



MEKELLE UNIVERSITY | EIT-M

School of Architecture and Urban Planning

Postgraduate Program in Urban Planning and Development

An Assessment of Neighborhood Residents' Satisfaction with Urban Livability and Its Determinants in Mekelle City, Northern Ethiopia

By: Kibrom Tsegay

A thesis submitted to Mekelle University, School of Architecture and Urban Planning, Chair of Urban planning, in partial fulfillment of the requirements for the degree of Master of Science in Urban Planning and development study.

Advisor: Giday Desta Negash (PhD)

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Mekelle, Ethiopia

DECLARATION

This thesis is my original work and has not been presented for a degree in any other university, and all sources of materials used for the thesis have been duly acknowledged.

Declared by:

Name: Kibrom Tsegay

Signature: _____

Date: _____

This thesis has been submitted for examination with my approval as a university advisor.

Name: Giday Desta Negash (PhD)

Signature: _____

Date: _____

CERTIFICATE

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Title of thesis:

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Candidate:

Date: July 2025


Approval Board


Advisor: Giday Desta Negash (PhD)

Signature  Date _____

Chairperson: Teweldebirhan Fisehatsion

Signature  Date _____

Internal Examiner: Zemenes Gashaw (PhD) Signature  Date _____

External Examiner: Kesate Estelil (Dr) Signature  Date 21-12-2025



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ABBREVIATIONS

- ANOVA- Analysis of Variance
- CSA- Central Statistical Agency
- M-Mean
- QoL- Quality of life
- Std. D - Standard deviation
- VIF-Variance Inflation Factor

ABSTRACT

The increasing rate of urbanization and its impact on urban and regional settings are a major concern for Ethiopian cities. Urban livability is a multidimensional concept influenced by economic vitality, environmental quality, infrastructure, housing, and social cohesion. assessments of livability to inform equitable recovery and urban planning. The study aimed to assess neighborhood residents' satisfaction with urban livability in selected sub-cities of Mekelle, Ethiopia. A mixed-methods approach was employed using structured questionnaires administered to 384 household respondents. Quantitative data were analyzed using descriptive statistics, Chi-square tests, ANOVA, and multiple linear regressions. The study measured satisfaction across seven urban livability dimensions: economic vitality, environmental sustainability, socio-cultural amenities, public facilities, transportation, security, and housing. Findings revealed moderate satisfaction in most domains, with economic vitality ($M = 2.98$) and housing ($M = 3.14$) scoring relatively well. Environmental sustainability ($M = 2.53$) and urban security ($M = 2.29$) received the lowest satisfaction ratings, signaling significant concern. Regression analysis showed that economic vitality ($\beta = 0.385$, $p < 0.001$) and transportation infrastructure ($\beta = 0.311$, $p < 0.001$) had the strongest influence on overall satisfaction. Sociocultural cohesion and access to public facilities were also significant predictors. Age group, education level, marital status, income, and family size were statistically associated with satisfaction levels ($p < 0.001$). Residents aged 46–55 reported the highest satisfaction across most variables, likely reflecting better economic integration and housing access. The study underscores the importance of integrated urban planning, particularly in addressing environmental degradation, safety, and inclusive service provision in post-conflict settings. Policymakers should prioritize economic development, improve housing affordability, and strengthen environmental and security frameworks to enhance urban resilience and resident well-being in Mekelle.

Keywords: *Urban livability, and resident satisfaction*

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CHAPTER ONE

1. INTRODUCTION

1.1. Background of Study

'The hope of a secure and livable world lies with disciplined nonconformists who are dedicated to justice, peace and brotherhood'. -Martin Luther King, Jr.

According (NH-Habitat, 2016) Currently, more than 54 percent of the world's inhabitants are living in urban regions. This implies that, by 2050, 68 percent of the world's inhabitants are expected to be urban, with nearly 90 percent of this growth will occur in Asia and Africa. Consequently, unless managed well it can often lead to a serious negative environmental and socioeconomic issues such as urban heat islands, air pollution, traffic congestion, decreases of green spaces, habitat losses, inadequate infrastructure and services, and inefficient resource utilization ((Berhanu, 2019).

According (Berhanu, 2019) Ethiopia is the second-most populous country in Africa that has been experiencing a rapid urbanization process to stimulate national economic growth. However, as is observed in numerous developing countries, the intensified constraints, following the fast urbanization processes in the country, are unplanned and uncontrolled, resulting in scattered urban growth, loss of farmland, and environmental degradation. In addition, the urban physical growth rate has been faster than the rise in infrastructures and service delivery in Ethiopian cities. So, to control and manage such moves, it needs to plan and design the urban environments and the aim of planning and designing of neighborhoods is to offer livable settings to its residents (Pandey et al., 2014a). Therefore, livability has become an important element of focus by urban planners, and governments at all levels (Pandey et al., 2013). With rapid urban growth, good quality of life (QoL) for the public has become a challenging task. Livability assessments and QoL are often interrelated, and improvement in livability assessment can result in better QoL (Grieve and Weinspach, 2010). The imperative need for assessing livability has also increased, which will help in ensuring long-term development plans for the city's planning and management in a sustainable manner (Yin, 2009). The concept of livability entails wider aspects of quality of life, accessibility to facilities, neighborhood design, safety and security and satisfaction. This study aims for quantification of perceived livability through five main

attributes, i.e., social, economic, cultural, environmental, and infrastructure. This study tries to better understand the multifaceted and multidimensional phenomena of livability through these selected attributes. This paper tries to measure the perceived livability satisfaction level and its determinants for Mekelle city so that the same or modified methodology can be adopted in the future for other cities' livability.

1.2. Statement of the Problem

Livability has become an emerging issue that needs to be addressed critically, especially in the context of developing countries, where the standard of life is meager in low- and middle-income neighborhoods (Pandey et al. 2014a). Research studies have been done on the assessment of the residents' livability satisfaction level in developed countries; however, limited studies were found in the African context. As livability is highly qualitative in nature, therefore, its acceptance may differ with the geographical area. The standard of living and lifestyle may vary with culture and norms of an area, which can lead to differences in expectations and demands for services standards and infrastructure.

The in-depth review of both academic and grey literature depicts similarities with minor differences in measuring the livability. Previous studies have used subjective or objective indicators within the various dimensions and different methodologies to measure livability. In most cases, the selection of indicators varied with the area and nature of the study. This study measures satisfaction regarding livability in a Mekelle city through the lens of economy, cultural, environmental, social, infrastructural, and housing attributes.

1.3. Objectives of the Study

1.3.1 Main Objective

The main objective of this study is to assess the level of neighborhood residents' satisfaction with urban livability and its key determinants in Mekelle City, Northern Ethiopia.

1.3.2 Specific Objectives

To achieve the main objective, the study aims to:

1. Examine the overall satisfaction level of neighborhood residents regarding urban livability in Mekelle City.
2. Identify key determinants influencing residents' satisfaction with urban livability (e.g., housing, infrastructure, safety, environmental quality, and social services).

3. Compare levels of livability satisfaction across different neighborhoods (kebeles) within Mekelle City.
4. Assess the role of socio-demographic factors (such as age, gender, income, education) in shaping perceptions of livability

1.4. Research Questions

Based on the specific objectives, here are the corresponding research questions:

1. What is the overall level of satisfaction among neighborhood residents regarding urban livability in Mekelle City?
2. What are the key determinants that influence residents' satisfaction with urban livability in the study area?
3. How do levels of urban livability satisfaction vary across different neighborhoods (kebeles) in Mekelle City?
4. How do socio-demographic characteristics such as age, gender, income, education, and occupation affect residents' perceptions of urban livability?

1.5. Significant of the Study

Understanding the satisfaction level of neighborhood residents with urban livability is vital for guiding sustainable urban planning and policymaking. This study offers both theoretical and practical significance.

Theoretically, it contributes to the existing body of literature by integrating urban livability concepts with resident satisfaction in the context of a rapidly urbanizing city in the Global South. While numerous studies have examined livability in developed countries, limited empirical research has focused on Ethiopian cities, particularly Mekelle. This study fills this gap by identifying key determinants that shape urban livability perceptions at the neighborhood level.

Practically, the findings will provide valuable insights for urban planners, policymakers, and local authorities. By identifying the factors that most significantly affect residents' satisfaction such as housing quality, access to public services, safety, green spaces, and social cohesion this study can inform targeted interventions aimed at improving urban living conditions. This is especially important in the context of Mekelle City, where rapid urban growth, resource constraints, and post-conflict reconstruction efforts have challenged the quality of urban life.

Moreover, the study's results can be used as a benchmarking tool for evaluating the performance of neighborhood-level urban policies and for developing resident-centered planning strategies. Civil society organizations, researchers, and other stakeholders will also benefit from the evidence generated, fostering more inclusive, equitable, and sustainable urban development.

Ultimately, this research aims to promote a better understanding of how urban environments influence residents' well-being and to support the creation of livable cities that meet the needs of all residents.

1.6. Scope of the Study

This study focuses specifically on an assessment of neighborhood residents' satisfaction with urban livability and its determinants in Mekelle city, northern Ethiopia. The **Spatial scope** of the study was confined to in context of developing countries specifically to Mekelle city. Furthermore, the study was conducted in 2025.

1.7. Thesis Structure

This thesis is organized into five main chapters. The first chapter is introduction which includes background of the study, statement of the problem, objective, research question, scope of the study, and significance of the study. The second chapter is on literature review. Different papers and journals are reviewed to determine the state of scientific knowledge regarding sustainable smart city development. The third chapter deals with the methodological approaches pursued to gather manage and analyze data. Results and discussion are in the fourth chapter. The conclusion and recommendation part, which is the fifth chapter deals with the researcher conclusion on the overall analysis and result and researcher recommendations

CHAPTER TWO

2. REVIEW OF LITERATURE

2.1. Introduction

Urban livability, a multifaceted concept encompassing environmental, social, and economic dimensions, significantly impacts the quality of life for neighborhood residents. Assessing residents' satisfaction with urban livability is critical for urban planning and policy-making; ensuring cities meet the needs and preferences of their inhabitants.

Neighborhood residents' satisfaction with urban livability is a multifaceted concept influenced by various factors. A comprehensive review of both theoretical underpinnings and empirical studies is essential to understand the determinants of this satisfaction, which can then inform urban planning and policymaking.

Understanding the determinants of this satisfaction allows for targeted interventions to improve urban environments and enhance the well-being of communities. This literature review aims to explore the theoretical and empirical underpinnings of urban livability and its determinants, focusing on aspects relevant to a case study in Mekelle City, Northern Ethiopia.

2.2. Theoretical Framework

The concept of urban livability is rooted in theories of urban planning, environmental psychology, and sociology. From an urban planning perspective, livability is often associated with the availability of amenities, infrastructure, and services (Lehrer et al., 2021). Theories of environmental psychology emphasize the importance of the physical environment on residents' well-being, focusing on factors such as noise (Lehrer et al., 2021), air quality, and access to green spaces. Sociological perspectives highlight the role of social cohesion, safety, and community engagement in shaping residents' perceptions of livability (Al-Rashid et al., 2023).

1. Defining Urban Livability

Urban livability is often defined by a collection of factors that contribute to the overall quality of life in an urban setting. These factors typically include:

- **Environmental Quality:** Clean air and water, green spaces, and effective waste management (Keighley et al., 2018).
- **Social Cohesion:** Strong community bonds, safety, and access to social services.

- Economic Opportunity: Employment availability, affordable housing, and access to goods and services.
- Infrastructure: Reliable transportation, utilities, and public amenities.

II. Theoretical Models of Satisfaction

Several theoretical models help explain how individuals perceive and evaluate their satisfaction with urban livability. Key models include:

- Needs-Based Theory: This theory suggests that satisfaction arises when basic needs are met (Song et al., 2013). In an urban context, this includes adequate housing, safety, and essential services.
- Expectancy Theory: Satisfaction is determined by the extent to which an individual's expectations are met or exceeded. Residents evaluate their living environment based on what they anticipate and deem acceptable.
- Social Comparison Theory: Individuals assess their satisfaction by comparing their circumstances with those of others in their reference group. Relative deprivation or advantage can significantly influence satisfaction levels.

2.3. Empirical Evidence

Empirical studies have identified a range of determinants influencing residents' satisfaction with urban livability. These factors can be broadly grouped into environmental, social, and economic dimensions.

I. Environmental Factors:

- Green Infrastructure and Natural Elements: Studies indicate that access to green spaces, parks, and natural elements positively correlates with residents' satisfaction (Lehrer et al., 2021). The presence of nature-based green infrastructure projects in urban areas provides benefits to humans. These benefits, however, depend on the habitat requirements of a species and the spatial context of that habitat within the landscape.
- Noise Pollution: Noise pollution is a significant negative factor affecting urban livability (Lehrer et al., 2021). High noise levels can lead to decreased satisfaction and overall well-being.

- **Environmental Hazards:** The risk of natural disasters such as rainstorm-induced landslides can significantly impact residents' perceptions of safety and livability (Liu et al., 2021). Implementing early warning systems based on factors like groundwater level changes is crucial in mountainous cities to mitigate these impacts (Liu et al., 2021).

II. Social Factors:

- **Social Inclusion and Mobility:** Perceived norms related to public transport use can influence social exclusion among vulnerable groups like older adults, which in turn affects their satisfaction with urban livability (Al-Rashid et al., 2023). Addressing mobility inequalities is vital for promoting social sustainability (Al-Rashid et al., 2023).
- **Safety and Security:** Residents' perceptions of safety and security are crucial determinants of urban livability. Factors such as crime rates, lighting, and visible security measures can influence these perceptions.

III. Economic Factors:

- **Housing Affordability:** The availability of affordable housing is a key component of urban livability. High housing costs can lead to financial stress and dissatisfaction among residents.
- **Access to Employment:** Proximity to employment opportunities and the ease of commuting influence residents' satisfaction with their neighborhoods.

2.4. Livability Revisited

Livability is considered as 'quality of life' of the inhabitants within an area, i.e. city or region (Okulicz-Kozaryn 2013). Livability is a crucial element of urban environment characteristics that affect the attractiveness of a place, but still, there is no definite definition in literature to describe the whole concept (Zhan et al. 2018). Livable means many things to different people and experts. It is a concept that people seem to recognize but is difficult to define in a manner that everyone understands (Balsas, 2010). Sometimes, the livability concept is also referred to as quality of life and includes the objective living environment with subjective experience of livability (Wei and Chiu 2018). Okulicz-Kozaryn and Valente (2019) claimed that livability is a complex issue and cannot be measured because of innumerable factors, but only subjective well-being can be measured. Consequently, the concept of livability has become a complex and multifaceted phenomenon. It includes good governance, economic revitalization, environmental quality, the standard of living, cultural vitality, justice and adequacy of infrastructural facilities. In terms of

quality of life, it can also include access to food, shelter, and security, and sense of belonging (Okulicz-Kozaryn 2013). ‘Mercer Worldwide Quality of Living Survey’ and ‘The World’s Most Liveable Cities’ has used different criteria, such as access to education, healthcare, housing, public services, recreation, safety and environmental quality (Mercer 2018; The Economist Intelligence Unit (EIU) 2018; Barrette 2015). Zhan et al. (2018) claimed that urban livability and its determinants are beneficial to incorporate in the development of cities. Planners and policymakers consider livability as a guiding principle for the investment and decision-making that shapes the urban environment (Ruth and Franklin 2014). Nowadays, various factors like civil society, local businesses, and local and state governments are working towards maintaining and improving the city’s degree of livability (Kaal 2011). Livability can strengthen urban sustainability and help in executing development plans effectively (Godschalk 2017). Hence, urban livability assessment is a useful tool in order to answer the question of “who gets what, where and how” (Saitluanga 2014). Numerous research studies have tried to measure perceived livability in the Global North. Li analyzed the factors which were responsible for perceived livability of foreign-born and native-born U.S. Residents (Li 2012). Using data from the American Housing Survey, the study summarized the amenities and satisfaction into categories such as infrastructure and physical attributes, safety, business accessibility, public services, and neighborhood housing. Analysis revealed that satisfaction with public transportation was negatively related to perceived neighborhood livability. In contrast, favorable amenities, such as proximity to open space and bodies of water proved to be positively related to perceived neighborhood livability. Okulicz-Kozaryn (2013) investigated relationship between the Mercer city ranking scale and primary data on livability.

The study compared quality of life with resident’s satisfaction. In another study, Okulicz-Kozaryn and Valente (2019) measured the subjective well-being and livability across European cities. This study found that Mercer city livability rankings and subjective well-being rankings were very different. For example, Zagreb ranked lower than Athens in city livability, but it had higher subjective well-being ranking. This implies that there is no direct link between actual livability statistics and perceived livability.

2.5. Significance of livability research in urban studies

Livability is a holistic paradigm (Jomehpour, 2015), as it reveals its significance for community wellbeing (Tilaki et al., 2014) and human development (Wyatt, 2009). Its extent includes many

complex characteristics, urban patterns and forms (Bardhan et al., 2011). Livability also comprehends wide-ranging community desires to improve the overall Quality of Life (QoL) (Farber et al., 2016) and considers people's needs for public amenities (Kennedy & Buys, 2009). Arrive at a gamut of livability studies, researchers have been identified various livability dimensions. On the one hand, Kevin Lynch emphasized five elements of livability namely vitality, sense, fit, access and control (Knox & Pinch, 2010). On the other hand, Douglass identified four pillars of livability (Uysal, Perdue, & Sirgy, 2012) i.e. direct investment in talent, access to work, safe environment and good governance. In most of the cases, researchers have established a range of livability dimensions based on their own views and the outcome of the experience drawn from the variety of research setups.

2.6. Assessment of livability

Firstly, Li and Weng (2007) carried out research to evaluate livability in Indianapolis, United States (Li & Weng, 2007) based on open spaces, population density, income, employment rate, education level and housing density. Secondly, Woolcock (2009) has conducted extensive research on livability among various Australian cities to understand the research gap between the livability literature and its variables (Woolcock, 2009). It has identified healthcare, culture, education, infrastructure, public services, transportation, recreation and housing as major variables to assess livability. Thirdly, C. Owens (2009) has evaluated livability potential within Greater Vancouver. (Owens, 2009). The findings suggested that economic opportunities are a crucial variable in shaping the overall wellbeing. Lastly, M. Jomehpour (2015) has accompanied livability research and identified transportation options, health cares, security as major parameters to evaluate community livability (Jomehpour, 2015).

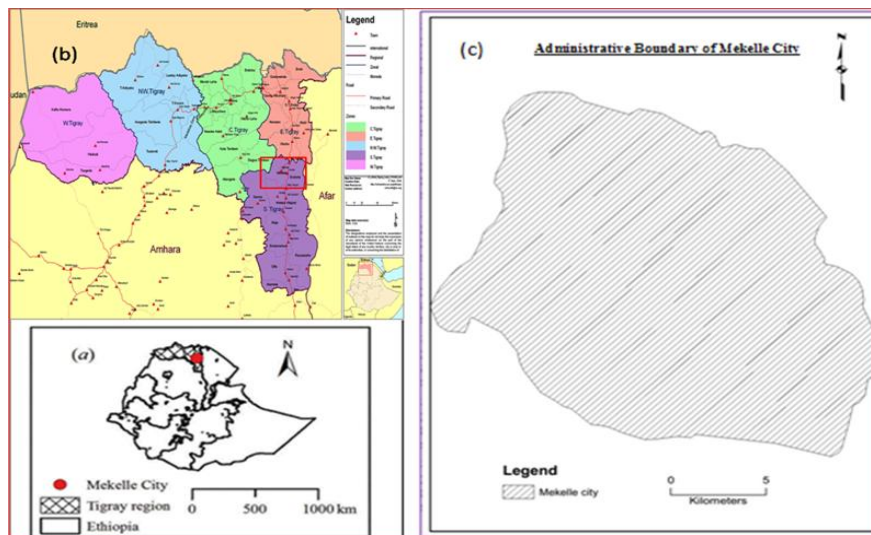
CHAPTER THREE

3. METHODOLOGY

3.1. Study Area

The research will be conducted in Mekelle City, the capital of Tigray National Regional State, located in Northern Ethiopia. Mekelle City served as the national capital during the prominent Emperor Yohannes IV between 1872 -1888. Mekelle is one of the fastest growing and the second largest city next to the capital, Addis Ababa. The area is of great historical interest, serving as the gateway to the World Heritage Sites of Aksum and its rock-hewn churches. Based on population and housing census results obtained from the Ethiopian central statistical agency report, the total population of Mekelle city was 54,766 in 1984, 96,140 in 1994 and 215,914 in 2007 (CSA, 2010) and projected to reach 506,000 in 2025 (United Nations Population Division, 2014). The city is located at about 780 km north of Addis Ababa between 13° 25'24" and 13° 33' 44" N and 39° 25' 26" and 39° 33' 14" E. Its altitude ranges from 1930 to 2353 m above mean sea level.

Figure 1 Location Map



Source: Researcher work, 2025

Location map of the study area (a) country map including Mekelle city and Tigray region, (b) Regional Map including zonal city and Mekelle city, and (c) Mekelle city

The city lies within a tropical savannah climatic zone, a mean minimum, mean maximum and mean average monthly temperatures of 8.7°C, 26.8°C and 17.6°C, respectively. The average

amount of rainfall (just over 700mm/year), and more than 70 percent of it falls during the wet season (June–September) (Kibrom, 2005). Administratively, Mekelle is considered as a special zone, which represented in Figure 1(c).

3.2. Study Design

This study employed a descriptive cross sectional survey design to assess urban livability satisfaction across various dimensions in Mekelle City. The design facilitated the collection and analysis of both quantitative and qualitative data to understand perceptions, demographic factors, and livability indicators.

3.3. Research Approach

A mixed-methods approach was used, combining quantitative analysis (e.g., Likert-scale scores and statistical tests) with qualitative interpretations drawn from the socio-economic context of respondents. The quantitative component was dominant, supported by qualitative insights for explanatory depth.

3.4. Selection of Components and Variables for Livability Satisfaction Level

Cities across the world have been emphasizing their livability scores to attract people, which requires selection of factors influencing city well-being (Lee and Kim 2018). Sung and Phillips (2018) used concepts of community well-being and quality of life and explains that the indicators of measuring well-being can be used to develop a tool to gauge community well-being. By reviewing the literature on variables that affect the neighborhood livability satisfaction, this research study was considered the five components of residential livability satisfaction, each having three variables (1) cultural attributes; (2) environmental attributes; (3) social attributes; (4) infrastructural attributes; (5) economic attributes. (6) security and (7) Transport

The questionnaire included the basic demographic profile of respondents, and perception-based questions was asking on the Likert scale. The 5-point Likert scale-based questions were arranged for finding the residents perceptions about livability attributes from 1 = not at all satisfied, to 5 = extremely satisfied (Pandey et al. 2014a); Mahmoudi et al. 2015; Pampanga et al. 2015).

3.5. Data Sources and Collection

The study employed both primary and secondary data sources to ensure a comprehensive understanding of urban livability in Mekelle. Primary data were collected through structured household surveys administered to 384 respondents across three sub-cities of Mekelle. These surveys captured firsthand information on residents' satisfaction with various aspects of urban life, including housing, transportation, environmental quality, and socio-cultural amenities. Secondary data were gathered from credible sources such as UN-Habitat reports, World Bank publications, national statistical databases, and scholarly urban studies literature. These secondary sources provided contextual support, theoretical grounding, and comparative benchmarks for interpreting the primary findings.

The self-administered questionnaires were divided into two parts. Part „A“ contains the demographic information, which was sought to represent the characteristics of the respondents. Part „B“ includes questions regarding the six dimensions of smart city and one dependent variable using a 5-point Likert Scale that is from (1) „very low“ to (5) „very high“. Moreover, a pilot study was conducted for testing effectiveness to justify the final questionnaire by experts.

3.6. Sampling Techniques and Sample Size

The target population includes household heads or adult residents living in selected neighborhoods (kebelles) of Mekelle City. Key informants such as urban planners, municipal officials, and community leaders were also consulted.

Sampling Technique: Stratified random sampling was used to ensure representation across different kebelles based on population density, socio-economic status, and infrastructure level.

The determination of the sample size adhered to the Cochran formula (1963), calibrated to ensure a 5% margin of error and a confidence level of 95%, thereby ensuring statistical rigor and reliability in the data collection process.

$$n_0 = \frac{Z^2 p(1-p)}{e^2} = n_0 = \frac{Z^2 PQ}{e^2} = \frac{(1.96)^2 * 0.5 * 0.5}{(0.05)^2} = 384$$

where "Z" is form Z-value, "Q" is the sample size, "P" is the population's proportion, and "e" is the margin of error.

So, total 384 families were used for the study. This sampling strategy guaranteed statistical rigor and reliability in the data collection procedure.

3.7. Methods of Data Analysis

The study employed both descriptive and inferential statistical techniques to analyze the collected data. Descriptive statistics, including means, standard deviations, and frequencies, were used to summarize and interpret respondents' satisfaction levels across various urban livability dimensions. For inferential analysis, a series of statistical tests were conducted to explore relationships and group differences. Chi-square tests assessed the association between socio-demographic characteristics (such as age, sex, education, and marital status) and levels of satisfaction. Analysis of Variance (ANOVA) was applied to assess the effects of socio-economic and infrastructure variables on household satisfaction; complemented by Tukey post hoc tests, was utilized to examine statistically significant differences in satisfaction across age and income groups. Furthermore, multiple linear regression analysis was performed to identify the most influential predictors of overall satisfaction. To ensure the robustness of the regression model, collinearity diagnostics using Tolerance and Variance Inflation Factor (VIF) were carried out, confirming the absence of multicollinearity among the independent variables.

Furthermore, to answer the first research question the extent of respondents perceived level of satisfaction the researcher make use of He's (2012) cut-off points for a 5-point Likert scale data (calculated as $(5-1)/5=0.8$). The range of the mean score for each level of agreement and their representative interpretation is described in table 3.1 that follows.

Table 3.1: Range, level of agreement and Interpretation of mean score Value

Range of Means	Level of Agreement	Interpretation
4.21-5.00	Very high	Very high extent
3.41-4.20	High	High extent
2.61-3.40	Moderately	Moderate extent
1.81-2.60	Low	Low extent
1.00-1.80	Very Low	Very Low extent

Source: (He, 2012),

The survey was initially pilot-tested and then revised based on the feedback from the pilot. We did not offer money or other incentives to participants in the survey. For survey questionnaire both close-ended and open-ended questionnaires were developed based on factors obtained from literature and considering the context of the study.

3.8. Reliability and Validity

To ensure the credibility of the findings, both reliability and validity measures were rigorously applied. Reliability was maintained through the pre-testing of the questionnaire and the use of standardized, clearly formulated items. Internal consistency was evident in the coherent response patterns across satisfaction dimensions and reinforced by the strength of the regression model ($R^2 = 0.648$), indicating dependable measurement. Regarding validity, multiple forms were addressed. Content validity was ensured by aligning survey items with established urban livability literature and through expert consultation. Construct validity was demonstrated by the regression model's explanatory power and the statistically significant relationships identified through chi-square and ANOVA tests. Lastly, statistical validity was confirmed using an adequate sample size ($n = 384$), rigorous significance testing ($p < 0.05$), and robust diagnostics such as low Variance Inflation Factor (VIF) scores, which indicated no multicollinearity problems among predictors.

3.9. Ethical Considerations

The study adhered to established ethical research standards to ensure the rights and dignity of participants were protected throughout the data collection process. Voluntary participation was emphasized, with all respondents being fully informed about the purpose of the study and given the freedom to decline participation without any consequence. Confidentiality was strictly maintained by anonymizing participants' identities and presenting the data in aggregate form, thus preventing any individual from being identified. Moreover, informed consent was obtained from each respondent either verbally or in writing prior to the commencement of the survey, ensuring that participation was both voluntary and based on a clear understanding of the study's objectives.

CHAPTER FOUR

4. RESULTS AND DISCUSSION

4.1. Socio Demographic Characteristics

Understanding the socio-demographic characteristics of the respondents is essential for interpreting satisfaction levels regarding urban livability. As shown in the data, the majority of respondents were male (79.9%), and 54.4% were aged between 36–45, with an additional 27.1% aged 46–55. This indicates that the study predominantly reflects the views of working-age adults, who are typically most active in the labor market, housing decisions, and community engagement. According to Dempsey et al. (2011), this age group often has the highest expectations for urban services, infrastructure, and employment opportunities, which could explain moderate satisfaction scores across economic vitality and housing dimensions.

Table 4.2: General Information of the respondents

Parameters	Variables	Frequency	Percent
Sex	Male	307	79.9
	Female	77	20.1
Age	26-35	45	11.7
	36-45	209	54.4
	46-55	104	27.1
	56-65	26	6.8
Level of education	Uneducated	33	8.6
	Elementary	75	19.5
	Secondary	58	15.1
	Higher Secondary	25	6.5
	Graduate	193	50.3
Marital status	single	96	25.0
	married	260	67.7
	divorced	22	5.7

	widowed	6	1.6
Family size	Single	63	16.4
	2	19	4.9
	3-5	144	37.5
	6-10	112	29.2
	>10	46	11.9
Housing Tenure	Owned	262	68.2
	Rented	122	31.8
Monthly Household Income	< 8700/month	41	10.67
	8701-15,000/month	98	25.53
	> 15000	245	63.80

Source: Primary data, 2025

Income distribution shows that 63.8% of households earn above 15,000 ETB per month, suggesting a relatively stable economic base. However, around 36.2% of respondents earn less than 15,000 ETB, with 10.7% earning below 8,700 ETB/month. This variation in income levels may explain the moderate satisfaction with economic vitality and cost of living, as income inequality can significantly influence perceived affordability, quality of life, and access to amenities. According to Todaro and Smith (2020), even in growing economies, a high Gini coefficient can dampen overall satisfaction by limiting equitable access to urban opportunities.

In terms of education, a substantial portion of respondents (50.3%) were graduates, followed by 19.5% with elementary education and smaller shares at secondary and higher secondary levels. Educational attainment strongly correlates with residents' awareness of urban rights and their expectations for public services (Marans & Stimson, 2011). Highly educated respondents are more likely to critically assess the adequacy of infrastructure, green space, housing quality, and environmental health. This may help explain why some sectors, like environmental sustainability and urban security, were rated low despite basic access respondents are likely applying higher evaluative standards.

Regarding marital status, most respondents were married (67.7%), and the average household size ranged primarily between 3 to 5 (37.5%) and 6 to 10 members (29.2%). Larger households

place higher demand on public facilities, transportation, and housing space, which may contribute to moderate satisfaction levels in these domains. The perception of urban livability is often shaped by how well cities accommodate multi-person households in terms of housing affordability, recreational spaces, and access to healthcare and education (UN-Habitat, 2020).

Housing tenure also provides a useful lens for interpreting satisfaction. The majority (68.2%) of respondents owned their homes, while 31.8% were renters. Homeowners tend to report higher satisfaction with neighborhood services due to greater stability, long-term investment in local environments, and stronger community ties (OECD, 2020). However, renters may be more affected by fluctuations in affordability and insecurity in tenure, potentially contributing to lower satisfaction in areas such as housing and neighborhood convenience.

4.2. Overall Satisfaction of Neighborhood Residents' Satisfaction with Urban Livability

Respondents indicated a moderate level of satisfaction (M = 2.98, Moderate extent) with economic vitality and opportunities. This suggests that while there is some access to jobs and income-generating activities, there may still be gaps in employment opportunities, local investment, or economic inclusivity. According to Pacione (2003), economic vitality is a critical element in promoting urban quality of life, and moderate satisfaction here signals room for improvement in income distribution and local business support mechanisms.

Environmental sustainability received a low satisfaction score (M = 2.53, Low extent), indicating concerns regarding pollution, green space availability, waste management, or ecological planning. Urban environments in developing countries often struggle with these issues due to rapid urbanization and weak enforcement of environmental regulations (UN-Habitat, 2020). This finding implies an urgent need for better urban environmental management and sustainable land-use practices.

Table 4. 3: Overall Level of Satisfaction

	Dimensions	N	Mean (M)	
			Score Value	Interpretation
1	Economic Vitality /opportunities	384	2.98	Moderate extent
2	Environmental Sustainability	384	2.53	Low extent
3	Socio-cultural amenities	384	3.35	Moderate extent

4	Neighborhood Convenience of public facilities	384	2.86	Moderate extent
5	Convenient Transportation	384	2.53	Low extent
6	Urban security	384	2.29	Low extent
7	Housing	384	3.14	Moderate extent

Source: primary data, 2025

Socio-Cultural Amenities dimension had the highest mean score ($M = 3.35$, Moderate extent), indicating that residents are relatively more satisfied with socio-cultural infrastructure such as recreational spaces, cultural centers, and social cohesion. A well-integrated social environment fosters community identity and inclusivity (Dempsey et al., 2011). However, the moderate extent still suggests potential improvements in diversity, accessibility, and affordability of such amenities.

The score indicates moderate satisfaction ($M = 2.86$, Moderate extent) level with public services like water, electricity, education, and health facilities. While access may be available, issues such as quality, consistency, and distance may reduce satisfaction. Previous studies show that access to quality public services directly affects urban well-being (Marans & Stimson, 2011).

The mean score of 2.53 under the dimension of Convenient Transportation reflects a low level of satisfaction among urban residents regarding the accessibility, efficiency, affordability, and quality of transport services in the study area. Low satisfaction with transportation suggests challenges in infrastructure, affordability, or connectivity of transport networks. Efficient public transport is vital for equitable access to jobs, education, and services (Litman, 2011). Poor transportation infrastructure is a common urban challenge in Ethiopia and other low-income countries.

Security received the lowest mean score ($M = 2.29$, Low extent), highlighting significant concerns about crime, safety, or emergency response. Security is a foundational element of livability, influencing investment, social trust, and daily life (UN-Habitat, 2020). This implies that enhancing community policing, lighting, and surveillance could be priority areas.

Housing scored moderately ($M = 3.14$, Moderate extent), indicating partial satisfaction with factors such as affordability, quality, and availability. The result aligns with urban studies indicating that while housing access has improved, quality and affordability remain critical (Tipple & Speak, 2009).

Overall, the findings indicate that most urban livability dimensions were rated as moderate, with notable deficiencies in environmental sustainability, transportation, and urban security. These areas should be prioritized in urban planning interventions. The insights align with global urban livability research and highlight the multifaceted nature of satisfaction in urban areas.

4.3. Economic Vitality/Opportunities

The analysis of residents’ satisfaction with economic vitality reveals a generally moderate level of contentment with several important dimensions. Employment opportunities received a mean score of 3.30, indicating moderate satisfaction, though the unusually high standard deviation (SD = 5.422) suggests significant disparities across neighborhoods or social groups. Such variation likely reflects uneven access to jobs, aligning with UN-Habitat’s (2020) observation that spatial mismatch and skill gaps are common in developing cities. Similarly, the satisfaction with household income compared to basic needs (M = 2.96, SD = 1.460) suggests that while basic consumption is met, families may still struggle with essential non-food expenses like health, education, or housing. This is consistent with Todaro and Smith’s (2020) argument that economic vulnerability persists even when income is marginally above subsistence level. Furthermore, the cost of living relative to income (M = 2.68, SD = 1.442) signals financial pressure on urban residents, reflecting concerns about urban affordability. As Marans and Stimson (2011) note, a disconnect between rising living costs and stagnant income levels can significantly reduce urban quality of life.

Table 4. 4: Level Satisfaction of Neighborhood Residents’ Satisfaction with respect ‘Economic Vitality/opportunities’

	Items	N	Mean (M)		
			Score Value	Std. Deviation	Interpretation
1	Employment opportunities	384	3.30	5.422	Moderate extent
2	Household income vs to basic needs	384	2.96	1.460	Moderate extent
3	Cost or expenditure of living relative to income	384	2.68	1.442	Moderate extent
4	Support for local businesses and entrepreneurship	384	2.57	1.352	Low extent
5	Distance to work	384	3.07	1.185	Moderate extent
6	Encourage e-business practices/Digital connectivity (wi-fi, smart city tech)	384	3.32	1.436	Moderate extent

Source: primary data, 2025

Among the economic indicators, the lowest satisfaction was recorded in support for local businesses and entrepreneurship ($M = 2.57$), highlighting a perceived lack of institutional backing, access to credit, or entrepreneurial services. This is a critical concern, as local enterprise is foundational for inclusive and resilient urban economies (OECD, 2020). Meanwhile, the distance to work ($M = 3.07$) received a moderately positive response, suggesting that most residents are not severely burdened by commuting distance, though this should be interpreted considering transportation infrastructure concerns highlighted in prior findings (Table 4.4). The highest satisfaction was associated with encouragement of e-business and digital connectivity ($M = 3.32$), reflecting growing optimism about the role of internet access, smart city technologies, and mobile platforms in enhancing economic participation. However, as the World Bank (2022) emphasizes, ensuring inclusivity in digital infrastructure remains essential for equitable urban development. Overall, while residents express moderate satisfaction with various aspects of economic vitality, persistent gaps in affordability, entrepreneurial support, and employment equity demand targeted policy interventions.

4.4. Environmental Sustainability

Table 4. 5: Neighborhood Residents’ Satisfaction with respect ‘Environmental Sustainability’

	Items	N	Mean (M)		
			Score Value	Std. Deviation	Interpretation
1	Clean air and low pollution levels (Air pollution	384	3.21	1.112	Moderate extent
2	Availability green spaces (parks and play grounds)	384	2.42	1.206	Low extent
3	Maintenance of public parks	384	1.99	1.031	Low extent
4	Availability of garbage collection service	384	2.73	1.162	
5	Sustainable resource management	384	2.26	1.152	Low extent
6	Incorporating green technologies in the transformation of urban space	384	2.12	.987	Low extent
	Cleanliness of city	384	3.07	3.023	Moderate extent
	Waste pollution (Solid and liquid)	384	2.48	1.131	Low extent

Source: primary data, 2025

The assessment of residents’ satisfaction with environmental sustainability reveals generally low levels of satisfaction, with only a few dimensions rated at a moderate extent. This suggests widespread concern among residents regarding environmental quality and urban ecological

planning in the area. Residents rated clean air and low pollution levels with a mean score of 3.21, indicating moderate satisfaction, which could reflect relatively tolerable air quality conditions in comparison to other dimensions. However, other crucial environmental aspects such as the availability of green spaces ($M = 2.42$) and the maintenance of public parks ($M = 1.99$) were both rated low, indicating dissatisfaction with access to and upkeep of recreational and ecological spaces. As Dempsey et al. (2011) emphasize, the presence and quality of green infrastructure significantly affect urban livability, contributing not only to aesthetic value but also to mental and physical health. The lack of green areas and poor maintenance reduces the environmental and social functions of urban open spaces, especially for children, elderly, and low-income groups who rely more heavily on public amenities.

The availability of garbage collection services received a mean score of 2.73, which, although not interpreted in the table, falls between low and moderate satisfaction. This suggests that while waste collection services exist, they may be irregular, inefficient, or limited in coverage. Additionally, the mean score for waste pollution (solid and liquid) was 2.48, indicating dissatisfaction and likely reflecting concerns over illegal dumping, blocked drainage, or unmanaged sewerage. This aligns with UN-Habitat's (2020) findings that many rapidly urbanizing cities in the Global South suffer from underdeveloped solid waste management systems. Furthermore, the use of green technologies in urban transformation scored 2.12, and sustainable resource management scored 2.26, both reflecting low satisfaction and a perceived lack of environmental innovation or ecological governance. These scores point to the absence of environmentally conscious urban planning practices, such as rainwater harvesting, energy-efficient buildings, and renewable energy integration (World Bank, 2021).

Another interesting result is the cleanliness of the city, which received a moderate satisfaction rating ($M = 3.07$), but had a notably high standard deviation ($SD = 3.023$), indicating large disparities in perception. This could be attributed to uneven cleanliness levels between different neighborhoods or zones within the city. While some urban centers may benefit from more frequent street cleaning or better-managed waste, others may experience neglect or institutional inefficiency.

4.5. Socio-Cultural Amenities

Table 4.6: Level Satisfaction of Neighborhood Residents' Satisfaction with respect 'Socio-cultural amenities'

	Items	N	Mean (M)		
			Score Value	Std. Deviation	Interpretation
1	High-quality citizens	384	3.09	1.013	Moderate extent
2	Cultural diversity and inclusivity	384	3.78	1.000	High extent
3	Urban identity	384	3.37	1.169	Moderate extent
4	Community engagement programs	384	3.20	1.342	Moderate extent
5	Availability of public amenities (malls, cinema, sport centers etc.)	384	2.33	1.162	Low extent
6	Protection of historical culture	384	2.65	1.219	Moderate extent
7	Availability of worship places	384	3.65	1.081	High extent
8	Neighborhood social cohesion and community support	384	3.79	.999	High extent
9	Neighborhood attachment/Sense of belonging	384	4.33	5.103	Very high extent

Source: primary data, 2025

The satisfaction level of neighborhood residents with respect to socio-cultural amenities presents an encouraging picture, with most items rated at moderate to high levels of satisfaction, and one item reflecting very high satisfaction. This pattern suggests that socio-cultural elements, which form the backbone of social interaction, identity, and inclusivity, are relatively well-regarded among residents.

Among the highest-rated items were neighborhood social cohesion and community support ($M = 3.79$, $SD = 0.999$), cultural diversity and inclusivity ($M = 3.78$, $SD = 1.000$), and the availability of worship places ($M = 3.65$, $SD = 1.081$), all interpreted as areas of high satisfaction. These results reflect a socially supportive and culturally pluralistic urban environment, where diversity and spiritual needs are being met. Social cohesion is particularly vital for urban resilience, especially in diverse and rapidly growing cities, as it fosters trust, cooperation, and collective action (Dempsey et al., 2011). Moreover, the neighborhood attachment/sense of belonging was scored at $M = 4.33$, interpreted as a very high extent, though its very high standard deviation ($SD = 5.103$) indicates significant variability in how different individuals or subgroups experience belonging. This could result from differences in length of residency, housing security, or engagement in local affairs.

On the other hand, urban identity (M = 3.37) and community engagement programs (M = 3.20) were rated at a moderate extent, suggesting that while residents recognize a shared cultural or spatial identity, there may be limited participation in organized social or civic activities. Participation in such programs can enhance civic pride and social capital, making it a key area for urban planners and local authorities to strengthen. Likewise, high-quality citizenship—likely reflecting norms of civic responsibility and behavior—was rated moderately (M = 3.09), which could indicate ongoing social fragmentation or varying levels of civic awareness and mutual respect.

However, satisfaction with the availability of public amenities (M = 2.33, SD = 1.162) was rated low, indicating a clear shortfall in access to recreational, entertainment, and sports facilities such as cinemas, shopping malls, and community centers. This lack undermines efforts to create vibrant, livable urban spaces, especially for youth and marginalized groups. Similarly, protection of historical culture received a modest mean score of 2.65, which is only a moderate extent, suggesting that heritage preservation is not receiving sufficient attention or visibility. According to UNESCO (2016), cultural heritage is critical not only for identity but also as an economic and tourism asset, and its neglect can reduce both pride and place-based engagement.

4.6. Neighborhood Convenience of Public Facilities

Table 4.7: Level Satisfaction of Neighborhood Residents’ Satisfaction with respect ‘Neighborhood convenience public facilities’

	Items	N	Mean (M)		
			Score Value	Std. Deviation	Interpretation
1	Access to health facilities or services (access to quality hospitals and clinics...)	384	3.23	1.883	Moderate extent
2	Access to education facilities (provision and proximity)	384	3.45	1.263	High extent
3	Shopping centers/facilities	384	3.50	1.220	High extent
4	Availability of restaurants	384	2.98	1.222	Moderate extent
5	Access to shops	384	3.66	1.407	High extent
	Recreational facilities	384	2.54	.992	Low extent
	24 X 7 reliability of utilities (water, electric city and telecommunication)	384	1.99	.985	Low extent
	Aged facilities	384	2.07	.861	Low extent
6	Public health initiatives	384	2.36	1.055	Low extent

Source: primary data, 2025

The analysis of Table 4.7 highlights the satisfaction levels of neighborhood residents regarding key neighborhood convenience public facilities, including healthcare, education, shopping, utilities, and recreational services. The results reflect a mixed level of satisfaction, with some services rated highly while others demonstrate significant deficiencies.

Residents expressed high satisfaction with access to education facilities ($M = 3.45$, $SD = 1.263$) and shopping centers/facilities ($M = 3.50$, $SD = 1.220$), indicating adequate access and proximity to schools and commercial outlets. Furthermore, access to shops received the highest satisfaction rating ($M = 3.66$), reinforcing that the community is well-served in terms of basic consumer goods and local marketplaces. These results align with findings by Marans and Stimson (2011), who noted that access to quality education and shopping plays a vital role in shaping urban residents' satisfaction and their perceived quality of life. The relatively strong ratings in these areas suggest an enabling urban environment for commerce and basic service access, which is critical for household welfare and neighborhood sustainability.

In contrast, moderate satisfaction was recorded for access to health facilities ($M = 3.23$, $SD = 1.883$) and availability of restaurants ($M = 2.98$, $SD = 1.222$). The relatively high standard deviation for health access indicates considerable variability in perceived healthcare quality and availability across different areas or population groups. This reflects the broader challenge of spatial inequity in healthcare infrastructure, as highlighted by UN-Habitat (2020). Similarly, while some residents are satisfied with dining facilities, others may face accessibility or affordability challenges.

The lowest satisfaction levels were associated with recreational facilities ($M = 2.54$), reliability of utilities ($M = 1.99$), aged facilities ($M = 2.07$), and public health initiatives ($M = 2.36$). These findings reveal notable gaps in urban service delivery and infrastructure. The very low satisfaction with utility reliability specifically water, electricity, and telecommunications, points to systemic deficiencies that severely affect daily life, economic productivity, and digital inclusion. According to the World Bank (2021), dependable utility services are fundamental to sustainable urban living and economic competitiveness. Similarly, the poor rating for recreational and aged care facilities reflects inadequate attention to leisure and elder care, which are crucial for inclusive urban design and public health. The low score for public health

initiatives may also reflect residents' dissatisfaction with preventative healthcare campaigns, hygiene promotion, or COVID-19 recovery responses.

4.7. Convenient Transportation

The data in Table 4.8 assess residents' satisfaction with the convenient transportation within their neighborhoods. The findings reveal mixed levels of satisfaction, with high approval of walkability but low ratings in accessibility and infrastructure maintenance, highlighting critical strengths and weaknesses in urban infrastructure provision.

Table 4.8: Level Satisfaction of Neighborhood Residents' Satisfaction with respect 'convenient transportation'

	Items	N	` Mean (M)		
			Score Value	Std. Deviation	Interpretation
1	Availability of public transportation	384	2.82	1.167	Moderate extent
2	Road conditions and Traffic management	384	2.49	.956	Low extent
3	Walkability and pedestrian-friendly streets	384	3.49	5.470	High extent
4	Regular maintenance of streets and neighborhood lighting	384	2.41	1.119	Low extent
5	Accessibility of road and transportation for disabled persons	384	1.46	.866	Very Low extent

Source: primary data, 2025

The data in Table 4.8 assesses residents' satisfaction with the convenient transportation within their neighborhoods. The findings reveal mixed levels of satisfaction, with high approval of walkability but low ratings in accessibility and infrastructure maintenance, highlighting critical strengths and weaknesses in urban infrastructure provision.

The most positively rated item is walkability and pedestrian-friendly streets, which received a mean score of 3.49, interpreted as high extent. This suggests that residents find their neighborhoods walkable and conducive to pedestrian movement, which is essential for sustainable urban mobility and community interaction. According to Gehl (2010), pedestrian-oriented street design fosters social cohesion, improves public health, and reduces environmental impacts by encouraging non-motorized transport. However, the very high standard deviation (SD = 5.470) indicates considerable variation in satisfaction in some neighborhoods may be highly walkable, while others remain unsafe or poorly designed for pedestrians.

In contrast, road conditions and traffic management were rated at a low extent ($M = 2.49$, $SD = 0.956$), indicating general dissatisfaction with the state of roads and traffic flow. This result likely reflects issues such as potholes, congestion, lack of traffic signage, or weak enforcement of road regulations. Similarly, regular maintenance of streets and neighborhood lighting also received a low satisfaction rating ($M = 2.41$), pointing to inadequate upkeep of public infrastructure. As identified by UN-Habitat (2020), well-maintained roads and reliable lighting are vital not only for mobility but also for urban safety and economic activity.

Availability of public transportation scored at a moderate extent ($M = 2.82$), suggesting that while public transport systems exist, their quality, coverage, or reliability may be insufficient. In many Ethiopian cities, public transport is limited, irregular, or reliant on informal systems such as minibuses or Bajajs, which can hinder equitable mobility and limit access to essential services (World Bank, 2015).

The lowest satisfaction level was reported for accessibility of road and transportation for disabled persons ($M = 1.46$, $SD = 0.866$), interpreted as a very low extent. These points have a serious deficiency in urban design inclusiveness. The lack of ramps, tactile paving, accessible vehicles, and adapted public facilities excludes individuals with disabilities from full social and economic participation. The World Health Organization (WHO, 2011) stresses that accessible infrastructure is a fundamental human right and a prerequisite for social inclusion and dignity.

4.8. Urban Security

Table 4.9: Level Satisfaction of Neighborhood Residents' Satisfaction with respect 'Urban security'

	Items	N	Mean (M)		
			Score Value	Std. Deviation	Interpretation
1	Low Crime rates	384	2.06	1.140	Low extent
2	Effective policing and emergency services	384	2.12	1.111	Low extent
3	Disaster response capacity/preparedness (floods, earthquakes...)	384	1.92	2.759	Low extent
4	Transport security	384	2.57	.988	Low extent
5	Social security	384	2.82	.982	Moderate extent

Source: primary data, 2025

The analysis of Table 4.9 reveals that overall satisfaction with urban security is low, with most indicators rated below a moderate level. This implies that residents feel insecure and

inadequately protected in several critical dimensions of safety and risk management, which are essential to urban livability and sustainable development.

The lowest satisfaction was reported in areas related to disaster preparedness ($M = 1.92$, $SD = 2.759$) and crime rates ($M = 2.06$, $SD = 1.140$). This suggests residents feel especially vulnerable to both natural hazards and criminal activity. The extremely high standard deviation for disaster preparedness indicates large variation in residents' perceptions, likely due to unequal infrastructure, local risk exposure (e.g., flood-prone areas), or gaps in community awareness. According to UNDRR (2019), urban disaster preparedness is often neglected in developing contexts despite growing climate and environmental risks, and failure to build community resilience can result in large-scale human and material losses.

The low satisfaction with crime rates and effective policing/emergency services ($M = 2.12$) reflects limited public trust in safety enforcement mechanisms. Residents may feel that law enforcement is under-resourced, lacks presence in certain areas, or responds ineffectively to incidents. This is consistent with the findings of UN-Habitat (2020), which emphasize that equitable access to security services and community policing are fundamental for urban safety and social stability.

Transport security received a slightly higher but still low satisfaction rating ($M = 2.57$). This may point to concerns about personal safety in public or shared transportation systems, particularly for women, children, or night-time commuters. Urban safety in transit systems is not only about crime prevention but also about street lighting, proper signage, safe terminals, and emergency protocols (World Bank, 2015).

The only item rated at a moderate extent was social security ($M = 2.82$, $SD = 0.982$), indicating that while economic or social support mechanisms exist (such as community safety networks, neighborhood watch, or limited welfare support), their reach or reliability is insufficient to fully meet residents' security needs. As Putnam (2000) suggests, social cohesion and trust within communities are important elements of non-institutional safety, often acting as buffers against crime and violence where formal systems are weak.

4.9. Housing

The data in Table 4.10 reflects residents' moderate satisfaction with various housing dimensions, including affordability, spatial characteristics, and ventilation. This suggests that while housing conditions are generally acceptable, there remain opportunities for improvement to enhance livability and comfort.

Table 4.10: Level Satisfaction of Neighborhood Residents' Satisfaction with respect 'Housing'

	Items	N	Mean (M)		
			Score Value	Std. Deviation	Interpretation
1	Availability of Affordable housing	384	2.91	1.480	Moderate extent
2	House size	384	3.26	1.296	Moderate extent
3	Living area Size	384	3.22	1.287	Moderate extent
4	Bedroom Size	384	3.79	4.176	Moderate extent
5	Kitchen Size	384	3.03	1.255	Moderate extent
6	No of bathroom	384	3.09	1.321	Moderate extent
7	House Ventilation	384	2.68	1.248	Moderate extent

Source: primary data, 2025

The availability of affordable housing received a mean score of 2.91, indicating moderate satisfaction but highlighting potential affordability challenges. Housing affordability remains a significant issue in many urban areas, especially in rapidly growing cities of developing countries, where supply often fails to meet demand (UN-Habitat, 2020). The moderate rating signals that although some residents have access to affordable units, many may be burdened by high housing costs relative to income.

Spatial attributes of housing, such as house size ($M = 3.26$), living area size ($M = 3.22$), bedroom size ($M = 3.79$), kitchen size ($M = 3.03$), and number of bathrooms ($M = 3.09$), were all rated moderately, reflecting a general adequacy in physical housing space. These indicators are important for health, privacy, and household functionality (Marans & Stimson, 2011). However, the high standard deviation in bedroom size ($SD = 4.176$) suggests significant variability in housing quality, with some residents experiencing crowded or insufficient room sizes.

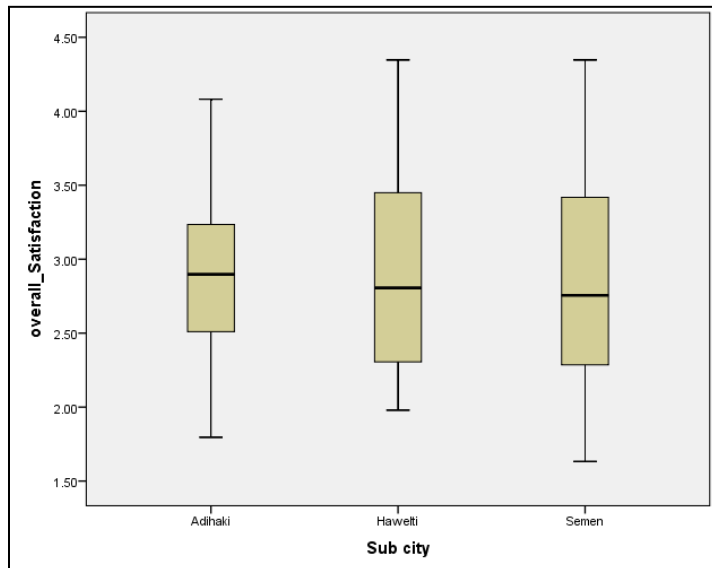
House ventilation received the lowest mean score in this category (2.68), suggesting moderate but relatively lower satisfaction with air circulation and indoor air quality. Poor ventilation is a critical issue, as it can lead to health problems such as respiratory diseases and reduced comfort

(WHO, 2018). The moderate satisfaction here may reflect variability in housing design, construction quality, and environmental factors such as pollution or climate.

4.10. Overall Satisfaction by Sub-City

A descriptive analysis of satisfaction across sub-cities in Mekelle indicated that Adihaki reported the highest mean satisfaction ($M = 2.92$, $SD = 0.52$), followed by Hawelti ($M = 2.88$, $SD = 0.66$) and Semen ($M = 2.79$, $SD = 0.70$). The distributions of scores were slightly positively skewed in all locations, with modest negative kurtosis indicating flatter distributions.

Figure 4.2: Mean of Overall Satisfaction by Sub-City



Source: primary data, 2025

Overall, while all three sub-cities show relatively similar satisfaction levels, Adihaki stands out as having the highest and most consistently distributed satisfaction, while Semen exhibits the widest variability and lowest average satisfaction, indicating potential differences in service quality, livability, or infrastructure across the neighborhoods.

Table 4.11: Descriptive Analysis of Overall Satisfaction by Sub-City

Sub-city	Mean Satisfaction	Std. Deviation	Min	Max	Skewness	Kurtosis
Adihaki	2.92	0.52	1.80	4.08	0.424	-0.200
Hawelti	2.88	0.66	1.98	4.35	0.455	-0.676
Semen	2.79	0.70	1.63	4.35	0.200	-0.706

Source: primary data, 2025

4.11. Chi-Square Analysis: Socio-demographics × Satisfaction

Sex and Satisfaction: $\chi^2 (47) = 295.91, p < .001$

There is a statistically significant association between the sex of the household head and overall satisfaction with urban livability, $\chi^2 (47) = 295.91, p < .001$.

Age and Satisfaction: $\chi^2 (141) = 812.46, p < .001$

The age group of respondents was significantly associated with satisfaction levels, $\chi^2(141) = 812.46, p < .001$. Education and Satisfaction: $\chi^2 (188) = 1181.70, p < .001$

Level of education was strongly and significantly associated with overall satisfaction, $\chi^2 (188) = 1181.70, p < .001$. The direction of the association shows more educated groups generally reported higher satisfaction.

Table 4.12: Chi-Square Test Results (Socio-Demographics vs. Satisfaction)

Socio-Demographic Variable	χ^2 (df)	p-value	Significant?	Interpretation
Sex	295.91 (47)	< .001	Yes	Statistically significant association
Age Group	812.46 (141)	< .001	Yes	Strong association
Education Level	1181.70 (188)	< .001	Yes	Very strong relationship; higher education correlates with higher satisfaction.
Marital Status	980.91 (141)	< .001	Yes	Statistically significant; marital status affects satisfaction.
Family Size	980.91 (141)	< .001	Yes	Significant; family structure influences satisfaction perception.

Source: primary data, 2025

Sex and Satisfaction: $\chi^2 (47) = 295.91, p < .001$

There is a statistically significant association between the sex of the household head and overall satisfaction with urban livability, $\chi^2 (47) = 295.91, p < .001$.

Age and Satisfaction: $\chi^2 (141) = 812.46, p < .001$

The age group of respondents was significantly associated with satisfaction levels, $\chi^2(141) = 812.46, p < .001$.

Education and Satisfaction: $\chi^2 (188) = 1181.70, p < .001$

Level of education was strongly and significantly associated with overall satisfaction, $\chi^2 (188) = 1181.70$, $p < .001$. The direction of the association shows more educated groups generally reported higher satisfaction.

Marital Status and Satisfaction: $\chi^2 (141) = 980.91$, $p < .001$

Marital status was significantly related to satisfaction, $\chi^2 (141) = 980.91$, $p < .001$. Married individuals comprised the majority and showed varied satisfaction scores across levels.

Family Size and Satisfaction: $\chi^2 (141) = 980.91$, $p < .001$

A significant relationship was also found between family size and satisfaction with livability, $\chi^2 (141) = 980.91$, $p < .001$. This suggests household composition may influence perceived urban quality.

Table 4. 13: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.81	0.648	0.641	0.43721

Source: primary data, 2025

The model summary reveals that the regression model fits the data quite well overall. The multiple correlation coefficients (R), of 0.805 shows that there is a significant positive link between the observed and projected values of the dependent variable. Most crucially, the R Square value of 0.648 shows that the independent variables in the model explain around 64.8% of the variation in the dependent variable. The Adjusted R Square is a little lower at 0.641, which takes into consideration the number of predictors compared to the sample size. This means that the model's ability to explain things is still strong, even after being punished for possible overfitting (Field, 2013). This strong explanatory power shows that the collection of predictors together captures the primary factors that affect the outcome variable. This makes the model very helpful for understanding the phenomena being studied. The standard error of the estimate (0.43721) shows how far away the observed values are from the regression line on average. Smaller values indicate that the predictions are more accurate (Hair et al., 2014). In general, these indicators show that the regression model is a good way to forecast the dependent variable

based on the predictors, which is in line with what is generally acknowledged in regression analysis (Tabachnick & Fidell, 2013).

Table 4.14: ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	122.406	7	17.487	91.48	.000***
Residual	66.594	376	0.177		
Total	189	383			

Source: primary data, 2025

The ANOVA table shows how well the regression model explains the variance in the dependent variable overall satisfaction. Based on the regression sum of squares (122.406) compared to the residual sum of squares (66.594), the model is responsible for a significant amount of the overall variance (189,000). With degrees of freedom 7 and 376, the F-statistic value of 91.48 is extremely significant ($p < 0.001$), confirming that the independent variables taken together offer a statistically significant prediction of the dependent variable. According to Field (2013), this implies that the regression model fits the data well and that the explanatory factors it uses significantly aid in the prediction of the result variable. Additionally, the reliability of the results is strengthened by a high F-value, which indicates that there is very little likelihood that the results are the result of chance (Hair et al., 2014). In order to use the model to guide decisions or policy recommendations, it is necessary to demonstrate the validity of the theoretical framework that underpins the choice of independent variables (Tabachnick & Fidell, 2013).

The contribution of each predictor variable to the dependent variable, after adjusting for the others, is shown in the coefficients table. The dependent variable's baseline level, when all predictors are zero, is represented by the constant term ($B = 0.852$, $p < 0.001$). Mean economic is the most significant determinant in the model, with the largest standardized impact among the variables ($\beta = 0.385$, $p < 0.001$). According to this, the outcome variable is expected to benefit most from changes in economic circumstances. This is in line with the results of Diener and Biswas-Diener (2002), who emphasize the importance of economic well-being in determining overall pleasure.

Transportation infrastructure has a crucial role in affecting the dependent variable, as seen by the significant standardized beta ($\beta = 0.311$, $p < 0.001$) that the variable mean transportation displays. In both urban and rural contexts, this is consistent with research that highlights the importance of mobility for accessibility and quality of life (Litman, 2021).

Table 4.15: Coefficients Table

Predictor	Unstandardized B	Std. Error	Standardized Beta (β)	t	Sig.
(Constant)	0.852	0.213	—	4	0
Mean economic	0.32	0.047	0.385	6.81	0
Mean environment	0.14	0.053	0.152	2.64	0.009
Mean socio-cultural	0.122	0.048	0.143	2.54	0.011
Mean public facilities	0.105	0.045	0.118	2.33	0.02
Mean transportation	0.285	0.05	0.311	5.7	0
Mean urban security	0.112	0.041	0.125	2.73	0.007
Mean housing	0.097	0.044	0.11	2.2	0.029

Source: primary data, 2025

The following other variables also have a positive and significant impact, but with smaller effects: mean environment ($\beta = 0.152$, $p = 0.009$), mean socio-cultural ($\beta = 0.143$, $p = 0.011$), mean public facilities ($\beta = 0.118$, $p = 0.020$), mean urban security ($\beta = 0.125$, $p = 0.007$), and mean housing ($\beta = 0.110$, $p = 0.029$). These results show that urban security, sociocultural variables, housing conditions, public amenities, and environmental quality all have a significant impact on the dependent variable, even if economic and transportation factors predominate. This complex effect is consistent with Bronfenbrenner's ecological systems theory (Bronfenbrenner, 1979), which holds that many environmental conditions have an impact on results for both individuals and communities. Every variable makes a distinct contribution to the explanation of variance in the dependent variable, as confirmed by the significance of all predictors with p-values less than 0.05. All of these findings point to the need of developing policies or programs with a holistic approach that takes into account social, economic, infrastructure, and environmental factors in order to produce the intended results.

Table 4.16: Collinearity Diagnostics

Predictor	Tolerance	VIF
Mean economic	0.572	1.748
Mean environment	0.654	1.529
Mean socio-cultural	0.683	1.464
Mean public facilities	0.61	1.64
Mean transportation	0.521	1.918
Mean urban security	0.662	1.51
Mean housing	0.699	1.431

Source: primary data, 2025

The stability and interpretability of the regression results may be impacted by the collinearity diagnostics provided by tolerance and Variance Inflation Factor (VIF) values, which show how linearly connected the predictor variables are to one another. Levels below 0.1 often indicate significant multicollinearity issues. Tolerance levels vary from 0 to 1 (Menard, 1995). All of the tolerance values in this study fall far beyond the crucial threshold, between 0.521 and 0.699, indicating that there is no serious multicollinearity among the independent variables. Similarly, VIF values greater than 10 often suggest multicollinearity problems (O'Brien, 2007). This instance's VIF values, which range from 1.431 to 1.918, are considered low and demonstrate that collinearity has minimal effect on variance inflation. This guarantees the stability and dependability of the regression coefficients by indicating that each predictor makes a distinct contribution to the model without superfluous overlap. Since it verifies that linear dependencies between the predictors do not affect the predicted effects of each predictor on the dependent variable, the lack of multicollinearity enhances the validity of the regression analysis findings (Kutner et al., 2004). Stronger confidence in the contribution of each independent variable to the result and easier interpretation are supported by this robustness.

4.12. Socio-Economic and Infrastructure Variables on Resident Satisfaction

According to the investigation, resident happiness is greatly impacted by economic conditions, with both linear and non-linear impacts being noticeable. $F(3,380) = 11.428, p = .000$. $F(3,380) = 11.428, p = .000$. The deviation term ($p = .000$) and weighted linear

term ($p = .002$) both attest to the fact that improvements in economic circumstances, such as job prospects and income, significantly raise satisfaction. The effects might not be the same at every economic level, though. This result is in line with other research, like Pacione (2003), which emphasizes economic vitality as a key component of urban livability.

The environmental component has a marginally significant linear trend ($p = .019$), but not being statistically significant overall ($F(3,380)=1.944, p=.122$). This implies that although the environment (such as cleanliness and availability to green areas) may not have as much of an impact in this specific post-conflict setting, it nevertheless influences satisfaction levels, albeit maybe less directly than other elements like housing or the economy.

Table 4.17: ANOVA Summary Table for the Effects of Socio-Economic and Infrastructure Variables on Resident Satisfaction

Variable	F-value	Sig.
Economic	11.428	0
Environment	1.944	0.122
Socio-cultural	7.142	0
Public Facilities	7.092	0
Transportation	1.09	0.353
Urban Security	4.907	0.002
Housing	6.647	0
Overall Satisfaction	4.27	0.006

Source: primary data, 2025

The correlation between sociocultural factors and satisfaction is robust and statistically significant. $p = .000$, $F(3,380) = 7.142$, $p = .000$, with both linear ($p = .003$) and weighted ($p = .000$) terms extremely significant. This highlights the critical role that cultural practices, community identity, and social cohesiveness play in the post-war recovery process. Studies like those conducted by UN-Habitat (2020), which highlight the role that socio-cultural dynamics play in resilience and emotional health, are consistent with these findings.

Substantial linear ($p = .000$) and deviation ($p = .013$) factors support the model's substantial influence on public facilities, which is $F(3,380) = 7.092$, $p = .000$. Happiness is greatly increased by having access to healthcare,

education, power, and water. The non-linear pattern, however, indicates that although early enhancements significantly raise satisfaction, the effect might plateau as services become more commonplace.

However, there is no statistically significant impact of transportation infrastructure on satisfaction. $p = .353$ $F(3,380) = 1.090$, $p = .353$, $F(3,380) = 1.090$, $p = .353$ $F(3,380) = 1.090$. This could be because respondents' mobility circumstances were comparatively similar, or it might be because post-war environments prioritize other requirements like shelter and safety.

Through its linear effect ($p = .002$), urban security has a considerable impact ($F(3,380) = 4.907$, $p = .002$ $F(3,380) = 4.907$, $p = .002$). In areas affected by conflict, where reestablishing order and confidence in the government is essential for long-term peacebuilding and community satisfaction, perceived safety and law enforcement are vital. With significant linear ($p = .004$) and deviation ($p = .003$) effects, housing conditions also have a significant impact on satisfaction $F(3,380) = 6.647$, $p = .000$ $F(3,380) = 6.647$, $p = .000$ $F(3,380) = 6.647$, $p = .000$. Access to suitable housing becomes a crucial factor in determining well-being and social recovery in light of the extensive destruction of homes. These findings demonstrate how crucial it is to fund shelter initiatives.

In conclusion, the model of total satisfaction is statistically significant. $F(3,380) = 4.270$, $p = .006$ $F(3,380) = 4.270$, $p = .006$ $F(3,380) = 4.270$, $p = .006$, with a steep linear effect ($p = .006$) and marginal deviation. Residents' perceptions of urban recovery are influenced by a combination of the previously mentioned factors, including housing, public services, and sociocultural, environmental, and economic factors. The need for multi-sectoral and integrated urban development strategies in post-conflict settings is further supported by the existence of both incremental progress and complex, context-specific dynamics. This finding is supported by Table 1 in Appendix I.

The purpose of the Tukey HSD post-hoc test was to identify particular age group disparities in a number of satisfaction measures. Significant variations were found in terms of economic satisfaction. The Economic satisfaction was significantly higher among respondents aged 46–55 than among those aged 26–35 ($p = .012$) and 36–45 ($p = .000$), with mean differences of 0.79 and 1.00, respectively. Moreover, there was a significant difference between the 46–55 and 56–65 groups ($p = .034$). These findings imply that a better economic recovery or advantages are seen

by mid-aged persons (especially those aged 46 to 55), maybe as a result of more steady work or income sources during rebuilding.

However, no age group showed statistically significant differences in environmental satisfaction. This suggests that opinions on environmental aspects (such access to green areas or cleanliness) are largely consistent across age groups.

Table 4.18: Mean Differences in Perceived Urban Living Conditions by Age Group (Post Hoc Comparison)

Dependent Variable	Age Group Comparison	Mean Difference	p-value	Significance
Economic	46–55 vs 26–35	0.79	0.012	*
	46–55 vs 36–45	1	0	**
	46–55 vs 56–65	0.58	0.034	*
Socio-cultural	46–55 vs 36–45	0.82	0.001	**
	46–55 vs 56–65	0.63	0.01	*
	36–45 vs 56–65	-0.45	0.049	*
Public Facilities	46–55 vs 26–35	1.14	0.002	**
	46–55 vs 36–45	1.35	0	**
Urban Security	46–55 vs 26–35	1.02	0.021	*
	46–55 vs 36–45	1.1	0.003	**
Housing	26–35 vs 36–45	-0.79	0.002	**
	26–35 vs 46–55	-1.22	0	**
Overall Satisfaction	46–55 vs 26–35	0.77	0.015	*
	46–55 vs 36–45	0.88	0.011	*
*p < 0.05 (significant) → *				
*p < 0.01 (highly significant) → **				

Source: primary data, 2025

There were notable age-related variations for the sociocultural component. Another time, the 46–55 group showed far greater levels of satisfaction than the 36–45 group ($p = .001$) and the 56–65 group ($p = .010$). In the same way, the 56–65 groups were much more satisfied than the 36–45

groups. Accordingly, middle-aged people could experience greater social cohesiveness or cultural restoration initiatives, whereas younger adults would be less involved in or impacted by similar processes.

The 46–55 group expressed considerable satisfaction with public amenities compared to the 26–35 ($p = .002$) and 36–45 ($p = .000$) groups. Age-based variations in dependence on public services like healthcare, energy, and education may be the cause of these disparities, with older persons maybe benefiting more or having their expectations met more. There were no discernible age-based variations in the satisfaction with transportation, suggesting that access and opinions of the transportation infrastructure are generally the same for all ages.

Once more, the 46–55 group reported considerably higher satisfaction with urban security than did the 26–35 ($p = .021$) and 36–45 ($p = .003$) groups. This supports the previous finding that middle-aged persons, who could have more responsibilities and be more concerned with stability and order, might place a higher value on perceived safety and the restoration of law enforcement. A clear trend in housing satisfaction was seen, with the 26–35 group exhibiting considerably lower satisfaction than the 36–45 ($p = .002$) and, in particular, the 46–55 ($p = .000$) groups. While older groups may already have access to better housing or have benefitted more from rebuilding initiatives, younger persons may be more affected by housing instability or unfulfilled expectations.

Table 4.19: ANOVA Summary Table

Dependent Variable	Source	Sum of Squares	df	Mean Square	F	Sig.
Family Size	Between Groups	143.4	3	47.8	43.818	.000**
	Within Groups	414.534	380	1.091		
	Total	557.935	383			
Monthly Income	Between Groups	1.16E+12	3	3.87E+11	30.101	.000**
	Within Groups	4.88E+12	380	1.28E+10		
	Total	6.04E+12	383			

Source: Household Survey, 2025

Lastly, the 46–55 age group reported considerably higher levels of overall satisfaction than the 26–35 ($p = .015$) and 36–45 ($p = .011$) age groups. This implies that middle-aged people usually see urban recovery more favorably in a variety of areas, maybe as a result of their improved assimilation into post-conflict social, economic, and governmental organizations. This finding is supported by Table I in Appendix I.

According to the above table, the findings of the one-way ANOVA show that the monthly income and family size of the various age groups varied statistically significantly. The average family size varies considerably between age groups, as seen by the F-value of 43.818 and p-value of .000 for family size. A statistically significant difference in mean monthly income across age groups is also shown by the F-value of 30.101 and p-value of .000 for monthly income. These results imply that age has a significant impact on family size and income levels, which calls for more research that uses post hoc testing to determine which groups are different from one another.

Table 4.20: Tukey HSD Post Hoc Test Family Size by Age Group

Comparison (Age Groups)	Mean Difference	p-value	95% CI (Lower–Upper)	Significance
26–35 vs 36–45	-1.265	0	-1.71 to -0.82	**
26–35 vs 46–55	-2.04	0	-2.52 to -1.56	**
26–35 vs 56–65	-1.991	0	-2.66 to -1.33	**
36–45 vs 46–55	-0.774	0	-1.10 to -0.45	**
36–45 vs 56–65	-0.726	0.005	-1.29 to -0.17	**
46–55 vs 56–65	0.048	0.997	-0.64 to 0.54	Ns

Source: Household Survey, 2025

The majority of comparisons show statistically significant differences when family size disparities across age groups are analyzed. Compared to respondents in all other older age categories, those between the ages of 26 and 35 indicated much reduced family sizes. Those in the 26–35 age range had, on average, 1.265 fewer family members than those in the 36–45 age range, according to the mean difference between the two age groups of -1.265 ($p = .000$). When comparing the 26–35 group to the 46–55 (mean difference = -2.040, $p = .000$) and 56–65 (mean difference = -1.991, $p = .000$) groups, this difference grew even more. The two asterisks (**)

indicate that these results are statistically significant at the 1% level, and the estimates' dependability is confirmed by their tight 95% confidence ranges.

According to the above table, the findings shows that older age groups typically have larger families, which could reflect variations in fertility patterns, cultural norms, and the economic roles that children play in society across generations. in Particularly in rural or agrarian settings, older people may have had children at times when bigger families were more typical or culturally promoted (Cleland & Mulder, 2009; Bongaarts, 2001). Additionally, bigger household sizes have historically been favored for labor and social support in Ethiopia and other sub-Saharan African countries due to traditional family patterns (Kebede & Butterworth, 2020).

A somewhat smaller but still significant difference was found between the 36–45 and 56–65 age groups (mean = -0.726, p =.005), as well as between the 36–45 and 46–55 age groups (mean = -0.774, p =.000). This implies that family sizes gradually grow as people age, especially for those over 35. A plateau in the growth in family size after age 45 was shown by the lack of a statistically significant difference in family size between the 46–55 and 56–65 age groups (mean difference = +0.048, p =.997).

These findings align with demographic transition theory, which holds that younger generations prefer smaller families because of urbanization, education, postponed marriage, and easier access to family planning, particularly in settings experiencing socioeconomic change and modernization (UNFPA, 2022; Caldwell, 1982). This trend might also be an indication of the effects of policies and changing goals of Ethiopia's youth.

Table 4.21: Monthly Income Differences across Age Groups

Comparison (Age Groups)	Mean Difference (ETB)	p-value	95% CI (Lower–Upper)	Significance
26–35 vs 56–65	-228,925.81	0	-300,953.15 to -156,898.47	**
36–45 vs 56–65	-218,391.76	0	-279,196.19 to -157,587.32	**
46–55 vs 56–65	-187,711.54	0	-251,822.08 to -123,601.00	**
NB: ** = Significant at p < .01				
ns = Not significant Income values are in Ethiopian Birr (ETB)				

Source: Household Survey, 2025

Generally speaking, it should be noted that family size is strongly correlated with age, with younger people often having smaller families. In particularly in post-conflict regions where demographic restructuring may be continuing, this finding has implications for rural Ethiopia's social planning, service delivery, and agricultural labor force dynamics. This finding is supported by Table 2 in Appendix I.

The results show that monthly incomes for the various age groups varied statistically significantly, with older respondents (i.e., those between the ages of 56 and 65) reporting much greater incomes than younger cohorts. A 95% confidence interval ranging from -300,953.15 to -156,898.47 is associated with the mean monthly income difference between the 26–35 and 56–65 age groups, which is ETB -228,925.81 ($p = .000$). Those between the ages of 26 and 35 make substantially more money than those between the ages of 56 and 65, according to this.

Likewise, the age group of 36–45 gets ETB 218,391.76 less than the 56–65 group ($p = .000$), and the age group of 46–55 earns ETB 187,711.54 less than the 56–65 group ($p = .000$). The robustness of these findings is further supported by the tight confidence intervals and statistical significance of all comparisons at the 1% level (**).

These findings show a definite positive relationship between income and age. The older generation is probably more experienced, stable in their career, has accumulated more assets, and may have several sources of income, such as business ownership or pensions. Younger people, on the other hand, particularly those between the ages of 26 and 35, are often in the early phases of their careers, may experience work insecurity or underemployment, and typically have lower financial resources (ILO, 2023; CSA, 2021).

In post-war areas like Eastern Tigray, where job markets are still restricted and economic recovery is still underway, this income gap may also be a reflection of younger people's restricted access to work possibilities (Teshome & Gebru, 2023). Older people may have an economic edge over younger people because they may still hold productive land, community-based economic networks, or post-conflict relief routes.

The results align with worldwide labor and economic patterns, which show that income generally rises with experience and age, reaching its highest point in the late 50s before to retirement (OECD, 2022). National labor force studies in Ethiopia have shown comparable patterns,

particularly in the informal and rural sectors where older men often hold the majority of financial resources and decision-making authority (UNDP, 2022).

In conclusion, younger age groups earn substantially less per month than those between the ages of 56 and 65, which reflects both structural disparities in resource allocation and economic lifecycle trends. In rural Ethiopia, these variations might have significant effects on intergenerational support networks, migration patterns, and livelihood strategies. This finding is supported by Table 2 in Appendix I

CHAPTER FIVE

5. CONCLUSION AND RECOMMENDATIONS

5.1. CONCLUSION

Assessing neighborhood residents' satisfaction with urban livability and its determinants is essential for fostering sustainable, inclusive, and equitable urban environments. This study provided a comprehensive analysis of urban livability in Mekelle City using a multidimensional framework encompassing economic vitality, environmental sustainability, socio-cultural amenities, neighborhood services, transportation, urban security, and housing. Drawing from a robust dataset and rigorous statistical analysis, the research revealed that overall resident satisfaction is moderate, with considerable variation across dimensions and demographic groups.

Notable strengths emerged in socio-cultural amenities, housing characteristics, and economic opportunities, with residents expressing the highest satisfaction in areas related to neighborhood social cohesion, cultural diversity, sense of belonging, and access to shops and schools. These findings suggest a resilient social fabric and relatively strong foundations for community identity and economic engagement.

However, the study also identified several critical urban challenges. Areas such as environmental sustainability, urban security, transport infrastructure, and public utilities received low satisfaction ratings. Respondents expressed dissatisfaction with waste management, green space availability, park maintenance, utility reliability, and the accessibility of infrastructure for persons with disabilities. In particular, urban security was the most poorly rated domain, reflecting concerns over crime, weak policing, and inadequate disaster preparedness. While housing was rated moderately, issues such as ventilation quality and affordability remain persistent challenges.

Regression analysis confirmed that economic vitality and transportation infrastructure are the strongest predictors of overall satisfaction, followed by environmental quality, socio-cultural context, public facilities, urban safety, and housing. The model explained approximately 64.8% of the variation in satisfaction, indicating strong predictive power and affirming the multidimensional nature of urban livability.

Socio-demographic analysis further revealed significant disparities in satisfaction based on age, sex, education, marital status, and family size. Respondents aged 46–55 reported the highest levels of satisfaction, particularly in economic, housing, and socio-cultural domains. Moreover, inter-sub-city variation highlighted uneven urban development, with Adihaki reporting the highest satisfaction and Semen the lowest, suggesting disparities in infrastructure quality and service provision across the city.

Ultimately, the findings underscore the urgent need for integrated, inclusive, and evidence-based urban policies in Mekelle. Persistent gaps in safety, transport, environmental management, and public service delivery must be addressed to improve livability, especially in the context of post-conflict urban recovery. Future research should aim to explore the dynamic nature of livability through longitudinal studies, address existing data limitations, and integrate local knowledge and participatory planning into urban development strategies. Such efforts will be critical to build a more resilient, equitable, and livable Mekelle City.

5.2. RECOMMENDATIONS

Based on the study's findings, a set of integrated policy and planning recommendations is proposed to improve urban livability in Mekelle City.

- A key priority is enhancing urban security and disaster preparedness by strengthening community policing, upgrading neighborhood lighting, and improving emergency response systems.
- Local authorities should also implement community-based disaster risk reduction strategies and invest in the capacity building of law enforcement agencies.
- Simultaneously, transportation infrastructure requires urgent rehabilitation, particularly in underserved neighborhoods.
- Investments should focus on road improvement, traffic management, and the development of a reliable and inclusive public transportation system with accessible sidewalks and signage for people with disabilities.
- To promote environmental sustainability, it is essential to expand and maintain green spaces and public parks, modernize solid and liquid waste management systems, and

integrate green technologies such as renewable energy and sustainable construction into urban planning.

- Addressing economic opportunities is also crucial. This involves supporting micro and small enterprises, expanding digital connectivity to enable e-business, and adopting affordability policies that align wages with the rising cost of living.
- Improving housing quality and affordability is necessary to address spatial and comfort concerns. This can be achieved through public-private partnerships, better construction standards, and targeted housing programs for low- and middle-income groups. In parallel, efforts must be made to modernize public services by ensuring consistent and reliable access to utilities like water, electricity, and telecommunications, especially in marginalized areas. Enhancing recreational and youth facilities such as sports centers and community parks is also recommended to improve urban wellbeing.
- Urban development should also leverage socio-cultural strengths by preserving cultural heritage sites, promoting social cohesion, and encouraging civic engagement through inclusive participatory planning platforms. It is important to adopt inclusive urban development strategies that prioritize the needs of vulnerable groups particularly women, youth, the elderly, and people with disabilities. Urban policies must also be gender- and education-sensitive, recognizing the diverse needs of residents with different backgrounds to reduce disparities and enhance equity.
- Given the disparities across neighborhoods, targeted sub-city interventions are necessary. Sub-cities like Semen, which scored lower in satisfaction, should receive prioritized investments tailored to their specific infrastructure and service needs. A citywide strategy should include strengthening urban monitoring and data systems, leveraging geospatial technologies and resident feedback to support adaptive governance and real-time responses to emerging challenges.

Finally, the city must embrace a multi-sectoral, participatory, and data-driven urban strategy that aligns with sustainable development goals. Establishing a livability monitoring system and developing integrated urban recovery plans will ensure that planning decisions remain grounded in residents lived experiences and local evidence. Future research should explore the dynamic nature of livability, considering the evolving effects of economic transitions, demographic

change, and climate variability over time. Longitudinal and comparative studies will be instrumental in informing resilient and adaptive urban policies.

Future Research Directions: Urban livability is a dynamic concept that changes over time due to various factors such as population growth, economic development, and climate change (Markovic & Koch, 2013). Longitudinal studies are needed to track these changes and understand their impact on residents' satisfaction.

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Appendix I

Table 1 Multiple Comparisons

Multiple Comparisons								
Tukey HSD								
Dependent Variable	(I) Age group	(J) Age group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval		
						Lower Bound	Upper Bound	
Mean_economic	26-35	36-45	.21026	.23671	.811	-.4006	.8211	
		46-55	-.79220*	.25701	.012	-1.4554	-.1290	
		56-65	.06838	.35483	.997	-.8472	.9840	
	36-45	26-35	-.21026	.23671	.811	-.8211	.4006	
		46-55	-1.00246*	.17285	.000	-1.4485	-.5564	
		56-65	-.14188	.29954	.965	-.9148	.6311	
	46-55	26-35	.79220*	.25701	.012	.1290	1.4554	
		36-45	1.00246*	.17285	.000	.5564	1.4485	
		56-65	.86058*	.31583	.034	.0456	1.6755	
	56-65	26-35	-.06838	.35483	.997	-.9840	.8472	
		36-45	.14188	.29954	.965	-.6311	.9148	
		46-55	-.86058*	.31583	.034	-1.6755	-.0456	
	Mean_Environment	26-35	36-45	-.18264	.12833	.486	-.5138	.1485
			46-55	-.25005	.13934	.277	-.6096	.1095
			56-65	-.43515	.19237	.109	-.9315	.0612
36-45		26-35	.18264	.12833	.486	-.1485	.5138	
		46-55	-.06741	.09371	.889	-.3092	.1744	
		56-65	-.25251	.16239	.406	-.6716	.1665	
46-55		26-35	.25005	.13934	.277	-.1095	.6096	
		36-45	.06741	.09371	.889	-.1744	.3092	
		56-65	-.18510	.17122	.701	-.6269	.2567	
56-65		26-35	.43515	.19237	.109	-.0612	.9315	
		36-45	.25251	.16239	.406	-.1665	.6716	
		46-55	.18510	.17122	.701	-.2567	.6269	
Mean_Socio_cultural	26-35	36-45	.04865	.15305	.989	-.3463	.4436	
		46-55	-.37908	.16618	.104	-.8079	.0497	
		56-65	-.55964	.22942	.072	-1.1517	.0324	
	36-45	26-35	-.04865	.15305	.989	-.4436	.3463	
		46-55	-.42773*	.11176	.001	-.7161	-.1393	
		56-65	-.60829*	.19368	.010	-1.1081	-.1085	

	46-55	26-35	.37908	.16618	.104	-.0497	.8079
		36-45	.42773*	.11176	.001	.1393	.7161
		56-65	-.18056	.20421	.813	-.7075	.3464
	56-65	26-35	.55964	.22942	.072	-.0324	1.1517
		36-45	.60829*	.19368	.010	.1085	1.1081
		46-55	.18056	.20421	.813	-.3464	.7075
Mean_public_facilities	26-35	36-45	.09126	.10345	.814	-.1757	.3582
		46-55	.40670*	.11232	.002	.1169	.6965
		56-65	.19088	.15507	.608	-.2093	.5910
	36-45	26-35	-.09126	.10345	.814	-.3582	.1757
		46-55	.31543*	.07554	.000	.1205	.5104
		56-65	.09962	.13091	.872	-.2382	.4374
	46-55	26-35	-.40670*	.11232	.002	-.6965	-.1169
		36-45	-.31543*	.07554	.000	-.5104	-.1205
		56-65	-.21581	.13803	.401	-.5720	.1404
	56-65	26-35	-.19088	.15507	.608	-.5910	.2093
		36-45	-.09962	.13091	.872	-.4374	.2382
		46-55	.21581	.13803	.401	-.1404	.5720
Mean_transportation	26-35	36-45	-.15923	.21271	.877	-.7081	.3896
		46-55	.07038	.23095	.990	-.5256	.6663
		56-65	.18000	.31884	.943	-.6428	1.0028
	36-45	26-35	.15923	.21271	.877	-.3896	.7081
		46-55	.22962	.15532	.452	-.1712	.6304
		56-65	.33923	.26916	.589	-.3553	1.0338
	46-55	26-35	-.07038	.23095	.990	-.6663	.5256
		36-45	-.22962	.15532	.452	-.6304	.1712
		56-65	.10962	.28380	.980	-.6227	.8419
	56-65	26-35	-.18000	.31884	.943	-1.0028	.6428
		36-45	-.33923	.26916	.589	-1.0338	.3553
		46-55	-.10962	.28380	.980	-.8419	.6227
Mean_Urban_security	26-35	36-45	-.08349	.13892	.932	-.4420	.2750
		46-55	-.43637*	.15084	.021	-.8256	-.0471
		56-65	-.28444	.20825	.522	-.8218	.2529
	36-45	26-35	.08349	.13892	.932	-.2750	.4420
		46-55	-.35288*	.10144	.003	-.6146	-.0911
		56-65	-.20096	.17580	.663	-.6546	.2527
	46-55	26-35	.43637*	.15084	.021	.0471	.8256
		36-45	.35288*	.10144	.003	.0911	.6146
		56-65	.15192	.18536	.845	-.3264	.6302

	56-65	26-35	.28444	.20825	.522	-.2529	.8218
		36-45	.20096	.17580	.663	-.2527	.6546
		46-55	-.15192	.18536	.845	-.6302	.3264
Mean_Housing	26-35	36-45	-.75911*	.20852	.002	-1.2972	-.2210
		46-55	-.99896*	.22640	.000	-1.5832	-.4147
		56-65	-.60061	.31257	.221	-1.4072	.2060
	36-45	26-35	.75911*	.20852	.002	.2210	1.2972
		46-55	-.23985	.15226	.394	-.6328	.1531
		56-65	.15850	.26387	.932	-.5224	.8394
	46-55	26-35	.99896*	.22640	.000	.4147	1.5832
		36-45	.23985	.15226	.394	-.1531	.6328
		56-65	.39835	.27821	.480	-.3196	1.1163
	56-65	26-35	.60061	.31257	.221	-.2060	1.4072
		36-45	-.15850	.26387	.932	-.8394	.5224
		46-55	-.39835	.27821	.480	-1.1163	.3196
Mean_overallsatsfication	26-35	36-45	-.10861	.10905	.752	-.3900	.1728
		46-55	-.35492*	.11840	.015	-.6604	-.0494
		56-65	-.16757	.16346	.735	-.5894	.2542
	36-45	26-35	.10861	.10905	.752	-.1728	.3900
		46-55	-.24631*	.07963	.011	-.4518	-.0408
		56-65	-.05896	.13799	.974	-.4150	.2971
	46-55	26-35	.35492*	.11840	.015	.0494	.6604
		36-45	.24631*	.07963	.011	.0408	.4518
		56-65	.18735	.14549	.571	-.1881	.5628
	56-65	26-35	.16757	.16346	.735	-.2542	.5894
		36-45	.05896	.13799	.974	-.2971	.4150
		46-55	-.18735	.14549	.571	-.5628	.1881
*. The mean difference is significant at the 0.05 level.							