habitual constraints (Yang & Lewis, 2023). This ensured a balanced and representative sample, allowing the survey to accurately reflect community needs and support reliable, people-centered mobility planning. The Smallest subgroup, the over-55-year group, maintained the minimum of 30 participants, as the Central Limit Theorem (CLT) suggests that a sample size of 30 or more is sufficient for the sampling distribution of the mean to approximate a normal distribution (Field, 2018).

When statistical techniques were carried out on data analysis, it helped in investigating variables as well as their effect, relationship, and their patterns of involvement within our world (Lutabingwa & Auriacombe, 2007). Therefore, quantitative data analysis was conducted by using mean comparisons, chi-square test, and developing regression models.

While assessing the influence of various factors on transport mode choice from commuters' perspectives by conducting mean value comparison, categorical differences (age, gender) in transport mode selection were covered under the chi-square test. In the Mean value comparison, commuters marked the influence levels for each identified factor on their transport mode decision according to their perspective under 5 levels of influence, from no influence (0) to a highly influential level (4). Subsequently, each factor was compared with its mean values by dividing the overall mean value into 5 influence levels as follows.

Table 3.1 Scale Ranges for Levels of Influence

From	To	No influence	From	To	Slight Influence	From	To	Moderate Influence	From	To	Significant Influence	From	To	Highly Influence
0.0	0.7		0.8	1.5		1.6	2.3		2.4	3.1		3.2	4.0	

The Chi-square test was employed to detect significant differences in response patterns and determine the role of age and gender in transport mode decisions. The objective was to assess whether each factor or condition has a statistically significant impact on transport mode choice due to gender or age differences. However, this does not mean that being part of a particular age or gender group directly determines transport mode selection. Instead, it suggests that the influence of each factor on transport decisions varies significantly between age and gender groups.

The following hypotheses were formulated for each factor:

- Null Hypothesis (H_0): There is no significant relationship between the factor (e.g., health condition, occupation) and transport mode choice across gender or age groups.
- Alternative Hypothesis (H_1): There is a significant relationship between the factor and transport mode choice, meaning that the way it influences transport decisions differs across gender or age categories.

Subsequently, to perform the test, the observed response frequencies (e.g., No Influence, Moderate Influence, Significant Influence) were compared to the expected frequencies, which were calculated assuming independence between variables. The Chi-Square statistic was then computed to measure the deviation between observed and expected values. For factors that yielded p-values less than 0.05, the null hypothesis was rejected, indicating a statistically significant difference in response patterns based on gender or age.

Furthermore, regression analysis was used to examine the key predictors of public transport usage or walking preferences, offering a broader social perspective on sustainable mobility. Consequently, this combined approach ensures a comprehensive understanding of the factors shaping transport mode choices, supporting the development of sustainable urban mobility strategies. The questionnaire responses were primarily analysed using Excel, with additional manual analysis conducted to supplement the findings.

3.2.5.5 Stage V: Expert Interview

Expert interviews validated the findings of focus groups and case studies by providing insights from professionals in multidisciplinary fields such as urban planning, transport

engineering, social sciences, and policy-making. The selected experts discussed critical variables impacting transport mode choices and suggested strategies for mitigating urban mobility failures. In this process, interviews were deeply focused on understanding how influencing factors, including policy, governance, cultural attitudes, and infrastructure barriers, affect transport choices. Lastly, expert interviews added depth to the research findings by incorporating their specialised knowledge and ensuring a comprehensive understanding of both systemic issues and practical interventions. Qualitative data obtained from expert interviews were analysed using manual content analysis. The findings helped to formulate inherent strategies to overcome the barriers to sustainable urban mobility.

3.3 Research Process

Research is a process that requires patience and thoughtful consideration. Therefore, a well-designed plan is essential to achieve the aim and objectives of the study. Accordingly, this research was structured into a systematic sequence of stages, each aligned with a specific objective. The process began with an extensive literature review to establish a theoretical foundation and gain a comprehensive understanding of the concept, principles, and global approaches to Sustainable Urban Mobility (SUM). The second phase identified the factors influencing public transportation and active mobility, serving as a basis for further contextual analysis.

The third phase integrated the Theory of Planned Behaviour (TPB) as an analytical framework to categorise these influencing factors systematically. This was undertaken in two stages: first, through literature review and manual analysis to develop a theoretical categorisation; and second, through focus group interviews to validate and adjust the list in line with the Sri Lankan context.

Building upon these validated factors, the fourth phase employed a case study approach to prioritise the key issues that must be addressed in policy formulation, supported by both manual and statistical analysis. Finally, expert interviews were conducted to refine and endorse a set of detailed guidelines and strategies for implementing sustainable urban mobility in Sri Lanka. These sequential stages ensured a coherent link between theory and practice, moving from global concepts to locally tailored policy recommendations. Figure 3.2 presents a visual summary of the research process, showing how each objective connects to its research question, data collection method, analysis technique, and expected outcome.

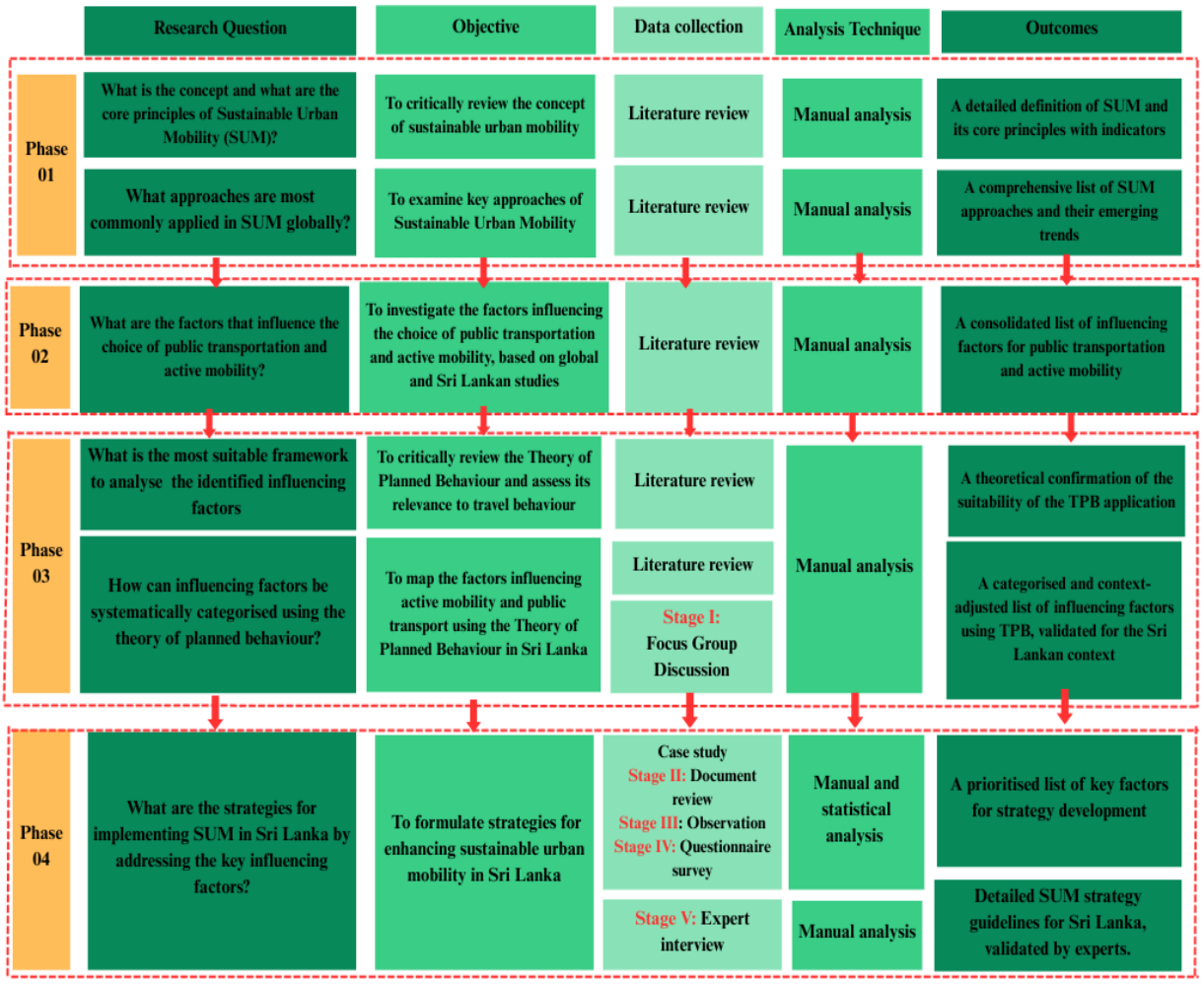

Figure 3.2 Summary of Research Process

3.4 Chapter summary

This chapter outlined the methodological approach used to enhance sustainable urban mobility in the Sri Lankan context. Guided by an interpretive philosophy and an abductive research approach, the study employed a mixed-method strategy to integrate qualitative and quantitative data. Data collection comprised three stages: focus group interviews to validate behavioural variables, a single case study, including document reviews, observation, and a questionnaire survey using proportionate stratified sampling, to assess commuter preferences, and expert interviews to contextualise findings and co-develop strategies. Analytical techniques such as manual content analysis, mean value comparison, chi-square tests, and regression analysis were applied to explore variable relationships and ensure the robustness of results. The next chapter presents the detailed findings and analyses.

CHAPTER 4

DATA COLLECTION AND ANALYSIS

4.1 Introduction

The preceding chapter discussed the methodology, which was used to achieve the research objectives. In line with the 5th and 6th objectives of this study (see Section 3.3), this chapter presents the analysis of primary data collection, structured across Stages I to V. Prior to implementing urban mobility strategies to optimise performance in sustainable urban mobility, it is essential to identify the prominent factors revealed in the literature review that influence individuals' transport mode decisions, taking into account both theoretical and practical aspects. Accordingly, to validate the factors identified in the literature, a focus group interview was conducted. Additionally, a single case study was carried out in a city aiming to implement sustainable urban mobility, ensuring the practical applicability of the literature findings. Furthermore, expert interviews were conducted to provide recommendations for the planning and design of sustainable urban mobility.

4.2 Stage I: Focus Group Discussion

A focus group discussion was the first primary data collection instrument employed to validate and map the factors influencing active mobility and public transport using the extended Theory of Planned Behaviour. The primary aim of the discussion was to address gaps in the findings from the literature review (refer to section 2.7.3) and align those findings with both theoretical and practical realities. This focus group consisted of eight experts in diverse disciplines, including Town and country planners, Engineers, Quantity surveyors, and academics specialising in city development.

As the initial stage of the focus group discussion, experts' philosophical perspectives on sustainable urban mobility in Sri Lanka were explored to get a broader understanding of practical realities in Sri Lanka.

4.2.1 Experts' perspectives on Sustainable Urban Mobility in Sri Lanka

Experts highlighted a fundamental difference between global and Sri Lankan interpretations of sustainability. While global definitions often prioritise short-term environmental goals and efficiency, the Sri Lankan concept, rooted in the term *Thirasara*, emphasises cultural continuity, spiritual depth, and long-lasting balance. Similarly, the idea of a "city" (*Nagaraya*) in the Sri Lankan context encompasses not just physical infrastructure but also social, behavioural, and cultural elements shaped by tradition.

Experts argued that sustainable urban development in Sri Lanka must be redefined through a culturally grounded approach that reflects indigenous knowledge, human behaviour, geography, and long-standing social practices. They also cautioned against adopting Western urban models blindly, citing examples from global urban planning history to

advocate for human-scale and community-focused development. One expert noted that Sri Lanka lacks a structured, phased evolution in urban planning, highlighting the need to develop its own path based on local values and challenges.

In discussing sustainable urban mobility specifically, experts emphasised aligning mobility systems with Sri Lanka's unique geographic and social context. This includes minimising landscape fragmentation, ensuring accessibility for all income groups and abilities, and integrating transport systems that promote equity and environmental friendliness. A strong call was made for better land use planning and reliable public transport to reduce dependence on private vehicles. Experts also stressed that Sri Lanka's current mobility systems still reflect colonial-era priorities and must be restructured to address local realities rather than mimic foreign models.

Experts agreed that Sri Lankans perceive urban areas as uncomfortable, leading to a desire to leave cities quickly. Private vehicle ownership is strongly preferred, driven by comfort, social status, and emotional attachment. Unlike in some Western societies, where environmental values guide choices, Sri Lankans often prioritise convenience and social perception.

There was also concern that many Sri Lankans view rule-breaking (e.g., jaywalking) as normal or even admirable, revealing a disconnect between formal regulations and lived urban experience. Therefore, experts advocated for behaviour-oriented design approaches, rather than rigid policy enforcement. Recognising gender needs, age-based mobility concerns, and emotional connections to space were identified as essential components of future planning.

Further, it was emphasised that current policies often fail because they are introduced without sufficient research or public input. Instead, experts recommended a shift from "planning for people" to "people for planning", encouraging participatory processes where communities help shape mobility solutions. Education and phased behavioural change were seen as critical tools for embedding sustainable practices within society.

Finally, experts stressed the importance of overcoming institutional barriers and investing systematically in urban mobility reforms. They concluded that a successful sustainable urban mobility model in Sri Lanka must be human-centered, culturally sensitive, and shaped by collaboration across disciplines and community levels. Policies rooted in local identity and grounded in behavioural understanding are more likely to be accepted and integrated into daily life, leading to cities that are not only functional but also feel natural and comfortable for their residents.

With these valuable insights, the focus group discussion also concluded that promoting sustainable urban mobility involves more than just developing infrastructure. It must

address a broad range of influencing factors, including environmental, social, economic, cultural, and psychological, that shape commuters' transport mode choices. Accordingly, to validate and refine these influencing factors within the Sri Lankan context, the second stage of the focus group discussion was conducted.

4.2.2 Validating Factors Influencing Transport Mode Decision

Through this process, identified factors in the literature review (see Section 2.7.3) were validated, with some being combined or amended based on expert opinions. Additionally, after a thorough examination, the experts had the opportunity to remove or add new factors as necessary. According to expert opinions, Health conditions and the nature of the occupation were identified as key individual attributes that directly impact transport mode decisions of individuals. Furthermore, technological advancement was also added under travel characteristics, as it is increasingly a key feature people consider when selecting a transport mode. As a result of the discussion, under the former group titled "Built environment", experts recommended a broader term, "Environmental features", to better capture both natural and human-made spatial influences on mobility practisers. Additionally, under the environmental features that impact transport mode decisions, the focus group explored various features. Among those factors, geological features, non-presidential events (Pandemic, extreme weather, strike), seasonal and locational features, diversity of land use, speed of movement, and adherence to the plan, all of which were identified as having significant potential to impact individual transport choices. In addition to these factors, the experts highlighted several psychological aspects, including personal confidence and propensity for technology, which were recognised as essential components to be listed under behavioural and control beliefs.

Consequently, insights gathered from the discussion ensured and finalised the variables reflect both theoretical frameworks and practical realities. These findings provide a robust basis for further analysis, focusing on enhancing active mobility and public transportation by integrating influencing factors on commuters' transport practices. The summary of the findings is illustrated in Figure 4.1.

Based on the result provided above, it is evident that in order to enhance sustainable urban mobility, it should be focused on developing a friendly environment and travel modes for every type of human who has different attributes and beliefs about their behaviour. In this context, prior to developing tailored sustainable urban mobility strategies, it is essential to identify a range of influencing factors, including, but not limited to, social distribution and characteristics, available transport modes, natural and built environmental features, as well as human needs, beliefs, and expectations related to mobility.

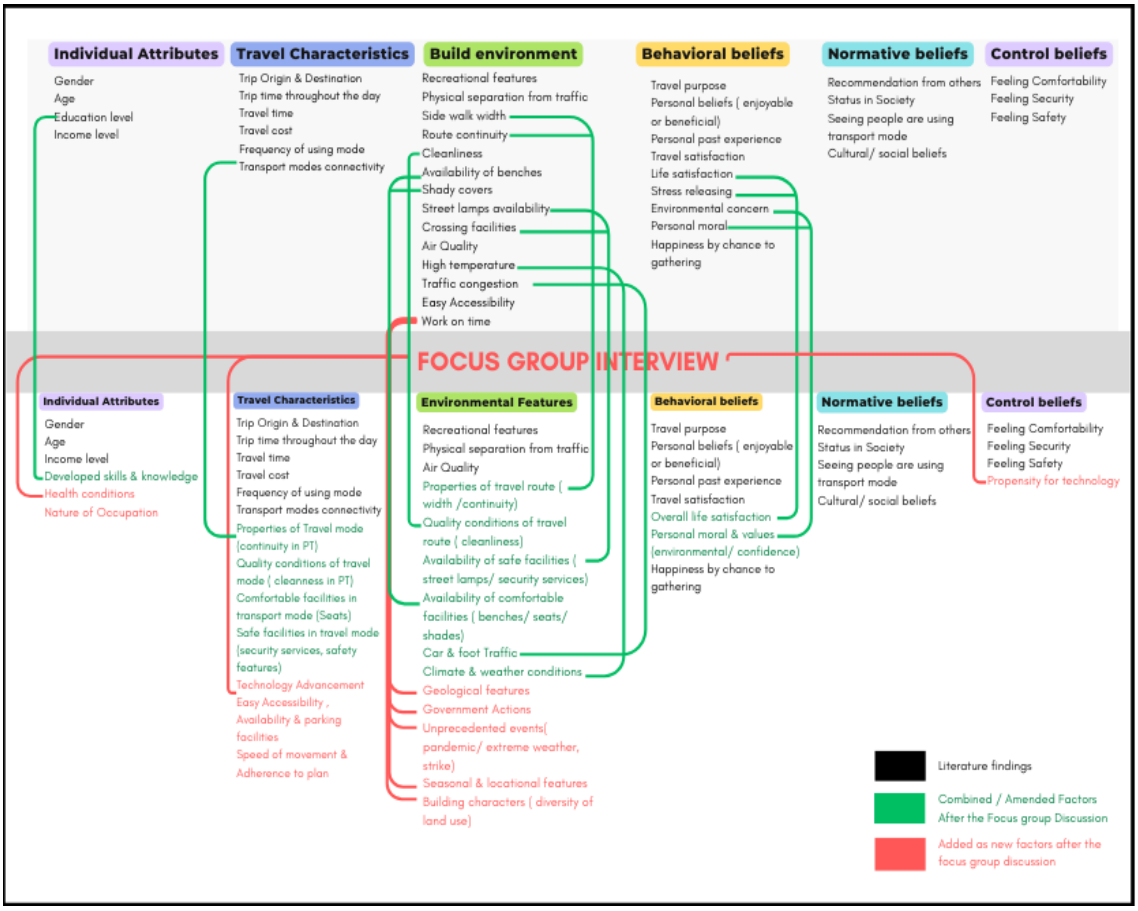

Figure 4.1 Focus group discussion summary

To this end, when applying sustainable urban mobility within the context of Sri Lanka, it is essential to investigate the inherent features and challenges associated with environmental, social, and economic aspects. Accordingly, to accomplish the 6th objective of the study, a single-case study was conducted as part of the research strategy (see Section 3.2.2) to examine the inherent features of a city identified as a high-priority area for implementing sustainable urban mobility. This initial step of the fourth phase of the research process (Figure 3.2) serves as the foundation for formulating guidelines and strategies for sustainable urban mobility in Sri Lanka, with the ultimate aim of promoting holistic well-being.

4.3 Case Study Area

According to Sri Lanka's physical policy plan for 2050, more than 25% of the total population, 40% of the GDP, and more than 50% of the physical infrastructure are concentrated in the western province of Sri Lanka (Ministry of Megapolis and Western Development, 2016). However, land scarcity is a significant challenge in the Western Province, which already holds the highest road density in Sri Lanka. As a result, continually expanding or upgrading the current road network is not seen as a sustainable solution to the growing transport demand (Road Development Authority, 2020). In

comparison to the other transport corridors' peak hours bus frequency flow, the Colombo-Kandy corridor becomes the forefront. It directly affected increased traffic congestion in Kiribathgoda as the main town center in the Colombo-Kandy main artery, which is located nearest to Colombo commercial capital. This city is located in the proposed "Development corridor" which connects a series of major and minor agglomerations of economic activities, and clusters of urban facilities that support a relatively large concentration of people who live, work, and patronise the facilities within, and benefit from interconnected networks of physical, economic, and social infrastructure. In this context, Kirbathgoda City has been selected as the case study area for this study, as a foundation for developing context-specific strategies, and illustrates how sustainable mobility principles can be adapted to local realities, inspiring urban planners and designers to create more sustainable and vibrant cities.

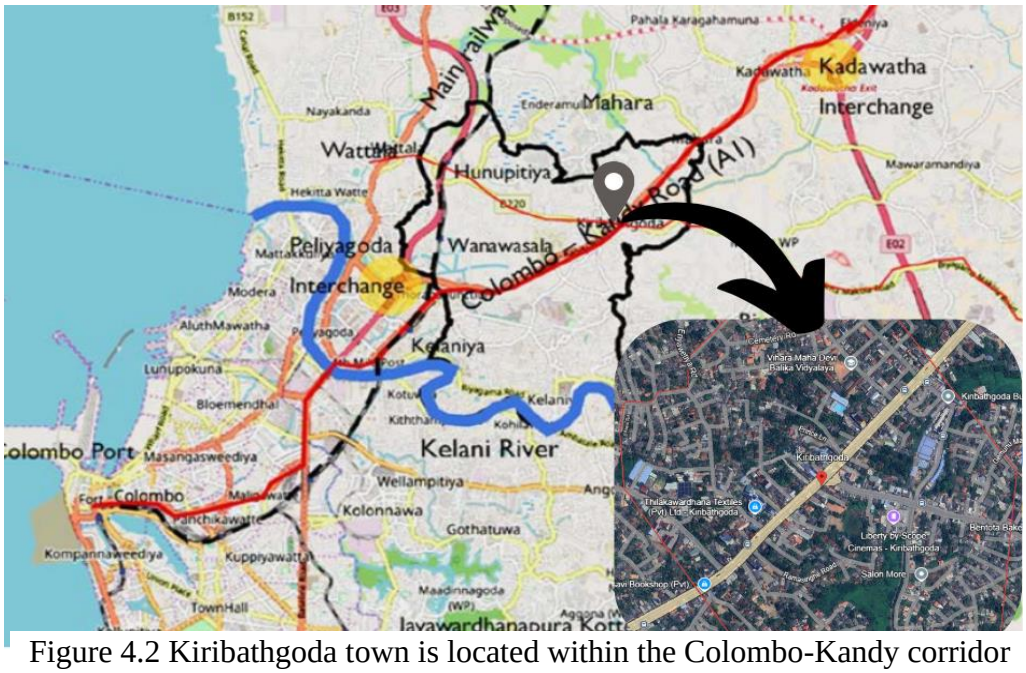

Figure 4.2 Kiribathgoda town is located within the Colombo-Kandy corridor

Kiribathgoda city is a linear urban form that is concentrated along the Colombo-Kandy (A1) road corridor. A linear city is an urban form characterised by a long, narrow shape organised along a transport corridor (such as a road or railway), where development expands primarily in one direction, enabling efficient movement and integration of different land uses in a linear pattern (Talen, 2019). The city features a diverse range of land uses, including commercial buildings, educational centers, restaurants, and service facilities. Among these, several popular clothing stores and notable educational establishments have significantly influenced travel patterns and shaped traffic behaviour within the city. Figure 4.3 illustrates the spatial distribution and functional arrangement of Kiribathgoda.

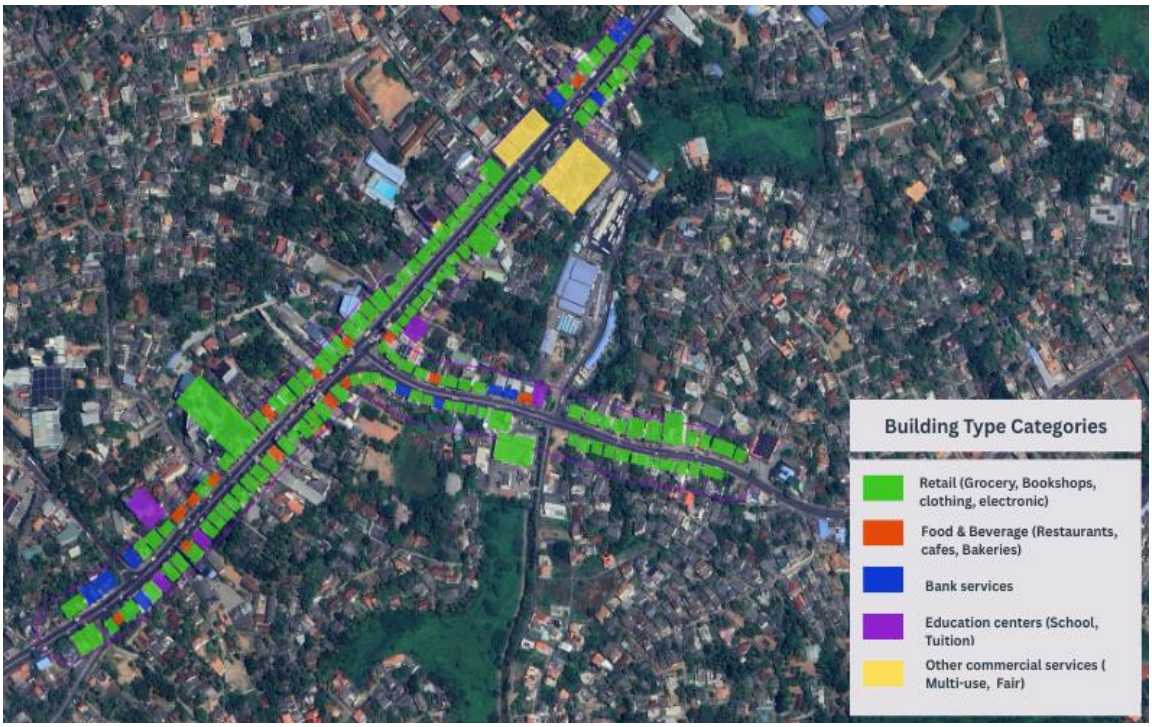

Figure 4.3 The spatial distribution and functional arrangement of Kiribathgoda City

Additionally, with the expansion of commercial, industrial, and store developments, a thin population density is prevalent in Kiribathgoda, which could be known as a commercial and service-oriented center. On the other hand, Kiribathgoda is a major trading center where approximately 100,000 commuters concentrate on daily needs, and is projected to facilitate more than 220,000 commuters by 2030 (Urban Development Authority- Sri Lanka, 2021). Accordingly, this kind of profile advocates the implementation of sustainable urban mobility in Kiribathgoda city to overcome these challenges and meet future needs. The literature highlights that a comprehensive understanding of environmental, social, cultural, and behavioural factors is essential for analysing commuter travel behaviour and developing context-specific and effective SUM strategies. Kiribathgoda possesses distinctive geographical, economic, and socio-cultural characteristics that require in-depth investigation to ensure that mobility strategies are both locally relevant and sustainable.

To achieve this, within this single case study, Data were collected through documentary review, direct observations, and a structured questionnaire survey, each selected to capture complementary dimensions of the problem, which directly affect the sustainable urban mobility in Kiribathgoda city.

4.3.1 Stage II: Findings from the Documentary review

As the initial stage, the documentary review provided data on the environmental characteristics of the Kiribathgoda city area and their implications for sustainable urban mobility.

4.3.1.1 Environmental Features in Kiribathgoda

The average hourly temperature in Kiribathgoda, illustrated in the figure below (WeatherSpark, 2024), indicates that temperatures remain consistently higher than the generally comfortable level throughout the year. This finding highlights the necessity of integrating comfort-oriented facilities into urban mobility planning to encourage active transport within the city.

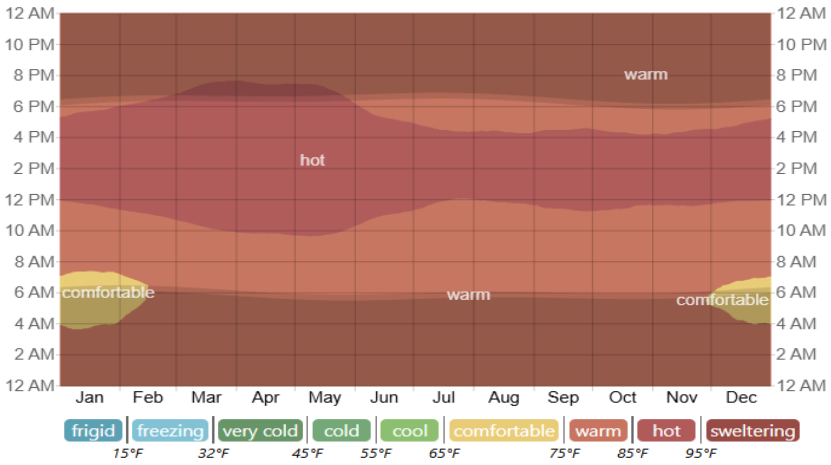

Figure 4.4 Average hourly temperature

source: (WeatherSpark, 2024)

On the other hand, the following Figure 4.5 illustrates the typical weather in Kiribathgoda, based on a statistical analysis of historical hourly weather reports and model reconstructions from January 1, 1980, to December 31, 2016 (WeatherSpark, 2024).

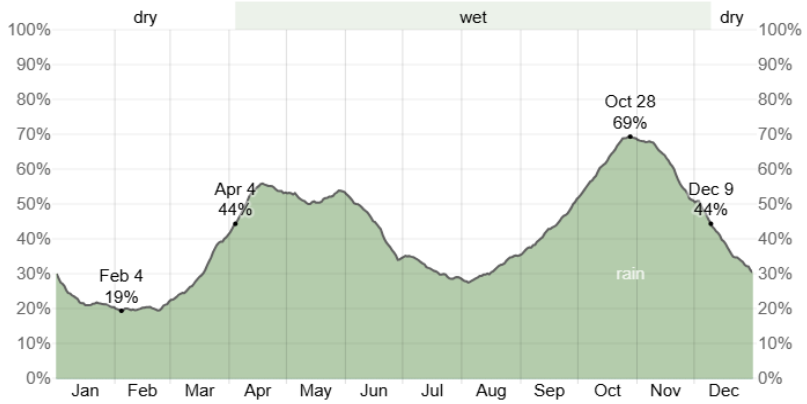

Figure 4.5 Daily chance of precipitation

source: (WeatherSpark, 2024)

According to Figures 4.4 and 4.5, while there is a pronounced wet period between April and November, the chance of precipitation is distributed throughout the year. This highlights the necessity of developing infrastructure to mitigate the adverse impacts of

climate conditions on active mobility, ensuring year-round accessibility and comfort for users. Such infrastructure should consist of high-quality walking paths with proper alignment, adequate width, continuity, and shaded areas for enhanced usability and convenience in both rainy conditions and high-temperature sunny weather.

	January	February	March	April	May	June	July	August	September	October	November	December
Avg. Temperature °C (°F)	26.2 °C (79.1) °F	27 °C (80.5) °F	27.5 °C (81.5) °F	27.3 °C (81.2) °F	27.1 °C (80.7) °F	26.7 °C (80) °F	26.5 °C (79.6) °F	26.3 °C (79.4) °F	26.3 °C (79.3) °F	26.1 °C (79) °F	25.9 °C (78.6) °F	25.8 °C (78.4) °F
Min. Temperature °C (°F)	22.8 °C (73.1) °F	23.4 °C (74.1) °F	24.4 °C (75.9) °F	25 °C (77.1) °F	25.4 °C (77.7) °F	25.1 °C (77.2) °F	24.9 °C (76.8) °F	24.7 °C (76.5) °F	24.5 °C (76.2) °F	24.2 °C (75.6) °F	23.6 °C (74.5) °F	23.1 °C (73.6) °F
Max. Temperature °C (°F)	30.2 °C (86.4) °F	31.4 °C (88.5) °F	31.4 °C (88.4) °F	30.5 °C (87) °F	29.5 °C (85.1) °F	28.8 °C (83.9) °F	28.5 °C (83.4) °F	28.4 °C (83.2) °F	28.6 °C (83.5) °F	28.9 °C (83.9) °F	29.1 °C (84.3) °F	29.2 °C (84.5) °F
Precipitation / Rainfall mm (in)	73 (2)	72 (2)	103 (4)	203 (7)	278 (10)	294 (11)	257 (10)	229 (9)	252 (9)	383 (15)	341 (13)	183 (7)
Humidity(%)	74%	73%	77%	84%	87%	87%	87%	87%	87%	87%	85%	81%
Rainy days (d)	6	7	12	19	21	21	21	21	20	21	17	12
avg. Sun hours (hours)	8.7	8.8	8.6	7.7	6.0	6.5	7.0	6.6	6.3	6.5	7.7	8.4

Figure 4.6 Summary of climate data for the study area (1991-2021)
source: (WeatherSpark, 2024)

Generally, motor traffic is a significant cause of airborne particulates consisting of fine particles with a diameter of 2.5 μm or less, known as PM2.5, that cause serious health issues, and mortality rates increase with exposure (Ventusky, 2024). This poor air quality may encourage people to rely on automobiles instead of active mobility for their transportation needs. Notably, in Kiribathgoda city, air quality seasonally becomes a threat to people, with the timing significantly influenced by the Southwest and Northeast monsoon currents (Ventusky, 2024). However, as well as the geological location of the city, excessive automobile usage also has a significant impact on air quality, which is evident in its daily fluctuations. At the same time, residents are expressing dissatisfaction with noise and light pollution in the Kiribathgoda city area (Explore City, 2025).

4.3.1.2 Social Characteristics and Distribution

According to the literature, social features also influence urban mobility within a city; therefore, data on the social characteristics of Kiribathgoda were also collected through the documentary review. Kiribathgoda town is located in the Gampaha district, which can be considered one of the most important social centers. According to the statistical department, nearly 22% of the total population in Sri Lanka lives in the Gampaha and Colombo districts, and a majority of them experience this city daily as it is located along the Colombo-Kandy main road, at the boundary of the Colombo and Gampaha districts. This population consists of 51% females and 49% males (citypopulation.de, 2024). Additionally, according to the National Secretariat for Elders (2022), the age distribution is as follows: 46% are below 30 years, 35% are between 30 and 55 years, and 19% are above 55 years. However, although the elderly population is smaller compared to other age groups, Western Province has the highest elderly population in the country. Therefore,

this situation advocates the need to consider the needs and perspectives of each age group when implementing unique and successful urban mobility frameworks.

Another inherent social characteristic of Kiribathgoda city is its diverse communities and religious groups, with Buddhists being the majority. Buddhists account for 75% of the population, the Catholic community for 19%, and other religious groups for 6% (citypopulation.de, 2024). Interest to notable, this social diversity plays a significant role in shaping short-term seasonal characteristics in Kiribathgoda city. Besides to profound exploration of long-term characteristics, a comprehensive exploration of short-term characteristics in the surrounding environment of a city is necessary to construct a holistic sustainable urban mobility system. Therefore, it is imperative to conduct further studies related not only to natural environmental factors but also to social factors that change within a short time period.

With this social diversity in the Kiribathgoda city area and the historical and cultural significance of Kelaniya Temple, statistics indicate that 10,000 to 20,000 people arrive at Kelaniya Temple daily, and it increases to 75,000 to 100,000 people during the full moon day (Urban Development Authority- Sri Lanka, 2021). Further to the author, the Kelaniya Duruthu Maha Perahera, an annual cultural festival, attracts over 200,000 people. Furthermore, during the Vesak festival and Sinhala-Tamil New Year season, this city becomes more crowded as the majority of residents actively participate in these celebrations. Therefore, it is necessary to consider the qualities that change with time, which arise from the geological and seasonal characteristics, to implement successful urban mobility frameworks.

4.3.1.3 Status of Urban Mobility in Kiribathgoda City

As the final stage of the documentary review, the current urban mobility profile in Kiribathgoda was examined, covering the status of public transport services and the incidence of traffic accidents in the city. Urban mobility in the Kiribathgoda city area inherently faces numerous challenges related to traffic congestion. According to the Paliyagoda police report, vehicle speed is recorded as 10-15km at the Kiribathgoda city area by 2021 (Urban development Authority- Sri Lanka, 2021).

As emphasised in the literature chapter, overcoming challenges in urban mobility requires the implementation of an efficient public transport system and a supportive environment for active mobility. Considering the above, a notable observation related to Kiribathgoda's urban mobility is the significant number of road accidents in recent years, highlighting a major hindrance to enhancing active mobility, as the majority of these accidents have involved vulnerable road users. Table 4.1 below presents data on road accidents in the Kiribathgoda urban area in the last two years.

Table 4.1 summary of road accidents in the last two years

Type of accident	2022	Category	Qty	2023	Category	Qty
Fatal accidents	9	Pedestrians	5	7	Pedestrians	3
		Cyclists	3		Cyclists	3
		Tricycle riders	1		Tricycle riders	1
Serious accidents	21			29		
Minor injury accidents	21			37		
Property damages	51			46		

A critical insight from the findings is that pedestrian deaths account for 50% of all fatal accidents, reflecting the significant vulnerability of active mobility. If this situation is not promptly addressed by developing safety facilities, it will become a hindrance to promoting active mobility in the Kiribathgoda city area. Moreover, it is also noteworthy that both serious and minor injury accidents also occur at a considerable level, highlighting the overall safety drawbacks related to urban mobility in the Kiribathgoda city area.

Furthermore, as public transportation is a key component of sustainable urban mobility, this study examines its current status in the Kiribathgoda city area. Although the railway system is one of the prominent public transport services in Sri Lanka, people with Kiribathgoda city-centric travel have to face difficulties in using the railway service since the city's arrangement. The existing distance between the bus stand and the railway station is far more than the maximum travel distance (500-800m), and it is 4.6km to the Hunupitiya railway station and 4.8km to Kelaniya railway station(Urban development Authority- sri Lanka, 2021). In this context, passengers always tend to use public bus services for their daily needs. According to the Road Passenger Transport Authority (Western Province), short-distance public buses connected to Kiribathgoda city and the Colombo-Kandy Road can be listed as routes 138, 180, 200, 738, 514, 210, and 154. Based on the existing data, a summary of the service and its practical execution is presented in Table 4.2 and Figure 4.7.

Table 4.2: Details of Public transport service connected to Kiribathgoda city

Route No	Route	Average speed	Seating capacity		
			50-60	40-49	Total
180	Nittambuwa - Pettah	29Kmh^{-1}	40	10	50
200	Gampaha - Pettah	27Kmh^{-1}	29	25	54
138	Kadawatha - Pettah	11Kmh^{-1}	11	20	31
154	Kiribathgoda - Agulana	28Kmh^{-1}	11	62	73
738	Kossinna-pettah	23Kmh^{-1}	-	6	6
514	Waliveriya- pettah	24Kmh^{-1}	-	15	15
218	Parakandeniya- pettah	21Kmh^{-1}	-	3	3

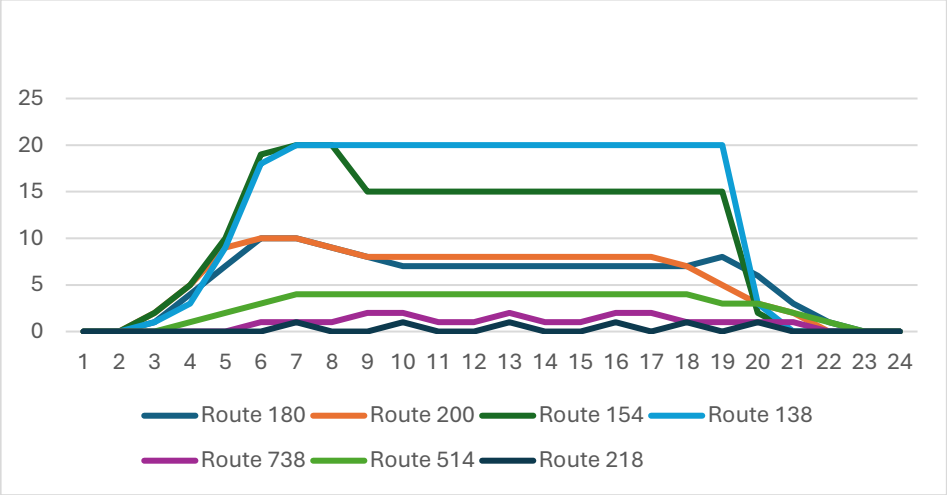

Figure 4.7 Frequency per hour public transport service- Kiribathgoda city

Based on the information provided above, the maximum average speed of the public transport system has been limited to 29kmh^{-1} while the Kadawatha-Pettah route maintains 11kmh^{-1} which is the lowest speed in this city area. This situation highlights the low efficiency and time-consuming transport system. However, the frequency of running a trip per hour throughout the day is maintained at a considerable level between 4:00 am to 08:00 pm. In conclusion, a significant gap must be addressed to establish sustainable urban mobility by enhancing efficient public transport systems and reducing the vulnerability of pedestrians and cyclists.

In addition to examining these urban mobility practices in Kiribathgoda, it is essential to explore the city's mobility infrastructure, particularly facilities for active mobility, to gain a broader understanding of both the current mobility status and the factors influencing it. Accordingly, observation was employed as the next data collection method to document relevant infrastructure facilities and identify associated challenges within Kiribathgoda.

4.3.2 Stage III: Findings from Observation

In this study, field observations were conducted in Kiribathgoda City to assess the existing infrastructure for active mobility and to gain an in-depth understanding of how these features impact commuter travel behaviour. A structured checklist was used as the primary tool to record observations systematically, ensuring consistency and objectivity. The checklist mainly focused on the availability, adequacy, and quality of infrastructure facilities supporting active mobility, such as pedestrian walkways and associated amenities. The checklist was designed based on the literature findings presented in Table 2.4, ensuring that the selected indicators reflect context-specific factors influencing sustainable urban mobility. The checklist was completed during field observation, and a blank template is provided in Appendix A for reference.

The findings reveal that the current infrastructure is neither sufficient nor adequate to encourage active mobility. Specifically, walkways lack adequate width, suffer from poor

maintenance leading to hazardous alignments, and are frequently interrupted by vehicle parking and physical barriers. Moreover, the absence of user-friendly facilities, such as shady covers, seating, and physical separation from traffic, discourages walking and makes the experience unsafe and uncomfortable. The photographic evidence (Figure 4.8) illustrates these challenges and highlights the urgent need for infrastructure development to encourage active mobility.

Figure 4.8 Inadequate pedestrian facilities in Kiribathgoda city

In addition, environmental conditions in the Kiribathgoda area, including high temperatures, adverse weather conditions, poor air quality, and noise pollution, further discourage sustainable mobility practices. However, the geographical features of the area are favorable for active mobility, as the terrain is predominantly flat with limited hills or valleys, which naturally support walking and cycling.

By combining the findings from the documentary review and field observations, the study identified key factors influencing commuter travel behaviour and sustainable urban mobility in Kiribathgoda. The analysis revealed that several inherent characteristics of the city present significant challenges to achieving sustainability in its mobility systems. These findings highlight the necessity of implementing efficient, effective, and innovative sustainable urban mobility approaches tailored to the local context. A summary of the data collected through the documentary review and observations is presented in Figure 4.9.

Figure 4.9 Overview of features in Kiribathgoda City

Building on this background information, which supports both a clearer understanding of the targeted city's mobility context and the findings from the preceding analysis, the last step in the case study focused on prioritising the influencing factors identified in the literature review (Section 2.7.3) and examining their interrelationships in the process of implementing sustainable urban mobility in Kiribathgoda city. To capture this, the commuters' perspective was collected as the next data set within the case study (See section 3.2.5.4). A questionnaire-based survey was selected as the most appropriate method to achieve this research objective, as it allows for systematic and comparable insights from a representative sample of the population. This investigation specifically targeted public transportation and active mobility (walking and cycling), both of which require enhancement to advance sustainable urban mobility in Kiribathgoda.

4.3.3 Stage IV: Findings from the Questionnaire in Kiribathgoda City

The questionnaire survey was conducted to identify prominent factors influencing commuters' travel behaviour in Kiribathgoda city. The questionnaire was distributed to a sample of 160 commuters, representing the societal proportions of the Kiribathgoda city area. A proportionate stratified sampling method was employed to ensure that the sample reflected gender and age distribution, facilitating a comprehensive analysis of transport mode decisions (for further details on the sampling method and sample size, see Section 3.2.5.4). The sample profile is illustrated in the figures below.

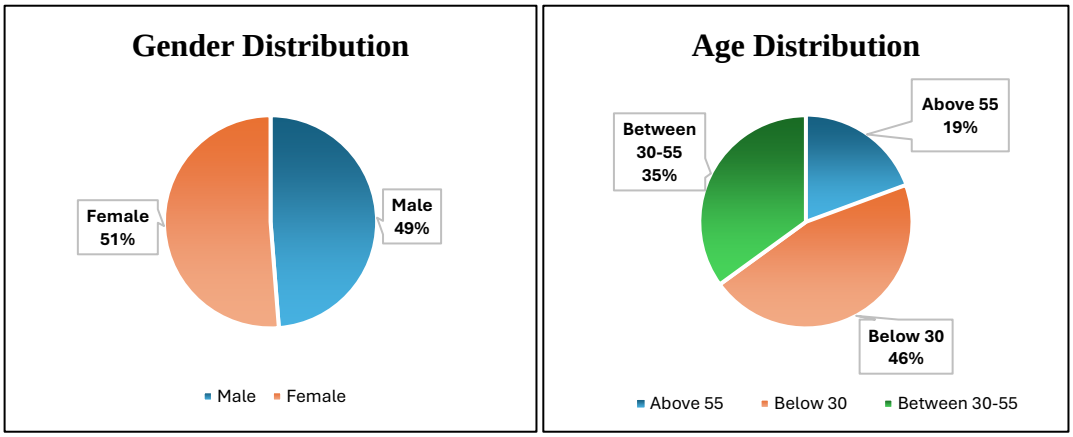

Figure 4.10 Sample distribution

The survey focused on the following key areas;

- Analyse the current usage patterns of urban mobility modes in Kiribathgoda city and forecast potential trends for the next five years
- Examine how the choice of transport mode is influenced by the factors identified in the literature review (Section 2.7.3), categorised under the Theory of Planned Behaviour: commuters' personal attributes, travel mode characteristics, environmental factors, behavioural beliefs, normative beliefs, and control beliefs

All survey questions were developed in line with these two focus areas. The complete questionnaire is provided in Annex B.

4.3.3.1 Usage patterns of urban mobility modes

This section primarily focuses on predicting trends in urban mobility mode usage in Kiribathgoda City over the next five years. To achieve this, two questions were formulated to gather information on respondents' current transport mode and their preferred mode in the next five years.

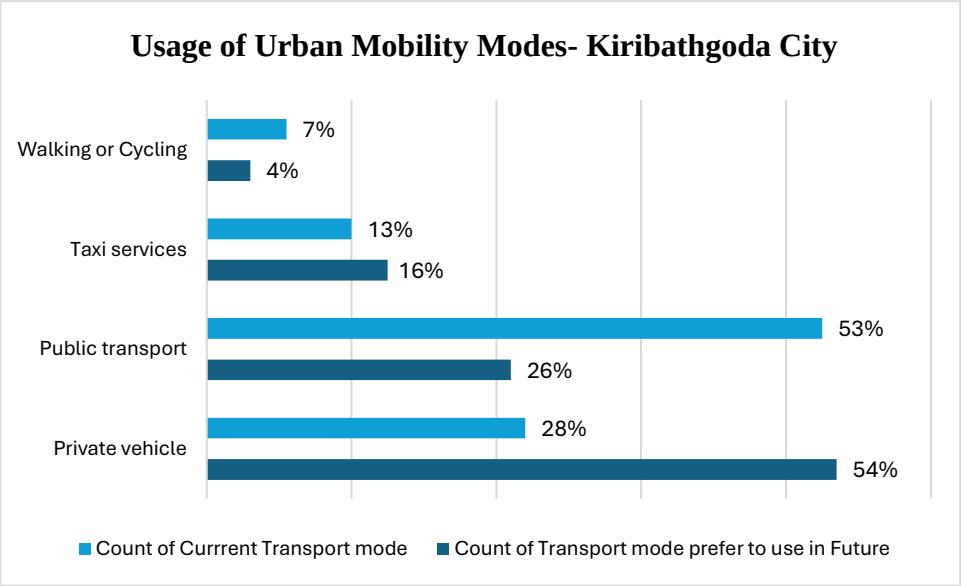

Figure 4.11 Current & Future usage patterns of urban mobility modes

The respondents' replies became evidence that there is a significant shift in urban mobility preferences in Kiribathgoda City, with a notable decline in public transport usage and a corresponding rise in private vehicle preference. Currently, 53% of respondents rely on public transport, but only 26% wish to continue using it in the future, indicating substantial dissatisfaction with the system. Similarly, active mobility, which is critical for sustainable urban mobility, shows minimal usage in Kiribathgoda City, and future preference drops further, suggesting a lack of supportive infrastructure. However, if this trend continues, urban mobility in Kiribathgoda city is likely to deteriorate from bad to worse in the coming years. Thus, exploring how commuters engage to optimise urban mobility approaches while developing supportive infrastructures is essential to mitigate this trend and promote a more sustainable urban transport system in Kiribathgoda city. In this context, literature findings suggest that examining commuters' behavioural trends and their choice of transport mode is warranted.

4.3.3.2 Analysis of Factors Influencing Transport Mode Choice

Following the literature review, several factors influencing commuters' choice of transport mode were identified and categorised under six main variables. These factors were validated through focus group discussions, with contextual adjustments for the Sri Lankan context (see Section 4.2.2). In formulating context-specific SUM strategies, it is essential to examine the extent of these factors' influence in detail, particularly in the Kiribathgoda city area, to optimise sustainable urban mobility. Accordingly, Section B of

the questionnaire was designed to evaluate the perceived influence of each factor from the commuters' perspective. A summary of the respondents' answers is presented below.

4.3.3.2.1 Influence of Personal Attributes on Transport Mode Choice

Following the literature review, the focus group discussion identified several influencing factors, such as age, gender, health condition, nature of occupation, and developed knowledge or skills, classified under the 'Personal Attributes' category of the extended Theory of Planned Behaviour (section 4.2.2).

In this section, the study examines how health conditions, the nature of occupation, and knowledge/skills impact the choice of transport mode based on age and gender by analysing the mean values. While mean comparison provides a general understanding of transport mode influence across different demographics, the Chi-square test was employed to detect significant differences in response patterns and determine the role of age and gender in transport mode decision. As detailed in Section 3.2.5.2 (Methodology Chapter), separate Chi-square analyses were conducted for age and gender for each factor, with significance determined at $p < 0.05$. The resulting p-values and interpretations are presented below.

Similarly, in subsequent sections of this study, different influencing factors were analysed in relation to age and gender using mean values to assess their influence on transport mode choice. Additionally, the Chi-square test was conducted to identify how each factor affects transport decisions across age and gender groups, ensuring a structured approach to evaluating the impact of each factor on transport mode selection.

Accordingly, the following table presents the outcomes of the analysis related to the personal attributes, highlighting how each factor influences transport mode decision according to commuters' perspective and indicating the role of age or gender in this decision-making process.

Table 4.3 Mean value & P value comparison of personal attributes

Personal Attributes	Mobility Mode	Male	Female	Below 30	30-55	Above 55	P value (Gender)	P value (Age)
Health Condition	Public Transport	2.10	2.34	2.00	2.18	2.84	7%	0%
	Active mobility	2.04	2.74	1.97	2.39	3.42	0%	0%
Nature of Occupation	Public Transport	2.03	2.55	2.30	2.63	1.68	1%	9%
	Active mobility	2.23	2.43	2.47	2.66	1.91	54%	0%
Developed skills & knowledge	Public Transport	2.17	2.11	2.32	1.95	2.06	4%	11%
	Active mobility	2.18	2.10	2.32	2.05	1.87	51%	2%

From	To	No influence	From	To	Slight Influence	From	To	Moderate Influence	From	To	Significant Influence	From	To	Highly Influence
0.0	0.7		0.8	1.5		1.6	2.3		2.4	3.1		3.2	4.0	

Table 4.3 shows that the 55+ age category is significantly influenced by their health condition when choosing a transport mode, while their occupation has a comparatively lower impact. The influence of health conditions on active mobility for this group, particularly has a high mean value (3.42), reinforcing the need for safer and more accessible mobility options. However, the choice of transport mode for commuters who are aged between 30-55 was significantly influenced by their occupation. This suggests that work-related commuting factors, such as distance, schedule flexibility, and job nature, play a minor role in their decisions.

Accordingly, these findings advocate for the implementation of public transport and active mobility with prioritising health and safety in order to build a friendly environment for the 55+ age category, while enhancing the efficiency of public transportation in order to control the impact on all commuters who engage with different occupations.

Furthermore, the Chi-square test results show a p-value less than 0.01, leading to the rejection of the null hypothesis, which indicates that age shows a statistically significant difference in how health condition influences the choice of public transport. Moreover, with a p-value less than 0.01, the null hypothesis was again rejected, confirming that both age and gender have a significant impact on the decision to choose active mobility. Similarly, gender plays a significant role in how occupation and developed skills influence the selection of public transport, while age exhibits a statistically significant relationship with both factors in determining active mobility choices. Consequently, this result illuminates that all personal attributes revealed in the literature review as influencing transport mode decision align with the Sri Lankan context, highlighting the need for unique urban mobility policies that address each personal attribute in detail.

4.3.3.2.2 Influence of Travel Characteristics on Transport Mode Choice

Following the literature review, the focus group discussion identified eight transport modes and trip characteristics, which are classified under the 'Travel Characteristics' category of the Theory of Planned Behaviour (Section 4.2.2). This section aims to identify and analyse the impact of these eight travel characteristics on transport mode choice from the commuters' perspective. These characteristics include trip origin and destination, trip time throughout the day, travel time duration, travel cost, frequency of using mode, transport mode connectivity, technology advancement, and easy accessibility and availability, considering their impact level for the choice of transport mode according to commuters' perspective.

Table 4.4 Mean value & P value comparison of travel characteristics

Travel Characteristics	Mobility Mode	Male	Female	Below 30	30-55	Above 55	P value (Gender)	P value (Age)
Trip origin & Destination	Public Transport	2.50	2.71	2.66	2.54	2.61	0.29	0.62
	Active mobility	2.60	2.76	2.70	2.79	2.45	0.85	0.29
Trip time throughout the day	Public Transport	2.42	2.45	2.51	2.00	3.06	0.49	0.00
	Active mobility	2.63	2.83	2.62	2.63	3.19	0.67	0.03
Travel time duration	Public Transport	2.60	2.66	2.81	2.45	2.55	0.92	0.01
	Active mobility	2.65	2.62	2.82	2.52	2.42	0.88	0.02
Less Travel cost	Public Transport	2.27	2.68	2.40	2.57	2.52	0.12	0.21
	Active mobility	1.55	2.15	1.68	1.96	2.06	0.03	0.10
Frequency of using mode	Public Transport	2.13	2.59	2.30	2.30	2.61	0.02	0.30
	Active mobility	2.21	2.56	2.36	2.39	2.45	0.21	0.24
Transport mode connectivity	Public Transport	2.65	3.24	2.53	3.30	3.32	0.01	0.00
	Active mobility	2.49	3.13	2.29	3.23	3.32	0.00	0.00
Availability & Accessibility	Public Transport	2.55	2.82	2.48	2.77	3.03	0.71	0.21
	Active mobility	2.21	2.72	2.01	2.79	2.97	0.15	0.01
Technology advancement	Public Transport	2.73	2.67	2.79	2.75	2.39	0.92	0.12
Properties of Travel mode	Public Transport	2.51	2.43	2.47	2.34	2.71	0.87	0.03
Quality conditions of travel mode	Public Transport	2.87	2.93	2.89	2.70	2.90	0.12	0.24
Comfortable facilities	Public Transport	2.58	2.66	2.41	2.61	3.13	0.26	0.13
Safe facilities in travel mode	Public Transport	2.64	3.10	2.67	3.05	3.03	0.03	0.14
Speed of movement/ Adherence to plan	Public Transport	2.83	2.90	2.89	2.96	2.65	0.46	0.02
	Active mobility	2.85	2.77	2.93	2.86	2.42	0.19	0.00

From	To	No influence	From	To	Slight Influence	From	To	Moderate Influence	From	To	Significant Influence	From	To	Highly Influence
0.0	0.7		0.8	1.5		1.6	2.3		2.4	3.1		3.2	4.0	

Without a distinction between gender groups, most of the respondents considered trip origin and destination, and travel time duration as significantly influencing factors for their choice of transport mode. These findings highlight that the ease of reaching a destination and the overall duration of travel significantly impact mobility decisions.

An interesting observation was that while commuters age 55+ perceive the time of day they travel as a significant factor for their transport mode decision, other categories place relatively less importance on it. Moreover, technological advancement, specifically online ticketing and tracking systems, has been identified as a significantly influential feature in public transport adoption, by all commuters without a distinction between gender and age groups. Moreover, both females and commuters in the 30-55 and 55+ age categories considered the transport mode connectivity as a highly influential factor that needs to be developed to improve user convenience. Similarly, well-established transport mode

availability, accessibility, and parking facilities have been identified as a significant influencing factor by all commuters, particularly those above the 55+ age category. This result highlights the necessity of ensuring seamless multimodal travel.

Further, the data reveals that lower travel cost (affordability) is not a major deciding factor for any commuter category. While cost remains a consideration, other factors such as travel time, convenience, connectivity, and accessibility take precedence in influencing transport choices. Additionally, while seating and other comfortable features in public transportation become significantly more influential for the whole community, security and safety features are significantly prioritised by both female and older passengers in Kiribathgoda city. This indicates that commuters may be willing to prioritise efficiency, safety, comfort, and service quality over affordability, particularly if the transport system meets their needs in terms of reliability and accessibility.

When considering the role of gender and age of the commuter, Chi-Square test results reveal significant variations in how age and gender influence transport mode decisions across different travel characteristics. Accordingly, these results highlight that, while gender does not show statistically significant differences for most factors, the null hypothesis was rejected for certain variables with p-values below 0.05. This suggests that gender significantly influences decisions related to lower travel costs, transport mode connectivity, and technological advancement. In contrast, the Chi-square test results showed that the null hypothesis was rejected for age-related comparisons, demonstrating a statistically significant influence across multiple factors, particularly in trip time throughout the day, travel time duration, lower travel cost, availability & accessibility, and technology advancement. This suggests that different age groups prioritise time management, affordability, accessibility, and technological improvements in public transport and active mobility differently. These insights emphasise that the personal attributes, including gender and age, play a role by influencing transport mode decisions across different travel characteristics, necessitating gender and age-sensitive urban mobility strategies that address the evolving needs of different commuter groups.

4.3.3.2.3 Influence of Environmental Characteristics on Transport Mode Choice

Fourteen questions were developed based on the literature review and focus group discussion findings to examine how fourteen influencing factors, classified under environmental features in the Theory of Planned Behaviour (Section 4.2.2), affect commuters' choice of transport mode. Specifically, fourteen factors related to active mobility and eight factors related to public transport were thoroughly explored to determine the role of environmental features in the transport mode choice process. Based on the survey outcomes, a detailed analysis is presented in the following diagram, offering an in-depth exploration across all gender and age categories.

Table 4.5 Mean value & P value comparison of environmental characteristics

Environmental Characteristics	Mobility Mode	Male	Female	Below 30	30-55	Above 55	P value (Gender)	P value (Age)
Recreational features & shops	Active mobility	2.37	2.72	2.59	2.64	2.29	0.03	0.04
Physical separation from traffic	Active mobility	2.41	2.82	2.36	2.66	3.16	0.08	0.01
Air Quality	Public Transport	2.85	2.96	2.79	2.98	3.03	0.90	0.04
	Active mobility	3.03	3.01	2.88	3.00	3.39	0.42	0.01
Properties of Travel route	Active mobility	2.63	2.82	2.52	2.80	3.06	0.73	0.07
Quality conditions of travel route	Active mobility	2.81	3.01	2.68	2.95	3.39	0.04	0.02
Safe facilities	Active mobility	3.15	3.48	3.07	3.43	3.71	0.08	0.08
Comfortable facilities	Active mobility	2.74	3.12	2.55	3.02	3.71	0.16	0.00
Car & pedestrian traffic	Public Transport	2.95	2.93	2.96	2.98	2.81	0.30	0.18
	Active mobility	2.51	2.71	2.55	2.61	2.77	0.13	0.49
Climate & weather conditions	Public Transport	2.54	2.54	2.49	2.38	2.94	0.55	0.14
	Active mobility	3.36	3.30	3.40	3.11	3.58	0.99	0.01
Geological features	Public Transport	1.68	1.51	1.78	1.30	1.68	0.02	0.00
	Active mobility	2.40	2.35	2.36	2.00	3.10	0.19	0.00
Government actions	Public Transport	2.14	1.93	2.22	1.88	1.87	0.77	0.01
	Active mobility	1.91	1.65	1.96	1.68	1.52	0.20	0.01
Unprecedented events	Public Transport	3.13	3.15	3.01	3.30	3.13	0.13	0.10
	Active mobility	2.69	2.70	2.55	2.77	2.90	0.09	0.01
Seasonal & locational features	Public Transport	2.65	2.80	2.64	2.57	3.23	0.45	0.02
	Active mobility	2.51	2.73	2.36	2.59	3.32	0.45	0.00
Diversity of land use	Public Transport	2.69	3.12	2.73	3.20	2.84	0.03	0.01
	Active mobility	2.73	3.07	2.53	3.29	3.10	0.24	0.00

From	To		From	To		From	To		From	To		From	To	
0.0	0.7	No influence	0.8	1.5	Slight Influence	1.6	2.3	Moderate Influence	2.4	3.1	Significant Influence	3.2	4.0	Highly Influence

Survey findings revealed that while all commuters considered recreational features, shopping malls, and physical separation from traffic along the route as significantly influencing features in selecting active mobility as their transport mode, those females and commuters between 30 to 55 years of age prioritised recreational features and shopping malls along the route. In contrast, commuters above 55 placed slightly more emphasis on physical separation from traffic compared to other categories. Additionally, the findings indicate that air quality significantly influences commuters' choice of transport across all age categories. Simultaneously, individuals who are aged above 55 show an even stronger preference for active mobility in areas with better air quality. However, maintaining good

air quality within the Kiribathgoda city is critical, since it inherently faces poor air quality challenges for nearly 6 months of the year.

The width and continuity of travel routes play a crucial role in maintaining the feasibility of active mobility, with elderly commuters (above 55) showing a higher influence level in their transport mode decision due to discontinuous or narrow pathways compared to younger age groups. Notwithstanding, the analysis advocates that commuters aged above 55 and women prioritise the well-maintained pedestrian and the Cleanliness of travel routes, suggesting the need for improved infrastructure to support active mobility. Furthermore, as per the mean values, the presence of safe facilities, such as street lamps and security services, is particularly important for female commuters and those above 55, who express concerns about safety when choosing active mobility. Moreover, as same as the safety facilities, Comfortable facilities including benches, shaded areas, and rest spots are also prioritised by commuters above 55, who prefer routes with resting opportunities. However, an overview of the features in Kiribathgoda City provides strong evidence highlighting drawbacks in safety and comfort, which need to be addressed to enhance sustainable urban mobility in line with commuters' needs and preferences.

The public transport users across all age groups and gender categories find traffic congestion as a significant influence in their transport mode decisions. According to general trends illustrated in mean values, weather, and climate conditions emerge as a key determinant for all age groups, with extreme heat or rain significantly reducing the likelihood of choosing active mobility. This phenomenon is further evidenced by the rapid increase in traffic congestion during rainy periods in Kiribathgoda City. Additionally, geological features such as Hilly terrains and uneven surfaces in Kiribathgoda city act as a deterrent to active mobility, with a greater impact on individuals above 55.

The general awareness of government policies promoting sustainable mobility, such as dedicated cycling lanes and pedestrian-friendly urban planning and policies, campaigns, remains low, suggesting the need for stronger public engagement and policy promotion. With many commuters restricted on public transport during unexpected events, such as the COVID-19 pandemic and transportation strikes, a temporary shift in mobility patterns occurs in Kiribathgoda city. Additionally, seasonal events such as Christmas and the Sinhala Tamil New Year influence all age groups, especially those above 55, negatively impacting the use of both public transport and active mobility during unfavorable seasons.

The diversity of land use and the distribution of services within the city have a greater impact on active mobility mode choice compared to public transport, with commuters preferring active mobility in mixed-use zones where amenities are within walking distance. In conclusion, these numerical data related to environmental features advocate the necessity of focusing on drawbacks and leveraging opportunities in Kiribathoda city when developing policies for enhancing sustainable urban mobility.

When the interpretations of the findings extended to include gender and age perspectives, Chi-Square test results indicate that both age and gender play a prominent role and significantly influence environmental factors affecting transport mode choice. Accordingly, the Chi-square test results revealed p-values less than 0.05, leading to the rejection of the null hypothesis, indicating that gender shows a statistically significant difference in the perception of recreational features, physical separation from traffic, air quality, and car traffic, while also highlighting that males and females have different preferences regarding these factors when choosing active mobility or public transport. In conclusion, this distinction in prioritising environmental factors within different gender and age groups again hints at the role of personal attributes, emphasising the necessity of gender and age-sensitive urban mobility policies.

4.3.3.2.4 Influence of Behavioural Beliefs on Transport Mode Choice

The extended Theory of Planned Behaviour highlights that, in addition to physical features, psychological factors such as travel purpose, personal beliefs, past experiences, and satisfaction also influence transport mode decisions in practice. This section aims to analyse six influencing factors classified under behavioural beliefs within the Theory of Planned Behaviour, as identified through the literature review and focus group discussion (Section 4.2.2).

Table 4.6 Mean value & P value comparison of behavioural beliefs

Behavioural beliefs	Mobility Mode	Male	Female	Below 30	30-55	Above 55	P value (Gender)	P value (Age)
Travel purpose (education, shopping, work)	Public Transport	2.56	2.52	2.66	2.52	1.29	0.15	0.13
	Active mobility	2.63	2.35	2.64	2.46	2.16	0.44	0.06
Personal beliefs (healthy or economical)	Public Transport	2.54	2.48	2.84	2.27	2.16	0.88	0.03
	Active mobility	2.56	2.37	2.73	2.45	1.87	0.03	0.00
Past experience	Public Transport	2.79	2.51	2.67	2.41	3.03	0.02	0.00
	Active mobility	2.68	2.48	2.64	2.39	2.74	0.10	0.02
Travel and overall satisfaction	Public Transport	2.47	2.41	2.58	2.30	2.39	0.92	0.59
	Active mobility	2.53	2.07	2.56	2.18	2.65	0.07	0.05
Personal moral and values	Public Transport	1.91	1.71	2.12	1.63	1.39	0.44	0.00
	Active mobility	2.29	1.98	2.49	1.96	1.58	0.10	0.00
Happiness by chance to gathering	Public Transport	2.09	1.80	2.05	1.95	1.68	0.18	0.16
	Active mobility	2.33	2.02	2.42	2.02	1.87	0.26	0.03

From	To	No influence	From	To	Slight Influence	From	To	Moderate Influence	From	To	Significant Influence	From	To	Highly Influence
0.0	0.7		0.8	1.5		1.6	2.3		2.4	3.1		3.2	4.0	

The mean comparison indicates that previous travel experiences strongly impact commuters' decisions to use public transport, as it has the highest mean value among

behavioural beliefs. Similarly, travel purposes such as education, shopping, and work also hold a significant influence level, particularly among both male and female public transport users. For active mobility, personal morals and values such as environmental consciousness, health confidence exhibits the highest mean value among the commuters below 30 years of age, highlighting that these considerations significantly affect their preference for walking or cycling. Moreover, the highest mean value for travel satisfaction is held by the above 55 age group, while the 30 to 55 age group holds the lowest value, indicating that travel satisfaction contributes to transport mode selection among different age groups. Additionally, even happiness by chance to gathering holds relatively lower mean value, it has a slightly higher mean value among males and the below 30 age group, indicating that social interaction is a considerable motivator for active mobility use among different ages.

Nevertheless, when analysing the chi-square test results, it suggests that gender and age perceive behavioural beliefs differently when choosing transport mode, highlighting the role of personal attributes in transport mode decisions. However, the p-value for travel purpose was greater than 0.05, so the null hypothesis was not rejected, indicating that this factor holds similar importance across different demographic groups. Meanwhile, the Chi-square test results revealed p-values less than 0.05 for the factor relating to happiness from social gatherings, leading to the rejection of the null hypothesis and suggesting that age significantly influences active mobility choices in this regard. This implies that younger commuters (below 30) consider social gatherings more when choosing active mobility, whereas older age groups prioritise other factors. Additionally, personal beliefs, personal values, and past experiences show statistically significant variations across gender or age groups, validating the literature findings in the Sri Lankan context.

4.3.3.2.5 Influence of Normative Beliefs on Transport Mode Choice

Studies scrutinising the application of the theory of planned behaviour have identified normative beliefs as a significant highlighting factor that influences human behaviour. Therefore, without a comprehensive exploration of normative beliefs, it will fail to provide a unique urban mobility strategy to enhance public engagement and optimise sustainable urban mobility within the city areas. Accordingly, following the literature review, the focus group discussion identified several influencing factors, such as others' recommendations, status in society, cultural, social, and family beliefs, classified under the 'normative beliefs' category of the Theory of Planned Behaviour (section 4.2.2).

The mean values of identified factors were calculated and are presented in the table below. Accordingly, the mean values indicate that while social beliefs have a lesser impact compared to the other group of variables, "Others' recommendation" has the highest mean value out of the other social beliefs. Public transport users, as well as active mobility users, also show a higher reliance on recommendations from others, reinforcing the notion that peer influence plays a notable role in their decision-making process. However, status in

the society holds the lowest mean values across all groups, indicating that instead of perceiving social status as a strong factor in transport mode selection, commuters generally prioritise functionality of the transport mode. Additionally, seeing others use a mode appears to have a greater influence on younger commuters, as they report high mean values for both public and active mobility. This suggests that they are more likely to adopt transport habits based on observation. Lastly, cultural, social, and family beliefs report a slightly higher influence, especially among the below-30 age group, indicating that tradition and familial influence play a small but notable role in shaping transport mode preferences.

Table 4.7 Mean value & P value comparison of social beliefs

social beliefs	Mobility Mode	Male	Female	Below 30	30-55	Above 55	P value (Gender)	P value (Age)
Other's recommendation	Public Transport	2.59	2.61	2.62	2.68	2.42	0.94	0.02
	Active mobility	2.47	2.57	2.41	2.82	2.26	0.88	0.00
Status in Society	Public Transport	1.53	1.16	1.64	1.09	1.06	0.24	0.01
	Active mobility	1.44	1.15	1.62	1.07	0.90	0.59	0.00
Seeing people use this mode	Public Transport	2.41	2.54	2.30	2.63	2.61	0.62	0.07
	Active mobility	2.47	2.55	2.47	2.61	2.45	0.11	0.01
Cultural, Social, family beliefs	Public Transport	1.85	2.02	1.99	1.89	1.90	0.52	0.06
	Active mobility	1.85	2.00	2.04	1.89	1.71	0.26	0.00

From	To		From	To		From	To		From	To		From	To	
0.0	0.7	No influence	0.8	1.5	Slight Influence	1.6	2.3	Moderate Influence	2.4	3.1	Significant Influence	3.2	4.0	Highly Influence

The Chi-square test results revealed p-values less than 0.05 for multiple factors, leading to the rejection of the null hypothesis and indicating that age plays a significant role in shaping transport choices based on social beliefs across these factors. Accordingly, others' recommendations, seeing people use this transport mode, and social or family beliefs all show statistically significant differences among age groups, suggesting that younger and older commuters perceive social influence differently when selecting a transport mode. Conversely, the null hypothesis was not rejected for most gender-based comparisons, highlighting that gender does not show a statistically significant influence on most factors, indicating that men and women may have only slightly different responses to social beliefs when choosing their transport mode.

4.3.3.2.6 Influence of Control Beliefs on Transport Mode Choice

Considering the theory of planned behaviour, it is evident that control beliefs play a key role in human behaviour. Hence, this study also conducted a survey to explore the influence of control beliefs identified in Section 4.2.2, such as comfort, safety and

security, and propensity for technology, on transport mode decisions from the commuters' perspective.

Table 4.8 Mean values & P value comparison of control beliefs

control beliefs	Mobility Mode	Male	Female	Below 30	30-55	Above 55	P value (Gender)	P value (Age)
Feeling comfortability	Public Transport	2.94	3.23	2.92	3.20	3.29	0.17	0.25
	Active mobility	2.96	3.15	2.88	3.14	3.32	0.71	0.02
Feeling safety & security	Public Transport	2.97	3.38	3.00	3.27	3.45	0.01	0.21
	Active mobility	2.91	3.26	2.86	3.14	3.52	0.04	0.04
Propensity for technology	Public Transport	2.60	2.49	2.79	2.48	2.06	0.26	0.00

From	To		From	To		From	To		From	To		From	To	
0.0	0.7	No influence	0.8	1.5	Slight Influence	1.6	2.3	Moderate Influence	2.4	3.1	Significant Influence	3.2	4.0	Highly Influence

By validating the literature findings, mean values indicate that control beliefs have the strongest influence on transport mode choice across the different age groups and genders. Accordingly, feeling safe and secure has the highest mean value among control beliefs, particularly for the above 55 age category and for females, suggesting that security concerns are more prevalent among elderly and female commuters. Additionally, feeling comfortable shows a high mean value across both public transport and active mobility across all groups, indicating that all commuters prioritise the comfort of their transport mode. Although the propensity for technology adoption has a lower influence level than other control beliefs, younger commuters report a higher mean value, indicating they are more likely to integrate digital tools such as mobile apps, e-ticketing, and real-time tracking into their transport decisions.

Moreover, the Chi-square test results revealed a p-value less than 0.05 for the "feeling safety" factor, leading to the rejection of the null hypothesis. This indicates that gender significantly influences perceptions of safety and security when choosing a transport mode. This indicates that females perceive transport safety as a more critical factor than males. Additionally, age plays a key role in feeling comfortable for active mobility, as older commuters prioritise comfort more than younger commuters when choosing active mobility. Analysing the above table, it is suggestive that younger commuters are more inclined toward technology-driven transport solutions, since technology adoption shows statistical significance in the age category.

In summary, the influencing factors identified and classified under the Theory of Planned Behaviour through the literature review and focus group discussion have varying impacts on commuters' transport mode decisions according to their perspectives. These results

suggest that the level of influence of these factors may differ across communities, providing valuable insights for urban and transport planners on how to prioritise these factors during the formulation of sustainable urban mobility strategies.

However, while commuters ranked the influence of these variables on their transport mode choices, it is essential to understand how these independent variables specifically shape commuters' intentions to choose a particular transport mode (the dependent variable). This requires exploring both the level of influence and the nature of the relationships involved. Accordingly, regression analysis was conducted to examine these relationships in detail, reflecting the perspectives of the wider society.

4.3.3.3 Regression Analysis of Influencing Factors on Public Transport

The regression analysis was conducted to evaluate the influence of six main independent variables on commuters' intention to choose public transport as their urban mobility mode (see Section 4.2.2). The aim of this analysis is to determine the variables' statistical significance in shaping commuter behaviour. Since, the sample represents the same proportion of community, the result reflected the exact shape of commuter behaviour. Accordingly, the dependent variable was measured based on the survey question "What is your intention level on choosing public transport as your transport mode?" rated from 0 (No intention) to 4 (High intention). The independent variables were the average scores of six grouped factors namely: personal attributes, travel characteristics, environmental characteristics, behavioural beliefs, social beliefs, and control beliefs. This multiple linear regression analysis was conducted using Excel, with 160 observations. The regression model is defined as:

$$Y = \beta_o + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \varepsilon$$

Where:

- Y: Intention level to choose public transport
- β_o: Intercept
- β_1 to β_6: Coefficients of the six independent variables
- ε: Error term

The regression model illustrates how those independent variables influence on commuters' intention to choose public transport as their urban mobility mode. The R-square value of 0.819 indicates that approximately 82% of the variation in the commuters' intention to choose public transport (dependent variable) is explained by the six independent variables in the formula. Additionally, the ANOVA result also confirms that the regression model is statistically significant and the probability of the observed results occurring by chance is virtually zero, as it shows an F-statistic of 115.45 with a significance level (p-value) of 3.23E-54. The summary of the result can be demonstrated as follows.

SUMMARY OUTPUT					
Regression Statistics					
Multiple R	0.905031376				
R Square	0.819081791				
Adjusted R Square	0.811986959				
Standard Error	0.274255694				
Observations	160				
ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression	6	52.1012004	8.683533401	115.4476699	3.23345E-54
Residual	153	11.50807644	0.075216186		
Total	159	63.60927684			
	Coefficients	Standard Error	t Stat	P-value	Lower 95%
Intercept	-0.047425603	0.102315013	-0.463525359	0.643646566	-0.249558153
Average - personal attributes	0.096043796	0.032573623	2.948514406	0.003694347	0.031691662
Average- Travel characteristics	0.351475096	0.060253318	5.833290263	3.12814E-08	0.232439223
Average -Environmental characteristics	0.21335797	0.055621809	3.835868946	0.000182498	0.103472063
Average- Behavioral beliefs	0.177803602	0.04581322	3.881054505	0.00015422	0.087295449
Average-Social beliefs	0.1147806	0.037094158	3.094303942	0.002346075	0.04149774
Average- Control beliefs	0.069526964	0.042064607	1.652861376	0.100409639	-0.013575466

Figure 4.12 Regression Analysis summary of Public Transport Intention Level

Considering the above summary output, the Formula to represent a regression model with a statistically significant impact of variables on the commuters' intentions can be illustrated as follows.

$$Y = -0.047 + 0.096X_1^{*} + 0.351X_2^{***} + 0.213X_3^{***} + 0.178X_4^{***} + 0.115X_5^{**} + 0.070X_6^{ns}$$

Where:

X_1 = Personal Attributes

X_2 = Travel Characteristics

X_3 = Environmental Characteristics

X_4 = Behavioural Beliefs

X_5 = Social Beliefs

X_6 = Control beliefs

*= $P < 0.05$, **= $P < 0.01$, *** = $P < 0.001$, *ns = not significant*

The regression model demonstrates that all factors, except Control Beliefs, have a statistically significant positive impact on commuters' desire to use public transport. The highest influence is from Travel Characteristics (0.351), followed by Environmental Characteristics (0.213) and Behavioural Beliefs (0.178). Therefore, to encourage public transport usage among commuters, it is essential to prioritise and enhance travel mode characteristics while simultaneously addressing environmental factors and behavioural beliefs. Even though Control Beliefs have the highest average rating from respondents, it does not show a statistically significant difference between public transport users and non-users. Reasons for this non-significance of control beliefs may not limited to all respondents having been rated highly regardless of their actual preference, both public

transport users & non-users agreeing on the importance of control beliefs, statistically overlapping with other stronger predictors like travel characteristics, or the studied context, commuters might not see control-related features as defining their transport choices, especially if all modes offer similar control-related experiences. Additionally, the intercept value is shown as -0.047, and it is not practically impactful, as in real-world scenarios, none of the independent variables would have a score of zero.

In conclusion, the regression analysis advocates prioritising improvements in travel characteristics, environmental aspects, behavioural factors, and social beliefs relevant to public transportation as a necessity to enhance public engagement in promoting public transportation. Notably, since these independent variables explain over 80% variation in the dependent variable, confirming a strong predictive power, these findings validate the application of the theory of planned behaviour to promote public transportation within the Sri Lankan community by addressing personal attributes, travel, and environmental characteristics, behavioural beliefs, control beliefs, and social beliefs.

4.3.3.4 Regression Analysis of Influencing Factors on Active Mobility

As in the previous model, to quantify the impact of six main independent variables and their statistical significance on commuters' intention, regression analysis was conducted in relation to active mobility. The dependent variable was developed based on the survey question: "What is your desire level on choosing active mobility as your transport mode?" rated from 0 (Do not like) to 4 (Definitely like). The six independent variables were the same as in the previous and the summary of the results was illustrated in Figure 4.13.

The regression results indicate a weak relationship between the six influencing factors and the desire to use active mobility. The R-squared value suggests minimal predictive power, as only 4.2% of the variance in the dependent variable is explained by the model. Additionally, the F-test and all the variables except behavioural beliefs demonstrated p-values greater than 0.05, indicating no statistically significant relationship.

SUMMARY OUTPUT					
Regression Statistics					
Multiple R	0.204568312				
R Square	0.041848194				
Adjusted R Square	0.004273614				
Standard Error	0.98076973				
Observations	160				
ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression	6	6.427882662	1.071313777	1.113736833	0.356879241
Residual	153	147.1721173	0.961909264		
Total	159	153.6			
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*
Intercept	1.135989233	0.346617602	3.277355866	0.001296766	0.451214854
Average - personal attributes	-0.189707788	0.124112306	-1.528517152	0.128448971	-0.434902858
Average- Travel characteristics	0.181913803	0.153466234	1.185366962	0.237710182	-0.121272602
Average -Environmental characteristics	-0.176667521	0.168395032	-1.049125495	0.29577474	-0.509347114
Average- Behavioral beliefs	0.269936318	0.140042637	1.927529532	0.055766314	-0.006730559
Average-Social beliefs	-0.118082291	0.139787102	-0.844729512	0.399580841	-0.394244335
Average- Control beliefs	-0.009412494	0.149830829	-0.062820811	0.949991189	-0.305416828

Figure 4.13 Regression Analysis summary of Active Mobility Intention Level

Accordingly, this result reflects weak model performance compared to public transport analysis and no strong statistical association between the six influencing factors and intention for active mobility among the study's participants. This weak performance is likely due to the limited representation of active mobility users in the sample, which consists of only around 10 individuals who reported frequent or practical use of active mobility. Furthermore, this study's participants could contribute to the lack of statistically significant relationships since the relatively low familiarity or habitual adoption of active mobility practices among the general population. In this case, participants may have rated the influence of variables without personal experience, limiting the behavioural relevance of their responses. These issues collectively contribute to the regression model's poor performance and underline the importance of treating this analysis as a limitation within the research framework.

Although the regression results were statistically insignificant, the analysis still offers valuable insights for initiating and promoting active mobility. The study includes detailed mean comparisons that reflect commuters' perspectives, serving as a foundational input for strategy recommendations. These findings provide important insights and highlight key influencing factors that must be addressed in formulating effective strategies for sustainable urban mobility.

4.3.3.5 Key Insights for Strategy Formulation in Sustainable Urban Mobility

Based on the mean values and statistical significance analysis across the six variable groups (See section 4.4.2), key influencing factors and their roles in shaping sustainable urban mobility practices within Kiribathgoda city have been identified.

These findings highlight that, when developing urban mobility strategies, consideration should be given not only to the scarcity of infrastructure facilities but also to attitudes, beliefs, and social barriers. The survey results indicate that the influencing factors validated during the focus group discussions (Section 4.2.2) affect various social strata to differing degrees. Accordingly, the following summary presents the key influencing factors that, from the commuters' perspective, have been widely acknowledged as having a more than significant impact on transport mode choice.

Table 4.9 Summary of Key Influencing Factors

Mobility Type	TPB Variable	Key Influencing Factors	Affected Groups
Active Mobility & Public Transport	Personal attributes	Health condition	Female, Age above 55
		Occupation	Female, Age Below 30, 30-55
Active Mobility	Environmental Characteristics	Recreational features	Female, Age Below 30, 30-55
		Physical separation from traffic	Whole community
		Comfortable facilities	Whole community
		Travel Route Properties	Whole community
		Travel Route Qualities	Whole community
		Safe facilities	Whole community
Active Mobility & Public Transport		Air Quality	Whole community
		Car/Pedestrian traffic	Whole community
		Climate condition	Whole community
		Unprecedented events	Whole community
		Diversity of land use	Whole community
		Seasonal features	Whole community
Public Transport	Travel Characteristics	Safe facilities	Whole community
		Travel mode properties	Whole community
		Travel mode qualities	Whole community
Active Mobility & Public Transport		Trip origin & Destination	Whole community
		Trip time of the day	Whole community
		Travel time duration	Whole community
		Frequency of usage	Female, Age above 55
		Mode connectivity	Whole community
		Accessibility	Female, Age 30-55, above 55
		Speed of movement	Whole community
		Technology advancement	Whole community
Active Mobility & Public Transport	Behavioural beliefs	Travel purpose	Male, Age below 30, 30-55
		Personal beliefs	Male, Age below 30, 30-55
		Past experience	Whole community
		Overall satisfaction	Male, Age below 30, above 55
	Social Beliefs	Others' recommendations	Whole community
		Seeing people using the mode	Whole community
	Control beliefs	Feeling comfortability	Whole community
		Feeling safe & secure	Whole community

According to the questionnaire survey results, all significant factors influencing transport mode choice are encompassed within the six main TPB variables, highlighting the necessity of addressing each variable during the strategy development stage. The analysis emphasises the need for inherent sustainable urban mobility strategies, as these factors encompass environmental, social, cultural, and economic dimensions within the city context. This finding confirms the focus group discussion insights from the expert perspective (Section 4.2.1), which emphasised that strategies should be shaped in alignment with the city's inherent characteristics. Consequently, these results formed the foundation for formulating unique strategies for sustainable urban mobility in Sri Lanka.

Furthermore, a comparison between the above summary and the literature findings reveals that several of the identified influencing factors have already been addressed by policymakers through the implementation of SUM strategies in the global context (see Sections 2.3.4.1 and 2.3.4.2). In this regard, the present study aims to formulate strategies to address the remaining factors while adapting and contextualising proven strategies to the specific conditions of Kiribathgoda. Accordingly, expert interviews with multidisciplinary professionals will be undertaken to develop distinctive, context-sensitive strategies for advancing sustainable urban mobility.

4.4 Stage V: Key Findings from the Expert Interview

To conduct the expert interview, semi-structured interviews were carried out with 10 experts from a diverse range of professionals, and most importantly, from different parties involved in the urban mobility policy development. This includes road engineers, town and country planners, landscape architects, transport and logistics engineers, and social scientists. Findings of expert interviews were analysed by using manual content analysis. The table below presents the profiles of the interviewees who participated in the expert interviews.

Table 4.10 Profile of the Interviewees

Expert	Designation	Qualification	Experience
E1	Director (RDA)	BSc (Eng), MSc (Eng), Mecon (SL)	30 years
E2	Design Engineer (RDA)	BSc (Eng), MSc (Eng)	20 years
E3	Senior Landscape Architect	BSc (LA), MSc (Eng)	9 years
E4	Landscape Architect	BSc (LA)	8 years
E5	Senior lecturer, social scientist	PhD, MPhil, BA	15 years
E6	Social scientist	MPhil, BSc	18 years
E7	Town & Country planner	PhD Scholar, MSc (Eng), BSc	10 years
E8	Town & Country planner	MSc (Eng), BSc	12 years
E9	Transport & Logistics Engineer	BSc (Eng), Pg. Dip (Eng)	10 years
E10	Transport & Logistics Engineer	BSc (Eng), MSc (Eng)	22 years

As per the above table, all experts had significant experience in urban development, the transport sector, and social science. To fulfill the aim of the research, the interview guideline was prepared with two main sections (Annexure C). Section 1 was focused on the background information of the respondents. The second section was structured to validate the human-centered, sustainable urban mobility strategies with context-specific adjustments. Based on expert responses, several key insights were identified, and those became the cornerstone for developing unique, human-centered, sustainable urban mobility strategies tailored to the Sri Lankan context.

4.4.1 Formulate sustainable urban mobility strategies in Sri Lanka

A robust foundation was established through the literature review and further reinforced by focus group discussions, highlighting the need for context-specific strategies to promote sustainable urban mobility. Building on this foundation, the latter stage of the expert interviews focused on formulating practical recommendations tailored to the Sri Lankan context, with particular emphasis on the Kiribathgoda city area. These recommendations were informed by key influencing factors identified from the community perspective, which were classified under the six main variables of the Theory of Planned Behavior (Table 4.9). Interviewees were invited to propose new strategies while reviewing and refining those identified in the literature, ensuring that adjustments were aligned with environmental conditions and community needs. As an initial step, the key influencing factors under personal attributes, environmental characteristics, and travel characteristics (Table 4.9), together with the experts' adjustments to the pre-identified strategies, are summarised in Table 4.11.

Table 4.11 Proposed strategies for Objective Variables

Key Influencing Factors	Proposed Strategy based on Literature Review (Section 2.3.4)	Experts' comment
A. Personal attributes		
1. Poor health conditions among elders & females	• Provide seating facilities every 150 meters or less • Construct shelters along pedestrian paths (or less than 150m) to protect against adverse weather. • Construct shelters & seating facilities at bus halts to protect against adverse weather & enhance comfort for differently-abled users	• Seating facilities should be provided with shelters and desirable tree covers. • Selecting tree species that are well-suited to the local climate, avoidance of fruit-bearing and flowering trees. • Side arms & back rest are preferred for seats • Age and ability-sensitive policy formulation (Adjust Road crossing times).
2. Occupation influences travel behaviour	• Improve multimodal connectivity • Provide on-time transport services to support variable working hours. • On-time tracking & efficient systems	• Transport service should support both variable and flexible working hours. • Ensure user trust and institutional responsibility
B. Environmental Characteristics		
1. Lack of recreational and safe separation in public spaces	• Integrate recreational features for reducing stress, promoting outdoor activities. • Construct physical separations like green walls or fences to enhance safety and mental comfort.	• Crossing widths need to match with demand. • Age and ability-sensitive policy formulation (Adjust Road crossing times).

2. Poor air quality	• Monitor pollution levels. • Reduce private vehicle use & expand public transport. • Increase urban greenery. • Promote renewable energy in transport, • Regulate vehicle use through taxation.	• A real-time information system is needed to monitor pollution levels • Priority should be given to the railway service when expanding public transport. • The enforcement of new rules and regulations is also essential.
3. Inadequate route and mode properties (width/level)	• Design walkways to accommodate parallel walking: 3.5m (4 elders walking in parallel), 2.5 m- 3.5 m (3 elders walking in parallel), 1.5 m- 2.5 m (2 elders walking in parallel), 1.5m (1 elder safety) • Maintain proper levels for drainage and ease of movement. • Create sheltered walkways. • Maintain safe, accessible spaces year-round.	• Current walkways show major issues: widths & gradients are inconsistent, poor surfaces, vendor encroachments, and lack of accessibility for wheelchair users and the elderly. No standard exists linking pedestrian volume to walkway width; globally, 4m is recommended. A proper design approach with plan, profile, and CSS principles is urgently needed. • Walkway designs should include sufficient width to accommodate people using umbrellas during rain •Develop spaces for vendors (Walkways occupied by street vendors, thus forcing pedestrians to use traffic lanes) • Access to free wi-fi & drinks (In the past, it was called “pinthaliya”)
4. Impacts of adverse climate conditions	• Develop drainage, increase shaded areas, and create spaces for relaxation and movement.	• A drainage plan is needed for both the road surface and overland flow.
5. Resilience to unpredictable events (pandemics/strikes)	• Establish safety policies and ensure continuity of public transport services during disruptions.	• Develop an accountability mechanism to address financial or time losses incurred by public transport users during strikes or delays, ensuring user trust and institutional responsibility.
6. Limited land diversity	• Promote mixed-use • Varied building ages offer the opportunity for a broader economy and reduce travel demand • Performance zoning	• Since there is no land use policy for cities and building investments often follow an individual-centered approach (e.g., personal properties rented for bank services without proper parking or public spaces), it is essential to develop appropriate policies.
7. Vehicular and pedestrian traffic conflicts	• Reduce the moving needs, mixed land use, combined commercial services(supermarket), and teleworking activities (online shopping, online working) • Expand walking/public transport facilities; • Enhance the capacity of the park and ride facility • Expanding public spaces across the streets to create dead ends that prevent vehicles from using the street as a throughway • Use zoning to limit through traffic. • Use AI for traffic management.	• Particularly within cities, road design would also influence drivers to drive slowly. • Develop bypass roads • Develop a national smart mobility policy
8. Adapting to seasonal variations	• Encourage online services, • Provide seasonal public transport • Expand walkable public spaces. • Regulate land diversity and coordinate commercial investments strategically.	•Addressing institutional barriers • Focus on developing a national land policy, rather than allowing urban growth to be driven by fragmented individual investment plans.
9. Poor user-perceived safety &	• Provide shady paths, seating, streetlights, safe crossing, physical separation from traffic, and improved security service.	• The current road designs follow Australian and British standards, but

comfort in Active Mobility	• Use commuter feedback & image analysis for continuous upgrades. • Relevant road design changes & redesign hazardous locations • Enforce noise and light control policies and optimise city design. • Introduce physical separations. • Proper crossings & better lighting. • Redesign hazardous locations. • Use climate-appropriate materials. • Increase the green shaded areas. (Diverse trees) • Create comfortable resting spaces.	they should be adapted to suit the local context. • Enforce noise & light control policies, Develop green walls, urban green spaces as sound barriers or noise sinks • Install motion sensors, dimmers, and timers to minimise excess lighting • Plant green walls as natural sound barriers & urban green spaces to act as noise sinks • Install motion sensors, dimmers, and timers to reduce unnecessary lighting. • Conducting awareness campaigns • Regulate behaviour through infrastructure and behaviour-oriented design, such as underpasses or overpasses, rather than relying solely on rules.
C. Travel Characteristics		
1. Trip origin & destination influence travel behaviour.	• Enhance accessibility and maintain route quality through proper width, safety, and user comfort. • Use commuter feedback • Image analysis. • Ensure a constant flow of pedestrians and prevent stagnant zones • Construct shelters & seating facilities at bus halts to protect against adverse weather & enhance comfort for differently-abled users	•Commuters' feedback should be incorporated in both the planning and functioning stages (people for planning) • Last-mile solutions are important
2. Excessive travel time	•Introduce bypass and limited-stop bus services. •Ensure timely public transport operations. •Enhancing comfort by providing comfortable Seating in public transport	•Improvement in public transport reliability is vital. • Ensure a constant flow of pedestrians and prevent stagnant zones
3. Facing difficulties in using the mode at any time of the day	• Install shelters, sunshades • Streetlights at intervals not exceeding 30 meters to ensure safe travel during the day • Enhance the 24-hour security service • Use climate-appropriate materials	•Surface mode (walking, cycling, motor vehicles) is an issue, and needs to be integrated into all travel modes • Enhance bus service network coverage.
4. Inaccessible transport for vulnerable groups	• Enhance safety & comfortable facilities, including seats, streetlights, 24-hour security, and infrastructure development (walk width & height) • walkways with bus stops • Enhance the bus service network coverage & monitoring PT capacity to the population • Enhance the quality of transport for disabled people, & enhance the pedestrian network density & length	•When enhancing the pedestrian network, special attention needs to be focused on the connectivity of pedestrian paths and the viable width, avoiding sharp drops of the path Regulate behaviour via infrastructure (e.g., overpasses/underpasses)
5. Limited speed of movement	• Adopt variable working hours, • Implement intelligent traffic systems, • Enhance public transport, • Use performance zoning & land diversity to reduce unnecessary movement • Continue proper width/height for walk paths • One entry/exit for each 100m/ 100m to 200m/ 200-300m along the walkways • Increase public transport frequency during peak hours, • Tax adjustments for private vehicle use, •Enhance park-and-ride facilities.	• Authorities should jointly propose the variable working hours concept, as it remains unimplemented despite its necessity.

6. Inadequate mode properties- Public transport	• Improve the quality of transport for disabled people.	• Since sunshine hours demotivate commuters to stay for long periods, shelters are needed at bus halts and along walking paths.
7. Multimodal connectivity is weak (environmental & behavioural challenge)	• Ensure continuity and physical accessibility between modes through integrated planning and land use diversity. • Strengthen public transport networks, • Provide bus stops within walking path • One entry/exit for each 100m/ 100m to 200m/ 200-300m • Performance zoning	•While enhancing physical accessibility and network coverage, ensuring uninterrupted 24-hour connectivity is also essential. • Develop infrastructure to minimise the challenges faced by persons with disabilities when using multimodal connectivity.
8. Poor user-perceived safety and comfort – Public transport	Improve air-conditioned pubic transport services	• Install motion sensors, dimmers, and timers to minimise excess lighting
9. Sri Lanka lacks the adoption of modern transport technologies	• Implement online tracking & booking systems • Develop apps promoting active mobility. • Use AI for traffic management. • Develop digital solutions for mobility, such as health/activity apps • Online booking • Quick feedback platforms.	• Develop a national smart mobility policy • Promote public-private partnerships • Establish innovation hubs and dedicated research and development units • Online tracking system • Introducing smart ticketing and enhancing user experience • Wi-Fi facilities

According to the above summarised table, the experts proposed valuable insights into the initially proposed strategies to address the key influencing factors, classified under objective variables in TPB, linked to sustainable urban mobility. E1 stressed the need for an inclusive and equitable planning process to support elderly, female, and differently-abled commuters. Additionally, E2, E3, and E5 provided suggestions in developing infrastructure elements such as seating with overhead shelter, tree cover, age-sensitive pedestrian signals, and redesigned walkways with appropriate widths and gradients, all of which would be necessary to improve accessibility and safety. E4 emphasised that while along the walkways continuous shadiness is demanded, trees should be context-specific and planted according to the layout shown in figure 4.14 to avoid obstructing the forward decision view cone. However, according to E3, when selecting trees, essential to consider minimising animal attraction and walkway damages caused by roots, or alternatively, adjust street design standards accordingly.

Further, E1, E7 strongly advocated that the pedestrian infrastructure should be enhanced by ensuring proper walkway width, provision of sufficient shade, drainage, and its continual cleanliness, and be inclusive of features for elderly users and users with perceived disabilities. Moreover, incorporating both traditional systems of pedestrian comfort, including water points(*pinthaliya*), community gathering spaces, and modern social needs, including wi-fi facilities, was also emphasised by E5 to enhance sustainable urban mobility in Sri Lanka. At the same time, E2 and E4 recommended enhancing multimodal connectivity without disruption and guaranteeing accessibility for all users, especially those with disabilities.

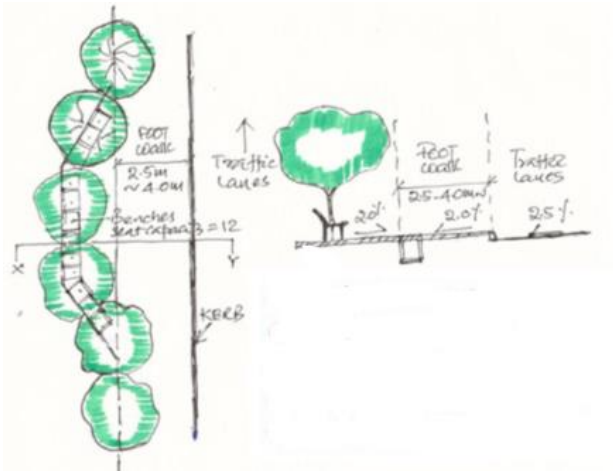

Figure 4.14 Tree planting layout

These physical interventions can significantly enhance walkability and public space usability, combined with comfortable, secure, safe environments, and gender- and ability-sensitive policy frameworks. In addition to those strategies, E7 emphasised that land use policy and road design guidelines should also be refined to incorporate context-specific features. At the same time, it is necessary to create an enabling environment that facilitates the practical implementation of these policies and regulations at the ground level, overcoming institutional barriers.

E6 argued that, rather than relying on rigid rules and regulations, it is important to implement behaviour-oriented infrastructure (e.g., overpasses, underpasses) to reduce pedestrian accidents and promote safe mobility. The majority of experts believed that climate-responsive urban planning, such as tree shading, noise-control green walls, and adequate shelters that prevent solar radiation and precipitation, is a key solution to enhance comfortable mobility year-round. Implementing a national land policy to regulate urban growth, currently driven by fragmented individual investment plans, and a smart mobility framework, was suggested by E7 as a critical step toward a truly sustainable and resilient urban mobility system.

Concerning public transport, E6 and E9 emphasised the importance of enhancing service reliability, operational continuity during disruptions, and high institutional responsibility, especially during strikes or delays. The suggested solutions included flexible working schedules, a broader multimodal network, and last-mile connectivity, all supposed to enhance user satisfaction and reduce the reliance on private vehicles. Additionally, E1, E4, and E9 called for massive investments in the railway system alongside the upgrading of the facilities of the public transportation system. Smart ticketing, real-time tracking apps, and online booking systems were emphasised by E10 as essential technological innovations and were considered practically possible, considering the expressed desire of the Sri Lankan commuters to review new technological solutions. Other recommendations

from E8, E2, and E10 involved integrating a real-time air quality monitoring system, improving comfort, safety, and efficiency in public services, ensuring the availability of public washrooms, and delivering high-quality services to foster sustainable and healthy mobility patterns.

Subsequently, the interviewees were asked to share their perspectives on the strategies identified in the literature review (see Sections 2.3.4.1 and 2.3.4.2), focusing on the key influencing factors classified under the subjective variables of the TPB (Table 4.9), namely, behavioural beliefs, social beliefs, and control beliefs. The experts' proposed strategies, modifications to these pre-identified strategies, tailored to the Sri Lankan context, are summarised in Table 4.12.

Table 4.12 Proposed strategies for Subjective variables

Key Influencing Factors	Proposed Strategy based on Literature Review	Experts' comment
A. Behavioural beliefs		
17. Purpose of travel influences mode choice	• Tailor transport options by comfort, efficiency • 24/7 access and service quality.	• Awareness campaigns targeting groups
18. Influence of personal beliefs and perceptions	• Deliver safe, comfortable, and effective transport services to positively shape user attitudes.	• Deliver high-quality service continuously and develop effective complaint-handling procedures
19. Influence of past travel experience	• Ensure that travel experiences are consistently safe, comfortable, and effective. • Commuters' feedback	• All experts confirmed the necessity of implementing these strategies.
20. Drivers of overall satisfaction with transport modes	•Focus on safety, comfort, efficiency, and cleanliness • Provide multifunctional spaces for user needs.	• privacy & freedom enhancement
E. Social Beliefs		
1. Social influence can promote sustainable mobility	• Use social media • Provide high-quality, tailored services to target groups (office crowd, university group, class, school) • Satisfied service for everyone with positive peer recommendations. • Increase awareness, promote reliability.	• Phased behavioural change facilitated by education • Awareness campaigns • Use the role model concept to promote public transport/ active mobility • Introduce human satisfaction as a KPI • Prioritising R&D before policy implementation
2. Visibility and promotion can encourage behaviour change	• Build community trends with visible, high-quality, safe, and efficient mobility options.	• Awareness campaigns targeting groups like "Friday for Future". Increase awareness of healthy living through active mobility, targeting the younger generation who are more willing to change • Provide high-quality services and a tailored campaign to target groups • Use the role model concept to promote public transport
B. Control Beliefs		

21. Enhancing the sense of security and comfort	• Design for positive peer feedback • Strong safety infrastructure and comfortable facilities for all users. Provide high-quality services	• Wi-Fi facilities for waiting areas, • well-maintained public washrooms that operate 24 hours, and include provisions for the elderly and differently-abled individuals. • "Push button" facilities at crossings are needed with designed for differently able commuters.

The expert insights once again confirm that the process of addressing key influencing factors on commuters' transport mode decision in Sri Lanka's urban mobility will require the application of a multidimensional and context-sensitive approach. In line with this, the experts emphasised behavioural opportunities rooted in social influence, visibility, and natural geological elements. E5 and E6 recommended implementing community-based campaigns, role model initiatives, and tailored awareness programmes to guide and regulate travel behaviour. Additionally, E3 suggested that consistently delivering high-quality services and establishing an effective complaint-handling mechanism would help shape personal beliefs and enhance overall commuter satisfaction. Collectively, these insights highlight the importance of human-centred mobility strategies that prioritise safety, comfort, efficiency, and commuter satisfaction in order to positively influence behavioural, social, and control beliefs within the community. According to E6, given Sri Lanka's collectivist culture, maintaining such services can generate impactful, community-driven recommendations.

The proposed context-specific strategies to address the key influencing factors identified through the questionnaire survey extend across all sustainable dimensions, social, cultural, environmental, and economic. Supported by literature findings, the experts stressed the importance of tailored interventions that align with inherent behavioural patterns, environmental attributes, economic conditions, and socio-cultural diversity in achieving sustainable urban mobility. Collectively, these insights signal a paradigm shift—from planning for people to people for planning, where bottom-up, human-centered approaches drive solutions. By embracing this shift, Sri Lanka can move toward an urban mobility framework that not only addresses technical and infrastructural needs but also meaningfully responds to the lived realities of its communities, fostering long-term, inclusive, and transformative change.

4.5 Discussion

Over the past few decades, both academic research and practical observation have highlighted the existence of significant failures in urban mobility, intertwined with economic, social, cultural, and environmental factors. These challenges are exacerbated in Sri Lanka by unsustainable urban planning practices, which fail to acknowledge the complex interaction between human needs, environmental sustainability, and economic development. The urban development history shows a constant failure in the city design caused by the lack of consideration of influencing factors from human behaviour, culture, thinking patterns, environmental, and economic systems. Today, in the global context, the United Kingdom has recognised the need to formulate its own design guidelines, policies, and regulations appropriate for the diverse needs of every member of the street (Flower, 2022). However, the present study reveals that not only human needs, but also social and cultural values, human behaviour, and thinking patterns significantly impact shaping urban mobility, alongside environmental and economic conditions. Therefore, these insights strongly support refining urban mobility strategies, designs, and regulations to address inherent social, cultural, economic, environmental, and behavioural factors that influence mobility choices.

The extended Theory of Planned Behaviour demonstrated that these influences can be grouped into six key variables: personal attributes, travel characteristics, environmental characteristics, behavioural beliefs, social beliefs, and control beliefs, all of which directly shape individuals' transport mode choices. However, the survey findings indicated that the relative influence of these factors is context-dependent, with several under each variable being identified by the Kiribathgoda community in Sri Lanka as particularly significant.

The results of the regression analysis confirm that this extended Theory of Planned Behavior demonstrates strong predictive capability, explaining over 80% of the variance in commuters' intentions to use public transport. However, it is also worthwhile to recognise that the remaining variance may stem from other indirect or unmeasured variables. For example, habit formation plays a substantial role in repeated transport choices. Once a transport routine is established, people do not tend to evaluate the pros and cons of available transport modes, even if better options become available (Neto et al., 2020). To reflect all these influences, the conceptual framework of the Extended Theory of Planned Behavior, tailored to transport mode intention, has been revised and is illustrated in Figure 4.15. However, since the regression analysis for active mobility indicates weak model performance compared to public transport, this framework and the percentage values presented in the figure may be more applicable to public transport mode intention.

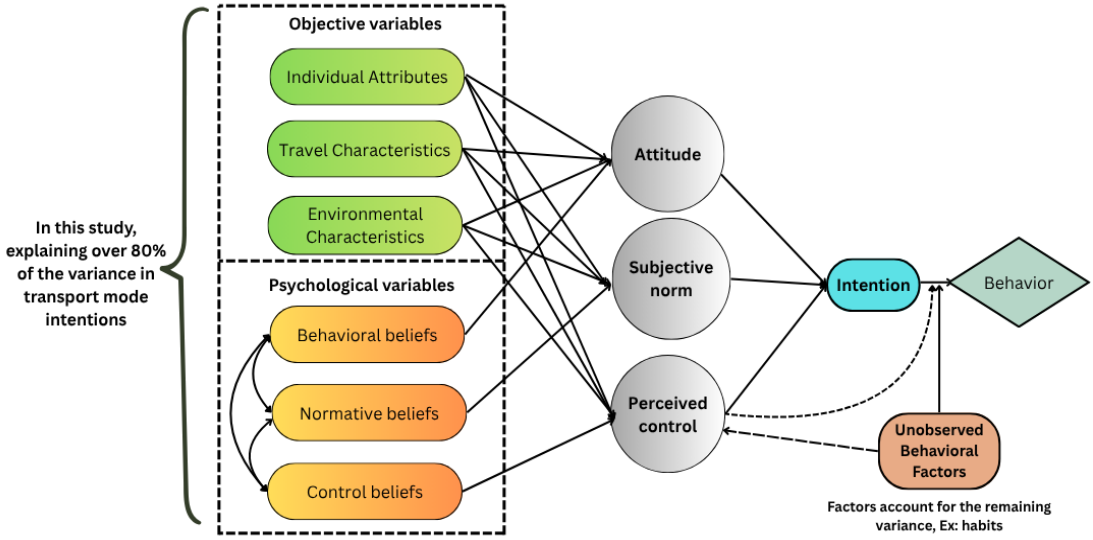

Figure 4.15 Conceptual framework of the Extended Theory of Planned Behavior: tailored to public transport mode intention

This framework integrates both objective and psychological variables, combining them into the TPB's three primary constructs, attitude, subjective norm, and perceived control, which collectively shape intention and ultimately behaviour. For deeper conceptual clarity, the key variables can be briefly defined as follows:

- Individual Attributes: Demographic and personal traits such as age, gender, skill & knowledge, health condition, and occupation that may shape transport decisions.
- Travel Characteristics: Features of both transport modes, including cost, accessibility, comfort, safety, reliability, and trip characteristics, such as frequency, travel time, and duration
- Environmental Characteristics: Physical and spatial elements such as weather, air quality, and urban form that influence mobility preferences.
- Behavioral Beliefs: Commuters' perceptions of the outcomes of using the transport mode
- Normative Beliefs: Social pressures or expectations perceived from peers, family, or the broader community about using the transport mode
- Control Beliefs: Perceived ease or difficulty of using the transport mode

Together, these elements contribute to a robust model for analysing and influencing transport mode choice. By integrating both contextual and psychological components, this extended TPB model provides a practical foundation for policymakers aiming to encourage sustainable urban mobility.

The current research proposes a new paradigm of urban transport, where walking, cycling, gathering, and public transportation play an important role on the streets. A significant number of the globally renowned metropolitan areas, including New York, Paris, London, and Barcelona, have officially embraced sustainable mobility, and some of them have already dedicated more rights-of-way and operational priority to walking, cycling, and

public transportation (Flower, 2022). In contrast, primarily driven by traffic demand forecasts, the Sri Lankan government's policy plan has proposed a Kiribathgoda multi-story car park with an overhead pedestrian Corridor, a Multi-functional commercial center, a new bypass road for linking Peliyagoda-Mahara, retail & shopping streets development, Improvement of the Walk Trail, and a new bicycle track (From Kiribathgoda Walk Trail to Suwatha Uyana) by 2030.

In line with this approach, the present study proposes targeted urban mobility strategies aimed at enhancing active mobility and public transport in Sri Lanka by addressing key influencing factors classified under the six main variables of the Theory of Planned Behaviour (TPB). Rather than focusing solely on infrastructure development, these strategies emphasise addressing diverse human needs, transport mode characteristics, environmental attributes, socio-cultural beliefs, and behavioural factors to more effectively promote sustainable urban mobility. The strategies outlined in Table 4.13 primarily focus on improving public transport and active mobility through active public engagement, with particular attention to the variables that influence individuals' transport mode choices. These strategies were derived and synthesised from the expert interview findings presented in Tables 4.11 and 4.12, while their alignment with the six key TPB variables is illustrated in Figures 4.17 and 4.18.

Figure 4.16 One Green Mile Street project, Mumbai
Source: (One Green Mile – Public Space and Streetscape Design, 2023)

A notable reference is the Green Mile-Complete Street project in Mumbai, India, which incorporates several infrastructure developments mentioned in Table 4.13. This project highlights the tendency in the global about more concerned about human-centered development. However, the present study departs from the Mumbai model by not relying solely on infrastructure upgrades. Instead, it brings forth contextualised strategies, age and gender-sensitive policies, and approaches sensitive to environmental, social, and cultural values with highlighting the necessity of public involvement throughout the strategy formulation and implementation stages. Ultimately, the present study argues that establishing sustainable urban mobility is beyond the planning for people; it is planning with people, through a deep integration of environmental, social, cultural, and economic

realities. However, achieving this kind of transformation in the Sri Lankan context requires addressing institutional barriers and bridging the gap in research and development initiatives.

In addition, the concept of “Contextualises”, used in this study, should not only be specific to geographic location but also to the temporal dimension. As environmental, social, economic, and behavioural features change with time, all proposed strategies must be periodically reviewed and adapted. Similarly, the transition to sustainable mobility must allow time for both the gradual shift in human behaviour in response to proposed strategies and the transformation of city patterns and functionalities in accordance with evolving behavioural patterns. This aligns with Christopher Alexander’s philosophy, which argues that natural, vibrant cities behave more like "semi-lattices", where interdependent relationships exist among spaces, people, and functions.

Finally, human mobility, which is not limited to the movement in space, but expands to the movement through time, has always been deeply embedded in our daily lives since long before the invention of the wheel. The future of urban mobility should be rooted in human behaviour, thoughts, and indigenous knowledge, enabling a smooth evolution without becoming a challenge to the environmental, social, and cultural aspects. Accordingly, by fulfilling the sixth objective of the research, the following strategies aim to implement sustainable urban mobility that seamlessly integrates with our daily lives, ultimately allowing the city to function as a living organism that responds to and supports human and environmental well-being.

Table 4.13 Formulated strategies for sustainable urban mobility in Sri Lanka

No	Theme	Strategies	Active or PT
01	Resting facilities & shelters	• Enhancing comfort by providing resting areas with seating every 150 meters or less, including shelters, tree cover, side arms, and backrests. • Construct shelters at bus halts and along pedestrian paths to protect against adverse weather.	Active mobility
		• Enhancing comfortability by providing comfortable Seating. • Construct shelters & seating facilities at bus halts to protect against adverse weather & enhance comfort for differently-abled users.	Public transport
02	Inclusive Crossing Design	•Age and ability-sensitive policy changes, including installing push-button crossing mechanisms, adjusting road crossing times, and demand-based widths.	Active mobility
03	Multimodal Integration	•Improve multimodal connectivity by integrating walkways with bus stops and ensuring quick railway connections	Active mobility & Public transport
04	Reliable transport service	•Provide on-time transport services to support variable/ flexible working hours •Ensure user trust and institutional responsibility by implementing accountability mechanisms for disruptions	Public transport
05	Universal Accessibility	•Enhance accessibility and provide last-mile connectivity •solutions with wheelchair/elderly access •Improve the quality of transport for disabled people	Active mobility & Public transport
06	Participatory planning	•Incorporate commuter feedback during both planning and •Implementation stages •Use image analysis to monitor and improve urban environments •Offer quick feedback systems and effective complaint-handling procedures.	Active mobility & Public transport
07	Pedestrian design standards	•Maintain route quality with appropriate widths (e.g., 3.5m for four elders walking in parallel), safe surfaces, and avoidance of sharp drops. •Create design standards using plan, profile, and cross-sectional principles.	Active mobility
		•Adapt international pedestrian design standards to the local urban context. •Redesign hazardous pedestrian zones to minimise accident risk.	Active mobility & Public transport
08	Pedestrian flow management	•Ensure continuous pedestrian flow and eliminate stagnant zones	Active mobility
09	Lighting infrastructure	•Install streetlights at intervals not exceeding 30 meters. •Install motion sensors, dimmers, and timers to control excess urban lighting.	Active mobility & Public transport

10	Security infrastructure	•Implement a 24-hour security system to ensure commuters' safety	Active mobility & Public transport
11	Service network expansion	•Enhance bus service network coverage. •Monitor public transport capacity vs. population	Public transport
		•Increase the density and length of the pedestrian network	Active mobility
12	Smart traffic systems	•Implement AI-based intelligent traffic systems to improve mobility efficiency	Active mobility & Public transport
13	Land-use planning & zoning	•Apply performance zoning and promote land diversity through mixed-use development, and create land use policy to counter individualised development patterns. •Encourage multifunctional commercial spaces to reduce unnecessary travel. •Encourage a variety of building ages and types to support mixed-use economies and reduce travel needs.	Active mobility & Public transport
14	Walkway Access Design	•Design walkways with one entry/exit every 100–300 meters.	Active mobility
15	Transport demand management	•Introduce tax policies that discourage private vehicle usage. •Expand and upgrade park-and-ride facilities. •Develop bypass roads to reduce inner-city congestion	Active mobility & Public transport
		•Introduce bypass and limited-stop bus services •Increase PT frequency during peak hours •Provide seasonal public transport services •Prioritise railway services, revitalising the railway service	Public transport
16	Institutional coordination	•Facilitate inter-agency collaboration to implement variable working hours. •Eliminate institutional barriers that hinder sustainable mobility implementation.	Active mobility & Public transport
17	Air quality control and monitoring	•Monitor air quality through real-time pollution information systems. •Enforce air quality regulations through strict legal frameworks. •Promote renewable energy in transport.	Active mobility & Public transport
18	Urban greening & pollution control	•Increase urban greenery using climate-suitable, non-fruiting and non-flowering trees and develop green walls and green spaces as noise and pollution buffers. •Trees should be planted so as to avoid obstructing the forward decision view cone.	Active mobility & Public transport
19	Mental well-being in urban design	•Integrate recreational features to promote outdoor activities and reduce stress. •Construct physical separations from traffic, like green fences for safety and mental comfort.	Active mobility
		•Promote privacy and freedom	Public transport
		•Introduce human satisfaction as a key performance indicator in mobility planning.	Active mobility & Public transport

20	Climate resilience	•Implement drainage systems for road surfaces and overland flow to ensure all-weather usability. •Use climate-appropriate, heat-resistant materials in pedestrian walkway construction.	Active mobility
		•Improve air-conditioned pubic transport services	Public transport
21	Vending regulation	•Prevent vendor encroachment by providing dedicated spaces along walkways	Active mobility
22	Public Space Allocation	•Expand public spaces across streets to form vehicle-restricting dead ends. •Expand walkable & comfortable public spaces.	Active mobility
23	Travel experience & service quality	•Ensure consistent travel experiences focusing on comfort, safety, cleanliness, and efficiency. •Tailor high-quality services for office, university, school groups. •Provide 24/7 access and maintain continuous high-quality service. •Implementing waste management procedures	Active mobility & Public transport
24	User awareness & campaigns	•Conduct awareness campaigns targeting specific user groups such as office workers and students. •Launch awareness campaigns such as “Fridays for Future” to foster mobility culture.	Active mobility & Public transport
25	Peer & social influence	•Design to encourage positive peer influence and user satisfaction. •Use public figures and role models to promote active transportation. •Build community support by showcasing visible, high-quality, safe, and efficient transport systems.	Active mobility & Public transport
26	Public Amenities	•Provide Wi-Fi and drinking water facilities in waiting areas. •Maintain 24-hour public washrooms with inclusive facilities for the elderly and disabled.	Active mobility & Public transport
27	Smart promotion	•Promote active mobility & public transport through social media platforms.	Active mobility & Public transport
		•Create mobile applications that promote and support active mobility	Active mobility
28	Technology advancement	•On-time tracking & efficient systems. •Establish online/ smart tracking systems. •Promote teleworking, online services, and online shopping.	Public transport
29	Policy & governance	•Prioritise research and development, establish innovation hubs, and encourage public-private partnerships. •Develop a national smart mobility policy framework. •Establish health & safety policies or regulations in urban mobility.	Active mobility & Public transport
30	Behavioural regulations	•Facilitate phased behaviour change via education and target youth to encourage sustainable lifestyles	Active mobility & Public transport
		•Regulate pedestrian behaviour using infrastructure-based interventions like underpasses and overpasses.	Active mobility

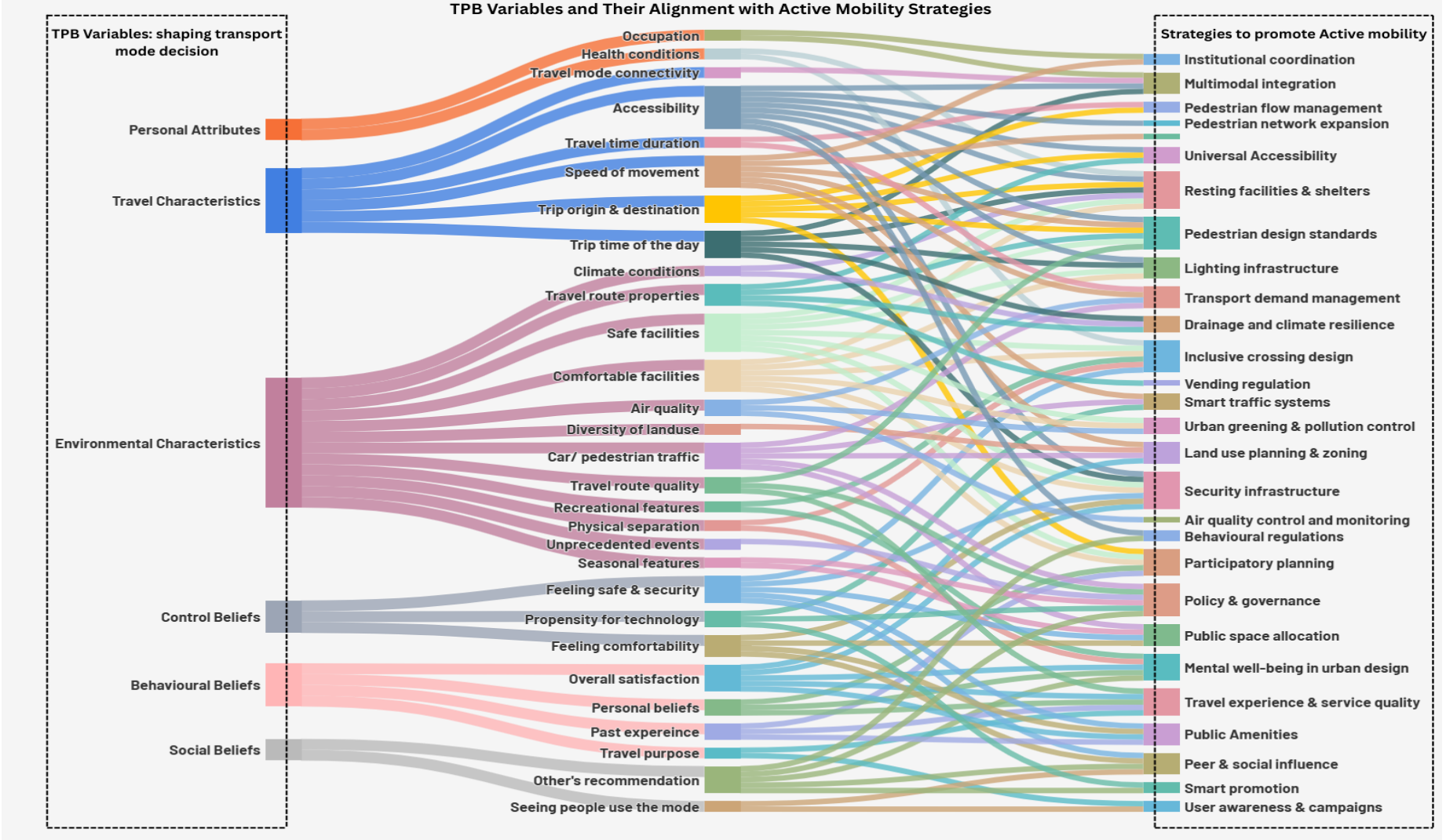

Figure 4.17 TPB Variables and Their Alignment with Active Mobility Strategies

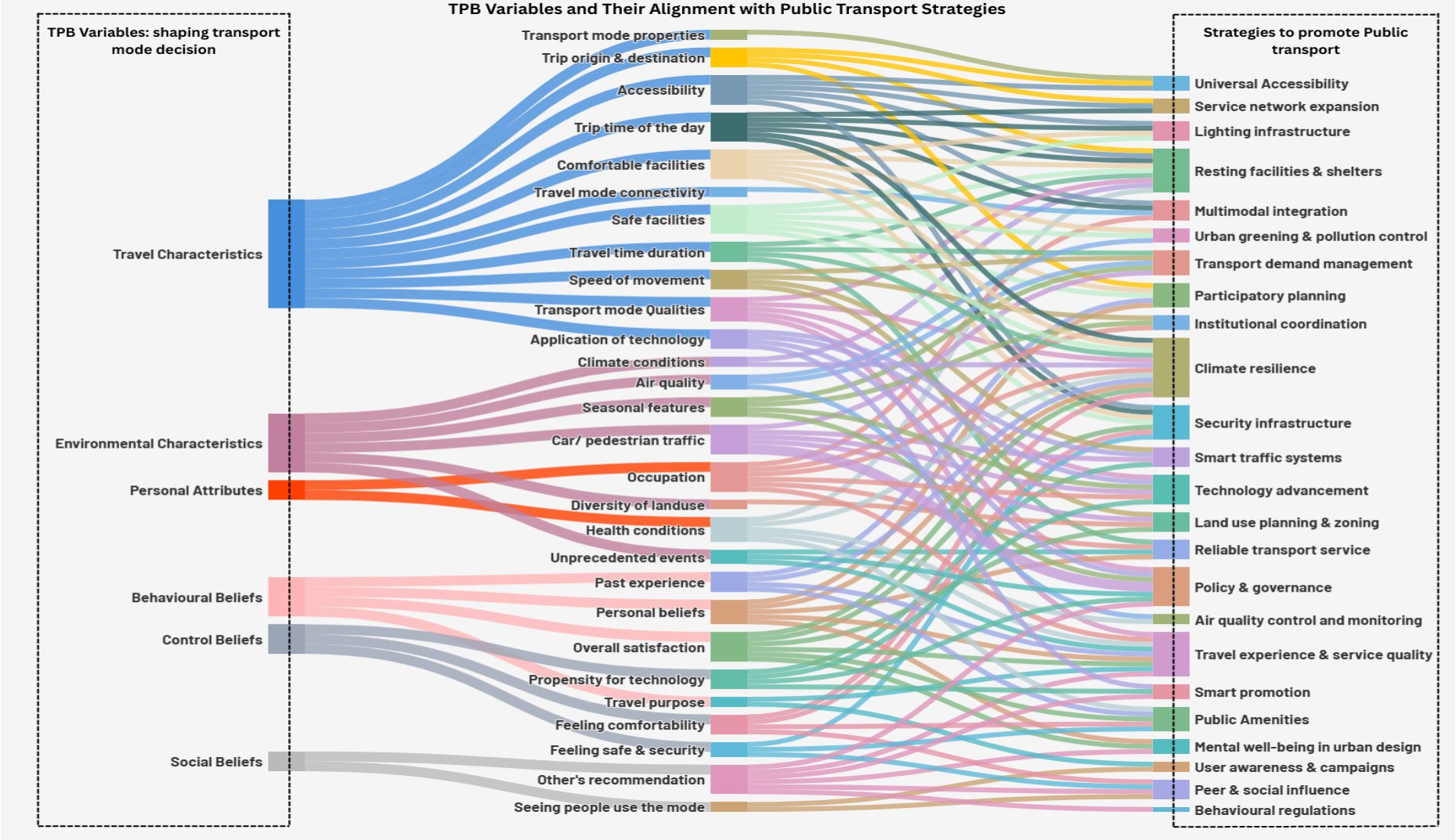

Figure 4.18 TPB Variables and Their Alignment with Public Transport Strategies

4.6 Chapter summary

This chapter illustrates a detailed analysis and discussion of the data collected through a focus group interview, single-case study, and expert interviews. The primary objective of this chapter was to analyse the collected data in order to accomplish the fifth and sixth research objectives. A focus group interview was conducted to validate and contextualise the influencing factors on transport mode decision identified from the literature review, allowing experts to revise, combine, or discard variables based on relevance, feasibility, and practical applicability to the Sri Lankan context.

Subsequently, the application of the extended theory of planned behaviour for urban mobility in Sri Lanka was investigated through a single-case study centered on Kiribathgoda city. The collected data through document review, observation, and questionnaire survey revealed the key influencing factors that need to be addressed in the strategy development stage in order to implement sustainable urban mobility in Sri Lanka. Finally, contextualised strategies for promoting sustainable urban mobility were developed using expert interviews to achieve the sixth objective of the study.

In conclusion, this study reveals that the application of the extended theory of planned behaviour in sustainable urban mobility strategy formulation will be more successful and will provide valuable insights for social, environmental, and behavioural challenges. Therefore, industry practitioners and institutions must take relevant steps to implement proposed strategies with suitable feasibility studies in the Sri Lankan context to achieve holistic, sustainable urban mobility.

CHAPTER 5

CONCLUSIONS & RECOMMENDATIONS

5.1 Introduction

The chapter aims to present the key conclusions of the research findings and provide practical and theoretical recommendations based on the research findings. Initially, it provides an overview of the research by outlining how the research objectives were achieved throughout the process. Furthermore, the study outlines the limitations faced in achieving the objectives and highlights the areas that require further academic inquiry. Finally, the chapter concludes with recommendations to promote sustainable urban mobility in Sri Lanka.

5.2 Overview of the objectives

Objective 1: To critically review the concept of sustainable urban mobility.

This research objective was achieved through the comprehensive literature review. Accordingly, the literature findings indicated that urban mobility is vital to the holistic sustainable development of the country. However, current urban mobility practices across the world are responsible for numerous drawbacks in environmental, social, and economic dimensions.

The concept of sustainable urban mobility was identified as a transport solution to overcome these failures and barriers towards sustainable development. Sustainable urban mobility ensures safe, accessible, and comfortable movement within cities, while promoting active social cohesion, human satisfaction, and efficient mobility. It aims to minimise environmental impact and support the social and economic well-being of both present and future generations. In addition, the study emphasises that sustainable urban mobility is fundamentally derived from traditional mobility approaches, since its philosophy goes beyond this by prioritising people, viewing streets as spaces of vitality, integrating urban form, and considering all transport modes through interdisciplinary planning teams.

Objective 2: To examine key approaches to achieving Sustainable Urban Mobility.

This objective was fulfilled through literature findings, with particular reference to both international and local contexts. According to the literature, promoting active mobility, changes in urban form, investment in public transportation, and transport policy changes are often considered sustainable urban mobility approaches. The study highlights that effective transport policy should aim to reduce private vehicle dependency while

introducing new technologies and regulations to encourage public transport and active mobility within the community.

Furthermore, in terms of changing urban forms, city planners must consider socio-cultural values, including collectivism, emotional values such as place attachment, and behavioural tendencies, in order to maximise the effectiveness of design. In addition, promoting both active mobility and public transport should incorporate sensitive strategies not only for commuters' needs, beliefs, behaviours, and cognitive patterns, but also for environmental conditions and economic realities.

Among the identified approaches, experts emphasised that public transport and active mobility consistently remain at the forefront as key components of achieving sustainability in urban environments. The public transport system is one of the most effective tools for achieving urban sustainability, while active mobility constitutes a sustainable means of transport by contributing significantly to physical, mental, and economic well-being.

Objective 3: To investigate the factors influencing the choice of public transportation and active mobility, based on global and Sri Lankan studies

This objective was achieved through the comprehensive literature review. Recent studies highlight numerous challenges in implementing sustainable urban mobility, particularly in advancing active mobility and public transport services. These influencing factors were identified across various dimensions, including environmental features, economic realities, socio-cultural factors, and psychological factors. Accordingly, it is crucial to thoroughly examine these influencing factors before implementing these two approaches to maximise their potential benefits with strong public engagement.

Objective 4: To critically review the Theory of Planned Behaviour and assess its relevance to travel behaviour

The fourth objective was fulfilled through the comprehensive literature review. To gain a deeper understanding of the impact of influencing factors identified in the previous objective, it is crucial to establish these factors within a theoretical framework. Given the human-centred nature of transport behaviour, this study employs the Theory of Planned Behaviour (TPB) as the guiding framework for analysing these factors, thereby linking behavioural determinants to the performance of sustainable urban mobility. This theory has been successfully employed in studying human behaviour in a multidisciplinary context, particularly in promoting sustainable practices.

According to TPB, behavioural intentions are shaped by three key direct variables, namely: attitude toward the behaviour, subjective norm, and perceived behavioural

control. However, with a deeper examination, the study extended this theory by identifying six main categories that impact commuters' transport mode decisions: personal attributes, travel characteristics, environmental characteristics, personal beliefs, behavioural beliefs, and control beliefs. Upon closer analysis, all influencing factors identified in the previous objective can be examined under these six key variables within the extended theory of planned behaviour. Accordingly, this extended TPB can be effectively applied to investigate and shape commuters' behavioural choices.

Objective 5: To map the factors influencing active mobility and public transport using the Theory of Planned Behaviour in Sri Lanka

This objective aimed at systematically categorising the identified influencing factors using the Theory of Planned Behaviour as a theoretical framework to ensure that no critical aspects are overlooked, while also gaining a deeper understanding of how these factors influence sustainable urban mobility. Such categorisation facilitates both the explanation and prediction of their roles, while also supporting the development of robust, evidence-based strategies for Sri Lanka. Accordingly, the fifth objective was addressed through a multi-method approach consisting of a literature review and a focus group discussion.

From the literature review, 42 influencing factors were identified as general factors that directly impact transport mode decisions, particularly for active mobility and public transportation, and were categorised under the six key variables. As these identified factors were subject to validation, including whether categorisation could be applied to each factor and contextualised before formulating new strategies, a focus group interview was conducted to revise, combine, or discard variables based on relevance, feasibility, and practical applicability to the Sri Lankan context. The insights gathered ensured that the variables reflect both theoretical frameworks and practical realities, thereby providing a robust basis for further analysis.

Objective 6: To formulate strategies for enhancing sustainable urban mobility in Sri Lanka

The last objective utilised a single-case study centered on Kiribathgoda city and an expert interview. Single case-study results revealed how these independent influencing factors specifically shape the commuters' travel behaviour by exploring both their level of influence and the nature of the relationship. The study found that the extended theory of planned behaviour holds strong explanatory power in commuters' transport mode decisions, particularly in public transportation. These findings validate the application of the extended theory of planned behaviour to promote sustainable urban mobility within the Sri Lankan community.

This expert interview offered useful insights into strategy development in sustainable urban mobility based on case-study results. Accordingly, it suggested contextualised strategies, age and gender-responsive policies, and approaches sensitive to environmental, psychological barriers, social, and cultural values for the optimal performance of sustainable urban mobility. Thirty strategic themes were developed based on expert insights, and all of them directly address the TPB variables, which shape transport mode decisions.

In addition, this study recommended addressing institutional barriers and bridging the gap in research and development initiatives. Ultimately, this study proposes a new paradigm of urban transport by establishing an argument that sustainable urban mobility is not merely about planning for people, but planning with people, through a deep integration of environmental, social, cultural, and economic realities.

5.3 Limitations

This research is limited to examining the key variables that influence transport mode choice within the framework of the Theory of Planned Behaviour, with a particular focus on public transport and active mobility. To obtain in-depth and context-specific insights, data were collected through a single case study of a linear commercial city in Sri Lanka. Consequently, the proposed strategies should be subjected to feasibility studies before being applied on a wider scale across other urban contexts in the country.

Furthermore, the regression model developed for commuters' intention to use public transport demonstrated strong performance. In contrast, the model for active mobility showed weaker performance, primarily due to the limited representation of active mobility users in the sample.

5.4 Contribution to knowledge

This research contributes to the knowledge on formulating guidelines and strategies for sustainable urban mobility in Sri Lanka. The following key contributions to the knowledge have been made through this research;

- Demonstrated how sustainable urban mobility contributes to environmental, economic, social, and mental well-being
- Identified causes for the limited performance of sustainable mobility practices due to less public engagement
- Extended the theory of planned behaviour as an analytical framework to systematically explore the direct variables that impact commuters' transport mode decisions
- Proposed development of contextualised strategies sensitive to environmental, social, economic realities, and human behaviour
- Formulated practical strategies for sustainable urban mobility in Sri Lanka aimed at fostering holistic well-being

5.5 Recommendations for Industry Practitioners

There is insufficient acknowledgment of key factors that influence transport mode performance by reducing public engagement. Therefore, the outcomes of this research can assist in addressing this concern. The following recommendations can be made to the industry practitioners.

- Industry practitioners are encouraged to prioritise addressing key factors that influence the transport mode decision of commuters in both city design and policy formulation.
- Encourage government and private sector collaboration to enhance research and development while overcoming institutional barriers.
- Industry practitioners should be encouraged to adopt participatory planning models, shifting from "planning for people" to "planning with people," to improve the legitimacy, acceptance, and effectiveness of mobility strategies.

5.6 Recommendation for Academic Research

The following suggestions allow the expansion of study areas and the exploration of untouched elements encountered in this research.

- Conduct comparative studies across multiple urban settings in Sri Lanka to understand regional variations and improve generalisability
- Examine the long-term effectiveness of behaviour-focused mobility interventions and public engagement strategies

5.7 Conclusion

This study has established a comprehensive framework for understanding and advancing sustainable urban mobility in Sri Lanka by bridging theory and practice. Through extending the Theory of Planned Behaviour and applying it to a local case study, the research not only identified the critical factors influencing commuters' travel behaviour but also translated them into practical, context-sensitive strategies. By integrating environmental, social, cultural, psychological, and economic dimensions, the study highlights that sustainable urban mobility is not a purely technical or infrastructural challenge but a deeply human-centred process that requires participatory approaches and inclusive policies. Ultimately, the findings contribute to reimagining urban transport as a driver of holistic well-being, offering a pathway for Sri Lanka to move toward more resilient, equitable, and sustainable cities.

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Observation Checklist (Appendix A)

Observation Checklist for Active Mobility Infrastructure – Kiribathgoda City

This observation checklist was designed based on the literature findings presented in Table 2.4 and was used during field observations in Kiribathgoda City. It was developed to systematically assess the availability, adequacy, and quality of infrastructure and environmental features influencing active mobility. The checklist served as a structured tool to ensure consistency and objectivity in the observation process.

Category	Indicator	Observation (Yes/No)	Remarks
Walkways	Adequate width (>1.5m)	☐	
	Continuous pathways (no interruptions)	☐	
	Well-maintained surface (no cracks/holes)	☐	
	Free from vehicle parking encroachment	☐	
	Free from barriers/obstructions	☐	
Safety Features	Physical separation from traffic (barriers/curbs)	☐	
	Pedestrian crossings available & visible	☐	
	Street lighting is adequate at night	☐	
Comfort & Accessibility	Shady covers or trees for shade	☐	
	Seating/benches available	☐	
	Ramps for differently-abled users	☐	
	Signage/wayfinding available	☐	
Environmental Conditions	Air quality acceptable	☐	
	Noise level tolerable	☐	
	Drainage facilities are adequate during rain	☐	
Geographical Features	Terrain suitable for walking/cycling (flat/low slope)	☐	

Appendix-B

01. Demographics

Gender	Male		Female			
Age	Below 30		30-55		Over 55	

02. Current status of transport mode

2.1 Which mode of transportation do you most prefer to use (as a habit) within urban city areas in your daily life?

Private vehicle		Public transport		Walking or cycling		Taxi services		Other

2.2 Which mode of transportation do you prefer to use in the near future (1-5 years) within urban city areas?

Private vehicle	X	Public transport		Walking or cycling		Taxi services		Other

2.3 What is your intention level on choosing public transport as your transport mode?"

	(0) No intention	(1) Slight intention	(2) Moderate Intention	(3) Significant intention	(4) High intention
Public transportation					

2.4 What is your intention level on choosing active mobility as your transport mode?"

	(0) No intention	(1) Slight intention	(2) Moderate Intention	(3) Significant intention	(4) High intention
Active mobility					

Instruction:
Please rate the extent to which each factor influences your choice of transport mode, using the scale below:
1 = No Influence 2 = Slight Influence 3 = Moderate Influence 4 = Significant Influence
5 = Highly Influential

3.1 How does your health condition (e.g., feeling tired, in pain, or unwell) influence your choice of transport mode?

	1	2	3	4	5		1	2	3	4	5
Public transportation						Active mobility					

3.2 How does your nature of occupation influence your choice of transport mode?

	1	2	3	4	5		1	2	3	4	5
Public transportation						Active mobility					

3.3 How do your skills, and knowledge (time & work management) influence your choice of transport mode?

	1	2	3	4	5		1	2	3	4	5
Public transportation						Active mobility					

4.1 How do trip origin and destination influence your choice of transport mode?

	1	2	3	4	5		1	2	3	4	5
Public transportation						Active mobility					

4.2 How does the time of day (morning/afternoon/evening) affect your choice of transport mode?

	1	2	3	4	5		1	2	3	4	5
Public transportation						Active mobility					

4.3 How does the total travel time of the trip influence your choice of transport mode?

	1	2	3	4	5		1	2	3	4	5
Public transportation						Active mobility					

4.4 How does affordability or lower travel cost influence your choice of transport mode?

	1	2	3	4	5		1	2	3	4	5
Public transportation						Active mobility					

4.5 How does frequent travel influence your choice of transport mode?

	1	2	3	4	5		1	2	3	4	5
Public transportation						Active mobility					

4.6 How does having well-established transport mode connectivity influence your choice of transport mode?

	1	2	3	4	5		1	2	3	4	5
Public transportation						Active mobility					

4.7 How do easy accessibility, availability, and parking facilities influence your choice of transport mode?

	1	2	3	4	5		1	2	3	4	5
Public transportation						Active mobility					

4.8 How does improved technology enhancing transport facilities influence your choice of transport mode?

	1	2	3	4	5		1	2	3	4	5
Public transportation						Active mobility					

5.1 How do the recreational features along the route influence your choice of transport mode?

	1	2	3	4	5		1	2	3	4	5
Public transportation						Active mobility					

5.2 How does physical separation from traffic influence your choice of transport mode?

	1	2	3	4	5		1	2	3	4	5
Public transportation						Active mobility					

5.3 How does air quality influence your choice of transport mode?

	1	2	3	4	5		1	2	3	4	5
Public transportation						Active mobility					

5.4 How do travel route properties (width/ continuity) influence your choice of transport mode?

	1	2	3	4	5		1	2	3	4	5
Public transportation						Active mobility					

5.5 How do travel route quality (cleanliness) influence your choice of transport mode?

	1	2	3	4	5		1	2	3	4	5
Public transportation						Active mobility					

5.6 How do the safe facilities (street lamps/ security services) influence your choice of transport mode?

	1	2	3	4	5		1	2	3	4	5
Public transportation						Active mobility					

5.7 How do comfortable facilities (benches/ seats/ shady covers) influence your choice of transport mode?

	1	2	3	4	5		1	2	3	4	5
Public transportation						Active mobility					

5.8 How do car and foot traffic level influence your choice of transport mode?

	1	2	3	4	5		1	2	3	4	5
Public transportation						Active mobility					

5.9 How do climate or weather conditions influence your choice of transport mode?

	1	2	3	4	5		1	2	3	4	5
Public transportation						Active mobility					

5.10 How do geological features in the city area influence your choice of transport mode?

	1	2	3	4	5		1	2	3	4	5
Public transportation						Active mobility					

5.11 How do government decisions (promoting sustainable mobility) influence your choice of transport mode?

	1	2	3	4	5		1	2	3	4	5
Public transportation						Active mobility					

5.12 How do unexpected events (pandemic, extreme weather, strikes) influence your choice of transport mode?

	1	2	3	4	5		1	2	3	4	5
Public transportation						Active mobility					

5.13 How do seasonal & locational features/ events influence your choice of transport mode?

	1	2	3	4	5		1	2	3	4	5
Public transportation						Active mobility					

5.14 How do Building characteristics, diversity of land use, service distribution within the city influence your choice of transport mode?

	1	2	3	4	5		1	2	3	4	5
Public transportation						Active mobility					

5.15 How do speed of movement and adherence to plan influence your choice of transport mode?

	1	2	3	4	5		1	2	3	4	5
Public transportation						Active mobility					

6.1 How does your travel purpose influence your choice of transport mode?

	1	2	3	4	5		1	2	3	4	5
Public transportation						Active mobility					

6.2 How do your personal beliefs on your trip (beneficial or enjoyable) influence your choice of transport mode?

	1	2	3	4	5		1	2	3	4	5
Public transportation						Active mobility					

6.3 How does your personal past experience influence your choice of transport mode?

	1	2	3	4	5		1	2	3	4	5
Public transportation						Active mobility					

6.4 How does overall satisfaction with your daily life influence your choice of transport mode?

	1	2	3	4	5		1	2	3	4	5
Public transportation						Active mobility					

6.5 How do your personal morals or confidence influence your choice of transport mode?

	1	2	3	4	5		1	2	3	4	5
Public transportation						Active mobility					

6.6 How does the happiness from the chance to gather influence your choice of transport mode?

	1	2	3	4	5		1	2	3	4	5
Public transportation						Active mobility					

7.1 How do recommendations from others about the travel mode influence your choice of transport mode?

	1	2	3	4	5		1	2	3	4	5
Public transportation						Active mobility					

7.2 How does your status of society influence your choice of transport mode?

	1	2	3	4	5		1	2	3	4	5
Public transportation						Active mobility					

7.3 How does seeing others use this transport mode influence your choice?

	1	2	3	4	5		1	2	3	4	5
Public transportation						Active mobility					

7.4 How do cultural, social, or family beliefs (family influence, security, socializing) influence your choice of transport mode?

	1	2	3	4	5		1	2	3	4	5
Public transportation						Active mobility					

8.1 How does feeling comfortable influence your choice of transport mode?

	1	2	3	4	5		1	2	3	4	5
Public transportation						Active mobility					

8.3 How does feeling safe/secure influence your choice of transport mode?

	1	2	3	4	5		1	2	3	4	5
Public transportation						Active mobility					

8.4 How does your preference for advanced technology (or lack of its availability) influence your choice of transport mode?

	1	2	3	4	5		1	2	3	4	5
Public transportation						Active mobility					

Appendix-C

Expert Interview Guide – Strategies for Sustainable Urban Mobility in Sri Lanka

Purpose of the Interview

This semi-structured expert interview aims to get expert opinion on the strategies identified through literature for promoting sustainable urban mobility in Sri Lanka.

Part A: Objective variables

Key Influencing Factors	Proposed Strategy based on Literature Review
Personal attributes	
1. Poor health conditions among elders & females	• Provide seating facilities every 150 meters or less • Construct shelters along pedestrian paths (or less than 150m) to protect against adverse weather. • Construct shelters & seating facilities at bus halts to protect against adverse weather & enhance comfort for differently-abled users *Do you think there is any Sri Lanka–specific reason for this challenge, and what practical solutions or adjustments would you suggest?*
2. Occupation influences travel behaviour	• Improve multimodal connectivity • Provide on-time transport services to support variable working hours. • on-time tracking & efficient systems *Do you think there is any Sri Lanka–specific reason for this challenge, and what practical solutions or adjustments would you suggest?*
Environmental Characteristics	
3. Lack of recreational and safe separation in public spaces	• Integrate recreational features for reducing stress, promoting outdoor activities. • Construct physical separations like green walls or fences to enhance safety and mental comfort. *Do you think there is any Sri Lanka–specific reason for this challenge, and what practical solutions or adjustments would you suggest?*
4. Poor air quality	• Monitor pollution levels. • Reduce private vehicle use & expand public transport. • Increase urban greenery. • Promote renewable energy in transport, • Regulate vehicle use through taxation. *Do you think there is any Sri Lanka–specific reason for this challenge, and what practical solutions or adjustments would you suggest?*
5. Inadequate route and mode properties (width/level)	• Design walkways to accommodate parallel walking: 3.5m (4 elders walking in parallel), 2.5 m- 3.5 m (3 elders walking in parallel), 1.5 m- 2.5 m (2 elders walking in parallel), 1.5m (1 elder safety) • Maintain proper levels for drainage and ease of movement. • Install effective drainage, • Create sheltered walkways. • Maintain safe, accessible spaces year-round. *Do you think there is any Sri Lanka–specific reason for this challenge, and what practical solutions or adjustments would you suggest?*
6. Impacts of adverse climate conditions	• Develop drainage, increase shaded areas, and create spaces for relaxation and movement. *Do you think there is any Sri Lanka–specific reason for this challenge, and what practical solutions or adjustments would you suggest?*

7. Resilience to unpredictable events (pandemics/strikes)	• Establish safety policies and ensure continuity of public transport services during disruptions. *Do you think there is any Sri Lanka–specific reason for this challenge, and what practical solutions or adjustments would you suggest?*
8. Limited land diversity	• Promote mixed-use • Varied building ages to offer the opportunity for a broader economy and reduce travel demand • Performance zoning *Do you think there is any Sri Lanka–specific reason for this challenge, and what practical solutions or adjustments would you suggest?*
9. Vehicular and pedestrian traffic conflicts	• Reduce the moving needs, mixed land use, combined commercial services(supermarket), and teleworking activities (online shopping, online working) • Expand walking/public transport facilities; • Enhance the capacity of the park and ride facility • Expanding public spaces across the streets to create dead ends that prevent vehicles from using the street as a throughway • Use zoning to limit through traffic. • Use AI for traffic management. *Do you think there is any Sri Lanka–specific reason for this challenge, and what practical solutions or adjustments would you suggest?*
10. Adapting to seasonal variations	• Encourage online services, • Provide seasonal public transport • Expand walkable public spaces. • Regulate land diversity and coordinate commercial investments strategically. *Do you think there is any Sri Lanka–specific reason for this challenge, and what practical solutions or adjustments would you suggest?*
11. Poor user-perceived safety & comfort in Active Mobility	• Provide shady paths, seating, streetlights, safe crossing, physical separation from traffic, and improved security service • Use commuter feedback & image analysis for continuous upgrades. • Relevant road design changes & redesign hazardous locations • Enforce noise and light control policies and optimize city design. • Introduce physical separations. • Proper crossings & better lighting. • Redesign hazardous locations. • Use climate-appropriate materials. • Increase the green shaded areas. (Diverse trees) • Create comfortable resting spaces. *Do you think there is any Sri Lanka–specific reason for this challenge, and what practical solutions or adjustments would you suggest?*
Travel Characteristics	
1. Trip origin & destination influence travel behaviour.	• Enhance accessibility and maintain route quality through proper width, safety, and user comfort. • Use commuter feedback • Image analysis. • Ensure a constant flow of pedestrians and prevent stagnant zones • Construct shelters & seating facilities at bus halts to protect against adverse weather & enhance comfort for differently-abled users *Do you think there is any Sri Lanka–specific reason for this challenge, and what practical solutions or adjustments would you suggest?*
2. Excessive travel time	•Introduce bypass and limited-stop bus services. •Ensure timely public transport operations. •Enhancing comfort by providing comfortable Seating in public transport

	Do you think there is any Sri Lanka–specific reason for this challenge, and what practical solutions or adjustments would you suggest?
3. Facing difficulties in using the mode at any time of the day	• Install shelters, sunshades • Streetlights at intervals not exceeding 30 meters to ensure safe travel during the day • Enhance the 24-hour security service • Use climate-appropriate materials *Do you think there is any Sri Lanka–specific reason for this challenge, and what practical solutions or adjustments would you suggest?*
4. Inaccessible transport for vulnerable groups	• Enhance safety & comfortable facilities, including seats, streetlights, 24-hour security, and infrastructure development (walk width & height) • walkways with bus stops • Enhance the bus service network coverage & monitoring PT capacity to the population • Enhance the quality of transport for disabled people, & enhance the pedestrian network density & length *Do you think there is any Sri Lanka–specific reason for this challenge, and what practical solutions or adjustments would you suggest?*
5. Limited speed of movement	• Adopt variable working hours, • Implement intelligent traffic systems, • Enhance public transport, • Use performance zoning & land diversity to reduce unnecessary movement • Continue proper width/height for walk paths • One entry/exit for each 100m/ 100m to 200m/ 200-300m along the walkways • Increase public transport frequency during peak hours, • Tax adjustments for private vehicle use, •Enhance park-and-ride facilities. *Do you think there is any Sri Lanka–specific reason for this challenge, and what practical solutions or adjustments would you suggest?*
10. Inadequate mode properties- Public transport	• Improve the quality of transport for disabled people. *Do you think there is any Sri Lanka–specific reason for this challenge, and what practical solutions or adjustments would you suggest?*
2.Multimodal connectivity is weak(environmental & behavioural challenge)	• Ensure continuity and physical accessibility between modes through integrated planning and land use diversity. • Strengthen public transport networks, • Provide bus stops within walking path • One entry/exit for each 100m/ 100m to 200m/ 200-300m • Performance zoning *Do you think there is any Sri Lanka–specific reason for this challenge, and what practical solutions or adjustments would you suggest?*
11. Poor user-perceived safety and comfort – Public transport	Improve air-conditioned pubic transport services *Do you think there is any Sri Lanka–specific reason for this challenge, and what practical solutions or adjustments would you suggest?*
9. Sri Lanka lacks the adoption of modern transport technologies	• Implement online tracking & booking systems • Develop apps promoting active mobility. • Use AI for traffic management. • Develop digital solutions for mobility, such as health/activity apps • Online booking • Quick feedback platforms. *Do you think there is any Sri Lanka–specific reason for this challenge, and what practical solutions or adjustments would you suggest?*

Part B: Subjective variables

Key Influencing Factors	Proposed Strategy based on Literature Review
Behavioural beliefs	
17. Purpose of travel influences mode choice	• Tailor transport options by comfort, efficiency • 24/7 access and service quality. *Do you think there is any Sri Lanka–specific reason for this challenge, and what practical solutions or adjustments would you suggest?*
18. Influence of personal beliefs and perceptions	• Deliver safe, comfortable, and effective transport services to positively shape user attitudes. *Do you think there is any Sri Lanka–specific reason for this challenge, and what practical solutions or adjustments would you suggest?*
19. Influence of past travel experience	• Ensure that travel experiences are consistently safe, comfortable, and effective. • Commuters' feedback *Do you think there is any Sri Lanka–specific reason for this challenge, and what practical solutions or adjustments would you suggest?*
20. Drivers of overall satisfaction with transport modes	•Focus on safety, comfort, efficiency, and cleanliness • Provide multifunctional spaces for user needs. *Do you think there is any Sri Lanka–specific reason for this challenge, and what practical solutions or adjustments would you suggest?*
Social Beliefs	
1. Social influence can promote sustainable mobility	• Use social media • Provide high-quality, tailored services to target groups (office crowd, university group, class, school) • Satisfied service for everyone with positive peer recommendations. • Increase awareness, promote reliability. *Do you think there is any Sri Lanka–specific reason for this challenge, and what practical solutions or adjustments would you suggest?*
2. Visibility and promotion can encourage behaviour change	• Build community trends with visible, high-quality, safe, and efficient mobility options. *Do you think there is any Sri Lanka–specific reason for this challenge, and what practical solutions or adjustments would you suggest?*
Control Beliefs	
21. Enhancing the sense of security and comfort	• Design for positive peer feedback • Strong safety infrastructure and comfortable facilities for all users. Provide high-quality services *Do you think there is any Sri Lanka–specific reason for this challenge, and what practical solutions or adjustments would you suggest?*

Chi-Square Test Results : Gender Analysis

Public Transport

Health Condition	Male	Female	Total
No Influence	11	2	13
Moderate Influence	19	29	48
Significant Influenc	24	28	52
Highly Influence	10	9	19
Slight Influence	14	14	28
	78	82	160

Expected Frequencies

Male	Female
6.34	6.66
23.4	24.6
25.35	26.65
9.26	9.74
13.65	14.35

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.072697295

effect

H0 is Accepted

Active Mobility

Health Condition	Male	Female	Total
No Influence	13	1	14
Moderate Influence	22	20	42
Significant Influence	18	35	53
Highly Influence	12	18	30
Slight Influence	13	8	21
	78	82	160

Expected Frequencies

Male	Female
6.825	7.175
20.475	21.525
25.8375	27.1625
14.625	15.375
10.2375	10.7625

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.001161022

H0 is Rejected

Public Transport

Occupation	Male	Female	Total
No Influence	17	5	22
Moderate Influence	17	21	38
Significant Influence	31	30	61
Highly Influence	6	17	23
Slight Influence	7	9	16
	78	82	160

Expected Frequencies	
Male	Female
10.73	11.28
18.53	19.48
29.74	31.26
11.21	11.79
7.80	8.20

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Leve	0.05
Overall	Critical Value	9.487729
	P value	0.014602 effect

H0 is Rejected

Active Mobility

Occupation	Male	Female	Total
No Influence	13	7	20
Moderate Influence	19	19	38
Significant Influence	27	30	57
Highly Influence	12	15	27
Slight Influence	7	11	18
	78	82	160

Expected Frequencies	
Male	Female
9.75	10.25
18.525	19.475
27.7875	29.2125
13.1625	13.8375
8.775	9.225

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Leve	0.05
Overall	Critical Value	9.487729
	P value	0.544191

H0 is Accepted

Public Transport

Developed Skills	Male	Female	Total
No Influence	8	1	9
Moderate Influence	26	33	59
Significant Influence	23	19	42
Highly Influence	9	7	16
Slight Influence	12	22	34
	78	82	160

Expected Frequencies	
Male	Female
4.3875	4.6125
28.7625	30.2375
20.475	21.525
7.8	8.2
16.575	17.425

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729
	P value	0.0447971

H0 is Rejected

Active Mobility

Developed Skills	Male	Female	Total
No Influence	4	3	7
Moderate Influence	24	36	60
Significant Influence	27	21	48
Highly Influence	6	5	11
Slight Influence	17	17	34
	78	82	160

Expected Frequencies	
Male	Female
3.4125	3.5875
29.25	30.75
23.4	24.6
5.3625	5.6375
16.575	17.425

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729
	P value	0.5111821

H0 is Accepted

Public Transport

Origin & Destination	Male	Female	Total
No Influence	6	1	7
Moderate Influence	27	25	52
Significant Influence	30	37	67
Highly Influence	12	14	26
Slight Influence	3	5	8
	78	82	160

Expected Frequencies	
Male	Female
3.4125	3.5875
25.35	26.65
32.6625	34.3375
12.675	13.325
3.9	4.1

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729
	P value	0.293862

H0 is Accepted

Active Mobility

Origin & Destination	Male	Female	Total
No Influence	5	3	8
Moderate Influence	17	19	36
Significant Influence	37	40	77
Highly Influence	13	16	29
Slight Influence	6	4	10
	78	82	160

Expected Frequencies	
Male	Female
3.9	4.1
17.55	18.45
37.5375	39.4625
14.1375	14.8625
4.875	5.125

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729
	P value	0.8546946

H0 is Accepted

Public Transport

Trip time	Male	Female	Total
No Influence	3	2	5
Moderate Influence	18	27	45
Significant Influence	30	23	53
Highly Influence	12	16	28
Slight Influence	15	14	29
	78	82	160

Expected Frequencies	
Male	Female
2.4375	2.5625
21.9375	23.0625
25.8375	27.1625
13.65	14.35
14.1375	14.8625

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729
	P value	0.4882027

H0 is Accepted

Active Mobility

Trip time	Male	Female	Total
No Influence	4	3	7
Moderate Influence	22	19	41
Significant Influence	26	34	60
Highly Influence	19	22	41
Slight Influence	7	4	11
	78	82	160

Expected Frequencies	
Male	Female
3.4125	3.5875
19.9875	21.0125
29.25	30.75
19.9875	21.0125
5.3625	5.6375

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729
	P value	0.6683797

H0 is Accepted

Public Transport

Travel time	Male	Female	Total
No Influence	2	1	3
Moderate Influence	26	27	53
Significant Influence	31	37	68
Highly Influence	13	12	25
Slight Influence	6	5	11
	78	82	160

Expected Frequencies	
Male	Female
1.4625	1.5375
25.8375	27.1625
33.15	34.85
12.1875	12.8125
5.3625	5.6375

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729
	P value	0.922675

H0 is Accepted

Active Mobility

Travel Time	Male	Female	Total
No Influence	3	5	8
Moderate Influence	24	26	50
Significant Influence	33	35	68
Highly Influence	14	14	28
Slight Influence	4	2	6
	78	82	160

Expected Frequencies	
Male	Female
3.9	4.1
24.375	25.625
33.15	34.85
13.65	14.35
2.925	3.075

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729
	P value	0.8770695

H0 is Accepted

Public Transport

Less travel cost	Male	Female	Total
No Influence	7	2	9
Moderate Influence	15	16	31
Significant Influence	20	32	52
Highly Influence	17	20	37
Slight Influence	19	12	31
	78	82	160

Expected Frequencies	
Male	Female
4.3875	4.6125
15.1125	15.8875
25.35	26.65
18.0375	18.9625
15.1125	15.8875

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.48772904
	P value	0.1205

H0 is Accepted

Active Mobility

Less travel cost	Male	Female	Total
No Influence	23	9	32
Moderate Influence	19	19	38
Significant Influence	16	24	40
Highly Influence	5	12	17
Slight Influence	15	18	33
	78	82	160

Expected Frequencies	
Male	Female
15.6	16.4
18.525	19.475
19.5	20.5
8.2875	8.7125
16.0875	16.9125

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.48772904
	P value	0.02906725

H0 is Rejected

Public Transport

Frequency of usage	Male	Female	Total
No Influence	10	1	11
Moderate Influence	26	29	55
Significant Influence	30	42	72
Highly Influence	4	6	10
Slight Influence	8	4	12
	78	82	160

Expected Frequencies	
Male	Female
5.3625	5.6375
26.8125	28.1875
35.1	36.9
4.875	5.125
5.85	6.15

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.02

H0 is Rejected

Active Mobility

Frequency of usage	Male	Female	Total
No Influence	10	3	13
Moderate Influence	23	26	49
Significant Influence	33	39	72
Highly Influence	5	9	14
Slight Influence	7	5	12
	78	82	160

Expected Frequencies	
Male	Female
6.3375	6.6625
23.8875	25.1125
35.1	36.9
6.825	7.175
5.85	6.15

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.211992398

H0 is Accepted

Public Transport

Connectivity	Male	Female	Total
No Influence	5	1	6
Moderate Influence	8	2	10
Significant Influence	27	33	60
Highly Influence	24	39	63
Slight Influence	14	7	21
	78	82	160

Expected Frequencies

Male	Female
2.925	3.075
4.875	5.125
29.25	30.75
30.7125	32.2875
10.2375	10.7625

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.01

H0 is Rejected

Active Mobility

Connectivity	Male	Female	Total
No Influence	16	6	22
Moderate Influence	10	4	14
Significant Influence	19	36	55
Highly Influence	28	35	63
Slight Influence	5	1	6
	78	82	160

Expected Frequencies

Male	Female
10.725	11.275
6.825	7.175
26.8125	28.1875
30.7125	32.2875
2.925	3.075

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.003410207

H0 is Rejected

Public Transport

Availability & Accessibi	Male	Female	Total
No Influence	6	4	10
Moderate Influence	12	11	23
Significant Influence	32	35	67
Highly Influence	17	24	41
Slight Influence	11	8	19
	78	82	160

Expected Frequencies	
Male	Female
4.875	5.125
11.2125	11.7875
32.6625	34.3375
19.9875	21.0125
9.2625	9.7375

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.71

H0 is Accepted

Active Mobility

Availability & Accessibi	Male	Female	Total
No Influence	16	8	24
Moderate Influence	10	12	22
Significant Influence	26	34	60
Highly Influence	16	23	39
Slight Influence	10	5	15
	78	82	160

Expected Frequencies	
Male	Female
11.7	12.3
10.725	11.275
29.25	30.75
19.0125	19.9875
7.3125	7.6875

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.150141244

H0 is Accepted

Public Transport

Technology advancement	Male	Female	Total
No Influence	3	3	6
Moderate Influence	20	19	39
Significant Influence	29	29	58
Highly Influence	20	21	41
Slight Influence	6	10	16
	78	82	160

Expected Frequencies

Male	Female
2.925	3.075
19.0125	19.9875
28.275	29.725
19.9875	21.0125
7.8	8.2

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.92

H0 is Accepted

Active Mobility

Public Transport

Properties of Travel mode	Male	Female	Total
No Influence	2	1	3
Moderate Influence	31	37	68
Significant Influence	28	27	55
Highly Influence	11	9	20
Slight Influence	6	8	14
	78	82	160

Expected Frequencies	
Male	Female
1.4625	1.5375
33.15	34.85
26.8125	28.1875
9.75	10.25
6.825	7.175

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.87

H0 is Accepted

Active Mobility

Properties of Travel route	Male	Female	Total
No Influence	7	4	11
Moderate Influence	14	14	28
Significant Influence	36	44	80
Highly Influence	16	17	33
Slight Influence	5	3	8
	78	82	160

Expected Frequencies	
Male	Female
5.3625	5.6375
13.65	14.35
39	41
16.0875	16.9125
3.9	4.1

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.72660588

H0 is Accepted

Public Transport

Quality conditions	Male	Female	Total
No Influence	1	1	2
Moderate Influence	20	10	30
Significant Influence	32	49	81
Highly Influence	21	17	38
Slight Influence	4	5	9
	78	82	160

Expected Frequencies	
Male	Female
0.975	1.025
14.625	15.375
39.4875	41.5125
18.525	19.475
4.3875	4.6125

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.12

H0 is Accepted

Active Mobility

Quality conditions	Male	Female	Total
No Influence	5	3	8
Moderate Influence	19	8	27
Significant Influence	32	35	67
Highly Influence	21	30	51
Slight Influence	1	6	7
	78	82	160

Expected Frequencies	
Male	Female
3.9	4.1
13.1625	13.8375
32.6625	34.3375
24.8625	26.1375
3.4125	3.5875

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.037473556

H0 is Rejected

Public Transport

Comfortable facilities	Male	Female	Total
No Influence	4	2	6
Moderate Influence	19	25	44
Significant Influence	21	31	52
Highly Influence	22	17	39
Slight Influence	12	7	19
	78	82	160

Expected Frequencies	
Male	Female
2.925	3.075
21.45	22.55
25.35	26.65
19.0125	19.9875
9.2625	9.7375

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.26

H0 is Accepted

Active Mobility

Comfortable facilities	Male	Female	Total
No Influence	5	2	7
Moderate Influence	13	7	20
Significant Influence	25	35	60
Highly Influence	26	33	59
Slight Influence	9	5	14
	78	82	160

Expected Frequencies	
Male	Female
3.4125	3.5875
9.75	10.25
29.25	30.75
28.7625	30.2375
6.825	7.175

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.156788029

H0 is Accepted

Public Transport

Safe facility	Male	Female	Total
No Influence	2	2	4
Moderate Influence	17	11	28
Significant Influence	34	35	69
Highly Influence	15	31	46
Slight Influence	10	3	13
	78	82	160

Expected Frequencies	
Male	Female
1.95	2.05
13.65	14.35
33.6375	35.3625
22.425	23.575
6.3375	6.6625

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.03

H0 is Rejected

Active Mobility

Safe facility	Male	Female	Total
No Influence	4	2	6
Moderate Influence	5	4	9
Significant Influence	34	21	55
Highly Influence	33	53	86
Slight Influence	2	2	4
	78	82	160

Expected Frequencies	
Male	Female
2.925	3.075
4.3875	4.6125
26.8125	28.1875
41.925	44.075
1.95	2.05

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.077759303

H0 is Accepted

Public Transport

Speed of movement	Male	Female	Total
No Influence	2	1	3
Moderate Influence	22	17	39
Significant Influence	27	40	67
Highly Influence	23	20	43
Slight Influence	4	4	8
	78	82	160

Expected Frequencies	
Male	Female
1.4625	1.5375
19.0125	19.9875
32.6625	34.3375
20.9625	22.0375
3.9	4.1

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.46

H0 is Accepted

Active Mobility

Speed of movement	Male	Female	Total
No Influence	1	3	4
Moderate Influence	18	17	35
Significant Influence	26	40	66
Highly Influence	25	17	42
Slight Influence	8	5	13
	78	82	160

Expected Frequencies	
Male	Female
1.95	2.05
17.0625	17.9375
32.175	33.825
20.475	21.525
6.3375	6.6625

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.190492529

H0 is Accepted

Active Mobility

Recreational features	Male	Female	Total
No Influence	9	8	17
Moderate Influence	23	9	32
Significant Influence	27	43	70
Highly Influence	13	18	31
Slight Influence	6	4	10
	78	82	160

Expected Frequencies	
Male	Female
8.2875	8.7125
15.6	16.4
34.125	35.875
15.1125	15.8875
4.875	5.125

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.027082856

H0 is Rejected

Active Mobility

Physical Separation	Male	Female	Total
No Influence	9	8	17
Moderate Influence	18	13	31
Significant Influence	25	33	58
Highly Influence	17	26	43
Slight Influence	9	2	11
	78	82	160

Expected Frequencies	
Male	Female
8.2875	8.7125
15.1125	15.8875
28.275	29.725
20.9625	22.0375
5.3625	5.6375

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.084109741

H0 is Accepted

Public Transport

Air Quality	Male	Female	Total
No Influence	4	3	7
Moderate Influence	11	8	19
Significant Influence	31	36	67
Highly Influence	25	28	53
Slight Influence	7	7	14
	78	82	160

Expected Frequencies	
Male	Female
3.4125	3.5875
9.2625	9.7375
32.6625	34.3375
25.8375	27.1625
6.825	7.175

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.90

H0 is Accepted

Active Mobility

Air Quality	Male	Female	Total
No Influence	4	6	10
Moderate Influence	11	5	16
Significant Influence	26	35	61
Highly Influence	33	32	65
Slight Influence	4	4	8
	78	82	160

Expected Frequencies	
Male	Female
4.875	5.125
7.8	8.2
29.7375	31.2625
31.6875	33.3125
3.9	4.1

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.420306936

H0 is Accepted

Public Transport

Car & pedestrain traffic	Male	Female	Total
No Influence	1	1	2
Moderate Influence	21	14	35
Significant Influence	33	44	77
Highly Influence	22	19	41
Slight Influence	1	4	5
	78	82	160

Expected Frequencies	
Male	Female
0.975	1.025
17.0625	17.9375
37.5375	39.4625
19.9875	21.0125
2.4375	2.5625

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.30

H0 is Accepted

Active Mobility

Car & pedestrain traffic	Male	Female	Total
No Influence	5	2	7
Moderate Influence	25	16	41
Significant Influence	31	48	79
Highly Influence	12	10	22
Slight Influence	5	6	11
	78	82	160

Expected Frequencies	
Male	Female
3.4125	3.5875
19.9875	21.0125
38.5125	40.4875
10.725	11.275
5.3625	5.6375

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.130864719

H0 is Accepted

Public Transport

Climate condition	Male	Female	Total
No Influence	2	1	3
Moderate Influence	32	32	64
Significant Influence	24	34	58
Highly Influence	14	9	23
Slight Influence	6	6	12
	78	82	160

Expected Frequencies	
Male	Female
1.4625	1.5375
31.2	32.8
28.275	29.725
11.2125	11.7875
5.85	6.15

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.55

H0 is Accepted

Active Mobility

Climate condition	Male	Female	Total
No Influence	2	3	5
Moderate Influence	4	4	8
Significant Influence	28	31	59
Highly Influence	42	42	84
Slight Influence	2	2	4
	78	82	160

Expected Frequencies	
Male	Female
2.4375	2.5625
3.9	4.1
28.7625	30.2375
40.95	43.05
1.95	2.05

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.992659374

H0 is Accepted

Public Transport

Geological features	Male	Female	Total
No Influence	12	5	17
Moderate Influence	20	15	35
Significant Influence	12	13	25
Highly Influence	7	2	9
Slight Influence	27	47	74
	78	82	160

Expected Frequencies	
Male	Female
8.2875	8.7125
17.0625	17.9375
12.1875	12.8125
4.3875	4.6125
36.075	37.925

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.02

H0 is Rejected

Active Mobility

Geological features	Male	Female	Total
No Influence	1	4	5
Moderate Influence	20	31	51
Significant Influence	27	21	48
Highly Influence	12	14	26
Slight Influence	18	12	30
	78	82	160

Expected Frequencies	
Male	Female
2.4375	2.5625
24.8625	26.1375
23.4	24.6
12.675	13.325
14.625	15.375

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.186084868

H0 is Accepted

Public Transport

Government Actions	Male	Female	Total
No Influence	5	5	10
Moderate Influence	21	24	45
Significant Influence	14	12	26
Highly Influence	15	11	26
Slight Influence	23	30	53
	78	82	160

Expected Frequencies	
Male	Female
4.875	5.125
21.9375	23.0625
12.675	13.325
12.675	13.325
25.8375	27.1625

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.77

H0 is Accepted

Active Mobility

Government Actions	Male	Female	Total
No Influence	8	7	15
Moderate Influence	16	25	41
Significant Influence	15	10	25
Highly Influence	11	5	16
Slight Influence	28	35	63
	78	82	160

Expected Frequencies	
Male	Female
7.3125	7.6875
19.9875	21.0125
12.1875	12.8125
7.8	8.2
30.7125	32.2875

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.201114386

H0 is Accepted

Public Transport

Unprecedented event	Male	Female	Total
No Influence	1	1	2
Moderate Influence	11	3	14
Significant Influence	39	51	90
Highly Influence	26	24	50
Slight Influence	1	3	4
	78	82	160

Expected Frequencies	
Male	Female
0.975	1.025
6.825	7.175
43.875	46.125
24.375	25.625
1.95	2.05

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.13

H0 is Accepted

Active Mobility

Unprecedented event	Male	Female	Total
No Influence	2	2	4
Moderate Influence	19	21	40
Significant Influence	29	45	74
Highly Influence	19	10	29
Slight Influence	9	4	13
	78	82	160

Expected Frequencies	
Male	Female
1.95	2.05
19.5	20.5
36.075	37.925
14.1375	14.8625
6.3375	6.6625

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.085176933

H0 is Accepted

Public Transport

Seasonal features	Male	Female	Total
No Influence	1	1	2
Moderate Influence	29	24	53
Significant Influence	31	28	59
Highly Influence	13	23	36
Slight Influence	4	6	10
	78	82	160

Expected Frequencies	
Male	Female
0.975	1.025
25.8375	27.1625
28.7625	30.2375
17.55	18.45
4.875	5.125

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.45

H0 is Accepted

Active Mobility

Seasonal features	Male	Female	Total
No Influence	3	4	7
Moderate Influence	29	24	53
Significant Influence	28	31	59
Highly Influence	12	20	32
Slight Influence	6	3	9
	78	82	160

Expected Frequencies	
Male	Female
3.4125	3.5875
25.8375	27.1625
28.7625	30.2375
15.6	16.4
4.3875	4.6125

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.452593469

H0 is Accepted

Public Transport

Diversity of landuse	Male	Female	Total
No Influence	5	2	7
Moderate Influence	21	8	29
Significant Influence	28	36	64
Highly Influence	20	32	52
Slight Influence	4	4	8
	78	82	160

Expected Frequencies	
Male	Female
3.4125	3.5875
14.1375	14.8625
31.2	32.8
25.35	26.65
3.9	4.1

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.03

H0 is Rejected

Active Mobility

Diversity of landuse	Male	Female	Total
No Influence	4	4	8
Moderate Influence	12	11	23
Significant Influence	26	23	49
Highly Influence	25	39	64
Slight Influence	11	5	16
	78	82	160

Expected Frequencies	
Male	Female
3.9	4.1
11.2125	11.7875
23.8875	25.1125
31.2	32.8
7.8	8.2

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.244780644

H0 is Accepted

Public Transport

Travel Purpose	Male	Female	Total
No Influence	4	0	4
Moderate Influence	31	43	74
Significant Influence	22	23	45
Highly Influence	17	12	29
Slight Influence	4	4	8
	78	82	160

Expected Frequencies	
Male	Female
1.95	2.05
36.075	37.925
21.9375	23.0625
14.1375	14.8625
3.9	4.1

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.15

H0 is Accepted

Active Mobility

Travel Purpose	Male	Female	Total
No Influence	1	3	4
Moderate Influence	36	42	78
Significant Influence	22	21	43
Highly Influence	16	10	26
Slight Influence	3	6	9
	78	82	160

Expected Frequencies	
Male	Female
1.95	2.05
38.025	39.975
20.9625	22.0375
12.675	13.325
4.3875	4.6125

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.437774031

H0 is Accepted

Public Transport

Personal beliefs	Male	Female	Total
No Influence	2	1	3
Moderate Influence	17	20	37
Significant Influence	33	30	63
Highly Influence	13	14	27
Slight Influence	13	17	30
	78	82	160

Expected Frequencies	
Male	Female
1.4625	1.5375
18.0375	18.9625
30.7125	32.2875
13.1625	13.8375
14.625	15.375

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.88

H0 is Accepted

Active Mobility

Personal beliefs	Male	Female	Total
No Influence	1	4	5
Moderate Influence	26	35	61
Significant Influence	26	33	59
Highly Influence	15	5	20
Slight Influence	10	5	15
	78	82	160

Expected Frequencies	
Male	Female
2.4375	2.5625
29.7375	31.2625
28.7625	30.2375
9.75	10.25
7.3125	7.6875

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.032364124

H0 is Rejected

Public Transport

Past expereince	Male	Female	Total
No Influence	3	1	4
Moderate Influence	23	29	52
Significant Influence	27	36	63
Highly Influence	22	8	30
Slight Influence	3	8	11
	78	82	160

Expected Frequencies	
Male	Female
1.95	2.05
25.35	26.65
30.7125	32.2875
14.625	15.375
5.3625	5.6375

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.02

H0 is Rejected

Active Mobility

Past expereince	Male	Female	Total
No Influence	4	4	8
Moderate Influence	18	24	42
Significant Influence	30	40	70
Highly Influence	19	7	26
Slight Influence	7	7	14
	78	82	160

Expected Frequencies	
Male	Female
3.9	4.1
20.475	21.525
34.125	35.875
12.675	13.325
6.825	7.175

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.102024874

H0 is Accepted

Public Transport

Satisfaction	Male	Female	Total
No Influence	1	1	2
Moderate Influence	25	32	57
Significant Influence	26	23	49
Highly Influence	13	13	26
Slight Influence	13	13	26
	78	82	160

Expected Frequencies	
Male	Female
0.975	1.025
27.7875	29.2125
23.8875	25.1125
12.675	13.325
12.675	13.325

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.92

H0 is Accepted

Active Mobility

Satisfaction	Male	Female	Total
No Influence	1	4	5
Moderate Influence	21	30	51
Significant Influence	30	19	49
Highly Influence	13	8	21
Slight Influence	13	21	34
	78	82	160

Expected Frequencies	
Male	Female
2.4375	2.5625
24.8625	26.1375
23.8875	25.1125
10.2375	10.7625
16.575	17.425

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.065332679

H0 is Accepted

Public Transport

Personal moral	Male	Female	Total
No Influence	4	3	7
Moderate Influence	32	30	62
Significant Influence	11	11	22
Highly Influence	7	3	10
Slight Influence	24	35	59
	78	82	160

Expected Frequencies	
Male	Female
3.4125	3.5875
30.225	31.775
10.725	11.275
4.875	5.125
28.7625	30.2375

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.44

H0 is Accepted

Active Mobility

Personal moral	Male	Female	Total
No Influence	4	2	6
Moderate Influence	25	36	61
Significant Influence	13	11	24
Highly Influence	18	8	26
Slight Influence	18	25	43
	78	82	160

Expected Frequencies	
Male	Female
2.925	3.075
29.7375	31.2625
11.7	12.3
12.675	13.325
20.9625	22.0375

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.102902137

H0 is Accepted

Public Transport

Happiness by gatherir	Male	Female	Total
No Influence	6	5	11
Moderate Influence	32	29	61
Significant Influence	16	12	28
Highly Influence	9	6	15
Slight Influence	15	30	45
	78	82	160

Expected Frequencies	
Male	Female
5.3625	5.6375
29.7375	31.2625
13.65	14.35
7.3125	7.6875
21.9375	23.0625

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.18

H0 is Accepted

Active Mobility

Happiness by gatherir	Male	Female	Total
No Influence	5	5	10
Moderate Influence	29	33	62
Significant Influence	22	16	38
Highly Influence	12	8	20
Slight Influence	10	20	30
	78	82	160

Expected Frequencies	
Male	Female
4.875	5.125
30.225	31.775
18.525	19.475
9.75	10.25
14.625	15.375

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.263351624

H0 is Accepted

Public Transport

Others' recommendatio	Male	Female	Total
No Influence	3	2	5
Moderate Influence	16	20	36
Significant Influence	42	45	87
Highly Influence	9	8	17
Slight Influence	8	7	15
	78	82	160

Expected Frequencies	
Male	Female
2.4375	2.5625
17.55	18.45
42.4125	44.5875
8.2875	8.7125
7.3125	7.6875

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.94

H0 is Accepted

Active Mobility

Others' recommendatio	Male	Female	Total
No Influence	5	5	10
Moderate Influence	17	20	37
Significant Influence	38	39	77
Highly Influence	9	12	21
Slight Influence	9	6	15
	78	82	160

Expected Frequencies	
Male	Female
4.875	5.125
18.0375	18.9625
37.5375	39.4625
10.2375	10.7625
7.3125	7.6875

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.880473142

H0 is Accepted

Public Transport

Status in Society	Male	Female	Total
No Influence	23	28	51
Moderate Influence	16	13	29
Significant Influence	15	11	26
Highly Influence	6	2	8
Slight Influence	18	28	46
	78	82	160

Expected Frequencies	
Male	Female
24.8625	26.1375
14.1375	14.8625
12.675	13.325
3.9	4.1
22.425	23.575

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.24

H0 is Accepted

Active Mobility

Status in Society	Male	Female	Total
No Influence	21	27	48
Moderate Influence	15	13	28
Significant Influence	14	10	24
Highly Influence	4	2	6
Slight Influence	24	30	54
	78	82	160

Expected Frequencies	
Male	Female
23.4	24.6
13.65	14.35
11.7	12.3
2.925	3.075
26.325	27.675

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.592764558

H0 is Accepted

Public Transport

Seeing people usage	Male	Female	Total
No Influence	7	5	12
Moderate Influence	20	16	36
Significant Influence	38	50	88
Highly Influence	7	5	12
Slight Influence	6	6	12
	78	82	160

Expected Frequencies	
Male	Female
5.85	6.15
17.55	18.45
42.9	45.1
5.85	6.15
5.85	6.15

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.62

H0 is Accepted

Active Mobility

Seeing people usage	Male	Female	Total
No Influence	7	4	11
Moderate Influence	24	17	41
Significant Influence	37	51	88
Highly Influence	8	4	12
Slight Influence	2	6	8
	78	82	160

Expected Frequencies	
Male	Female
5.3625	5.6375
19.9875	21.0125
42.9	45.1
5.85	6.15
3.9	4.1

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.112657367

H0 is Accepted

Public Transport

Social beliefs	Male	Female	Total
No Influence	8	3	11
Moderate Influence	28	35	63
Significant Influence	17	20	37
Highly Influence	4	4	8
Slight Influence	21	20	41
	78	82	160

Expected Frequencies	
Male	Female
5.3625	5.6375
30.7125	32.2875
18.0375	18.9625
3.9	4.1
19.9875	21.0125

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.52

H0 is Accepted

Active Mobility

Social beliefs	Male	Female	Total
No Influence	9	5	14
Moderate Influence	27	38	65
Significant Influence	15	20	35
Highly Influence	6	3	9
Slight Influence	21	16	37
	78	82	160

Expected Frequencies	
Male	Female
6.825	7.175
31.6875	33.3125
17.0625	17.9375
4.3875	4.6125
18.0375	18.9625

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.258095309

H0 is Accepted

Public Transport

Health Condition	Male	Female	Total
No Influence	2	1	3
Moderate Influence	12	4	16
Significant Influence	30	36	66
Highly Influence	27	36	63
Slight Influence	7	5	12
	78	82	160

Expected Frequencies	
Male	Female
1.4625	1.5375
7.8	8.2
32.175	33.825
30.7125	32.2875
5.85	6.15

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.17

H0 is Accepted

Active Mobility

Health Condition	Male	Female	Total
No Influence	2	2	4
Moderate Influence	14	9	23
Significant Influence	27	29	56
Highly Influence	29	37	66
Slight Influence	6	5	11
	78	82	160

Expected Frequencies	
Male	Female
1.95	2.05
11.2125	11.7875
27.3	28.7
32.175	33.825
5.3625	5.6375

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.713640881

H0 is Accepted

Public Transport

Health Condition	Male	Female	Total
No Influence	1	0	1
Moderate Influence	11	2	13
Significant Influence	33	29	62
Highly Influence	26	45	71
Slight Influence	7	6	13
	78	82	160

Expected Frequencies	
Male	Female
0.4875	0.5125
6.3375	6.6625
30.225	31.775
34.6125	36.3875
6.3375	6.6625

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.01

H0 is Rejected

Active Mobility

Health Condition	Male	Female	Total
No Influence	3	3	6
Moderate Influence	12	7	19
Significant Influence	34	24	58
Highly Influence	24	45	69
Slight Influence	5	3	8
	78	82	160

Expected Frequencies	
Male	Female
2.925	3.075
9.2625	9.7375
28.275	29.725
33.6375	35.3625
3.9	4.1

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.043257921

H0 is Rejected

Public Transport

Health Condition	Male	Female	Total
No Influence	1	0	1
Moderate Influence	28	23	51
Significant Influence	19	27	46
Highly Influence	20	15	35
Slight Influence	10	17	27
	78	82	160

Expected Frequencies	
Male	Female
0.4875	0.5125
24.8625	26.1375
22.425	23.575
17.0625	17.9375
13.1625	13.8375

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across gender

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across gender

	DF	4
	Significance Level	0.05
Overall	Critical Value	9.487729037
	P value	0.26

H0 is Accepted

Public Transport

Health Condition	Below 30	30-55	Above 55	Total
No Influence	12	1	0	13
Moderate Influence	16	25	7	48
Significant Influence	18	15	19	52
Highly Influence	11	4	4	19
Slight Influence	16	11	1	28
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
5.93125	4.55	2.51875
21.9	16.8	9.3
23.725	18.2	10.075
8.66875	6.65	3.68125
12.775	9.8	5.425

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.5073131
	P value	4.4344E-05

effect

H0 is Rejected

Active mobility

Health Condition	Below 30	30-55	Above 55	Total
No Influence	10	4	0	14
Moderate Influence	23	18	1	42
Significant Influence	20	23	7	50
Highly Influence	6	6	23	35
Slight Influence	14	5	0	19
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
6.3875	4.9	2.7125
19.1625	14.7	8.1375
22.8125	17.5	9.6875
15.96875	12.25	6.78125
8.66875	6.65	3.68125

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.5073131
	P value	2.9901E-12

effect

H0 is Rejected

Public Transport

Occupation	Below 30	30-55	Above 55	Total
No Influence	11	3	8	22
Moderate Influence	17	13	8	38
Significant Influence	25	27	9	61
Highly Influence	13	9	1	23
Slight Influence	7	4	5	16
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
10.0375	7.7	4.2625
17.3375	13.3	7.3625
27.83125	21.35	11.81875
10.49375	8.05	4.45625
7.3	5.6	3.1

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.507313
	P value	0.0874712

effect

H0 is Accepted

Active Mobility

Occupation	Below 30	30-55	Above 55	Total
No Influence	6	5	0	11
Moderate Influence	18	10	1	29
Significant Influence	22	29	7	58
Highly Influence	17	10	23	50
Slight Influence	10	2	0	12
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
5.01875	3.85	2.13125
13.23125	10.15	5.61875
26.4625	20.3	11.2375
22.8125	17.5	9.6875
5.475	4.2	2.325

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.507313
	P value	4.637E-07

effect

H0 is Rejected

Public Transport

Developed Skills	Below 30	30-55	Above 55	Total
No Influence	5	4	0	9
Moderate Influence	23	22	14	59
Significant Influence	27	10	5	42
Highly Influence	8	5	3	16
Slight Influence	10	15	9	34
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
4.10625	3.15	1.74375
26.91875	20.65	11.43125
19.1625	14.7	8.1375
7.3	5.6	3.1
15.5125	11.9	6.5875

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.50731306
	P value	0.108247111 effect

H0 is Accepted

Active Mobility

Developed Skills	Below 30	30-55	Above 55	Total
No Influence	3	3	1	7
Moderate Influence	17	27	16	60
Significant Influence	32	13	3	48
Highly Influence	6	3	2	11
Slight Influence	15	10	9	34
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
3.19375	2.45	1.35625
27.375	21	11.625
21.9	16.8	9.3
5.01875	3.85	2.13125
15.5125	11.9	6.5875

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.50731306
	P value	0.015412936 effect

H0 is Rejected

Public Transport

Trip origin	Below 30	30-55	Above 55	Total
No Influence	4	2	1	7
Moderate Influence	21	19	12	52
Significant Influence	31	21	15	67
Highly Influence	14	9	3	26
Slight Influence	3	5	0	8
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
3.19375	2.45	1.35625
23.725	18.2	10.075
30.56875	23.45	12.98125
11.8625	9.1	5.0375
3.65	2.8	1.55

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.5073131
	P value	0.61630182 effect

H0 is Accepted

Active Mobility

Trip origin	Below 30	30-55	Above 55	Total
No Influence	4	3	1	8
Moderate Influence	16	8	12	36
Significant Influence	32	31	14	77
Highly Influence	16	11	2	29
Slight Influence	5	3	2	10
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
3.65	2.8	1.55
16.425	12.6	6.975
35.13125	26.95	14.91875
13.23125	10.15	5.61875
4.5625	3.5	1.9375

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.5073131
	P value	0.29465163 effect

H0 is Accepted

Public transport

Trip time of the day	Below 30	30-55	Above 55	Total
No Influence	3	1	1	5
Moderate Influence	22	20	3	45
Significant Influence	23	11	19	53
Highly Influence	15	5	8	28
Slight Influence	10	19	0	29
	73	56	31	160

Expected Frequencies		
Below 30	30-55	Above 55
2.28125	1.75	0.96875
20.53125	15.75	8.71875
24.18125	18.55	10.26875
12.775	9.8	5.425
13.23125	10.15	5.61875

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.50731306
	P value	3.75053E-05

effect

H0 is Rejected

Active Mobility

Trip time of the day	Below 30	30-55	Above 55	Total
No Influence	5	1	1	7
Moderate Influence	16	21	4	41
Significant Influence	31	19	10	60
Highly Influence	15	11	15	41
Slight Influence	6	4	1	11
	73	56	31	160

Expected Frequencies		
Below 30	30-55	Above 55
3.19375	2.45	1.35625
18.70625	14.35	7.94375
27.375	21	11.625
18.70625	14.35	7.94375
5.01875	3.85	2.13125

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.50731306
	P value	0.031334579

effect

H0 is Rejected

Public Transport

Travel time duration	Below 30	30-55	Above 55	Total
No Influence	1	1	1	3
Moderate Influence	12	28	13	53
Significant Influence	41	18	9	68
Highly Influence	13	6	6	25
Slight Influence	6	3	2	11
	73	56	31	160

Expected Frequencies		
Below 30	30-55	Above 55
1.36875	1.05	0.58125
24.18125	18.55	10.26875
31.025	23.8	13.175
11.40625	8.75	4.84375
5.01875	3.85	2.13125

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.507313
	P value	0.011224 effect

H0 is Rejected

Active Mobility

Travel time duration	Below 30	30-55	Above 55	Total
No Influence	4	2	2	8
Moderate Influence	11	26	13	50
Significant Influence	36	20	12	68
Highly Influence	18	7	3	28
Slight Influence	4	1	1	6
	73	56	31	160

Expected Frequencies		
Below 30	30-55	Above 55
3.65	2.8	1.55
22.8125	17.5	9.6875
31.025	23.8	13.175
12.775	9.8	5.425
2.7375	2.1	1.1625

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.507313
	P value	0.0178889 effect

H0 is Rejected

Public Transport

Less travel cost	Below 30	30-55	Above 5	Total
No Influence	7	2	0	9
Moderate Influence	13	9	9	31
Significant Influence	24	15	13	52
Highly Influence	16	17	4	37
Slight Influence	13	13	5	31
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
4.10625	3.15	1.74375
14.14375	10.85	6.00625
23.725	18.2	10.075
16.88125	12.95	7.16875
14.14375	10.85	6.00625

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.5073131
	P value	0.20636618

effect

H0 is Accepted

Active mobiltiy

Less travel cost	Below 30	30-55	Above 5	Total
No Influence	22	8	2	32
Moderate Influence	14	13	11	38
Significant Influence	20	14	6	40
Highly Influence	6	7	4	17
Slight Influence	11	14	8	33
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
14.6	11.2	6.2
17.3375	13.3	7.3625
18.25	14	7.75
7.75625	5.95	3.29375
15.05625	11.55	6.39375

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.5073131
	P value	0.10289518

effect

H0 is Accepted

Public transport

Frequency of usage	Below 30	30-55	Above 55	Total
No Influence	6	4	1	11
Moderate Influence	24	21	10	55
Significant Influence	28	25	19	72
Highly Influence	7	2	1	10
Slight Influence	8	4	0	12
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
5.01875	3.85	2.13125
25.09375	19.25	10.65625
32.85	25.2	13.95
4.5625	3.5	1.9375
5.475	4.2	2.325

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.507313
	P value	0.3027483

effect

H0 is Accepted

Active mobility

Frequency of usage	Below 30	30-55	Above 55	Total
No Influence	8	4	1	13
Moderate Influence	16	19	14	49
Significant Influence	32	27	13	72
Highly Influence	9	3	2	14
Slight Influence	8	3	1	12
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
5.93125	4.55	2.51875
22.35625	17.15	9.49375
32.85	25.2	13.95
6.3875	4.9	2.7125
5.475	4.2	2.325

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.507313
	P value	0.2433067

effect

H0 is Accepted

Public Transport

Mode connectivity	Below 30	30-55	Above 55	Total
No Influence	4	1	1	6
Moderate Influence	9	1	0	10
Significant Influence	25	21	14	60
Highly Influence	19	29	15	63
Slight Influence	16	4	1	21
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
2.7375	2.1	1.1625
4.5625	3.5	1.9375
27.375	21	11.625
28.74375	22.05	12.20625
9.58125	7.35	4.06875

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.50731
	P value	0.002133 effect

H0 is Rejected

Active Mobiltiy

Mode connectivity	Below 30	30-55	Above 55	Total
No Influence	16	4	2	22
Moderate Influence	10	3	1	14
Significant Influence	26	18	11	55
Highly Influence	16	30	17	63
Slight Influence	5	1	0	6
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
10.0375	7.7	4.2625
6.3875	4.9	2.7125
25.09375	19.25	10.65625
28.74375	22.05	12.20625
2.7375	2.1	1.1625

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.50731
	P value	0.001878 effect

H0 is Rejected

Public Transport

Avaialability & Access	Below 30	30-55	Above 55	Total
No Influence	7	2	1	10
Moderate Influence	9	11	3	23
Significant Influence	26	24	17	67
Highly Influence	18	14	9	41
Slight Influence	13	5	1	19
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
4.5625	3.5	1.9375
10.49375	8.05	4.45625
30.56875	23.45	12.98125
18.70625	14.35	7.94375
8.66875	6.65	3.68125

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.507313
	P value	0.2126898 effect

H0 is Accepted

Active Mobility

Avaialability & Access	Below 30	30-55	Above 55	Total
No Influence	16	6	2	24
Moderate Influence	10	9	3	22
Significant Influence	25	20	15	60
Highly Influence	10	19	10	39
Slight Influence	12	2	1	15
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
10.95	8.4	4.65
10.0375	7.7	4.2625
27.375	21	11.625
17.79375	13.65	7.55625
6.84375	5.25	2.90625

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.507313
	P value	0.0111198 effect

H0 is Rejected

Public Transport

Technology Adv.	Below 30	30-55	Above 55	Total
No Influence	4	1	1	6
Moderate Influence	10	17	12	39
Significant Influence	31	20	7	58
Highly Influence	21	14	6	41
Slight Influence	7	4	5	16
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
2.7375	2.1	1.1625
17.7938	13.65	7.55625
26.4625	20.3	11.2375
18.7063	14.35	7.94375
7.3	5.6	3.1

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.5073131
	P value	0.11855227 effect

H0 is Accepted

Public Transport

Properties of mode	Below 30	30-55	Above 55	Total
No Influence	2	1	0	3
Moderate Influence	22	33	13	68
Significant Influence	30	11	14	55
Highly Influence	9	7	4	20
Slight Influence	10	4	0	14
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
1.36875	1.05	0.58125
31.025	23.8	13.175
25.09375	19.25	10.6563
9.125	7	3.875
6.3875	4.9	2.7125

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.5073131
	P value	0.02504406 effect

H0 is Rejected

Active Mobility

Properties of mode	Below 30	30-55	Above 55	Total
No Influence	6	5	0	11
Moderate Influence	17	4	7	28
Significant Influence	32	33	15	80
Highly Influence	12	12	9	33
Slight Influence	6	2	0	8
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
5.01875	3.85	2.13125
12.775	9.8	5.425
36.5	28	15.5
15.05625	11.55	6.39375
3.65	2.8	1.55

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.5073131
	P value	0.07169723 effect

H0 is Accepted

Public Transport

Quality conditions	Below 30	30-55	Above 55	Total
No Influence	1	0	1	2
Moderate Influence	12	13	5	30
Significant Influence	32	29	20	81
Highly Influence	21	12	5	38
Slight Influence	7	2	0	9
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
0.9125	0.7	0.3875
13.6875	10.5	5.8125
36.95625	28.35	15.69375
17.3375	13.3	7.3625
4.10625	3.15	1.74375

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.5073131
	P value	0.24352322 effect

H0 is Accepted

Active Mobility

Quality conditions	Below 30	30-55	Above 55	Total
No Influence	4	3	1	8
Moderate Influence	15	11	1	27
Significant Influence	29	25	13	67
Highly Influence	18	17	16	51
Slight Influence	7	0	0	7
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
3.65	2.8	1.55
12.31875	9.45	5.23125
30.56875	23.45	12.98125
23.26875	17.85	9.88125
3.19375	2.45	1.35625

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.5073131
	P value	0.02084681 effect

H0 is Rejected

Public Transport

Comfortable facilities	Below 30	30-55	Above 55	Total
No Influence	5	1	0	6
Moderate Influence	22	17	5	44
Significant Influence	19	19	14	52
Highly Influence	16	12	11	39
Slight Influence	11	7	1	19
	73	56	31	160

Expected Frequencies		
Below 30	30-55	Above 55
2.7375	2.1	1.1625
20.075	15.4	8.525
23.725	18.2	10.075
17.79375	13.65	7.55625
8.66875	6.65	3.68125

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.50731306
	P value	1.31E-01 effect

H0 is Accepted

Active Mobility

Comfortable facilities	Below 30	30-55	Above 55	Total
No Influence	5	2	0	7
Moderate Influence	12	8	0	20
Significant Influence	29	25	6	60
Highly Influence	16	19	24	59
Slight Influence	11	2	1	14
	73	56	31	160

Expected Frequencies		
Below 30	30-55	Above 55
3.19375	2.45	1.35625
9.125	7	3.875
27.375	21	11.625
26.91875	20.65	11.43125
6.3875	4.9	2.7125

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.50731306
	P value	2.1925228E-05 effect

H0 is Rejected

Public Transport

Safe facilities	Below 30	30-55	Above 55	Total
No Influence	1	2	1	4
Moderate Influence	16	6	6	28
Significant Influence	31	24	14	69
Highly Influence	15	21	10	46
Slight Influence	10	3	0	13
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
1.825	1.4	0.775
12.775	9.8	5.425
31.48125	24.15	13.36875
20.9875	16.1	8.9125
5.93125	4.55	2.51875

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.50731
	P value	0.140305

effect

H0 is Accepted

Active Mobility

Safe facilities	Below 30	30-55	Above 55	Total
No Influence	4	2	0	6
Moderate Influence	7	1	1	9
Significant Influence	29	19	7	55
Highly Influence	30	33	23	86
Slight Influence	3	1	0	4
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
2.7375	2.1	1.1625
4.10625	3.15	1.74375
25.09375	19.25	10.65625
39.2375	30.1	16.6625
1.825	1.4	0.775

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.50731
	P value	0.083087

effect

H0 is Accepted

Public Transport

Speed of movement	Below 30	30-55	Above 55	Total
No Influence	1	1	1	3
Moderate Influence	17	8	14	39
Significant Influence	25	32	10	67
Highly Influence	24	13	6	43
Slight Influence	6	2	0	8
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
1.36875	1.05	0.58125
17.79375	13.65	7.55625
30.56875	23.45	12.98125
19.61875	15.05	8.33125
3.65	2.8	1.55

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.507313
	P value	0.0191504

effect

H0 is Rejected

Active Mobility

Speed of movement	Below 30	30-55	Above 55	Total
No Influence	0	3	1	4
Moderate Influence	4	15	16	35
Significant Influence	34	22	10	66
Highly Influence	23	16	3	42
Slight Influence	12	0	1	13
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
1.825	1.4	0.775
15.96875	12.25	6.78125
30.1125	23.1	12.7875
19.1625	14.7	8.1375
5.93125	4.55	2.51875

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.507313
	P value	9.566E-07

effect

H0 is Rejected

Active Mobility

Recreational features	Below 30	30-55	Above 55	Total
No Influence	9	6	2	17
Moderate Influence	12	8	12	32
Significant Influence	28	27	15	70
Highly Influence	19	12	0	31
Slight Influence	5	3	2	10
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
7.75625	5.95	3.29375
14.6	11.2	6.2
31.9375	24.5	13.5625
14.14375	10.85	6.00625
4.5625	3.5	1.9375

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.50731306
	P value	0.03808743

effect

H0 is Rejected

Active Mobility

Physical Seperation	Below 30	30-55	Above 55	Total
No Influence	8	7	2	17
Moderate Influence	19	10	2	31
Significant Influence	20	24	14	58
Highly Influence	16	14	13	43
Slight Influence	10	1	0	11
	73	56	31	160

Expected Frequencies		
Below 30	30-55	Above 55
7.75625	5.95	3.29375
14.14375	10.85	6.00625
26.4625	20.3	11.2375
19.61875	15.05	8.33125
5.01875	3.85	2.13125

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.50731
	P value	0.008347

effect

H0 is Rejected

Public Transport

Air Quality	Below 30	30-55	Above 5	Total
No Influence	2	4	1	7
Moderate Influence	15	3	1	19
Significant Influence	23	26	18	67
Highly Influence	24	20	9	53
Slight Influence	9	3	2	14
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
3.19375	2.45	1.35625
8.66875	6.65	3.68125
30.56875	23.45	12.98125
24.18125	18.55	10.26875
6.3875	4.9	2.7125

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.50731306
	P value	0.03629687 effect

H0 is Rejected

Active Mobility

Air Quality	Below 30	30-55	Above 5	Total
No Influence	4	4	2	10
Moderate Influence	14	1	1	16
Significant Influence	23	29	9	61
Highly Influence	27	19	19	65
Slight Influence	5	3	0	8
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
4.5625	3.5	1.9375
7.3	5.6	3.1
27.83125	21.35	11.81875
29.65625	22.75	12.59375
3.65	2.8	1.55

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.50731306
	P value	0.005059193 effect

H0 is Rejected

Public Transport

Car & Pedestrain traffic	Below 30	30-55	Above 55	Total
No Influence	1	0	1	2
Moderate Influence	16	10	9	35
Significant Influence	28	34	15	77
Highly Influence	24	11	6	41
Slight Influence	4	1	0	5
	73	56	31	160

Expected Frequencies		
Below 30	30-55	Above 55
0.9125	0.7	0.3875
15.96875	12.25	6.78125
35.13125	26.95	14.91875
18.70625	14.35	7.94375
2.28125	1.75	0.96875

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.50731306
	P value	0.18 effect

H0 is Accepted

Active Mobility

Car & Pedestrain traffic	Below 30	30-55	Above 55	Total
No Influence	4	3	0	7
Moderate Influence	17	16	8	41
Significant Influence	32	28	19	79
Highly Influence	12	7	3	22
Slight Influence	8	2	1	11
	73	56	31	160

Expected Frequencies		
Below 30	30-55	Above 55
3.19375	2.45	1.35625
18.70625	14.35	7.94375
36.04375	27.65	15.30625
10.0375	7.7	4.2625
5.01875	3.85	2.13125

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.50731306
	P value	0.48789766 effect

H0 is Accepted

Public Transport

Climate conditions	Below 30	30-55	Above 55	Total
No Influence	2	1	0	3
Moderate Influence	27	28	9	64
Significant Influence	24	19	15	58
Highly Influence	12	4	7	23
Slight Influence	8	4	0	12
	73	56	31	160

Expected Frequencies		
Below 30	30-55	Above 55
1.36875	1.05	0.58125
29.2	22.4	12.4
26.4625	20.3	11.2375
10.49375	8.05	4.45625
5.475	4.2	2.325

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.50731306
	P value	0.14 effect

H0 is Accepted

Active Mobility

Climate conditions	Below 30	30-55	Above 55	Total
No Influence	1	3	1	5
Moderate Influence	4	4	0	8
Significant Influence	20	30	9	59
Highly Influence	44	19	21	84
Slight Influence	4	0	0	4
	73	56	31	160

Expected Frequencies		
Below 30	30-55	Above 55
2.28125	1.75	0.96875
3.65	2.8	1.55
26.91875	20.65	11.43125
38.325	29.4	16.275
1.825	1.4	0.775

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.50731306
	P value	0.007422377 effect

H0 is Rejected

Public Transport

Geological features	Below 30	30-55	Above 55	Total
No Influence	10	7	0	17
Moderate Influence	15	7	13	35
Significant Influence	17	4	4	25
Highly Influence	6	3	0	9
Slight Influence	25	35	14	74
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
7.75625	5.95	3.29375
15.96875	12.25	6.78125
11.40625	8.75	4.84375
4.10625	3.15	1.74375
33.7625	25.9	14.3375

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Lev	0.05
Overall	Critical Value	15.50731
	P value	1.18E-03

effect

H0 is Rejected

Active Mobility

Geological features	Below 30	30-55	Above 55	Total
No Influence	1	3	1	5
Moderate Influence	21	28	2	51
Significant Influence	20	11	17	48
Highly Influence	13	3	10	26
Slight Influence	18	11	1	30
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
2.28125	1.75	0.96875
23.26875	17.85	9.88125
21.9	16.8	9.3
11.8625	9.1	5.0375
13.6875	10.5	5.8125

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Lev	0.05
Overall	Critical Value	15.50731
	P value	1.21E-05

effect

H0 is Rejected

Public Transport

Government actions	Below 30	30-55	Above 55	Total
No Influence	7	3	0	10
Moderate Influence	13	19	13	45
Significant Influence	16	9	1	26
Highly Influence	17	5	4	26
Slight Influence	20	20	13	53
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
4.5625	3.5	1.9375
20.53125	15.75	8.71875
11.8625	9.1	5.0375
11.8625	9.1	5.0375
24.18125	18.55	10.26875

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.5073131
	P value	0.01297508

effect

H0 is Rejected

Active Mobiity

Government actions	Below 30	30-55	Above 55	Total
No Influence	9	4	2	15
Moderate Influence	10	19	12	41
Significant Influence	18	4	3	25
Highly Influence	11	5	0	16
Slight Influence	25	24	14	63
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
6.84375	5.25	2.90625
18.70625	14.35	7.94375
11.40625	8.75	4.84375
7.3	5.6	3.1
28.74375	22.05	12.20625

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.5073131
	P value	0.00501871

effect

H0 is Rejected

Public Transport

Unprecedented event	Below 30	30-55	Above 55	Total
No Influence	1	0	1	2
Moderate Influence	10	4	0	14
Significant Influence	39	28	23	90
Highly Influence	20	23	7	50
Slight Influence	3	1	0	4
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
0.9125	0.7	0.3875
6.3875	4.9	2.7125
41.0625	31.5	17.4375
22.8125	17.5	9.6875
1.825	1.4	0.775

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.50731306
	P value	0.10095718

effect

H0 is Accepted

Active Mobility

Unprecedented event	Below 30	30-55	Above 55	Total
No Influence	2	1	1	4
Moderate Influence	23	13	4	40
Significant Influence	22	30	22	74
Highly Influence	16	9	4	29
Slight Influence	10	3	0	13
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
1.825	1.4	0.775
18.25	14	7.75
33.7625	25.9	14.3375
13.23125	10.15	5.61875
5.93125	4.55	2.51875

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.50731306
	P value	0.01395305

effect

H0 is Rejected

Public Transport

Seasonal features	Below 30	30-55	Above 55	Total
No Influence	2	0	0	2
Moderate Influence	23	26	4	53
Significant Influence	24	19	16	59
Highly Influence	17	8	11	36
Slight Influence	7	3	0	10
	73	56	31	160

Expected Frequencies		
Below 30	30-55	Above 55
0.9125	0.7	0.3875
24.18125	18.55	10.26875
26.91875	20.65	11.43125
16.425	12.6	6.975
4.5625	3.5	1.9375

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8	
	Significance Level	0.05	
Overall	Critical Value	15.50731306	
	P value	0.015582729	effect

H0 is Rejected

Active Mobility

Seasonal features	Below 30	30-55	Above 55	Total
No Influence	4	2	1	7
Moderate Influence	34	17	2	53
Significant Influence	18	28	13	59
Highly Influence	11	6	15	32
Slight Influence	6	3	0	9
	73	56	31	160

Expected Frequencies		
Below 30	30-55	Above 55
3.19375	2.45	1.35625
24.18125	18.55	10.26875
26.91875	20.65	11.43125
14.6	11.2	6.2
4.10625	3.15	1.74375

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8	
	Significance Level	0.05	
Overall	Critical Value	15.50731306	
	P value	2.30137E-05	effect

H0 is Rejected

Public Transport

Diversity of landuse	Below 30	30-55	Above 55	Total
No Influence	4	2	1	7
Moderate Influence	20	3	6	29
Significant Influence	28	19	17	64
Highly Influence	18	28	6	52
Slight Influence	3	4	1	8
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
3.19375	2.45	1.35625
13.23125	10.15	5.61875
29.2	22.4	12.4
23.725	18.2	10.075
3.65	2.8	1.55

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.50731306
	P value	0.009229193

effect

H0 is Rejected

Active Mobility

Diversity of landuse	Below 30	30-55	Above 55	Total
No Influence	4	4	0	8
Moderate Influence	15	3	5	23
Significant Influence	22	12	15	49
Highly Influence	19	35	10	64
Slight Influence	13	2	1	16
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
3.65	2.8	1.55
10.49375	8.05	4.45625
22.35625	17.15	9.49375
29.2	22.4	12.4
7.3	5.6	3.1

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.50731306
	P value	0.000123441

effect

H0 is Rejected

Public Transport

Travel purpose	Below 30	30-55	Above 55	Total
No Influence	3	1	0	4
Moderate Influence	28	28	18	74
Significant Influence	18	17	10	45
Highly Influence	20	8	1	29
Slight Influence	4	2	2	8
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
1.825	1.4	0.775
33.7625	25.9	14.3375
20.53125	15.75	8.71875
13.23125	10.15	5.61875
3.65	2.8	1.55

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.50731306
	P value	0.132530864

effect

H0 is Accepted

Active Mobility

Travel purpose	Below 30	30-55	Above 55	Total
No Influence	1	2	1	4
Moderate Influence	32	29	17	78
Significant Influence	16	17	10	43
Highly Influence	19	7	0	26
Slight Influence	5	1	3	9
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
1.825	1.4	0.775
35.5875	27.3	15.1125
19.61875	15.05	8.33125
11.8625	9.1	5.0375
4.10625	3.15	1.74375

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.50731306
	P value	0.058434959

effect

H0 is Accepted

Public Transport

Personal beliefs	Below 30	30-55	Above 55	Total
No Influence	1	1	1	3
Moderate Influence	13	14	10	37
Significant Influence	31	20	12	63
Highly Influence	20	6	1	27
Slight Influence	8	15	7	30
	73	56	31	160

Expected Frequencies		
Below 30	30-55	Above 55
1.36875	1.05	0.58125
16.88125	12.95	7.16875
28.74375	22.05	12.20625
12.31875	9.45	5.23125
13.6875	10.5	5.8125

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.50731306
	P value	0.031423813

effect

H0 is Rejected

Active Mobility

Personal beliefs	Below 30	30-55	Above 55	Total
No Influence	1	3	1	5
Moderate Influence	20	19	22	61
Significant Influence	31	25	3	59
Highly Influence	15	5	0	20
Slight Influence	6	4	5	15
	73	56	31	160

Expected Frequencies		
Below 30	30-55	Above 55
2.28125	1.75	0.96875
27.83125	21.35	11.81875
26.91875	20.65	11.43125
9.125	7	3.875
6.84375	5.25	2.90625

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.50731306
	P value	0.000156347

effect

H0 is Rejected

Public Transport

Past exterience	Below 30	30-55	Above 55	Total
No Influence	2	1	1	4
Moderate Influence	23	25	4	52
Significant Influence	22	23	18	63
Highly Influence	19	3	8	30
Slight Influence	7	4	0	11
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
1.825	1.4	0.775
23.725	18.2	10.075
28.74375	22.05	12.20625
13.6875	10.5	5.8125
5.01875	3.85	2.13125

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.50731306
	P value	0.004996149 effect

H0 is Rejected

Active Mobility

Past exterience	Below 30	30-55	Above 55	Total
No Influence	3	3	2	8
Moderate Influence	18	17	7	42
Significant Influence	24	29	17	70
Highly Influence	19	2	5	26
Slight Influence	9	5	0	14
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
3.65	2.8	1.55
19.1625	14.7	8.1375
31.9375	24.5	13.5625
11.8625	9.1	5.0375
6.3875	4.9	2.7125

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.50731306
	P value	0.0202152 effect

H0 is Rejected

Public Transport

Satisfaction	Below 30	30-55	Above 55	Total
No Influence	0	1	1	2
Moderate Influence	28	21	8	57
Significant Influence	24	16	9	49
Highly Influence	13	7	6	26
Slight Influence	8	11	7	26
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
0.9125	0.7	0.3875
26.00625	19.95	11.04375
22.35625	17.15	9.49375
11.8625	9.1	5.0375
11.8625	9.1	5.0375

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.5073131
	P value	0.59403121

effect

H0 is Accepted

Active Mobility

Satisfaction	Below 30	30-55	Above 55	Total
No Influence	1	3	1	5
Moderate Influence	18	21	12	51
Significant Influence	29	12	8	49
Highly Influence	13	8	0	21
Slight Influence	12	12	10	34
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
2.28125	1.75	0.96875
23.26875	17.85	9.88125
22.35625	17.15	9.49375
9.58125	7.35	4.06875
15.5125	11.9	6.5875

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.5073131
	P value	0.05041356

effect

H0 is Accepted

Public Transport

Personal Moral	Below 30	30-55	Above 55	Total
No Influence	5	1	1	7
Moderate Influence	27	22	13	62
Significant Influence	18	4	0	22
Highly Influence	8	2	0	10
Slight Influence	15	27	17	59
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
3.19375	2.45	1.35625
28.2875	21.7	12.0125
10.0375	7.7	4.2625
4.5625	3.5	1.9375
26.91875	20.65	11.43125

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.50731306
	P value	0.000250005

effect

H0 is Rejected

Active Mobility

Personal Moral	Below 30	30-55	Above 55	Total
No Influence	4	2	0	6
Moderate Influence	22	25	14	61
Significant Influence	11	11	2	24
Highly Influence	23	3	0	26
Slight Influence	13	15	15	43
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
2.7375	2.1	1.1625
27.83125	21.35	11.81875
10.95	8.4	4.65
11.8625	9.1	5.0375
19.61875	15.05	8.33125

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.50731306
	P value	5.07167E-05

effect

H0 is Rejected

Public Transport

Happiness by gathering	Below 30	30-55	Above 55	Total
No Influence	7	3	1	11
Moderate Influence	27	24	10	61
Significant Influence	15	7	6	28
Highly Influence	9	6	0	15
Slight Influence	15	16	14	45
	73	56	31	160

Expected Frequencies		
Below 30	30-55	Above 55
5.01875	3.85	2.13125
27.83125	21.35	11.81875
12.775	9.8	5.425
6.84375	5.25	2.90625
20.53125	15.75	8.71875

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.50731306
	P value	0.158566731

effect

H0 is Accepted

Active Mobility

Happiness by gathering	Below 30	30-55	Above 55	Total
No Influence	4	5	1	10
Moderate Influence	22	22	18	62
Significant Influence	19	14	5	38
Highly Influence	16	4	0	20
Slight Influence	12	11	7	30
	73	56	31	160

Expected Frequencies		
Below 30	30-55	Above 55
4.5625	3.5	1.9375
28.2875	21.7	12.0125
17.3375	13.3	7.3625
9.125	7	3.875
13.6875	10.5	5.8125

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.50731306
	P value	0.026932561

effect

H0 is Rejected

Public Transport

Others' recommendation	Below 30	30-55	Above 55	Total
No Influence	1	4	0	5
Moderate Influence	15	7	14	36
Significant Influence	40	35	12	87
Highly Influence	8	7	2	17
Slight Influence	9	3	3	15
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
2.28125	1.75	0.96875
16.425	12.6	6.975
39.69375	30.45	16.85625
7.75625	5.95	3.29375
6.84375	5.25	2.90625

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.50731306
	P value	0.016559626

effect

H0 is Rejected

Active Mobility

Others' recommendation	Below 30	30-55	Above 55	Total
No Influence	4	5	1	10
Moderate Influence	19	4	14	37
Significant Influence	32	35	10	77
Highly Influence	8	11	2	21
Slight Influence	10	1	4	15
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
4.5625	3.5	1.9375
16.88125	12.95	7.16875
35.13125	26.95	14.91875
9.58125	7.35	4.06875
6.84375	5.25	2.90625

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.50731306
	P value	0.000745828

effect

H0 is Rejected

Public Transport

Status in Society	Below 30	30-55	Above 55	Total
No Influence	21	22	8	51
Moderate Influence	13	11	5	29
Significant Influence	20	5	1	26
Highly Influence	5	2	1	8
Slight Influence	14	16	16	46
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
23.26875	17.85	9.88125
13.23125	10.15	5.61875
11.8625	9.1	5.0375
3.65	2.8	1.55
20.9875	16.1	8.9125

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.50731306
	P value	0.006538168 effect

H0 is Rejected

Active Mobility

Status in Society	Below 30	30-55	Above 55	Total
No Influence	19	21	8	48
Moderate Influence	14	11	3	28
Significant Influence	19	4	1	24
Highly Influence	4	2	0	6
Slight Influence	17	18	19	54
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
21.9	16.8	9.3
12.775	9.8	5.425
10.95	8.4	4.65
2.7375	2.1	1.1625
24.6375	18.9	10.4625

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.50731306
	P value	0.001449815 effect

H0 is Rejected

Public Transport

Seeing people usage	Below 30	30-55	Above 55	Total
No Influence	8	4	0	12
Moderate Influence	17	7	12	36
Significant Influence	34	38	16	88
Highly Influence	6	4	2	12
Slight Influence	8	3	1	12
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
5.475	4.2	2.325
16.425	12.6	6.975
40.15	30.8	17.05
5.475	4.2	2.325
5.475	4.2	2.325

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.5073131
	P value	0.06555128 effect

H0 is Accepted

Active Mobility

Seeing people usage	Below 30	30-55	Above 55	Total
No Influence	6	5	0	11
Moderate Influence	20	8	13	41
Significant Influence	33	39	16	88
Highly Influence	9	3	0	12
Slight Influence	5	1	2	8
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
5.01875	3.85	2.13125
18.70625	14.35	7.94375
40.15	30.8	17.05
5.475	4.2	2.325
3.65	2.8	1.55

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.5073131
	P value	0.01470056 effect

H0 is Rejected

Public Transport

Social beliefs	Below 30	30-55	Above 55	Total
No Influence	7	4	0	11
Moderate Influence	24	29	10	63
Significant Influence	23	8	6	37
Highly Influence	3	3	2	8
Slight Influence	16	12	13	41
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
5.01875	3.85	2.13125
28.74375	22.05	12.20625
16.88125	12.95	7.16875
3.65	2.8	1.55
18.70625	14.35	7.94375

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.5073131
	P value	0.06218377

effect

H0 is Accepted

Active Mobility

Social beliefs	Below 30	30-55	Above 55	Total
No Influence	7	5	2	14
Moderate Influence	21	34	10	65
Significant Influence	22	6	7	35
Highly Influence	6	3	0	9
Slight Influence	17	8	12	37
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
6.3875	4.9	2.7125
29.65625	22.75	12.59375
15.96875	12.25	6.78125
4.10625	3.15	1.74375
16.88125	12.95	7.16875

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories
Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.5073131
	P value	0.00470039

effect

H0 is Rejected

Public Transport

Feeling safety	Below 30	30-55	Above 55	Total
No Influence	0	1	0	1
Moderate Influence	9	2	2	13
Significant Influence	28	21	13	62
Highly Influence	27	28	16	71
Slight Influence	9	4	0	13
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
0.45625	0.35	0.19375
5.93125	4.55	2.51875
28.2875	21.7	12.0125
32.39375	24.85	13.7563
5.93125	4.55	2.51875

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overal	Critical Value	15.50731306
	P value	0.206052078

effect

H0 is Accepted

Active Mobility

Feeling safety	Below 30	30-55	Above 55	Total
No Influence	3	3	0	6
Moderate Influence	12	3	4	19
Significant Influence	29	22	7	58
Highly Influence	23	26	20	69
Slight Influence	6	2	0	8
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
2.7375	2.1	1.1625
8.66875	6.65	3.68125
26.4625	20.3	11.2375
31.48125	24.15	13.3688
3.65	2.8	1.55

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overal	Critical Value	15.50731306
	P value	0.044196003

effect

H0 is Rejected

Public Transport

Feeling comfort	Below 30	30-55	Above 55	Total
No Influence	1	1	1	3
Moderate Influence	11	4	1	16
Significant Influence	29	21	16	66
Highly Influence	24	26	13	63
Slight Influence	8	4	0	12
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
1.36875	1.05	0.58125
7.3	5.6	3.1
30.1125	23.1	12.7875
28.74375	22.05	12.20625
5.475	4.2	2.325

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.50731306
	P value	0.248673531

effect

H0 is Accepted

Active Mobility

Feeling comfort	Below 30	30-55	Above 55	Total
No Influence	1	3	0	4
Moderate Influence	17	4	2	23
Significant Influence	29	19	8	56
Highly Influence	21	27	18	66
Slight Influence	5	3	3	11
	73	56	31	160

Expected Frequencies

Below 30	30-55	Above 55
1.825	1.4	0.775
10.49375	8.05	4.45625
25.55	19.6	10.85
30.1125	23.1	12.7875
5.01875	3.85	2.13125

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.50731306
	P value	0.023448137

effect

H0 is Rejected

Public Transport

Propensity for tech	Below 30	30-55	Above 55	Total
No Influence	0	1	0	1
Moderate Influence	20	21	10	51
Significant Influence	21	21	4	46
Highly Influence	23	7	5	35
Slight Influence	9	6	12	27
	73	56	31	160

Expected Frequencies		
Below 30	30-55	Above 55
0.45625	0.35	0.19375
23.26875	17.85	9.88125
20.9875	16.1	8.9125
15.96875	12.25	6.78125
12.31875	9.45	5.23125

Null Hypothesis (H0): There is no significant relationship between the factor and transport mode choice across age categories

Alternative Hypothesis (HA): There is a significant relationship between the factor and transport mode choice across age categories

	DF	8
	Significance Level	0.05
Overall	Critical Value	15.50731306
	P value	0.002477194

effect

H0 is Rejected

Mean Calculation: Personal Attributes

Health condition

Row Labels	Count of Health condition - Public transport	Male	
4	10	40	Mean 2.102564
2	19	38	
0	11	0	
3	24	72	
1	14	14	
Grand Total	78	164	

Row Labels	Count of Health condition - Public transport	Female	
4	9	36	Mean 2.341463
2	29	58	
0	2	0	
3	28	84	
1	14	14	
Grand Total	82	192	

Row Labels	Count of Health Condition- Active mobility	Female	
4	18	72	Mean 2.743902
2	20	40	
0	1	0	
3	35	105	
1	8	8	
Grand Total	82	225	

Row Labels	Count of Health Condition- Active mobility	Male	
4	12	48	Mean 2.038462
2	22	44	
0	13	0	
3	18	54	
1	13	13	
Grand Total	78	159	

Row Labels	Count of Health condition - Public transport	Above 55	
4	4	16	Mean 2.83871
2	7	14	
0	0	0	
3	19	57	
1	1	1	
Grand Total	31	88	

Row Labels	Count of Health condition - Public transport	30-55	
4	4	16	Mean 2.178571
2	25	50	
0	1	0	
3	15	45	
1	11	11	
Grand Total	56	122	

Row Labels	Count of Health condition - Public transport	Below 30	
4	11	44	Mean 2.000
2	16	32	
0	12	0	
3	18	54	
1	16	16	
Grand Total	73	146	

Row Labels	Count of Health Condition- Active mobility	Below 30	
4	6	24	Mean 1.973
2	23	46	
0	10	0	
3	20	60	
1	14	14	
Grand Total	73	144	

Row Labels	Count of Health Condition- Active mobility	30-55	
4	6	24	Mean 2.393
2	18	36	
0	4	0	
3	23	69	
1	5	5	
Grand Total	56	134	

Row Labels	Count of Health Condition- Active mobility	Above 55	
4	18	72	Mean 3.4194
2	1	2	
0	0	0	
3	10	30	
1	2	2	
Grand Total	31	106	

Nature of occupation

Row Labels	Count of Nature of occupation-Public transport	Male	
4	6	24	Mean 2.0256
2	17	34	
0	17	0	
3	31	93	
1	7	7	
Grand Total	78	158	

Row Labels	Count of Nature of occupation-Public transport	Female	
4	17	68	Mean 2.5488
2	21	42	
0	5	0	
3	30	90	
1	9	9	
Grand Total	82	209	

Row Labels	Count of Nature of occupation- Active mobility	Female	
4	15	60	Mean 2.4268
2	19	38	
0	7	0	
3	30	90	
1	11	11	
Grand Total	82	199	

Row Labels	Count of Nature of occupation- Active mobility	Male	
4	12	48	Mean 2.2308
2	19	38	
0	13	0	
3	27	81	
1	7	7	
Grand Total	78	174	

Row Labels	Count of Nature of occupation-Public transport	Above 55	
4	1	4	Mean 1.6774
2	8	16	
0	8	0	
3	9	27	
1	5	5	
	31	52	

Row Labels	Count of Nature of occupation-Public transport	30-55	
4	9	36	Mean 2.625
2	13	26	
0	3	0	
3	27	81	
1	4	4	
Grand Total	56	147	

Row Labels	Count of Nature of occupation-Public transport	Below 30	
4	13	52	Mean 2.3014
2	17	34	
0	11	0	
3	25	75	
1	7	7	
Grand Total	73	168	

Row Labels	Count of Nature of occupation- Active mobility	Below 30	
4	17	68	Mean 2.4658
2	18	36	
0	6	0	
3	22	66	
1	10	10	
Grand Total	73	180	

Row Labels	Count of Nature of occupation- Active mobility	30-55	
4	10	40	Mean 2.6607
2	10	20	
0	5	0	
3	29	87	
1	2	2	
Grand Total	56	149	

Row Labels	Count of Nature of occupation- Active mobility	Above 55	
4	10	40	Mean 1.9107
2	9	18	
0	6	0	
3	6	18	
1	31	31	
Grand Total	56	107	

Developed skills & knowledge

Row Labels	Count of Developed skills & knowledge - PT	Male		
4	9	36	Mean	2.1666667
2	26	52		
0	8	0		
3	23	69		
1	12	12		
Grand Total	78	169		

Row Labels	Count of Developed skills & knowledge - PT	Female		
4	7	28	Mean	#REF!
2	33	66		
0	1	0		
3	19	57		
1	22	22		

Row Labels	Count of Developed skills & knowledge - AM	Female		
4	5	20	Mean	2.097561
2	36	72		
0	3	0		
3	21	63		
1	17	17		
Grand Total	82	172		

Row Labels	Count of Developed skills & knowledge - AM	Male		
4	6	24	Mean	2.1794872
2	24	48		
0	4	0		
3	27	81		
1	17	17		
Grand Total	78	170		

Row Labels	Count of Developed skills & knowledge - PT		Above 55	
4	3	12	Mean	2.0645161
2	14	28		
0	0	0		
3	5	15		
1	9	9		
Grand Total	31	64		

Row Labels	Count of Developed skills & knowledge - PT		30-55	
4	5	20	Mean	1.9464286
2	22	44		
0	4	0		
3	10	30		
1	15	15		
Grand Total	56	109		

Row Labels	Count of Developed skills & knowledge - PT		Below 30	
4	8	32	Mean	2.3150685
2	23	46		
0	5	0		
3	27	81		
1	10	10		
Grand Total	73	169		

Row Labels	Count of Developed skills & knowledge - AM		Below 30	
4	6	24	Mean	2.3150685
2	17	34		
0	3	0		
3	32	96		
1	15	15		
Grand Total	73	169		

Row Labels	Count of Developed skills & knowledge - AM		30-55	
4	3	12	Mean	2.0535714
2	27	54		
0	3	0		
3	13	39		
1	10	10		
Grand Total	56	115		

Row Labels	Count of Developed skills & knowledge - AM		Above 55	
4	2	8	Mean	1.8709677
2	16	32		
0	1	0		
3	3	9		
1	9	9		
Grand Total	31	58		

Mean Calculation: Environmental Characteristics

	Recreational features & shops -AM		
Row Labels	Count of Recreational features & shops -AM	Male	
4	13	52	Mean 2.3718
2	23	46	
0	9	0	
3	27	81	
1	6	6	
Grand Total	78	185	
Row Labels	Count of Recreational features & shops -AM	Female	
4	18	72	Mean 2.7195
2	9	18	
0	8	0	
3	43	129	
1	4	4	
Grand Total	82	223	
Row Labels	Count of Recreational features & shops -AM	30	
4	19	76	Mean 2.589
2	12	24	
0	9	0	
3	28	84	
1	5	5	
Grand Total	73	189	
Row Labels	Count of Recreational features & shops -AM	30-55	
4	12	48	Mean 2.6429
2	8	16	
0	6	0	
3	27	81	
1	3	3	
Grand Total	56	148	
Row Labels	Count of Recreational features & shops -AM	55	
4	0	0	Mean 2.2903
2	12	24	
0	2	0	
3	15	45	
1	2	2	
Grand Total	31	71	

	Physical separation from traffic		
Row Labels	Count of Physical separation from traffic -AM	Male	
4	17	68	Mean 2.4103
2	18	36	
0	9	0	
3	25	75	
1	9	9	
Grand Tota	78	188	
Row Labels	Count of Physical separation from traffic -AM	Female	
4	26	104	Mean 2.8171
2	13	26	
0	8	0	
3	33	99	
1	2	2	
Grand Tota	82	231	
Row Labels	Count of Physical separation from traffic -AM	30	
4	16	64	Mean 2.3562
2	19	38	
0	8	0	
3	20	60	
1	10	10	
Grand Tota	73	172	
Row Labels	Count of Physical separation from traffic -AM	30-55	
4	14	56	Mean 2.6607
2	10	20	
0	7	0	
3	24	72	
1	1	1	
Grand Tota	56	149	
Row Labels	Count of Recreational features & shops -AM	55	
4	13	52	Mean 3.1613
2	2	4	
0	2	0	
3	14	42	
1	0	0	
Grand Tota	31	98	

	Air Quality					Properties of Travel route				
Row Labels	Count of Air Quality- PT	Male			Row Labels	Count of Properties of Travel route - PT	Male		
4	25	100	Mean	2.8462	4	11	44	Mean	2.512821
2	11	22			2	31	62		
0	4	0			0	2	0		
3	31	93			3	28	84		
1	7	7			1	6	6		
Grand Total	78	222			Grand Total	78	196		
Row Labels	Count of Air Quality- PT	Female			Row Labels	Count of Properties of Travel route - PT	Female		
4	28	112	Mean	2.9634	4	9	36	Mean	2.426829
2	8	16			2	37	74		
0	3	0			0	1	0		
3	36	108			3	27	81		
1	7	7			1	8	8		
Grand Total	82	243			Grand Total	82	199		
Row Labels	Count of Air Quality- PT	30			Row Labels	Count of Properties of Travel route - PT	30		
4	24	96	Mean	2.7945	4	9	36	Mean	2.465753
2	15	30			2	22	44		
0	2	0			0	2	0		
3	23	69			3	30	90		
1	9	9			1	10	10		
Grand Total	73	204			Grand Total	73	180		
Row Labels	Count of Air Quality- PT	30-55			Row Labels	Count of Properties of Travel route - PT	30-55		
4	20	80	Mean	2.9821	4	7	28	Mean	2.339286
2	3	6			2	33	66		
0	4	0			0	1	0		
3	26	78			3	11	33		
1	3	3			1	4	4		
Grand Total	56	167			Grand Total	56	131		
Row Labels	Count of Air Quality- PT	55			Row Labels	Count of Properties of Travel route - PT	55		
4	9	36	Mean	3.0323	4	4	16	Mean	2.709677
2	1	2			2	13	26		
0	1	0			0	0	0		
3	18	54			3	14	42		
1	2	2			1	0	0		
Grand Total	31	94			Grand Total	31	84		
Row Labels	Count of Air Quality- AM	Male			Row Labels	Count of Properties of Travel route - AM	Male		
4	33	132	Mean	3.0256	4	16	64	Mean	2.628205
2	11	22			2	14	28		
0	4	0			0	7	0		
3	26	78			3	36	108		
1	4	4			1	5	5		
Grand Total	78	236			Grand Total	78	205		
Row Labels	Count of Air Quality- AM	Female			Row Labels	Count of Properties of Travel route - AM	Female		
4	32	128	Mean	3.0122	4	17	68	Mean	2.817073
2	5	10			2	14	28		
0	6	0			0	4	0		
3	35	105			3	44	132		
1	4	4			1	3	3		
Grand Total	82	247			Grand Total	82	231		
Row Labels	Count of Air Quality- AM	30			Row Labels	Count of Properties of Travel route - AM	30		
4	27	108	Mean	2.8767	4	12	48	Mean	2.520548
2	14	28			2	17	34		
0	4	0			0	6	0		
3	23	69			3	32	96		
1	5	5			1	6	6		
Grand Total	73	210			Grand Total	73	184		
Row Labels	Count of Air Quality- AM	30-55			Row Labels	Count of Properties of Travel route - AM	30-55		
4	19	76	Mean	3	4	12	48	Mean	2.803571
2	1	2			2	4	8		
0	4	0			0	5	0		
3	29	87			3	33	99		
1	3	3			1	2	2		
Grand Total	56	168			Grand Total	56	157		
Row Labels	Count of Air Quality- AM	55			Row Labels	Count of Properties of Travel route - AM	55		
4	19	76	Mean	3.3871	4	9	36	Mean	3.064516
2	1	2			2	7	14		
0	2	0			0	0	0		
3	9	27			3	15	45		
1	0	0			1	0	0		
Grand Total	31	105			Grand Total	31	95		

	Quality conditions of travel route		
Row Labels	Count of Quality conditions of travel route- PT	Male	
4	21	84	Mean 2.87179
2	20	40	
0	1	0	
3	32	96	
1	4	4	
Grand Total	78	224	
Row Labels	Count of Quality conditions of travel route- PT	Female	
4	17	68	Mean 2.92683
2	10	20	
0	1	0	
3	49	147	
1	5	5	
Grand Total	82	240	
Row Labels	Count of Quality conditions of travel route- PT	30	
4	21	84	Mean 2.89041
2	12	24	
0	1	0	
3	32	96	
1	7	7	
Grand Total	73	211	
Row Labels	Count of Quality conditions of travel route- PT	30-55	
4	12	48	Mean 2.69643
2	33	66	
0	1	0	
3	11	33	
1	4	4	
Grand Total	56	151	
Row Labels	Count of Quality conditions of travel route- PT	55	
4	5	20	Mean 2.90323
2	5	10	
0	1	0	
3	20	60	
1	0	0	
Grand Total	31	90	
Row Labels	Count of Quality conditions of travel route- AM	Male	
4	21	84	Mean 2.80769
2	19	38	
0	5	0	
3	32	96	
1	1	1	
Grand Total	78	219	
Row Labels	Count of Quality conditions of travel route- AM	Female	
4	30	120	Mean 3.0122
2	8	16	
0	3	0	
3	35	105	
1	6	6	
Grand Total	82	247	
Row Labels	Count of Quality conditions of travel route- AM	30	
4	18	72	Mean 2.68493
2	15	30	
0	4	0	
3	29	87	
1	7	7	
Grand Total	73	196	
Row Labels	Count of Quality conditions of travel route- AM	30-55	
4	17	68	Mean 2.94643
2	11	22	
0	3	0	
3	25	75	
1	0	0	
Grand Total	56	165	
Row Labels	Count of Quality conditions of travel route- AM	55	
4	16	64	Mean 3.3871
2	1	2	
0	1	0	
3	13	39	
1	0	0	
Grand Total	31	105	

	Safe facilities		
Row Labels	Count of Safe facilities - PT	Male	
4	15	60	Mean 2.6410256
2	17	34	
0	2	0	
3	34	102	
1	10	10	
Grand Total	78	206	
Row Labels	Count of Safe facilities - PT	Female	
4	31	124	Mean 3.097561
2	11	22	
0	2	0	
3	35	105	
1	3	3	
Grand Total	82	254	
Row Labels	Count of Safe facilities - PT	30	
4	15	60	Mean 2.6712329
2	16	32	
0	1	0	
3	31	93	
1	10	10	
Grand Total	73	195	
Row Labels	Count of Safe facilities - PT	30-55	
4	21	84	Mean 3.0535714
2	6	12	
0	2	0	
3	24	72	
1	3	3	
Grand Total	56	171	
Row Labels	Count of Safe facilities - PT	55	
4	10	40	Mean 3.0322581
2	6	12	
0	1	0	
3	14	42	
1	0	0	
Grand Total	31	94	
Row Labels	Count of Safe facilities - AM	Male	
4	33	132	Mean 3.1538462
2	5	10	
0	4	0	
3	34	102	
1	2	2	
Grand Total	78	246	
Row Labels	Count of Safe facilities - AM	Female	
4	53	212	Mean 3.4756098
2	4	8	
0	2	0	
3	21	63	
1	2	2	
Grand Total	82	285	
Row Labels	Count of Safe facilities - AM	30	
4	30	120	Mean 3.0684932
2	7	14	
0	4	0	
3	29	87	
1	3	3	
Grand Total	73	224	
Row Labels	Count of Safe facilities - AM	30-55	
4	33	132	Mean 3.4285714
2	1	2	
0	2	0	
3	19	57	
1	1	1	
Grand Total	56	192	
Row Labels	Count of Safe facilities - AM	55	
4	23	92	Mean 3.7096774
2	1	2	
0	0	0	
3	7	21	
1	0	0	
Grand Total	31	115	

	Comfortable facilities					Car & pedestrian traffic				
Row Labels	Count of Comfortable facilities - PT	Male				Row Labels	Count of Car & pedestrian traffic - PT	Male		
4	22	88	Mean	2.57692		4	22	88	Mean	2.9487179
2	19	38				2	21	42		
0	4	0				0	1	0		
3	21	63				3	33	99		
1	12	12				1	1	1		
Grand Total	78	201				Grand Total	78	230		
Row Labels	Count of Comfortable facilities - PT	Female				Row Labels	Count of Car & pedestrian traffic - PT	Female		
4	17	68	Mean	2.65854		4	19	76	Mean	2.9268293
2	25	50				2	14	28		
0	2	0				0	1	0		
3	31	93				3	44	132		
1	7	7				1	4	4		
Grand Total	82	218				Grand Total	82	240		
Row Labels	Count of Comfortable facilities - PT	30				Row Labels	Count of Car & pedestrian traffic - PT	30		
4	16	64	Mean	2.41096		4	24	96	Mean	2.9589041
2	22	44				2	16	32		
0	5	0				0	1	0		
3	19	57				3	28	84		
1	11	11				1	4	4		
Grand Total	73	176				Grand Total	73	216		
Row Labels	Count of Comfortable facilities - PT	30-55				Row Labels	Count of Car & pedestrian traffic - PT	30-55		
4	12	48	Mean	2.60714		4	11	44	Mean	2.9821429
2	17	34				2	10	20		
0	1	0				0	0	0		
3	19	57				3	34	102		
1	7	7				1	1	1		
Grand Total	56	146				Grand Total	56	167		
Row Labels	Count of Comfortable facilities - PT	55				Row Labels	Count of Car & pedestrian traffic - PT	55		
4	11	44	Mean	3.12903		4	6	24	Mean	2.8064516
2	5	10				2	9	18		
0	0	0				0	1	0		
3	14	42				3	15	45		
1	1	1				1	0	0		
Grand Total	31	97				Grand Total	31	87		
Row Labels	Count of Comfortable facilities - AM	Male				Row Labels	Count of Car & pedestrian traffic - AM	Male		
4	26	104	Mean	2.74359		4	12	48	Mean	2.5128205
2	13	26				2	25	50		
0	5	0				0	5	0		
3	25	75				3	31	93		
1	9	9				1	5	5		
Grand Total	78	214				Grand Total	78	196		
Row Labels	Count of Comfortable facilities - AM	Female				Row Labels	Count of Car & pedestrian traffic - AM	Female		
4	33	132	Mean	3.12195		4	10	40	Mean	2.7073171
2	7	14				2	16	32		
0	2	0				0	2	0		
3	35	105				3	48	144		
1	5	5				1	6	6		
Grand Total	82	256				Grand Total	82	222		
Row Labels	Count of Comfortable facilities - AM	30				Row Labels	Count of Car & pedestrian traffic - AM	30		
4	16	64	Mean	2.54795		4	12	48	Mean	2.5479452
2	12	24				2	17	34		
0	5	0				0	4	0		
3	29	87				3	32	96		
1	11	11				1	8	8		
Grand Total	73	186				Grand Total	73	186		
Row Labels	Count of Comfortable facilities - AM	30-55				Row Labels	Count of Car & pedestrian traffic - AM	30-55		
4	19	76	Mean	3.01786		4	7	28	Mean	2.6071429
2	8	16				2	16	32		
0	2	0				0	3	0		
3	25	75				3	28	84		
1	2	2				1	2	2		
Grand Total	56	169				Grand Total	56	146		
Row Labels	Count of Comfortable facilities - AM	55				Row Labels	Count of Car & pedestrian traffic - AM	55		
4	24	96	Mean	3.70968		4	3	12	Mean	2.7741935
2	0	0				2	8	16		
0	0	0				0	0	0		
3	6	18				3	19	57		
1	1	1				1	1	1		
Grand Total	31	115				Grand Total	31	86		

	Climate & weather conditions				Geological features			
Row Labels	Count of Climate & weather conditions- PT	Male			Row Labels	Count of Geological features -PT	Male	
4	14	56	Mean	2.53846	4	7	28	Mean 1.6794872
2	32	64			2	20	40	
0	2	0			0	12	0	
3	24	72			3	12	36	
1	6	6			1	27	27	
Grand Total	78	198			Grand Total	78	131	
Row Labels	Count of Climate & weather conditions- PT	Female			Row Labels	Count of Geological features -PT	Female	
4	9	36	Mean	2.53659	4	2	8	Mean 1.5121951
2	32	64			2	15	30	
0	1	0			0	5	0	
3	34	102			3	13	39	
1	6	6			1	47	47	
Grand Total	82	208			Grand Total	82	124	
Row Labels	Count of Climate & weather conditions- PT	30			Row Labels	Count of Geological features -PT	30	
4	12	48	Mean	2.49315	4	6	24	Mean 1.7808219
2	27	54			2	15	30	
0	2	0			0	10	0	
3	24	72			3	17	51	
1	8	8			1	25	25	
Grand Total	73	182			Grand Total	73	130	
Row Labels	Count of Climate & weather conditions- PT	30-55			Row Labels	Count of Geological features -PT	30-55	
4	4	16	Mean	2.375	4	3	12	Mean 1.3035714
2	28	56			2	7	14	
0	1	0			0	7	0	
3	19	57			3	4	12	
1	4	4			1	35	35	
Grand Total	56	133			Grand Total	56	73	
Row Labels	Count of Climate & weather conditions- PT	55			Row Labels	Count of Geological features -PT	55	
4	7	28	Mean	2.93548	4	0	0	Mean 1.6774194
2	9	18			2	13	26	
0	0	0			0	0	0	
3	15	45			3	4	12	
1	0	0			1	14	14	
Grand Total	31	91			Grand Total	31	52	
Row Labels	Count of Climate & weather conditions- AM	Male			Row Labels	Count of Geological features -AM	Male	
4	42	168	Mean	3.35897	4	12	48	Mean 2.3974359
2	4	8			2	20	40	
0	2	0			0	1	0	
3	28	84			3	27	81	
1	2	2			1	18	18	
Grand Total	78	262			Grand Total	78	187	
Row Labels	Count of Climate & weather conditions- AM	Female			Row Labels	Count of Geological features -AM	Female	
4	42	168	Mean	3.30488	4	14	56	Mean 2.3536585
2	4	8			2	31	62	
0	3	0			0	4	0	
3	31	93			3	21	63	
1	2	2			1	12	12	
Grand Total	82	271			Grand Total	82	193	
Row Labels	Count of Climate & weather conditions- AM	30			Row Labels	Count of Geological features -AM	30	
4	44	176	Mean	3.39726	4	13	52	Mean 2.3561644
2	4	8			2	21	42	
0	1	0			0	1	0	
3	20	60			3	20	60	
1	4	4			1	18	18	
Grand Total	73	248			Grand Total	73	172	
Row Labels	Count of Climate & weather conditions- AM	30-55			Row Labels	Count of Geological features -AM	30-55	
4	19	76	Mean	3.10714	4	3	12	Mean 2
2	4	8			2	28	56	
0	3	0			0	3	0	
3	30	90			3	11	33	
1	0	0			1	11	11	
Grand Total	56	174			Grand Total	56	112	
Row Labels	Count of Climate & weather conditions- AM	55			Row Labels	Count of Geological features -AM	55	
4	21	84	Mean	3.58065	4	10	40	Mean 3.0967742
2	0	0			2	2	4	
0	1	0			0	1	0	
3	9	27			3	17	51	
1	0	0			1	1	1	
Grand Total	31	111			Grand Total	31	96	

	Government actions				Unprecedented events			
Row Labels	Count of Government actions -PT	Male			Row Labels	Count of Unprecedented events - PT	Male	
4	15	60	Mean	2.1410256	4	26	104	Mean 3.1282051
2	21	42			2	11	22	
0	5	0			0	1	0	
3	14	42			3	39	117	
1	23	23			1	1	1	
Grand Total	78	167			Grand Total	78	244	
Row Labels	Count of Government actions -PT	Female			Row Labels	Count of Unprecedented events - PT	Female	
4	11	44	Mean	1.9268293	4	24	96	Mean 3.1463415
2	24	48			2	3	6	
0	5	0			0	1	0	
3	12	36			3	51	153	
1	30	30			1	3	3	
Grand Total	82	158			Grand Total	82	258	
Row Labels	Count of Government actions -PT	30			Row Labels	Count of Unprecedented events - PT	30	
4	17	68	Mean	2.2191781	4	20	80	Mean 3.0136986
2	13	26			2	10	20	
0	7	0			0	1	0	
3	16	48			3	39	117	
1	20	20			1	3	3	
Grand Total	73	162			Grand Total	73	220	
Row Labels	Count of Government actions -PT	30-55			Row Labels	Count of Unprecedented events - PT	30-55	
4	5	20	Mean	1.875	4	23	92	Mean 3.3035714
2	19	38			2	4	8	
0	3	0			0	0	0	
3	9	27			3	28	84	
1	20	20			1	1	1	
Grand Total	56	105			Grand Total	56	185	
Row Labels	Count of Government actions -PT	55			Row Labels	Count of Government actions -PT	55	
4	4	16	Mean	1.8709677	4	7	28	Mean 3.1290323
2	13	26			2	0	0	
0	0	0			0	1	0	
3	1	3			3	23	69	
1	13	13			1	0	0	
Grand Total	31	58			Grand Total	31	97	
Row Labels	Count of Government actions -PT	Male			Row Labels	Count of Unprecedented events - AM	Male	
4	11	44	Mean	1.9102564	4	19	76	Mean 2.6923077
2	16	32			2	19	38	
0	8	0			0	2	0	
3	15	45			3	29	87	
1	28	28			1	9	9	
Grand Total	78	149			Grand Total	78	210	
Row Labels	Count of Government actions -AM	Female			Row Labels	Count of Unprecedented events - AM	Female	
4	5	20	Mean	1.6463415	4	10	40	Mean 2.695122
2	25	50			2	21	42	
0	7	0			0	2	0	
3	10	30			3	45	135	
1	35	35			1	4	4	
Grand Total	82	135			Grand Total	82	221	
Row Labels	Count of Government actions -AM	30			Row Labels	Count of Unprecedented events - AM	30	
4	11	44	Mean	1.9589041	4	16	64	Mean 2.5479452
2	10	20			2	23	46	
0	9	0			0	2	0	
3	18	54			3	22	66	
1	25	25			1	10	10	
Grand Total	73	143			Grand Total	73	186	
Row Labels	Count of Government actions -AM	30-55			Row Labels	Count of Unprecedented events - AM	30-55	
4	5	20	Mean	1.6785714	4	9	36	Mean 2.7678571
2	19	38			2	13	26	
0	4	0			0	1	0	
3	4	12			3	30	90	
1	24	24			1	3	3	
Grand Total	56	94			Grand Total	56	155	
Row Labels	Count of Government actions -AM	55			Row Labels	Count of Unprecedented events - AM	55	
4	0	0	Mean	1.516129	4	4	16	Mean 2.9032258
2	12	24			2	4	8	
0	2	0			0	1	0	
3	3	9			3	22	66	
1	14	14			1	0	0	
Grand Total	31	47			Grand Total	31	90	

	Seasonal & locational features				Diversity of landuse			
Row Labels	Count of Seasonal & locational features - PT	Male		Row Labels	Count of Diversity of landuse- PT	Male	
4	13	52	Mean 2.65385	4	20	80	Mean 2.6923077
2	29	58		2	21	42	
0	1	0		0	5	0	
3	31	93		3	28	84	
1	4	4		1	4	4	
Grand Total	78	207		Grand Total	78	210	
Row Labels	Count of Seasonal & locational features - PT	Female		Row Labels	Count of Diversity of landuse- PT	Female	
4	23	92	Mean 2.80488	4	32	128	Mean 3.1219512
2	24	48		2	8	16	
0	1	0		0	2	0	
3	28	84		3	36	108	
1	6	6		1	4	4	
Grand Total	82	230		Grand Total	82	256	
Row Labels	Count of Seasonal & locational features - PT	30		Row Labels	Count of Diversity of landuse- PT	30	
4	17	68	Mean 2.64384	4	18	72	Mean 2.7260274
2	23	46		2	20	40	
0	2	0		0	4	0	
3	24	72		3	28	84	
1	7	7		1	3	3	
Grand Total	73	193		Grand Total	73	199	
Row Labels	Count of Seasonal & locational features - PT	30-55		Row Labels	Count of Diversity of landuse- PT	30-55	
4	8	32	Mean 2.57143	4	28	112	Mean 3.1964286
2	26	52		2	3	6	
0	0	0		0	2	0	
3	19	57		3	19	57	
1	3	3		1	4	4	
Grand Total	56	144		Grand Total	56	179	
Row Labels	Count of Seasonal & locational features - PT	55		Row Labels	Count of Diversity of landuse- PT	55	
4	11	44	Mean 3.22581	4	6	24	Mean 2.8387097
2	4	8		2	6	12	
0	0	0		0	1	0	
3	16	48		3	17	51	
1	0	0		1	1	1	
Grand Total	31	100		Grand Total	31	88	
Row Labels	Count of Seasonal & locational features - AM	Male		Row Labels	Count of Diversity of landuse- AM	Male	
4	12	48	Mean 2.51282	4	25	100	Mean 2.7307692
2	29	58		2	12	24	
0	3	0		0	4	0	
3	28	84		3	26	78	
1	6	6		1	11	11	
Grand Total	78	196		Grand Total	78	213	
Row Labels	Count of Seasonal & locational features - AM	Female		Row Labels	Count of Diversity of landuse- AM	Female	
4	20	80	Mean 2.73171	4	39	156	Mean 3.0731707
2	24	48		2	11	22	
0	4	0		0	4	0	
3	31	93		3	23	69	
1	3	3		1	5	5	
Grand Total	82	224		Grand Total	82	252	
Row Labels	Count of Seasonal & locational features - AM	30		Row Labels	Count of Diversity of landuse- AM	30	
4	11	44	Mean 2.35616	4	19	76	Mean 2.5342466
2	34	68		2	15	30	
0	4	0		0	4	0	
3	18	54		3	22	66	
1	6	6		1	13	13	
Grand Total	73	172		Grand Total	73	185	
Row Labels	Count of Seasonal & locational features - AM	30-55		Row Labels	Count of Diversity of landuse- AM	30-55	
4	6	24	Mean 2.58929	4	35	140	Mean 3.2857143
2	17	34		2	3	6	
0	2	0		0	4	0	
3	28	84		3	12	36	
1	3	3		1	2	2	
Grand Total	56	145		Grand Total	56	184	
Row Labels	Count of Seasonal & locational features - AM	55		Row Labels	Count of Diversity of landuse- AM	55	
4	15	60	Mean 3.32258	4	10	40	Mean 3.0967742
2	2	4		2	5	10	
0	1	0		0	0	0	
3	13	39		3	15	45	
1	0	0		1	1	1	
Grand Total	31	103		Grand Total	31	96	

Mean Calculation: Travel Characteristics

Trip origin & Destination

Row Labels	Count of Trip origin & Destination - PT	Male	
4	12	48	Mean 2.5000
2	27	54	
0	6	0	
3	30	90	
1	3	3	
Grand Total	78	195	

Row Labels	Count of Trip origin & Destination - PT	Female	
4	14	56	Mean 2.7073
2	25	50	
0	1	0	
3	37	111	
1	5	5	
Grand Total	82	222	

Row Labels	Count of Trip origin & Destination - AM	Female	
4	16	64	Mean 2.7561
2	19	38	
0	3	0	
3	40	120	
1	4	4	
Grand Total	82	226	

Row Labels	Count of Trip origin & Destination - AM	Male	
4	13	52	Mean 2.6026
2	17	34	
0	5	0	
3	37	111	
1	6	6	
Grand Total	78	203	

Row Labels	Count of Trip origin & Destination - PT	Above 55	
4	3	12	Mean 2.6129
2	12	24	
0	1	0	
3	15	45	
1	0	0	
Grand Total	31	81	

Row Labels	Count of Trip origin & Destination - PT	30-55	
4	9	36	Mean 2.5357
2	19	38	
0	2	0	
3	21	63	
1	5	5	
Grand Total	56	142	

Row Labels	Count of Trip origin & Destination - PT	Below 30	
4	14	56	Mean 2.6575
2	21	42	
0	4	0	
3	31	93	
1	3	3	
Grand Total	73	194	

Row Labels	Count of Trip origin & Destination - AM	Below 30	
4	16	64	Mean 2.6986
2	16	32	
0	4	0	
3	32	96	
1	5	5	
Grand Total	73	197	

Row Labels	Count of Trip origin & Destination - AM	30-55	
4	11	44	Mean 2.7857
2	8	16	
0	3	0	
3	31	93	
1	3	3	
Grand Total	56	156	

Row Labels	Count of Trip origin & Destination - AM	55	
4	2	8	Mean 2.4516
2	12	24	
0	1	0	
3	14	42	
1	2	2	
Grand Total	31	76	

Trip time throughout the day

Row Labels	Count of Trip time throughout the day -PT	Male	
4	12	48	Mean 2.4231
2	18	36	
0	3	0	
3	30	90	
1	15	15	
Grand Total	78	189	

Row Labels	Count of Trip time throughout the day -PT	Female	
4	16	64	Mean 2.4512
2	27	54	
0	2	0	
3	23	69	
1	14	14	
Grand Total	82	201	

Row Labels	Count of Trip time throughout the day -AM	Female	
4	22	88	Mean 2.8293
2	19	38	
0	3	0	
3	34	102	
1	4	4	
Grand Total	82	232	

Row Labels	Count of Trip time throughout the day -AM	Male	
4	19	76	Mean 2.6282
2	22	44	
0	4	0	
3	26	78	
1	7	7	
Grand Total	78	205	

Row Labels	Count of Trip time throughout the day -PT	55	
4	8	32	Mean 3.0645
2	3	6	
0	1	0	
3	19	57	
1	0	0	
Grand Total	31	95	

Row Labels	Count of Trip time throughout the day -PT	30-55	
4	5	20	Mean 2.0000
2	20	40	
0	1	0	
3	11	33	
1	19	19	
Grand Total	56	112	

Row Labels	Count of Trip time throughout the day -PT	30	
4	15	60	Mean 2.5068
2	22	44	
0	3	0	
3	23	69	
1	10	10	
Grand Total	73	183	

Row Labels	Count of Trip time throughout the day -AM	30	
4	15	60	Mean 2.6164
2	16	32	
0	5	0	
3	31	93	
1	6	6	
Grand Total	73	191	

Row Labels	Count of Trip time throughout the day -AM	30-55	
4	11	44	Mean 2.6250
2	21	42	
0	1	0	
3	19	57	
1	4	4	
Grand Total	56	147	

Row Labels	Count of Trip time throughout the day -AM	55	
4	15	60	Mean 3.1935
2	4	8	
0	1	0	
3	10	30	
1	1	1	
Grand Total	31	99	

Travel time duration -PT

Row Labels	Count of Travel time duration -PT	Male		
4	13	52	Mean	2.6026
2	26	52		
0	2	0		
3	31	93		
1	6	6		
Grand Total	78	203		

Row Labels	Count of Travel time duration -PT	Female		
4	12	48	Mean	2.6585
2	27	54		
0	1	0		
3	37	111		
1	5	5		
Grand Total	82	218		

Row Labels	Count of Travel time duration -AM	Female		
4	14	56	Mean	2.6220
2	26	52		
0	5	0		
3	35	105		
1	2	2		
Grand Total	82	215		

Row Labels	Count of Travel time duration -AM	Male		
4	14	56	Mean	2.6538
2	24	48		
0	3	0		
3	33	99		
1	4	4		
Grand Total	78	207		

Row Labels	Count of Travel time duration -PT	55		
4	6	24	Mean	2.5484
2	13	26		
0	1	0		
3	9	27		
1	2	2		
Grand Total	31	79		

Row Labels	Count of Travel time duration -PT	30-55		
4	6	24	Mean	2.4464
2	28	56		
0	1	0		
3	18	54		
1	3	3		
Grand Total	56	137		

Row Labels	Count of Travel time duration -PT	30		
4	13	52	Mean	2.8082
2	12	24		
0	1	0		
3	41	123		
1	6	6		
Grand Total	73	205		

Row Labels	Count of Travel time duration -AM	30		
4	18	72	Mean	2.8219
2	11	22		
0	4	0		
3	36	108		
1	4	4		
Grand Total	73	206		

Row Labels	Count of Travel time duration -AM	30-55		
4	7	28	Mean	2.5179
2	26	52		
0	2	0		
3	20	60		
1	1	1		
Grand Total	56	141		

Row Labels	Count of Travel time duration -AM	55		
4	3	12	Mean	2.4194
2	13	26		
0	2	0		
3	12	36		
1	1	1		
Grand Total	31	75		

Count of Less Travel cost -PT

Row Labels	Count of Less Travel cost -PT	Male		
4	17	68	Mean	2.2692
2	15	30		
0	7	0		
3	20	60		
1	19	19		
Grand Total	78	177		

Row Labels	Count of Less Travel cost -PT	Female		
4	20	80	Mean	2.6829
2	16	32		
0	2	0		
3	32	96		
1	12	12		
Grand Total	82	220		

Row Labels	Count of Less Travel cost -PT	30		
4	16	64	Mean	2.3973
2	13	26		
0	7	0		
3	24	72		
1	13	13		
Grand Total	73	175		

Row Labels	Count of Less Travel cost -PT	30-55		
4	17	68	Mean	2.5714
2	9	18		
0	2	0		
3	15	45		
1	13	13		
Grand Total	56	144		

Row Labels	Count of Less Travel cost -PT	55		
4	4	16	Mean	2.5161
2	9	18		
0	0	0		
3	13	39		
1	5	5		
Grand Total	31	78		

Row Labels	Count of Less Travel cost -AM	Male		
4	5	20	Mean	1.5513
2	19	38		
0	23	0		
3	16	48		
1	15	15		
Grand Total	78	121		

Row Labels	Count of Less Travel cost -AM	Female		
4	12	48	Mean	2.1463
2	19	38		
0	9	0		
3	24	72		
1	18	18		
Grand Total	82	176		

Row Labels	Count of Less Travel cost -AM	55		
4	4	16	Mean	2.0645
2	11	22		
0	2	0		
3	6	18		
1	8	8		
Grand Total	31	64		

Row Labels	Count of Less Travel cost -AM	30-55		
4	7	28	Mean	1.9643
2	13	26		
0	8	0		
3	14	42		
1	14	14		
Grand Total	56	110		

Row Labels	Count of Less Travel cost -AM	30		
4	6	24	Mean	1.6849
2	14	28		
0	22	0		
3	20	60		
1	11	11		
Grand Total	73	123		

Count of Frequency of using mode- PT

Row Labels	Count of Frequency of using mode- PT	Male		
4	4	16	Mean	2.1282
2	26	52		
0	10	0		
3	30	90		
1	8	8		
Grand Total	78	166		

Row Labels	Count of Frequency of using mode- PT	Female		
4	6	24	Mean	2.5854
2	29	58		
0	1	0		
3	42	126		
1	4	4		
Grand Total	82	212		

Row Labels	Count of Frequency of using mode- PT	30		
4	7	28	Mean	2.3014
2	24	48		
0	6	0		
3	28	84		
1	8	8		
Grand Total	73	168		

Row Labels	Count of Frequency of using mode- PT	30-55		
4	2	8	Mean	2.3036
2	21	42		
0	4	0		
3	25	75		
1	4	4		
Grand Total	56	129		

Row Labels	Count of Frequency of using mode- PT	55		
4	1	4	Mean	2.6129
2	10	20		
0	1	0		
3	19	57		
1	0	0		
Grand Total	31	81		

Row Labels	Count of Frequency of using mode- AM	Male		
4	5	20	Mean	2.2051
2	23	46		
0	10	0		
3	33	99		
1	7	7		
Grand Total	78	172		

Row Labels	Count of Frequency of using mode- AM	Female		
4	9	36	Mean	2.5610
2	26	52		
0	3	0		
3	39	117		
1	5	5		
Grand Total	82	210		

Row Labels	Count of Frequency of using mode- AM	30		
4	9	36	Mean	2.3562
2	16	32		
0	8	0		
3	32	96		
1	8	8		
Grand Total	73	172		

Row Labels	Count of Frequency of using mode- AM	30-55		
4	3	12	Mean	2.3929
2	19	38		
0	4	0		
3	27	81		
1	3	3		
Grand Total	56	134		

Row Labels	Count of Frequency of using mode- AM	55		
4	2	8	Mean	2.4516
2	14	28		
0	1	0		
3	13	39		
1	1	1		
Grand Total	31	76		

Transport mode connectivity

Row Labels	Count of Transport mode connectivity - PT	Male		
4	24	96	Mean	2.6538
2	8	16		
0	5	0		
3	27	81		
1	14	14		
Grand Total	78	207		

Row Labels	Count of Transport mode connectivity - PT	Female		
4	39	156	Mean	3.2439
2	2	4		
0	1	0		
3	33	99		
1	7	7		
Grand Total	82	266		

Row Labels	Count of Transport mode connectivity - PT	30		
4	19	76	Mean	2.5342
2	9	18		
0	4	0		
3	25	75		
1	16	16		
Grand Total	73	185		

Row Labels	Count of Transport mode connectivity - PT	30-55		
4	29	116	Mean	3.3036
2	1	2		
0	1	0		
3	21	63		
1	4	4		
Grand Total	56	185		

Row Labels	Count of Transport mode connectivity - PT	55		
4	15	60	Mean	3.3226
2	0	0		
0	1	0		
3	14	42		
1	1	1		
Grand Total	31	103		

Row Labels	Count of Transport mode connectivity - AM	Male		
4	28	112	Mean	2.4872
2	10	20		
0	16	0		
3	19	57		
1	5	5		
Grand Total	78	194		

Row Labels	Count of Transport mode connectivity - AM	Female		
4	35	140	Mean	3.1341
2	4	8		
0	6	0		
3	36	108		
1	1	1		
Grand Total	82	257		

Row Labels	Count of Transport mode connectivity - AM	30		
4	16	64	Mean	2.2877
2	10	20		
0	16	0		
3	26	78		
1	5	5		
Grand Total	73	167		

Row Labels	Count of Transport mode connectivity - AM	30-55		
4	30	120	Mean	3.2321
2	3	6		
0	4	0		
3	18	54		
1	1	1		
Grand Total	56	181		

Row Labels	Count of Transport mode connectivity - AM	55		
4	17	68	Mean	3.3226
2	1	2		
0	2	0		
3	11	33		
1	0	0		
Grand Total	31	103		

Availability & Accessibility

Row Labels	Count of Availability & Accessibility - PT	Male		
4	17	68	Mean	2.5513
2	12	24		
0	6	0		
3	32	96		
1	11	11		
Grand Total	78	199		

Row Labels	Count of Availability & Accessibility - PT	Female		
4	24	96	Mean	2.8171
2	11	22		
0	4	0		
3	35	105		
1	8	8		
Grand Total	82	231		

Row Labels	Count of Availability & Accessibility - PT	30		
4	18	72	Mean	2.4795
2	9	18		
0	7	0		
3	26	78		
1	13	13		
Grand Total	73	181		

Row Labels	Count of Availability & Accessibility - PT	30-55		
4	14	56	Mean	2.7679
2	11	22		
0	2	0		
3	24	72		
1	5	5		
Grand Total	56	155		

Row Labels	Count of Availability & Accessibility - PT	55		
4	9	36	Mean	3.0323
2	3	6		
0	1	0		
3	17	51		
1	1	1		
Grand Total	31	94		

Row Labels	Count of Availability & Accessibility - AM	Male		
4	16	64	Mean	2.2051
2	10	20		
0	16	0		
3	26	78		
1	10	10		
Grand Total	78	172		

Row Labels	Count of Availability & Accessibility - AM	Female		
4	23	92	Mean	2.7195
2	12	24		
0	8	0		
3	34	102		
1	5	5		
Grand Total	82	223		

Row Labels	Count of Availability & Accessibility - AM	30		
4	10	40	Mean	2.0137
2	10	20		
0	16	0		
3	25	75		
1	12	12		
Grand Total	73	147		

Row Labels	Count of Availability & Accessibility - AM	30-55		
4	19	76	Mean	2.7857
2	9	18		
0	6	0		
3	20	60		
1	2	2		
Grand Total	56	156		

Row Labels	Count of Availability & Accessibility - AM	55		
4	10	40	Mean	2.9677
2	3	6		
0	2	0		
3	15	45		
1	1	1		
Grand Total	31	92		

Technology advancement

Row Labels	Count of Technology advancement- PT	Male		
4	20	80	Mean	2.7308
2	20	40		
0	3	0		
3	29	87		
1	6	6		
Grand Total	78	213		

Row Labels	Count of Technology advancement- PT	Female		
4	21	84	Mean	2.6707
2	19	38		
0	3	0		
3	29	87		
1	10	10		
Grand Total	82	219		

Row Labels	Count of Technology advancement- PT	30		
4	21	84	Mean	2.7945
2	10	20		
0	4	0		
3	31	93		
1	7	7		
Grand Total	73	204		

Row Labels	Count of Technology advancement- PT	30-55		
4	14	56	Mean	2.7500
2	17	34		
0	1	0		
3	20	60		
1	4	4		
Grand Total	56	154		

Row Labels	Count of Technology advancement- PT	55		
4	6	24	Mean	2.3871
2	12	24		
0	1	0		
3	7	21		
1	5	5		
Grand Total	31	74		

	Speed of movement/ Adherence to plan			
Row Labels	Count of Speed of movement/ Adherence to plan - PT	Male		
4	23	92	Mean	2.8333
2	22	44		
0	2	0		
3	27	81		
1	4	4		
Grand Total	78	221		
Row Labels	Count of Speed of movement/ Adherence to plan - PT	Female		
4	20	80	Mean	2.9024
2	17	34		
0	1	0		
3	40	120		
1	4	4		
Grand Total	82	238		
Row Labels	Count of Speed of movement/ Adherence to plan - PT	30		
4	24	96	Mean	2.8904
2	17	34		
0	1	0		
3	25	75		
1	6	6		
Grand Total	73	211		
Row Labels	Count of Speed of movement/ Adherence to plan - PT	30-55		
4	13	52	Mean	2.9643
2	8	16		
0	1	0		
3	32	96		
1	2	2		
Grand Total	56	166		
Row Labels	Count of Speed of movement/ Adherence to plan - PT	55		
4	6	24	Mean	2.6452
2	14	28		
0	1	0		
3	10	30		
1	0	0		
Grand Total	31	82		
Row Labels	Count of Speed of movement/ Adherence to plan - AM	Male		
4	25	100	Mean	2.8462
2	18	36		
0	1	0		
3	26	78		
1	8	8		
Grand Total	78	222		
Row Labels	Count of Speed of movement/ Adherence to plan - AM	Female		
4	17	68	Mean	2.7683
2	17	34		
0	3	0		
3	40	120		
1	5	5		
Grand Total	82	227		
Row Labels	Count of Speed of movement/ Adherence to plan - PT	30		
4	23	92	Mean	2.9315
2	4	8		
0	0	0		
3	34	102		
1	12	12		
Grand Total	73	214		
Row Labels	Count of Speed of movement/ Adherence to plan - PT	30-55		
4	16	64	Mean	2.8571
2	15	30		
0	3	0		
3	22	66		
1	0	0		
Grand Total	56	160		
Row Labels	Count of Speed of movement/ Adherence to plan - AM	55		
4	3	12	Mean	2.4194
2	16	32		
0	1	0		
3	10	30		
1	1	1		
Grand Total	31	75		

Mean Calculation: Behavioural Beliefs

	Travel purpose		
Row Labels	Count of Travel purpose - PT	Male	
4	17	68	Mean 2.5641
2	31	62	
0	4	0	
3	22	66	
1	4	4	
Grand Total	78	200	

	Personal beliefs		
Row Labels	Count of Personal beliefs - PT	Male	
4	13	52	Mean 2.5385
2	17	34	
0	2	0	
3	33	99	
1	13	13	
Grand Tota	78	198	

Row Labels	Count of Travel purpose - PT	Female	
4	12	48	Mean 2.5244
2	43	86	
0	0	0	
3	23	69	
1	4	4	
Grand Total	82	207	

Row Labels	Count of Personal beliefs - PT	Female	
4	14	56	Mean 2.4756
2	20	40	
0	1	0	
3	30	90	
1	17	17	
Grand Tota	82	203	

Row Labels	Count of Travel purpose - PT	30	
4	20	80	Mean 2.6575
2	28	56	
0	3	0	
3	18	54	
1	4	4	
Grand Total	73	194	

Row Labels	Count of Personal beliefs - PT	30	
4	20	80	Mean 2.8356
2	13	26	
0	1	0	
3	31	93	
1	8	8	
Grand Tota	73	207	

Row Labels	Count of Travel purpose - PT	30-55	
4	8	32	Mean 2.5179
2	28	56	
0	1	0	
3	17	51	
1	2	2	
Grand Total	56	141	

Row Labels	Count of Personal beliefs - PT	30-55	
4	6	24	Mean 2.2679
2	14	28	
0	1	0	
3	20	60	
1	15	15	
Grand Tota	56	127	

Row Labels	Count of Travel purpose - PT	55	
4	1	4	Mean 1.2857
2	18	36	
0	0	0	
3	10	30	
1	2	2	
Grand Total	56	72	

Row Labels	Count of Personal beliefs - PT	55	
4	1	4	Mean 2.1613
2	10	20	
0	1	0	
3	12	36	
1	7	7	
Grand Tota	31	67	

Row Labels	Count of Travel purpose - AM	Male	
4	16	64	Mean 2.6282
2	36	72	
0	1	0	
3	22	66	
1	3	3	
Grand Total	78	205	

Row Labels	Count of Personal beliefs - AM	Male	
4	15	60	Mean 2.5641
2	26	52	
0	1	0	
3	26	78	
1	10	10	
Grand Tota	78	200	

Row Labels	Count of Travel purpose - AM	Female	
4	10	40	Mean 2.3537
2	42	84	
0	3	0	
3	21	63	
1	6	6	
Grand Total	82	193	

Row Labels	Count of Personal beliefs - AM	Female	
4	5	20	Mean 2.3659
2	35	70	
0	4	0	
3	33	99	
1	5	5	
Grand Tota	82	194	

Row Labels	Count of Travel purpose - AM	30	
4	19	76	Mean 2.6438
2	32	64	
0	1	0	
3	16	48	
1	5	5	
Grand Total	73	193	

Row Labels	Count of Personal beliefs - AM	30	
4	15	60	Mean 2.726
2	20	40	
0	1	0	
3	31	93	
1	6	6	
Grand Tota	73	199	

Row Labels	Count of Travel purpose - AM	30-55	
4	7	28	Mean 2.4643
2	29	58	
0	2	0	
3	17	51	
1	1	1	
Grand Total	56	138	

Row Labels	Count of Personal beliefs - AM	30-55	
4	5	20	Mean 2.4464
2	19	38	
0	3	0	
3	25	75	
1	4	4	
Grand Tota	56	137	

Row Labels	Count of Travel purpose - AM	55	
4	0	0	Mean 2.1613
2	17	34	
0	1	0	
3	10	30	
1	3	3	
Grand Total	31	67	

Row Labels	Count of Travel purpose - AM	55	
4	0	0	Mean 1.871
2	22	44	
0	1	0	
3	3	9	
1	5	5	
Grand Tota	31	58	

	Past experience				Travel & Overall satisfaction			
Row Labels	Count of Past experience - PT	Male			Row Labels	Count of Travel & Overall satisfaction - PT	Male	
4	22	88	Mean	2.7949	4	13	52	Mean 2.47436
2	23	46			2	25	50	
0	3	0			0	1	0	
3	27	81			3	26	78	
1	3	3			1	13	13	
Grand Total	78	218			Grand Total	78	193	
Row Labels	Count of Past experience - PT	Female			Row Labels	Count of Travel & Overall satisfaction - PT	Female	
4	8	32	Mean	2.5122	4	13	52	Mean 2.41463
2	29	58			2	32	64	
0	1	0			0	1	0	
3	36	108			3	23	69	
1	8	8			1	13	13	
Grand Total	82	206			Grand Total	82	198	
Row Labels	Count of Past experience - PT	30			Row Labels	Count of Past experience - PT	30	
4	19	76	Mean	2.6712	4	13	52	Mean 2.57534
2	23	46			2	28	56	
0	2	0			0	0	0	
3	22	66			3	24	72	
1	7	7			1	8	8	
Grand Total	73	195			Grand Total	73	188	
Row Labels	Count of Past experience - PT	30-55			Row Labels	Count of Travel & Overall satisfaction - PT	30-55	
4	3	12	Mean	2.4107	4	7	28	Mean 2.30357
2	25	50			2	21	42	
0	1	0			0	1	0	
3	23	69			3	16	48	
1	4	4			1	11	11	
Grand Total	56	135			Grand Total	56	129	
Row Labels	Count of Personal beliefs - PT	55			Row Labels	Count of Travel & Overall satisfaction - PT	55	
4	8	32	Mean	3.0323	4	6	24	Mean 2.3871
2	4	8			2	8	16	
0	1	0			0	1	0	
3	18	54			3	9	27	
1	0	0			1	7	7	
Grand Total	31	94			Grand Total	31	74	
Row Labels	Count of Past experience - AM	Male			Row Labels	Count of Travel & Overall satisfaction - AM	Male	
4	19	76	Mean	2.6795	4	13	52	Mean 2.52564
2	18	36			2	21	42	
0	4	0			0	1	0	
3	30	90			3	30	90	
1	7	7			1	13	13	
Grand Total	78	209			Grand Total	78	197	
Row Labels	Count of Past experience - AM	Female			Row Labels	Count of Travel & Overall satisfaction - AM	Female	
4	7	28	Mean	2.4756	4	8	32	Mean 2.07317
2	24	48			2	30	60	
0	4	0			0	4	0	
3	40	120			3	19	57	
1	7	7			1	21	21	
Grand Total	82	203			Grand Total	82	170	
Row Labels	Count of Past experience - AM	30			Row Labels	Count of Travel & Overall satisfaction - AM	30	
4	19	76	Mean	2.6438	4	13	52	Mean 2.56164
2	18	36			2	18	36	
0	3	0			0	1	0	
3	24	72			3	29	87	
1	9	9			1	12	12	
Grand Total	73	193			Grand Total	73	187	
Row Labels	Count of Past experience - AM	30-55			Row Labels	Count of Travel & Overall satisfaction - AM	30-55	
4	2	8	Mean	2.3929	4	8	32	Mean 2.17857
2	17	34			2	21	42	
0	3	0			0	3	0	
3	29	87			3	12	36	
1	5	5			1	12	12	
Grand Total	56	134			Grand Total	56	122	
Row Labels	Count of Travel purpose - AM	55			Row Labels	Count of Travel purpose - AM	55	
4	5	20	Mean	2.7419	4	12	48	Mean 2.64516
2	7	14			2	0	0	
0	2	0			0	1	0	
3	17	51			3	8	24	
1	0	0			1	10	10	
Grand Total	31	85			Grand Total	31	82	

	Personal moral & values		
Row Labels	Count of Personal moral & values -PT	Male	
4	7	28	Mean 1.91
2	32	64	
0	4	0	
3	11	33	
1	24	24	
Grand Total	78	149	
Row Labels	Count of Personal moral & values -PT	Female	
4	3	12	Mean 1.707
2	30	60	
0	3	0	
3	11	33	
1	35	35	
Grand Total	82	140	
Row Labels	Count of Personal moral & values -PT	30	
4	8	32	Mean 2.123
2	27	54	
0	5	0	
3	18	54	
1	15	15	
Grand Total	73	155	
Row Labels	Count of Personal moral & values -PT	30-55	
4	2	8	Mean 1.625
2	22	44	
0	1	0	
3	4	12	
1	27	27	
Grand Total	56	91	
Row Labels	Count of Travel & Overall satisfaction -	55	
4	0	0	Mean 1.387
2	13	26	
0	1	0	
3	0	0	
1	17	17	
Grand Total	31	43	
Row Labels	Count of Travel & Overall satisfaction -	Male	
4	18	72	Mean 2.295
2	25	50	
0	4	0	
3	13	39	
1	18	18	
Grand Total	78	179	
Row Labels	Count of Personal moral & values -AM	Female	
4	8	32	Mean 1.976
2	36	72	
0	2	0	
3	11	33	
1	25	25	
Grand Total	82	162	
Row Labels	Count of Travel & Overall satisfaction -	30	
4	23	92	Mean 2.493
2	22	44	
0	4	0	
3	11	33	
1	13	13	
Grand Total	73	182	
Row Labels	Count of Personal moral & values -AM	30-55	
4	3	12	Mean 1.964
2	25	50	
0	2	0	
3	11	33	
1	15	15	
Grand Total	56	110	
Row Labels	Count of Travel purpose - AM	55	
4	0	0	Mean 1.581
2	14	28	
0	0	0	
3	2	6	
1	15	15	
Grand Total	31	49	

	Happiness by chance to gathering		
Row Labels	Count of Happiness by chance to gathering- PT	Male	
4	9	36	Mean 2.0897
2	32	64	
0	6	0	
3	16	48	
1	15	15	
Grand Total	78	163	
Row Labels	Count of Happiness by chance to gathering- PT	Female	
4	6	24	Mean 1.8049
2	29	58	
0	5	0	
3	12	36	
1	30	30	
Grand Total	82	148	
Row Labels	Count of Happiness by chance to gathering- PT	30	
4	9	36	Mean 2.0548
2	27	54	
0	7	0	
3	15	45	
1	15	15	
Grand Total	73	150	
Row Labels	Count of Happiness by chance to gathering- PT	30-55	
4	6	24	Mean 1.9464
2	24	48	
0	3	0	
3	7	21	
1	16	16	
Grand Total	56	109	
Row Labels	Count of Travel & Overall satisfaction - PT	55	
4	0	0	Mean 1.6774
2	10	20	
0	1	0	
3	6	18	
1	14	14	
Grand Total	31	52	
Row Labels	Count of Happiness by chance to gathering- AM	Male	
4	12	48	Mean 2.3333
2	29	58	
0	5	0	
3	22	66	
1	10	10	
Grand Total	78	182	
Row Labels	Count of Happiness by chance to gathering- AM	Female	
4	8	32	Mean 2.0244
2	33	66	
0	5	0	
3	16	48	
1	20	20	
Grand Total	82	166	
Row Labels	Count of Happiness by chance to gathering- AM	30	
4	16	64	Mean 2.4247
2	22	44	
0	4	0	
3	19	57	
1	12	12	
Grand Total	73	177	
Row Labels	Count of Happiness by chance to gathering- AM	30-55	
4	4	16	Mean 2.0179
2	22	44	
0	5	0	
3	14	42	
1	11	11	
Grand Total	56	113	
Row Labels	Count of Travel purpose - AM	55	
4	0	0	Mean 1.871
2	18	36	
0	1	0	
3	5	15	
1	7	7	
Grand Total	31	58	

Mean Calculation: control beliefs

	Feeling comfortability				Feeling safety			
Row Labels	Count of Feelin comfortability- PT	Male			Row Labels	Count of Feeling safety & security- PT	Male	
4	27	108	Mean	2.936	4	26	104	Mean 2.9744
2	12	24			2	11	22	
0	2	0			0	1	0	
3	30	90			3	33	99	
1	7	7			1	7	7	
Grand Total	78	229			Grand Total	78	232	
Row Labels	Count of Feelin comfortability- PT	Female			Row Labels	Count of Feeling safety & security- PT	Female	
4	36	144	Mean	3.232	4	45	180	Mean 3.378
2	4	8			2	2	4	
0	1	0			0	0	0	
3	36	108			3	29	87	
1	5	5			1	6	6	
Grand Total	82	265			Grand Total	82	277	
Row Labels	Count of Feelin comfortability- PT	30			Row Labels	Count of Feeling safety & security- PT	30	
4	24	96	Mean	2.918	4	27	108	Mean 3
2	11	22			2	9	18	
0	1	0			0	0	0	
3	29	87			3	28	84	
1	8	8			1	9	9	
Grand Total	73	213			Grand Total	73	219	
Row Labels	Count of Feelin comfortability- PT	30-55			Row Labels	Count of Feeling safety & security- PT	30-55	
4	26	104	Mean	3.196	4	28	112	Mean 3.2679
2	4	8			2	2	4	
0	1	0			0	1	0	
3	21	63			3	21	63	
1	4	4			1	4	4	
Grand Total	56	179			Grand Total	56	183	
Row Labels	Count of Feelin comfortability- PT	55			Row Labels	Count of Feeling safety & security- PT	55	
4	13	52	Mean	3.29	4	16	64	Mean 3.4516
2	1	2			2	2	4	
0	1	0			0	0	0	
3	16	48			3	13	39	
1	0	0			1	0	0	
Grand Total	31	102			Grand Total	31	107	
Row Labels	Count of Feelin comfortability- AM	Male			Row Labels	Count of Feeling safety & security- AM	Male	
4	29	116	Mean	2.962	4	24	96	Mean 2.9103
2	14	28			2	12	24	
0	2	0			0	3	0	
3	27	81			3	34	102	
1	6	6			1	5	5	
Grand Total	78	231			Grand Total	78	227	
Row Labels	Count of Feelin comfortability- AM	Female			Row Labels	Count of Feeling safety & security- AM	Female	
4	37	148	Mean	3.146	4	45	180	Mean 3.2561
2	9	18			2	7	14	
0	2	0			0	3	0	
3	29	87			3	23	69	
1	5	5			1	4	4	
Grand Total	82	258			Grand Total	82	267	
Row Labels	Count of Feelin comfortability- AM	30			Row Labels	Count of Feeling safety & security- AM	30	
4	21	84	Mean	2.877	4	23	92	Mean 2.863
2	17	34			2	12	24	
0	1	0			0	3	0	
3	29	87			3	29	87	
1	5	5			1	6	6	
Grand Total	73	210			Grand Total	73	209	
Row Labels	Count of Feelin comfortability- AM	30-55			Row Labels	Count of Feeling safety & security- AM	30-55	
4	27	108	Mean	3.143	4	26	104	Mean 3.1429
2	4	8			2	3	6	
0	3	0			0	3	0	
3	19	57			3	21	63	
1	3	3			1	3	3	
Grand Total	56	176			Grand Total	56	176	
Row Labels	Count of Others' Recommendation -	55			Row Labels	Count of Feeling safety & security- AM	55	
4	18	72	Mean	3.323	4	20	80	Mean 3.5161
2	2	4			2	4	8	
0	0	0			0	0	0	
3	8	24			3	7	21	
1	3	3			1	0	0	
Grand Total	31	103			Grand Total	31	109	

	Propensity for technology			
Row Labels	Count of Propensity for tech- PT	Male		
4	20	80	**Mean**	**2.6025641**
2	28	56		
0	1	0		
3	19	57		
1	10	10		
Grand Total	78	203		
Row Labels	Count of Propensity for tech- PT	Female		
4	15	60	**Mean**	**2.4878049**
2	23	46		
0	0	0		
3	27	81		
1	17	17		
Grand Total	82	204		
Row Labels	Count of Propensity for tech- PT	30		
4	23	92	**Mean**	**2.7945205**
2	20	40		
0	0	0		
3	21	63		
1	9	9		
Grand Total	73	204		
Row Labels	Count of Propensity for tech- PT	30-55		
4	7	28	**Mean**	**2.4821429**
2	21	42		
0	1	0		
3	21	63		
1	6	6		
Grand Total	56	139		
Row Labels	Count of Propensity for tech- PT	55		
4	5	20	**Mean**	**2.0645161**
2	10	20		
0	0	0		
3	4	12		
1	12	12		
Grand Total	31	64		
Row Labels	Count of Propensity for tech- AM	Male		
4	3	12	**Mean**	
2	16	32		
0	32	0		
3	9	27		
1	17	17		
Grand Total	78	88		
Row Labels	Count of Propensity for tech- AM	Female		
4	45	180	**Mean**	**3.2560976**
2	7	14		
0	3	0		
3	23	69		
1	4	4		
Grand Total	82	267		
Row Labels	Count of Propensity for tech- AM	30		
4	23	92	**Mean**	**2.8630137**
2	12	24		
0	3	0		
3	29	87		
1	6	6		
Grand Total	73	209		
Row Labels	Count of Propensity for tech- AM	30-55		
4	26	104	**Mean**	**3.1428571**
2	3	6		
0	3	0		
3	21	63		
1	3	3		
Grand Total	56	176		
Row Labels	Count of Propensity for tech- AM	55		
4	20	80	**Mean**	**3.516129**
2	4	8		
0	0	0		
3	7	21		
1	0	0		
Grand Total	31	109		

Mean Calculation: Social Beliefs

	Others recommendation			
Row Labels	Count of Others' Recommendation - PT	Male		
4	9	36	Mean	2.58974
2	16	32		
0	3	0		
3	42	126		
1	8	8		
Grand Total	78	202		

	Status in Society			
Row Labels	Count of Status in Society- PT	Male		
4	6	24	Mean	1.525641
2	16	32		
0	23	0		
3	15	45		
1	18	18		
Grand Total	78	119		

Row Labels	Count of Others' Recommendation - PT	Female		
4	8	32	Mean	2.60976
2	20	40		
0	2	0		
3	45	135		
1	7	7		
Grand Total	82	214		

Row Labels	Count of Status in Society- PT	Female		
4	2	8	Mean	1.1585366
2	13	26		
0	28	0		
3	11	33		
1	28	28		
Grand Total	82	95		

Row Labels	Count of Others' Recommendation - PT	30		
4	8	32	Mean	2.61644
2	15	30		
0	1	0		
3	40	120		
1	9	9		
Grand Total	73	191		

Row Labels	Count of Status in Society- PT	30		
4	5	20	Mean	1.6438356
2	13	26		
0	21	0		
3	20	60		
1	14	14		
Grand Total	73	120		

Row Labels	Count of Others' Recommendation - PT	30-55		
4	7	28	Mean	2.67857
2	7	14		
0	4	0		
3	35	105		
1	3	3		
Grand Total	56	150		

Row Labels	Count of Status in Society- PT	30-55		
4	2	8	Mean	1.0892857
2	11	22		
0	22	0		
3	5	15		
1	16	16		
Grand Total	56	61		

Row Labels	Count of Travel & Overall satisfaction - PT	55		
4	2	8	Mean	2.41935
2	14	28		
0	0	0		
3	12	36		
1	3	3		
Grand Total	31	75		

Row Labels	Count of Status in Society- PT	55		
4	1	4	Mean	1.0645161
2	5	10		
0	8	0		
3	1	3		
1	16	16		
Grand Total	31	33		

Row Labels	Count of Others' Recommendation - AM	Male		
4	9	36	Mean	2.47436
2	17	34		
0	5	0		
3	38	114		
1	9	9		
Grand Total	78	193		

Row Labels	Count of Status in Society- AM	Male		
4	4	16	Mean	1.4358974
2	15	30		
0	21	0		
3	14	42		
1	24	24		
Grand Total	78	112		

Row Labels	Count of Others' Recommendation - AM	Female		
4	12	48	Mean	2.57317
2	20	40		
0	5	0		
3	39	117		
1	6	6		
Grand Total	82	211		

Row Labels	Count of Status in Society- AM	Female		
4	2	8	Mean	1.1463415
2	13	26		
0	27	0		
3	10	30		
1	30	30		
Grand Total	82	94		

Row Labels	Count of Others' Recommendation - AM	30		
4	8	32	Mean	2.41096
2	19	38		
0	4	0		
3	32	96		
1	10	10		
Grand Total	73	176		

Row Labels	Count of Status in Society- AM	30		
4	4	16	Mean	1.6164384
2	14	28		
0	19	0		
3	19	57		
1	17	17		
Grand Total	73	118		

Row Labels	Count of Others' Recommendation - AM	30-55		
4	11	44	Mean	2.82143
2	4	8		
0	5	0		
3	35	105		
1	1	1		
Grand Total	56	158		

Row Labels	Count of Status in Society- AM	30-55		
4	2	8	Mean	1.0714286
2	11	22		
0	21	0		
3	4	12		
1	18	18		
Grand Total	56	60		

Row Labels	Count of Others' Recommendation - AM	55		
4	2	8	Mean	2.25806
2	14	28		
0	1	0		
3	10	30		
1	4	4		
Grand Total	31	70		

Row Labels	Count of Others' Recommenda	55		
4	0	0	Mean	0.9032258
2	3	6		
0	8	0		
3	1	3		
1	19	19		
Grand Total	31	28		

	Seeing people use this mode		
Row Labels	Count of Seeing people use this mode - PT	Male	
4	7	28	**Mean 2.4103**
2	20	40	
0	7	0	
3	38	114	
1	6	6	
Grand Total	78	188	

	Cultural, social, family believes		
Row Labels	Count of Cultural, social, family believes - PT	Male	
4	4	16	**Mean 1.8462**
2	28	56	
0	8	0	
3	17	51	
1	21	21	
Grand Total	78	144	

Row Labels	Count of Seeing people use this mode - PT	Female	
4	5	20	**Mean 2.5366**
2	16	32	
0	5	0	
3	50	150	
1	6	6	
Grand Total	82	208	

Row Labels	Count of Cultural, social, family believes - PT	Female	
4	4	16	**Mean 2.0244**
2	35	70	
0	3	0	
3	20	60	
1	20	20	
Grand Total	82	166	

Row Labels	Count of Seeing people use this mode - PT	30	
4	6	24	**Mean 2.3014**
2	17	34	
0	8	0	
3	34	102	
1	8	8	
Grand Total	73	168	

Row Labels	Count of Cultural, social, family believes - PT	30	
4	3	12	**Mean 1.9863**
2	24	48	
0	7	0	
3	23	69	
1	16	16	
Grand Total	73	145	

Row Labels	Count of Seeing people use this mode - PT	30-55	
4	4	16	**Mean 2.625**
2	7	14	
0	4	0	
3	38	114	
1	3	3	
Grand Total	56	147	

Row Labels	Count of Cultural, social, family believes - PT	30-55	
4	3	12	**Mean 1.8929**
2	29	58	
0	4	0	
3	8	24	
1	12	12	
Grand Total	56	106	

Row Labels	Count of Status in Society- PT	55	
4	2	8	**Mean 2.6129**
2	12	24	
0	0	0	
3	16	48	
1	1	1	
Grand Total	31	81	

Row Labels	Count of Status in Society- PT	55	
4	2	8	**Mean 1.9032**
2	10	20	
0	0	0	
3	6	18	
1	13	13	
Grand Total	31	59	

Row Labels	Count of Seeing people use this mode - AM	Male	
4	8	32	**Mean 2.4744**
2	24	48	
0	7	0	
3	37	111	
1	2	2	
Grand Total	78	193	

Row Labels	Count of Cultural, social, family believes - AM	Male	
4	6	24	**Mean 1.8462**
2	27	54	
0	9	0	
3	15	45	
1	21	21	
Grand Total	78	144	

Row Labels	Count of Seeing people use this mode - AM	Female	
4	4	16	**Mean 2.5488**
2	17	34	
0	4	0	
3	51	153	
1	6	6	
Grand Total	82	209	

Row Labels	Count of Cultural, social, family believes - AM	Female	
4	3	12	**Mean 2**
2	38	76	
0	5	0	
3	20	60	
1	16	16	
Grand Total	82	164	

Row Labels	Count of Seeing people use this mode - AM	30	
4	9	36	**Mean 2.4658**
2	20	40	
0	6	0	
3	33	99	
1	5	5	
Grand Total	73	180	

Row Labels	Count of Cultural, social, family believes - AM	30	
4	6	24	**Mean 2.0411**
2	21	42	
0	7	0	
3	22	66	
1	17	17	
Grand Total	73	149	

Row Labels	Count of Seeing people use this mode - AM	30-55	
4	3	12	**Mean 2.6071**
2	8	16	
0	5	0	
3	39	117	
1	1	1	
Grand Total	56	146	

Row Labels	Count of Cultural, social, family believes - AM	30-55	
4	3	12	**Mean 1.8929**
2	34	68	
0	5	0	
3	6	18	
1	8	8	
Grand Total	56	106	

Row Labels	Count of Others' Recommendation - AM	55	
4	0	0	**Mean 2.4516**
2	13	26	
0	0	0	
3	16	48	
1	2	2	
Grand Total	31	76	

Row Labels	Count of Others' Recommendation - AM	55	
4	0	0	**Mean 1.7097**
2	10	20	
0	2	0	
3	7	21	
1	12	12	
Grand Total	31	53	