ADDIS ABABA UNIVERSITY
COLLEGE OF TECHNOLOGY AND BUILT ENVIRONMENT
SCHOOL OF BUILT ENVIRONMENT
DEPARTMENT OF URBAN AND REGIONAL PLANNING

INTERLINKING SOCIO-SPATIAL HOUSING ATTRIBUTES, RESIDENTIAL SATISFACTION, AND ADJUSTMENT INTENTION: INSIGHT FROM COST-EFFICIENT CONDOMINIUM HOUSING IN ADDIS ABABA, ETHIOPIA

BY
LISSANEWORK SILESHI ALEMU

MAY, 2025
ADDIS ABABA, ETHIOPIA

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A DISSERTATION SUBMITTED TO DEPARTMENT OF URBAN AND REGIONAL PLANNING, SCHOOL OF BUILT ENVIRONMENT, COLLEGE OF TECHNOLOGY AND BUILT ENVIRONMENT, ADDIS ABABA UNIVERSITY IN FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN URBAN AND REGIONAL PLANNING

MAY, 2025
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DECLARATION

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I, the undersigned, declare that this is my original work, has never been presented at this or any other university, and that all the resources and materials used for the dissertation have been duly acknowledged.

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This dissertation has been submitted for examination with my approval as the student's supervisors.

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DISSERTATION APPROVAL

ADDIS ABABA UNIVERSITY

COLLEGE OF TECHNOLOGY AND BUILT ENVIRONMENT

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DEPARTMENT OF URBAN AND REGIONAL PLANNING

This is to certify that the dissertation prepared by Lissanework Sileshi Alemu, entitled; "Interlinking Socio-Spatial Attributes, Residential Satisfaction, and Adjustment Intention: Insight from Cost-efficient Condominium Housing in Addis Ababa, Ethiopia" and submitted in fulfillment of the requirements for the Degree of Doctor of Philosophy in Urban and Regional Planning complies with the regulations of the University and meets the accepted standards concerning originality and quality.

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ABSTRACT

Although households often evaluate, develop feelings and modify their housing, leading to decline or improvement of neighborhoods, comprehensive studies linking residential environment, satisfaction, and adjustment remain underexplored globally and scares in Ethiopia. This study addresses this gap by examining the relationship among socio-spatial housing attribute, residential satisfaction and adjustment intention among cost-efficient condominium housing residents in Addis Ababa, Ethiopia. Employing a quantitative research approach, data was collected from 400 households using stratified random sampling; and analyzed by descriptive statistics, stepwise multiple linear regression, binary logistic regression and PROCESS macro for SPSS. The findings reveal moderate overall residential satisfaction level, with relatively higher satisfaction associated with the social environment and neighborhood facilities. The results also affirm the application of actual-aspiration gap theory in understanding of residential satisfaction and adjustment. Significant predictors of residential satisfaction and adjustment include socio-spatial aspects such as number of rooms, common services, housing location, social interactions, and crime level, alongside socio-demographic factors such as age, marriage, length of residence, household size, ownership and employment type. Moreover, results indicate that physical adjustment intentions, like housing and neighborhood modifications followed by residential mobility, are the most common intentions. Furthermore, residential satisfaction emerged as both direct and indirect mediating factor shaping these adjustment intentions. The study implies effective housing development consider socio-spatial aspects, actual-aspiration gaps, socio-demographics and residential satisfaction. Housing policy and intervention recommendations include context sensitive, socio-demographic based, actual-aspiration grounded and bottom up urban housing like "massive small' approach to improve housing in Addis Ababa, while encouraging further inquiry including multiple level, more variables, longitudinal data, qualitative approach and cross cultural contexts.

Keywords: Actual-aspiration Gap, Addis Ababa, Condominium Housing, Residential Adjustment, Residential Satisfaction, Socio-spatial Attributes.

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LIST OF ACRONYMS AND ABBREVIATIONS

AA……Addis Ababa City

AAHDPO……Addis Ababa Housing Development Project Office

AAU…….Addis Ababa University

BWUD…….Bureau of Works and Urban Development

CBE…….Commercial Bank of Ethiopia

CI…….…….Critical Interval

ETB……..……Ethiopian Birr (official currency of Ethiopia)

EiABC……..Ethiopian institute of Architecture, Building Construction and City Development

GDP……..Gross Domestic Product

HCB…….Hollow concrete Block

HDPO……..Housing Development Project Office

IHDP……Integrated Housing Development Program

JTZ……The Deutsche Gesellschaft für Internationale Zusammenarbeit (German International Development Cooperation Services)

LL CI……Lower Level Confidence Interval

MLR…….Multiple Linear Regression

MWUD…….Ministry of Works and Urban Development

MoUHC……...Ministry of Urban Development, Housing and Construction

NGO…….Non-Governmental Organization

RC…….Reinforced Concrete

SPSS……..Statistical Package for the Social Sciences

ULCI…….Upper Level Confidence Interval

UN…….……United Nations

UN-HABIATAT……...United Nations Human Settlements Programme

USA……...United States of America

VIF…….Variance Inflation Factor

WB…….World Bank

CLOSSARY OF TERMS

Actual-aspiration gap theory: A theory that explains residential satisfaction (stress) is influenced by gap between the current (actual) and aspired (aspiration) housing conditions, resulting in residential adjustment beyond some threshold.

Cognitive adjustment: Mental or emotional changes people make to accept or cope with their current housing conditions such as differing maintenance and modification of their housing unit.

Family size adjustment: Changing the number and composition of household members (e.g., by moving out or in) to better fit the housing situation.

Housing attributes: Specific aspects of housing such as size, layout, quality, social inactivity or services.

Housing dimension: General physical, social and service-related aspect of housing such as housing unit features, housing unit support services, social environment, neighborhood facilities and public facilities.

Housing modification: Physical changes residents make to their housing units, like adding walls, changing function of rooms or improving finishes.

Housing unit features: Basic elements inside the home, like number of rooms, windows, ventilation, sanitary and electrical installations, and layout.

Housing unit support services: Services at building block level that support the functioning of a home, such as stair case, corridor, sanitary and electrical installations, and waste management.

Cost-efficient condominium: Affordable multi-family housing designed for low- to middle-income residents where individuals own their units independently and co-own other parts of the housing as a group.

Mediation: a process in which an independent variable influences a dependent variable through a mediator variable.

Mediator Variable: a variable through which an independent variable influences a dependent variable.

Neighborhood facilities: Social services surrounding a residential area like schools, health centers, police station, transport facilities and markets.

Neighborhood modification: Participation in activities to improve the community facilities, such as local streets, green areas, play fields, open spaces or street lighting.

Public facilities: Shared urban services in a housing neighborhood compound like local street, street lights and drainage, play fields, green areas, car parks, waste disposal, and open spaces.

Residential adjustment intention: A resident's plan or desire to adapt to housing challenges through actions like relocation, modifying housing features, engaging in neighborhood improvement or coping mentally.

Residential satisfaction: How happy or content people feel with their home and the surrounding residential environment.

Residential mobility: The act of moving from one home to another due to satisfaction or dissatisfaction in similar labor market.

Social environment: The quality of social relationships, safety, and sense of community in a neighborhood.

Socio-spatial housing attributes: The combined detail social and physical characteristics of a housing situation.

Sub city: An administrative division within a large city like Addis Ababa, functioning like a district.

Ider: a traditional community-based mutual aid association that helps members during times of mourning by organizing funerals and providing emotional and financial support.

Ikub: a rotating savings and credit association where members contribute money regularly and each member takes turns receiving the lump sum to use for personal or business needs.

Mahiber: a religious or social gathering often held monthly in honor of a saint, where members share food, pray, and strengthen social ties.

1 INTRODUCTION

1.1 Introduction

Most families often evaluate their social-spatial housing characteristics and modify their housing, referred as residential adjustment, to achieve residential satisfaction (Priemus, 1986), leading to decline, social segregation or improvement of neighborhoods (Andersen, 2003; Chen et al., 2023). However, comprehensive studies on interrelationship among social-spatial housing characteristics, residential satisfaction and adjustment intentions remain underexplored globally, and scarce particularly in Ethiopia (Jiang, 2018).

Hence, this thesis focuses primarily on direct and indirect relationships among social-spatial housing attributes, residential satisfaction, and adjustment intention among residents of cost-efficient condominium housing neighborhoods in Addis Ababa, Ethiopia.

Results of this study can help understanding the reasons behind and interrelationships among residential satisfaction and residential adjustment intention in cost-efficient condominium housing and be used to offer inputs for housing design, planning and policy formulation to improve the living conditions of residents. Moreover, the contribution of this study is to propose an integrated conceptual framework for the analysis of relationships among socio-spatial housing attributes, residential satisfaction and adjustment intention, using actual-aspiration gap theory. This chapter introduces the background of the study, statement of the problem, research objectives, research questions, significance, scope, limitations, operational definitions, and organization of the study.

1.2 Background of the Study

Urbanization, as a dynamic and multidimensional process, is both a driver of economic growth and a generator of complex urban challenges. While it facilitates economic growth, infrastructure development and improved access to services, it also accelerates population

growth and heightens pressure on the housing demand. It is estimated that 830 million individuals are presently residing in substandard informal settlements, making the need for an estimated 28.25 million new housing units annually(UN-HABITAT, 2023). Various countries have thus employed large-scale cost-efficient housing schemes to reduce such shortages such as Warrier et al.(2019) in India; Ghasemih & Ozay (2018) in Iran; Ulusoy et al. (2012) in Turkey; and Wang & Murie (2011) in China.

Similarly, in response to one million housing need and 70% slum housing prevalence, Ethiopia introduced large scale housing scheme, Integrated Housing Development Program (IHDP), in 2005 (UN-HABITAT, 2011). The primary goals of the programme were to upgrade the poor's housing stock, provide affordable housing to low and middle income households, slum residential area upgrading, employment generation and urban poverty alleviation. The programme enabled thousands of low and middle income households to own proper home while it tends to neglect the actual and aspired housing conditions of residents (Charitonidou, 2022; Delz, 2016) and thus lead to deep residents' actual and aspired housing condition gaps. According to Jiang & Timmermans' (2021) opinion, this gap, between expectation and experience, manifests in residential dissatisfaction.

As per Priemus (1986) when the actual and aspired housing condition gap passes a certain threshold, residents become stressed, potentially triggering residential adjustment, which refers to the desire to change one's living situation. This residential adjustment may take the form of migration to more favorable environments or modification of the current dwelling Morris & Winter (1975) . The implications of these decisions are extensive: outmigration of more economically advantaged residents can cause social stratification and contribute to neighborhood deterioration (Andersen, 2003; Chen et al., 2023), while adaptive cognitive or physical modifications can enable community resilience (Obi et al., 2023). Thus, it becomes important to know the determinants of residential satisfaction and adjustment intentions for sustainable urban housing.

Residential satisfaction has been studied empirically by numerous studies in numerous countries such as Sabah (2023) in Palestine, Kshetrimayum et al. (2020) in India,

Davoodi et al. (2023) in Cyprus, and Bian & Choi (2023) in China. Similarly, residential adjustment has been explored independently by Afolabia et al. (2024) in Nigeria, Maleszyk & Kędra (2020) in Poland, and Warakapitiya et al. (2024) in Sri Lanka. Yet, the direct and indirect relationships among socio-spatial housing attributes, residential satisfaction, and adjustment has been relatively under examined, especially from the lens of actual-aspiration gap theory (Jiang, 2018). Furthermore, most residential adjustment studies focus exclusively on mobility without examining other forms of adjustment and their underlying cause (Maleszyk & Kędra, 2020).

In the Ethiopian context, empirical studies on residential satisfaction exist (Kidane, 2018; Lisanework, 2015; Samuel, 2017; Tigist, 2015) even though these do not implicitly discuss actual-aspiration gaps or their influence on adjustment behavior. As far as far the author's knowledge concerned, no study to date integrates these variables comprehensively with respect to the country's large-scale condominium housing schemes.

This study tries to contribute to these knowledge and practical gaps by investigating how socio-spatial housing attributes influence residential satisfaction and intention to adjust from the actual-aspiration gap theory perspective in cost-efficient condominium housing of Addis Ababa city. Employing a quantitative research, it contributes knowledge and practical insights for planners and policy makers seeking to formulate context-centered and resident-responsive housing strategies and interventions.

1.3 Statement of the Problem

In response to acute urban housing shortages, numerous developing countries have launched large-scale, cost-efficient housing programs to contain the expansion of informal settlements and address increasing demand for decent housing. Large-scale schemes, for instance, have been launched in diverse contexts like mass housing scheme in Turkey Ulusoy et al. (2012), cost-efficient housing scheme in India (Ganga Warrier et al., 2019), affordable housing provision in Iran (Ghasemih & Ozay, 2018), and affordable and social housing provision system in China (Wang & Murie, 2011). Similarly, Ethiopia launched the Integrated Housing Development Program (IHDP) in 2005 as a strategic response to

alleviate a shortage of approximately one million housing units and address the fact that slum housing represented nearly 70% of the urban housing stock in Ethiopia (UN-HABITAT, 2011).

While such projects have managed to add housing stock and offer thousands of low- and middle-income families affordable and formal accommodation, they have at times been unable to make housing design, planning, policy, and development processes responsive to the actual and expected living conditions of residents (Charitonidou, 2022). For instance, Delz (2016) studied cost-efficient condominium housing in Addis Ababa and discovered that standardized design typologies offered limited flexibility, rigid internal layout constrained occupants' ability to transform spaces, and absence of clearly defined spaces for cultural and customary household activities.

This discrepancy between what residents experience and what they desire in their residential environments, the so-called "actual-aspiration gap", can have a significant effect on residential satisfaction levels. According to Jiang & Timmermans (2021), when such a gap becomes large, it has a tendency to create different levels of dissatisfaction, which has a tendency to induce psychological stress. According to Priemus (1986), when such residential dissatisfaction stress surpasses some level of threshold, it can trigger households to take different forms of residential adjustment. This residential adjustment may take the form of migration to more favorable environments or modification of the current dwelling (Morris & Winter, 1975). The consequences of these residential adjustment decisions are broad. Some economically advantaged residents may out-migrate to better housing neighborhoods, causing social segregation (Andersen, 2003). Some well to do families may undertake residential mobility, contributing to neighborhood deterioration (Chen et al., 2023). However, some may undertake physical modifications, enabling community resilience (Obi et al., 2023).

Despite the salience of these concerns, empirical studies investigating the interrelationships among socio-spatial housing characteristics, residential satisfaction, and the various forms of residential adjustment are scarce, particularly under the actual-aspiration gap theory framework (Jiang et al., 2019). Moreover, most empirical studies

have predominantly focused on residential mobility only as a single form of adjustment, often ignoring other forms residential adjustment and their determinants (Ubarevičienė et al., 2024).

Despite there being a growing literature within the Ethiopian context on residential satisfaction (Kidane, 2018; Lisanework, 2015; Samuel, 2017; Tigist, 2015; Warsa, 2017) the research in these studies did not address the gap between residents' actual perceptions and aspirations, actual –aspiration gap and their influence on residential satisfaction. Moreover, residential adjustment is under-explored concept in local context. To the author's knowledge, no comprehensive, place-based investigation has been undertaken to evaluate the direct and indirect relationships between socio-spatial housing attributes, residential satisfaction levels, and residential adjustment intentions in the study area.

This implies that there is a lack of empirical, location-specific studies that evaluate the direct and indirect relationships among socio-spatial housing attributes, residential satisfaction and residential adjustment comprehensively and their consequences. Hence, addressing these knowledge and practical research gaps is crucial for improving policy, strategies, planning and practice regarding large scale urban housing development.

1.4 Research Objectives

1.4.1 General Objective

The general objective of the study is to examine the relationships among socio-spatial housing attributes, residential satisfaction, and residential adjustment intentions among residents of cost-efficient condominium housing neighborhoods, particularly selected from the inner, intermediate and outskirt areas of Addis Ababa, Ethiopia.

1.4.2 Specific Objectives

The specific objectives of the study are:

1. To evaluate the level of residential satisfaction of residents of cost-efficient condominium housing after occupation in Addis Ababa, Ethiopia,
2. To examine the socio-spatial determinants of residential satisfaction of residents in the study area,
3. To identify preferred forms of residential adjustment intentions among households in the selected neighborhoods,
4. To examine socio-spatial determinants of residential adjustment intentions among families living in cost-efficient condominium housing, and
5. To investigate the mediating role of residential satisfaction between socio-spatial housing attributes and residential adjustment intentions.

1.5 Research Questions

This research aims to answer the following five questions:

1. To what extent are the residents of cost-efficient condominium housing in Addis Ababa, Ethiopia, satisfied with their housing following occupation?
2. What are the socio-spatial determinants of residential satisfaction among the residents of the study area?
3. What are the types of residential adjustment intentions most preferred by households in the sampled neighborhoods?
4. What are the socio-spatial determinants of residential adjustment intentions among households in cost-efficient condominium housing?
5. To what extent does residential satisfaction act as a mediator between socio-spatial features of housing and residential adjustment plans?

1.6 Scope of the Study

The present study undertakes a comprehensive examination of both the direct and mediated relationships among socio-spatial housing attributes, residents' satisfaction with their housing, and their intention to adjust or relocate within the context of cost-efficient condominium housing. It specifically explores the general and specific levels of

residential satisfaction by analyzing various housing aspects, including the physical characteristics of dwelling units, the availability and quality of support services, access to public and neighborhood facilities, and the social environment. This inquiry is intended to determine the extent to which residents are satisfied with their overall living arrangements as well as with distinct housing features. Insights derived from this analysis are expected to serve as valuable input for housing planners and policymakers aiming to design more responsive and effective housing interventions.

Additionally, the study investigates the socio-spatial housing dimensions and attributes that significantly influence residential satisfaction from an actual-versus-aspirational gap theory perspective. By identifying which particular features are most impactful, the research provides evidence to support the development of targeted and context-sensitive planning strategies. It further explores residents' preferred forms of residential adjustment intentions, such as remaining in place, seeking relocation, or modifying their current living arrangements, as reactions to varying satisfaction levels. These behavioral tendencies have broader implications for the evolution of condominium neighborhoods, potentially resulting in either physical deterioration, social marginalization, or, conversely, flourishing and well-maintained communities.

Moreover, the research investigates the underlying determinants shaping these adjustment intentions, offering an understanding that can guide sustainable urban and housing policy interventions. A key thematic component of the study is the mediating role of residential satisfaction in the relationship between perceived socio-spatial gaps and adjustment intentions, thereby revealing how satisfaction acts as a bridge linking environmental conditions with behavioral outcomes.

From a spatial perspective, the study is geographically confined to Addis Ababa, Ethiopia, focusing on four randomly selected cost-efficient condominium neighborhoods from inner, intermediate and outskirt areas. These sites were randomly sampled based on a mix of criteria, including their geographic location, year of initial occupation, physical scale, population size, and building typology. This approach was designed to enhance the generalization and robustness of the findings.

Temporally, the research is a cross sectional study that focuses on condominium neighborhoods developed and inhabited between 2005 and 2015. This time frame was selected to allow for a deeper, more longitudinal understanding of residents' experiences and housing dynamics. Data collection was conducted over a four-week period in August 2023.

In terms of methodological scope, the study adopts a quantitative research design, relying on structured, close-ended questionnaires to gather empirical data on residents' perceptions, satisfaction levels, aspirations, and adjustment intentions regarding diverse socio-spatial housing characteristics so as to come up with evidence based implications.

1.7 Significances of the Study

The study offers relevant suggestion for architects, urban planners, and housing practitioners through shedding light on how residents evaluate their housing environment and respond to dissatisfaction. Knowledge of residents' behavioral and attitudinal responses, diverse from housing modification to residential mobility to cognitive adjustment, is fundamental in developing functional, user-oriented housing designs and neighborhood interventions that can improve livability, usability, and sustainable community in the long run.

The study also suggest theoretical contribution to the housing research literature in that it tests and generalizes the Actual–Aspiration Gap Theory in the context of cost-efficient condominium housing. The study identifies, from this view, cognitive and perceptual differences between the aspirations and actual housing experiences of the residents. It refines the theoretical underpinnings of the actual-aspiration framework by supplying explicit socio-spatial determinants that influence residential satisfaction and adjustment intentions, offering an adapted model that can be utilized to inform future theoretical work in urban housing research.

Moreover, this study provides critical evidence for the formulation of responsive, equity-oriented housing policies. By examining the socio-spatial determinants and adjustment

behavior that shape residential satisfaction, the study enables policymakers to craft housing programs that are responsive to diverse population needs.

Furthermore, the research addresses an existing gap within housing literature in testing the empirical relations between characteristics of housing, satisfaction, and adjustment behavior under the Ethiopian context. It extends the research within low-income housing by employing the synthesis between socio-spatial analysis and the theory of behavior change to furnish an all-rounded interpretation integrating fields of design, sociology, and planning.

Because of the limitation of empirical investigations on the three-way interaction among housing attributes, satisfaction, and adjustment intentions, this study paves the way for future research in an inter-disciplinary domain. It calls for longitudinal comparative and mixed-method studies to research these interactions under different cultural, economic, and urban contexts to enhance generalization and theoretic strength.

Residential satisfaction and adjustment behaviors shape neighborhood trajectories, toward decline or resilience. For instance, residential mobility can lead to the outmigration of higher income residents, resulting in the concentration of lower-income households and accelerating neighborhood decline (Andersen, 2003). Cognitive adjustments, such as neglecting maintenance, can exacerbate this decline, while housing improvements and balanced mobility can enhance neighborhood conditions (Clark & Maas, 2013; Land & Doff, 2010; Seek, 1983). Hence, the study adds to the growing body of literature in sustainable urban planning.

1.8 Limitations of the Study

Despite its merits, the present study is not immune to methodological and contextual limitations that should be acknowledged. In the first place, while residential satisfaction and adjustment intentions are multidimensional phenomena influenced by micro, meso, and macro-level factors, this research restricts its analytical scope primarily to micro-level determinants, namely individual and household-level socio-spatial factors. More systemic

variables, such as institutional arrangements (meso) and national housing policies or economic systems (macro), fell beyond the scope of this investigation.

Second, although Addis Ababa has a diverse range of cost-efficient condominium neighborhoods built and transferred under successive phases of the Integrated Housing Development Program (IHDP), the study sampled only four neighborhoods, selected to provide range in terms of location, construction year, size, and typology. Although this sampling provides depth contextually, it inevitably limits the generalization of the findings to the city's cost-efficient housing sector more broadly.

Third, the study design is cross-sectional, capturing a snapshot of residential experiences and adjustment intentions at a single point in time. This strategy limits the ability to track temporal dynamics or unfolding behavioral responses, which are crucial to understand long-term housing satisfaction and adjustment intention trajectories.

Fourth, the study focuses exclusively on social and spatial housing attributes with no regard for economic attributes such as affordability, household income levels, and financial security domains that form part of an inclusive notion of residential satisfaction in a resource-poor setting.

Fifth, while cost-efficient condominium housing schemes have been established nationwide, spanning many secondary cities across Ethiopia, this study is geographically confined to Addis Ababa, the capital city. The urban-biased focus of this work may limit the generalization of observations to other urban areas with dissimilar demographic, economic, or institutional profiles.

Finally, the study adopts a solely quantitative approach to research, utilizing structured survey instruments to generate quantifiable outcomes. Although appropriate to the identification of patterns and correlations, the absence of qualitative methods such as in-depth interviews or ethnographic observation forecloses the potential for eliciting richer, context-dependent meanings and resident narratives that would enhance the interpretation of the findings.

Despite these limitations, the study highlights the urgent necessity to address both perception–aspiration gaps and socio-demographic heterogeneity in housing policy formulation and urban planning. Future research should strive to employ longitudinal designs, involve a greater and more diverse sample of neighborhoods, and seek cross-cultural comparisons with a view to enhancing the external validity of findings and more closely capturing the shifting preferences and adaptation strategies of residents.

In so doing, future research will be strongly positioned to generate evidence-based, context-specific recommendations that inform the development of sustainable, inclusive, and resident-centered housing strategies, thereby contributing meaningfully to policy discussion and practical intervention in urban Ethiopia and similar contexts globally.

1.9 Operational Definition of Key Terms

To ensure conceptual clarity and consistency in this research, it is important to operationally define the key terms utilized in the study. Operationalizing the key variables of residential satisfaction, residential adjustment, housing perception, housing aspiration, and the perception–aspiration gap enables precise empirical analysis and enhances the reproducibility and validity of the findings. The definitions provided below in this section follow the literature and are modified to align with the methodological strategy of this dissertation.

Mediation: is an effect where a third variable (M), known as the mediator, links and causes an independent variable (X) to impact a dependent variable (Y) (Baron & Kenny, 1986).

Residential Perception: was assessed using a five-point Likert scale, where the Respondents rated their valuation of current housing characteristics using scores ranging from 1 (very poor) to 5 (very good), assessing perceived quality of the living environment adapted from Likert (1932).

Residential Aspiration: were measured using a five-point Likert scale, with scores ranging from 1 (very low) to 5 (very high), reflecting the degree of importance or desirability assigned to each dimension adapted from Likert, (1932).

Actual-aspiration Gap: was operationalized as the difference between respondents'

perceived and aspired values for each specific housing attribute, indicating the extent of gap between current evaluations and desired housing conditions adapted from Jiang & Timmermans (2021).

Residential Satisfaction: was quantitatively measured with a five-point Likert-type scale upon which the respondents answered based on their level of satisfaction, 1 being "very dissatisfied" and 5 being "very satisfied" (Likert, 1932).

Residential Adjustment: was defined as a dichotomous variable based on respondents' self-reported preference to undertake a form of residential adjustment. The answers were coded as 0 for "Yes" (indicating a preference to adapt) and 1 for "No" (indicating no preference to adapt) adapted from Morris & Winter (1975).

1.10 Structure of the Study

This dissertation is structured into six integral components. Part One introduces the study through its background, presenting the research problem, objectives, and questions, and the scope, significance, limitations, and operational definitions of key terms. Part Two presents a systematic review of pertinent literature focusing on conceptual, theoretical, and empirical findings. It also presents the identified research gap, and the conceptual framework of the study that informs the research. Part Three delineates the methodology basis of the study, including the description of the context of the study, philosophical perspective, research type and design, methodological typology, sampling approach, method of data gathering, analytical models applied, steps undertaken to address reliability and validity, and ethics principles. Part Four discusses the empirical findings, highlighting respondents' demographic profiles, residential satisfaction levels, adjustment intention preference types, and determinants of residential satisfaction and adjustment intention, and focusing particularly on the mediating role of residential satisfaction. Part Five discusses an interpretative analysis of the findings including their comparison with findings of other studies. Finally, Part Six summarizes the findings by providing an overview of theoretical, practical and policy implications, limitations, and suggestions for future work.

2 LITERATURE REVIEW

2.1 Introduction

Scholarly studies of the relationship among socio-spatial housing characteristics, residential satisfaction, and residential adjustment are typically in one of three broad categories. The first category of studies conceptualizes residential satisfaction as an criterion (dependent) variable and explores the extent to which various socio-spatial housing attributes, such as physical structure, environment of neighborhood, and social interaction, influence residential satisfaction of residents (Mohit et al., 2010). Such kind of research is largely concerned with social and spatial setups as key drivers of residential satisfaction.

The second stream of literature treats residential satisfaction as a predictor (independent) variable, typically in the context of residential adjustment behavior, most significantly residential mobility. Residential satisfaction in this literature is treated as a motivation factor driving individuals to modify, adapt, or relocate themselves from their current housing situation, with typical socio-demographic variables such as age, income, and household size as moderating variables (Diaz-Serrano, 2006).

The third and relatively less studied category of research, as per Jiang (Jiang, 2018), places residential satisfaction as a mediating variable, a pathway along which socio-spatial housing characteristics impact various forms of residential adjustment, including physical, cognitive, and behavioral change. These investigations analyze the subtle, implicit mechanisms through which residential satisfaction affects adjustment intentions and behaviors, adopting a more comprehensive approach towards residential decision-making processes.

This third category is where this research falls. As such, the following literature review is structured to explore basic concepts and theories applicable to residential adjustment and satisfaction before moving into intensive analysis of empirical research that accounts for interrelation of socio-spatial housing attributes, residential satisfaction, and adjustment

behavior. Particular focus is placed on the actual-aspiration gap as a conceptual framework to describe the gap between current perceived and future aspired housing conditions and its impact on residential satisfaction and adjustment intention. The chapter concludes with the identification of research gaps and the formulation of the conceptual framework for this dissertation.

Studies focusing on interrelationship among socio-spatial housing characteristics, residential satisfaction and adjustment are of three types. The first categories of studies focus on identifying determinants of residential satisfaction, where residential satisfaction is a dependent variable. Most of these studies have focused on socio-demographics, spatial attributes and social aspects as determinants of residential satisfaction. The second categories of studies treat residential satisfaction as predictor variable. Most of these studies have focused on residential satisfaction and socio-demographic aspects as determinants of residential adjustment, mostly residential mobility. The third categories of studies treat residential satisfaction as mediating variable. Most of these studies have focused on interrelationship among socio-spatial housing characteristics, residential satisfaction and adjustment where residential satisfaction is a mediator variable. These third type of studies are rare (Jiang, 2018).

This research is in the third category. Hence the literature review covers concepts, theories and relationships among socio-spatial housing characteristics, residential satisfaction and adjustment. Therefore, this chapter is organized as follows. First, literatures on concepts and theories of residential satisfaction and adjustment are discussed. Next, literatures on residential satisfaction and adjustment are discussed. Then, studies regarding Actual-aspiration gap, residential satisfaction and adjustment intention are presented. Finally, insight of Cost-efficient Condominium Housing Development in Addis Ababa, research gaps and conceptual framework are presented.

2.2 Conceptualizing Socio-Spatial Housing Gap, Residential Satisfaction, and Adjustment Intentions

Residential satisfaction refers to the level of contentment individuals feel with respect to their residential environment (Mohit & KhanbashiRaja, 2014). It is a multicomponent construct, representing the cumulative outcome of measurements across a number of distinct housing dimensions. It includes: (1) Housing unit features satisfaction which refers to contentment with physical characteristics of the housing unit like room number, size, arrangement and the like spatial features; (2) Housing unit support services satisfaction which refers to contentment with availability and quality of housing support services at building block level like staircase, corridor, engineering installations and the like services; (3) Public facilities satisfaction which refers to contentment with disposal and quality of common amenities at neighborhood compound level like access roads, car parking area, green areas, play field and the like facilities; (4) Neighborhood facilities satisfaction which refers to contentment with accessibility and quality of infrastructures like health, education, transport and the like facilities ; and (5) Social environment satisfaction which refers to contentment with social interaction among the residents like help, communicate and engage each other (Mohit et al., 2010; Weidemann & Anderson, 1985).

Residential adjustment intention, on the other hand, is the household's behavioral tendency to modify or alter their residential situation in response to emerging dissatisfaction (Priemus, 1986). Even if a household is heterogeneous where members have diverse characteristics, it is assumed as a unit that makes a single decision together in this study. Residential adjustment takes place in physical and non-physical forms. The non-physical forms include: (1) Cognitive adjustment, in which residents suppress their housing needs to fit current housing situations by postponing or deferring physical changes such as moving, maintaining or modification of the dwelling; and (2) Family size adjustment, in which households undertake compositional change, through internal reorganization of household members, by restructuring or resizing the family, to more closely adapt to the current housing condition.

The physical types of residential adjustment are: (3) Residential mobility, as a move within the same urban area to bring residential conditions into greater consonance with residential wants; (4) Dwelling modification, through structural or functional change, expansion of rooms, partitions, or redesigns, to enhance livability; and (5) Neighborhood improvement participation, whereby residents become actively involved in collective efforts to improve the physical quality of the neighborhood, such as landscaping, trash control, and upkeep of infrastructure (Morris & Winter, 1975; Priemus, 1986; Rossi, 1955).

Analytically, most studies that have investigated residential satisfaction and residential adjustment are founded on two approaches: the purposive approach and the actual-aspiration gap approach. The purposive approach assumes that individuals are purposeful actors whose residential satisfaction is a result of the degree to which their residential environment supports their planned activities and life aspirations. Satisfaction, according to this approach, occurs where the residential environment is congruent with purposeful, instrumental goals (Galster, 1985).

In contrast, the actual–aspiration gap approach suggests that housing satisfaction results from the gap between one's perception of current residential conditions (actual/perception) and one's preferred or desired residential conditions (aspiration). Satisfaction decreases with increases in the gap between these two assessments, especially when the actual situation is lower than aspirations. This model integrates objective and subjective assessments of socio-spatial housing characteristics. Spatial aspects include spatial qualities such as physical design, facilities availability, and their management. Social aspects include social interaction among residents such as interpersonal relationships, neighborly solidarity, and participatory engagement in community life (Galster, 1987).

According to Priemus (1986) residents evaluate their housing condition by assessing their current housing socio-spatial aspects (actual) in relation to their aspirational living condition. When there is gap and negative (that is, actual < aspired), they feel residential dissatisfaction stress and develop residential adjustment intention as a behavioral response to decrease the gap and stress. However, the ability to translate residential adjustment

intention into actual behavior is often obstructed by structural and contextual constraints like economic constraints, regulatory restrictions, social commitments, and physical constraints of the housing stock.

Within this conceptualization, residential adjustment intention is the mediating condition between affective residential dissatisfaction and blatant actual behavior. In accordance with Albarracín et al. (2001), behavioral intention is operationalized as the immediate precursor of behavior, intervening between attitudes and perceptions, and actual action. Thus, the residential adjustment intention is a cognitive and emotional response to the gap between actual (perception) and aspired (aspiration) housing conditions, and residential satisfaction level.

Briefly, this study starts from the presumption that gaps in socio-spatial housing qualities, more specifically, where perceived actual states fall short of aspiration states, are root causes of residential dissatisfaction, and that residential adjustment intention is an instrumental response to such gaps and dissatisfaction. By integrating the actual–aspiration gap into formal models of behavioral intention, this research offers a more penetrating insight into how residents cognitively and behaviorally react to gaps in housing quality.

2.3 Theoretical Frameworks on Socio-Spatial Housing Gaps, Residential Satisfaction and Adjustment Intention

To understanding the intricate interrelations among socio-spatial housing attributes, residential satisfaction, and adjustment behavior necessitates a robust theoretical foundation. Several theories have been developed to conceptualize these dynamics. Notably, three seminal theories and one current housing approach have significantly influenced the discourse in this domain: Rossi's (1955) Life Course (Housing Needs) Theory, Morris and Winter's (1975) Family Housing Adjustment (Housing Deficit) Theory, Galster's (1987) Actual-Aspiration Gap (Psychological Construct) Theory and Campbell's (2018) " Massive Small Change" approach .

Rossi (1955) formulated a life-course perspective, which holds that housing needs are not static but vary according to the household life-cycle stage. The theory posits that as households move through the different stages of formation, expansion, contraction, and aging, a dynamic mismatch arises between existing housing conditions and evolving needs. This disequilibrium tends to generate varying levels of residential satisfaction and trigger households to make housing adjustments, either through migration or dwelling changes. Leading among the causes of this change are demographic change (e.g., family size and structure) and economic factors. Residential satisfaction and adjustment, in this model, then, are seen to be functions of socio-demographic change and life cycle change.

After Rossi, Morris & Winter (1975) proposed the Family Housing Adjustment Theory, which addresses the normative dimensions of housing. The theory sets out that household continuously evaluates the quality of their housing environment by comparing actuality with culturally and socially derived housing norms. Discrepancies between these idealized norms and experienced conditions, “housing deficits", form the basis of dissatisfaction. Where the subjective housing deficit is substantial, households are likely to make some form of adjustment, whether residential mobility, physical modification of the dwelling, or internal adjustment such as a change in household structure. Thus, this theory highlights that the gap between normative expectations and actual housing circumstance is a significant predictor of both residential satisfaction and adjustment intention.

Galster (1987) introduced more of a psychological focus in his Actual–Aspiration Gap Theory, a theory focused on the cognitive appraisal processes involved in residential satisfaction. The theory presumes that households make a comparison of their current residential condition (actual/perceived reality) with an idealized or aspirational level. Satisfaction is experienced when actual conditions are equal to or greater than aspirations, and dissatisfaction is reinforced when actual experiences fall below these desired levels. The theory also speculates that, as dissatisfaction becomes salient as a consequence of a sizable negative gap (actual < aspiration), residents will become psychologically stressed, which can initiate intentions to pursue a residential adjustment or develop behavioral responses to narrow the gap. Of importance, residential satisfaction, in this model, is a

mediating variable, bridging the gap between actual and desired residential conditions and the likelihood of residential adjustment behaviors.

Kelvin Campbell (2018) introduced “Massive Small Change” approach which radically critiques the limitations of conventional top-down planning models and demands a more responsive, bottom-up approach to city development. The approach emphasizes how rigid, centralized planning frameworks often are unable to accommodate the evolving demands and desires of those residing in the city and thus lead to unexpected consequences. The approach emphasizes on the concepts of cities as adaptive, organic systems, rather than mechanical systems, with a focus on local agency, incremental intervention, and contextual understanding in creating resilient city spaces. Applying the case of the "Localia Urban Expansion," the approach demonstrates how making small-scale, locally driven change happen can aggregate to produce sustainable urban transformation. Central to this approach is the recasting of government's function, from directive to facilitator of participatory planning, and concentration on flexible, modulated forms such as the urban block, which as organizational mini-modules can be employed to foster inclusivity, flexibility, and organic development. This accords with the premise of this dissertation that disregards of resident actual and aspired housing needs in top-down residential planning and design, produce residential dissatisfaction and elicits diverse residential adjustment intentions, which support or deter neighborhood dynamism.

Among these models, Galster's (1987) Actual–Aspiration Gap Theory is most aligned with the basic objective of this study to examine the interrelationship among socio-spatial housing conditions, residential satisfaction, and adjustment intention. The theory provides a sound explanation for how perceptual gaps in housing quality influence residential satisfaction and, subsequently, residential adjustment intentions. Additionally, it accommodates the dual focus on spatial and social attributes of housing, both of which are central to this study.

Nevertheless, concepts from the other two theories and approach also enrich the analytical foundation of this research. From Rossi (1955) life course model, the inclusion of socio-demographic variation across the household life cycle informs the operationalization of

dynamic housing needs and satisfaction levels. Similarly, Morris & Winter (1975) emphasis on culturally informed housing standards provides a normative framework for assessing how residents perceive inadequacies in their housing environments. Moreover, Campbell's (2018) " Massive Small Change" approach which focuses on the concepts of cities as adaptive, organic systems, rather than mechanical systems, with a focus on local agency, incremental intervention, and contextual understanding in creating resilient city spaces.

Conclusively, while the Actual–Aspiration Gap Theory forms the central theoretical basis of this dissertation, it is conceptually supplemented by concepts arising from the Life Course, the Family Housing Adjustment Theory as well as "Massive Small Change" approach. This integration allows for a comprehensive assessment of how socio-spatial housing characteristics and socio-demographic aspects of residents impact residential satisfaction and the subsequent residential adjustment intention.

2.4 Residential Satisfaction

Grounded in theoretical foundations such as the life course theory, family housing adjustment theory, and actual-aspiration gap framework, extensive empirical research has sought to investigate the multidimensional determinants of residential satisfaction (Biswas et al., 2021). These studies emphasize that residential satisfaction is a complex and multidimensional construct determined by physical, social, and demographic characteristics, as well as psychological assessments of housing quality against expectations.

One of the outstanding clusters of determinants is the housing unit features. More and more studies prove the significance of the physical attributes of the housing unit in impacting housing satisfaction. For instance, Biswas et al. (2021) found that in the residents of Bangladesh, intrinsic attributes of the housing unit were more satisfactory than other dimensions such as social environment, public and neighborhood facilities.

Alam & Matsuyuki (2018) found a positive correlation between unit size and availability of natural light with housing satisfaction in an Indian context but identified that electrical lighting has a negative association with the level of residential satisfaction of residents. Kshetrimayum et al. (2020) supplemented such findings by justifying the importance of natural light and spatial adequacy of rooms in predicting residential satisfaction, but electric power supply has no role to play in Mumbai. Studies by Ogu (2002) and Forte & Russo (2017) further emphasized that physical attributes of housing units such as building materials, floor area, and sanitary facilities influenced residential satisfaction levels. Combined, these findings emphasize the importance of housing unit features as influencers of residential satisfaction.

In addition to housing unit features, housing unit support services have also been extensively cited as important determinants of residential satisfaction. Maina & Mohammed (2022), in Nigeria, found that the quality of support services such as waste removal, water supply, and upkeep at building block level had a greater impact on residential satisfaction than housing unit features and neighborhood facilities. Evidence from Alam & Matsuyuki (2018) indicated that corridor width, cleanliness, and maintenance were positively correlated with satisfaction in Indian slum rehabilitation projects. Similar patterns were similarly observed by Mohit & Azim (2012) in the Maldives, where clean corridors and staircases were a significant factor in resident satisfaction. Inadequacies in housing unit support services were found to relate to residential dissatisfaction; for example Ibem & Aduwo (2013) stated a lack of water and electricity in Nigeria and Lara & Bekker (2012) mentioned limited availability of fixed telephone lines in Angola were associated with residential dissatisfaction. Awolowo (2014) confirmed a positive relationship between waste disposal services and residential satisfaction. The findings set the decisive role of housing unit support services on residential satisfaction of residents living in different contexts.

The third significant determinant found in the literature is public facilities accessibility and quality at neighborhood compound level. Public facilities like local road network, open spaces, and utility services had been discovered to be linked to resident satisfaction

in different contexts. Jiang & Timmermans (2021) discovered public facilities as the second most significant factors affecting residential satisfaction in China. Jiang (2018) also found some public facilities such as road benches, sewer pipes, greenery, pedestrian walkways, and gas pipelines to positively affect environmental satisfaction. Phyu et al. (2024) also added that car parking and street lighting significantly enhanced satisfaction in Myanmar. On the other hand, Lara & Bekker (2012) documented residential dissatisfaction was triggered by inadequate public amenities like green spaces, sidewalks and parks facilities in Angola. Public facilities influence, therefore, appears context-dependent with certain research laying down positive findings while others document public facilities shortcomings as foundations for dissatisfaction.

Neighborhood facilities, refer to accessibility of major neighborhood amenities, also emerges as an overarching feature in the residential satisfaction discourse. For example, Kshetrimayum et al. (2020) noted that accessibility to key services, such as post offices, metro stations, fire stations, government offices, health centers, and banks, was among the best predictors of residential satisfaction in Mumbai. This is supported by Mohit et al. (2010), which demonstrated that proximity to commercial facilities like shopping malls significantly impacted satisfaction levels in Malaysia. Onifade (2021) substantiated this in the Nigerian context, citing residential satisfaction as being tied to the presence and closeness of medical services, schools, and community associations. Conversely, Biswas et al. (2021) established that Bangladeshi residents' dissatisfaction was caused by poor access to educational facilities, healthcare centers, and recreation amenities. Collectively, these studies show the importance of neighborhood facilities proximity in shaping residents' residential satisfaction in different settings.

At the same time, the role of the social environment has received a lot of attention in the literature. Social cohesion, trust, and security are always associated with higher residential satisfaction. Biswas et al. (2021) identified the social environment as one of the strongest factors that resulted in overall satisfaction in Bangladesh. Alam & Matsuyuki (2018) emphasized that frequent social interaction, such as chatting, and community activities positively affected residential satisfaction in India. Similar results from Mumbai by

Kshetrimayum et al. (2020) indicated that neighbors trust, care and interaction were among the most powerful social predictors in determining residential satisfaction. Kellekci & Berköz (2006) also found that good neighbor relations significantly enhanced satisfaction in Turkey, whereas Joseph-Agyei et al. (2014) found that low crime rates were associated with high levels of satisfaction in Ghana. These results emphasized the role of social environment in influencing residential satisfaction.

Additionally, socio-demographic determinants have also been found to exert different and generally varying effects on residential satisfaction. Family size, for example, had varying outcomes across research studies: Biswas et al. (2021) reported a positive association, Alam & Matsuyuki (2018) reported no positive association, while Davoodi et al. (2023) revealed it as a negative predictor. Age had mixed outcomes too: Dekker et al. (2011) had more satisfied older residents, Żelazowski et al. (2022) a U-shape, and Onibokun (1976) no association. Education level had a positive effect in some (Biswas et al., 2021) but none (Żelazowski et al., 2022) or a negative effect (Onibokun, 1976) in others. Gender was also varied, with Jiang (2018) recording higher satisfaction in men and Abass & Tucker (2017) finding none. Tenure length had both positive (Mohit & Azim, 2012) and negative (Davoodi et al., 2023) correlations, and ownership correlated with higher satisfaction by Dekker et al. (2011), but to a negligible one by Abass & Tucker (2017). Whereas employment and income were prone to positive correlations (Lu, 1999; Mohit et al., 2010), early research like Onibokun (1976) indicated no direct correlation. Marital status was also positively correlated with satisfaction (Davoodi et al., 2023), whereas higher numbers of children and larger households indicated lower satisfaction (Biswas et al., 2021). These varying results and findings underscore the need for context-based critical assessment of the effect of socio- demographic variables on residential satisfaction across different countries.

Furthermore, empirical studies based on the theory of actual-aspiration gap make an important contribution to residential satisfaction research. Jiang & Timmermans (2021) found that gaps between actual and aspirational housing unit features, public and neighborhood facilities, social environment, and economic conditions were strong positive

predictors of residential satisfaction in China. Similarly, Phyu et al. (2024) showed that where perceived reality exceeded residents' expectations, overall satisfaction was higher in Myanmar. While it is a valuable resource, the actual-aspiration gap framework is underutilized within housing research. The empirical application of the theory is still limited, particularly in less developed countries (Jiang, 2018). In Ethiopia, some local researches (e.g., Kidane, 2018; Lisanework, 2015; Samuel, 2017; Tigist, 2015; Warsa, 2017) have measured residential satisfaction without addressing the gap between actual and aspirational levels of housing conditions. To the best of the author's knowledge, there is no local empirical study using the actual-aspiration gap paradigm to examine residential satisfaction directly.

The literature reviewed offers a patchy but stimulating picture of determinants of residential satisfaction. Although physical, social, and service factors obviously affect satisfaction, their impact does vary by context, socio-demographic aspects and study approach. Studies of socio-demographic predictors provide varying findings, necessitating contextual based further study. Significantly, the relative underexplored situation of the actual-aspiration gap theory is a major research gap, with this being particularly scares in the case of the Ethiopian urban housing context. Therefore, there exists a need for subsequent studies to inquire actual-aspiration theoretical perspective with the goal of better explaining determinants of residential satisfaction as well as framing evidence-based housing planning, design, strategies and policies.

2.5 Residential Adjustment Intention

Residential adjustment has been extensively studied within the theoretical frameworks of Life Course Theory and Family Housing Adjustment Theory, both of which emphasize the dynamic interplay between individual and family level determinants across different life stages (Clark & Lisowski, 2016). A substantial body of empirical research identifies socio-demographic and economic attributes of residents as key drivers of residential adjustment behaviors, encompassing both residential mobility and housing modification.

Age has emerged as a consistent predictor of residential adjustment. Numerous studies reported that the likelihood of residential mobility declines as individuals age increases, underscoring a reduced propensity to relocate later in life (Afolabia et al., 2024; Aliu, 2019; Barreira et al., 2019; Clark & Lisowski, 2016; Jang et al., 2019). Conversely, older households demonstrate a greater inclination toward housing modification, possibly as an adaptive strategy to aging in place (Ahmad et al., 2000; Bravo et al., 2019; Cirman et al., 2013; Lee, 2000; Sinai, 2001) However, contrary to this general trend, Plaut & Plaut, (2010) found that younger households may be more proactive in residential mobility, potentially due to their aspiration-driven residential preferences.

Marital status also plays a noticeable role in residential adjustment. The transition into or out of marriage, family formation, and union dissolution have been positively associated with increased residential mobility (Aliu, 2019; Clark & Lisowski, 2017; Jang et al., 2019; Maleszyk & Kędra, 2020; Pagani et al., 2021; Spackova et al., 2016; Willibald et al., 2018). Furthermore, marital status correlates with housing improvements, as married household heads are generally more likely to invest in dwelling enhancements (Sinai, 2001). Yet, contrasting findings by Yu et al. (2023) suggest that unmarried, low-income individuals exhibit a higher tendency to relocate than their married counterparts.

Income is another pivotal determinant in residential adjustment. Higher-income households are typically characterized by increased residential mobility and a greater capacity to undertake home improvements (Afolabia et al., 2024; Aliu, 2019; Clark & Lisowski, 2017; Diaz-Serrano & Stoyanova, 2010; Pagani et al., 2021). Additionally, income exerts a positive influence on both physical and cognitive forms of housing adjustment, particularly in enabling modifications aligned with lifestyle preferences (Avogo et al., 2017; Bravo et al., 2019; Kirtania et al., 2022; Kularatne et al., 2019; Latifa & Fatiha, 2024; Maina & Mohammed, 2022). Nevertheless, Morakinyo (2021) observed an inverse relationship between income and dwelling modification, while Willibald et al. (2018) found that lower-income households tend to be more mobile due to affordability constraints.

Tenure status and length of residence are also critical variables influencing residential adjustment. Empirical studies consistently indicate that homeownership reduces residential mobility in comparison to rental tenure (Aliu, 2019; Clark & Lisowski, 2017; Fattah et al., 2015; Pagani et al., 2021; Spackova et al., 2016). Furthermore, homeowners are significantly more likely to engage in housing modifications than renters (Ahmad et al., 2000; Avogo et al., 2017; Bravo et al., 2019; Culp, 2011; Kularatne et al., 2019; Sinai, 2001). Likewise, the probability of relocation decreases with prolonged duration of residence, which is often attributed to stronger place attachment and greater investment in the existing home (Afolabia et al., 2024; Basolo & Yerena, 2016; Clark & Lisowski, 2017; Diaz-Serrano & Stoyanova, 2010; Spackova et al., 2016). Longer residence duration is also positively associated with housing improvements (Ahmad et al., 2000; Bravo et al., 2019; Sinai, 2001).

Household size exhibits a context-sensitive relationship with residential adjustment. Larger households often demonstrate lower mobility due to the logistical and financial burdens of relocating (Afolabia et al., 2024; Clark & Lisowski, 2017). However, when spatial constraints become pronounced, increased household size may act as a push factor toward relocation (Aliu, 2019; Pagani et al., 2021; Willibald et al., 2018). Concurrently, household expansion frequently necessitates housing modification (Kularatne et al., 2019; Latifa & Fatiha, 2024; Maina, 2023; Umeh & Ezeji, 2023), although Morakinyo (2021) found that households with more than four members were less likely to modify their homes.

The number of children within a household also significantly influences residential adjustment trajectories. Family expansion due to childbearing commonly triggers relocation to accommodate increased spatial need (Aliu, 2019; Spackova et al., 2016; Willibald et al., 2018). In contrast, Clark & Lisowski (2017) argue that children can act as anchors, reducing mobility by reinforcing familial stability and place attachment. Similarly, children contribute to housing modification needs, especially in growing households (Kularatne et al., 2019; Latifa & Fatiha, 2024; Maina, 2023), although

Morakinyo (2021) reports a negative association between number of children and dwelling personalization.

Gender-related findings are mixed. While several studies suggest that gender has no statistically significant impact on residential adjustment (Aliu, 2019; Barreira et al., 2019; Clark & Lisowski, 2017; Maleszyk & Kędra, 2020), others reveal distinct gender differences. Yu et al. (2023) report that males are more likely to relocate, whereas Morakinyo (2021) and Schwanitz et al. (2021) found higher tendencies for females to engage in housing personalization and mobility, respectively.

Educational attainment and employment status also exhibit inconsistent effects on residential adjustment. Higher education is often associated with increased mobility, presumably due to greater occupational mobility and aspirations for improved living conditions (Aliu, 2019; Clark & Lisowski, 2017; Diaz-Serrano & Stoyanova, 2010). Yet, some studies suggest that higher employment status may reduce mobility due to job stability (Barreira et al., 2019). Furthermore, educational attainment is linked to housing modifications, though not uniformly; while some studies report a positive association (Avogo et al., 2017; Bravo et al., 2019; Plaut & Plaut, 2010), others find a negative relationship (Morakinyo, 2021).

Residential satisfaction across various housing dimensions, such as housing unit features, housing unit support services, public facilities, neighborhood facilities, and the social environment, has been repeatedly identified as a core determinant of residential adjustment. Dissatisfaction with these elements tends to increase the likelihood of mobility (Aliu, 2019; Barreira et al., 2019; Basolo & Yerena, 2016; Diaz-Serrano & Stoyanova, 2010; Fattah et al., 2015; Jahanshahloo & Daroudi, 2015; Jiang et al., 2019; Maleszyk & Kędra, 2020; Nasrollahzadeh et al., 2021; Pagani et al., 2021; Spackova et al., 2016; Willibald et al., 2018). Similarly, dissatisfaction with housing unit features has been shown to elevate the likelihood of housing modifications (Carrasco et al., 2017; Lee, 2000; Maina, 2023; Umeh & Ezeji, 2023). However, Cirman et al. (2013) observed that satisfaction with the social environment could actually encourage housing modification. Moreover, satisfaction with housing, neighborhood attributes and social environment also

positively influences cognitive and behavioral forms of residential adjustment (Obi et al., 2023; Rahim & Hashim, 2018; Warakapitiya et al., 2024).

2.6 Residential Satisfaction as a Mediator Variable

Residential satisfaction has been increasingly conceptualized as a critical mediating variable in understanding the relationship between housing-related attributes gap and various forms of residential adjustment, including mobility, modification, family size and behavioral adaptation. One of the earliest contributions to this conceptualization came from Speare (1974), who introduced residential satisfaction as an intervening factor that links socio-residential (socio-spatial) and demographic (socio-demographic) characteristics with residential mobility, both in terms of the intention to move and actual relocation behavior. He demonstrated that housing characteristics and socio-demographic factors, such as age, income, and family size, influence mobility indirectly through their impact on residential satisfaction levels.

Subsequent empirical studies have reinforced this perspective. For instance, Oh (2003) empirically validated the mediating role of satisfaction in the mobility decision-making process in an urban South Korean context, showing that dissatisfaction significantly increased the likelihood of mobility intention. Similarly, Diaz-Serrano & Stoyanova (2010), utilizing panel data from 12 European countries, found that in most cases, residential satisfaction robustly mediates the relationship between housing characteristics and residential mobility, with the mediating effect varying by national housing market contexts.

Deane (1990) extended Speare's model by incorporating the concept of residential adjustment as an intermediary construct between satisfaction and the intention to move. His findings suggest that residential dissatisfaction prompts adaptive behavior, whether through relocation or in-place modification, depending on the household's resources and constraints. However, contrasting findings have emerged. Landale & Guest (1985) observed only a weak mediating role of residential satisfaction in their study, arguing instead that satisfaction more directly influences the desire to move rather than acting as a

mediating variable. Similarly, Liao (2004) found no significant mediating effect of satisfaction when assessing residential relocation behaviors, particularly when controlling for life events and structural constraints. However, Jiang (2018) found that residential satisfaction mediated the relationship between socio-spatial gaps and residential adjustment intention in China context.

These mixed results point to several important underexplored relationships. First, the role of residential satisfaction as a mediator may be dependent on contextual variables such as socio-demographics, spatial configuration, social interaction, cultural attitudes toward mobility (micro-level), institutional settings (meso), the regulatory framework of housing markets, and the availability of alternative housing options (macro). Second, the type of residential adjustment, be it physical relocation, housing modification, or behavioral/cognitive adaptation, may differentially interact with residential satisfaction as a mediating factor. For instance, studies by Lu (1999) have found that satisfaction mediates residential self-help improvements and psychological adaptation in low-income and urbanized settings.

Moreover, researches have expanded the scope of inquiry to include socio-spatial housing gaps, actual-aspiration gaps, as predictors of dissatisfaction, which subsequently influences adjustment behavior. For example, Amerigo & Aragones (1997) argued that subjective evaluations of objective spatial attributes, such as access to facilities, environmental quality, and social integration, are filtered through the lens of socio-demographic characteristics, influencing satisfaction and, in turn, residential adjustment responses. Empirical studies by Galster & Hesser (1981) have shown that gaps between residents' desired and actual housing features significantly predict dissatisfaction, which functions as a mechanism provoking residential adjustment strategies. Empirical study by Jiang (2018) and Davoodi et al. (2023) indicated that residential mobility intention is directly driven by residential satisfaction and further indirectly driven by socio-spatial housing gap in China. However, Landale & Guest (1985) observed only a weak mediating role of residential satisfaction in their study, arguing instead that satisfaction more directly influences the desire to move rather than acting as a mediating variable. Similarly, Liao

(2004) found no significant mediating effect of satisfaction when assessing residential relocation behaviors, particularly when controlling for life events and structural constraints.

In sum, the literature reveals that residential satisfaction plays a multifaceted and context-sensitive mediating role between housing attributes, including socio-spatial gaps, and residential adjustment intentions or behaviors. However, empirical results remain inadequate, suggesting that the strength and nature of this mediation are influenced by socio demographics, social interaction, spatial aspects, methodological differences, geographical context, types of adjustment considered, and population groups studied. This underscores the need for further inquiry, particularly in under-researched contexts such as cost-efficient condominium housing environments in rapidly growing cities like Addis Ababa. By investigating this mediating mechanism in such under-researched context, the current study aims to contribute to theory and provide empirical insights that inform inclusive housing design, planning, strategies and policy.

2.7 Insight of Cost-efficient Condominium Housing Development in Addis Ababa

Ethiopia is a nation of immense historical significance within the Horn of Africa region. It is regarded as one of the world's oldest civilizations and human ancestral cradles. It is the second most populous country in Africa, following Nigeria, with a population of more than 130 million in 2024 (World-Population-Review, 2024). World Population Review also stated that although its relatively low rate of urbanization stands at about 20%, the country has experienced a very high urban growth rate of 4.1% annually, and urbanization is projected to increase to 30% by the year 2035. Socio-economic and environmental conditions in the majority of Ethiopian cities remain below standard despite this. As estimated, 64.3% of urban settlements are slums lacking minimum services, urban unemployment stands at 16%, and an estimated quarter of the urban population is below the poverty line (Denge & Wood, 2022). According to Denge & Wood to bridge the growing demand for housing, a national demand for urban houses is estimated at 486 000 houses a year from the year 2025 to 2035.

Addis Ababa, the capital city of Ethiopia and the country's largest city, houses about 19% of the country's urban dwellers. The city has a strong economic performance with an average annual growth rate of about 8.9% and accounts for almost 38% of the national gross domestic product (World Bank Group, 2015). This economic centrality and urban primacy have resulted in extensive rural-to-urban migration, turning Addis Ababa into a town of just 15,000 people in 1889 into a metropolis that is expected to accommodate 4.7 million citizens by 2030 (MoUHC, 2014).

But Addis Ababa has a chronic shortage of housing and deteriorated housing conditions. Most of its citizens are dwelling in congested and poorly constructed houses, with 70 to 80% of its inhabitants dwelling in slum-like conditions (EiABC, 2017). UN-HABITAT (2011) estimated that the city required approximately 300,000 additional housing units since 2003, which could not be met by private developers, cooperatives, or individual household builders.

In response to the recurrent housing shortage, the Addis Ababa City Government launched the Addis Ababa Grand Housing Project in 2003, which was aimed at offering affordable housing to low- and middle-income households, encouraging savings, and facilitating technology transfer. The project commenced with the Bole-Gerji Pilot Project of 700 cost-efficient housing units in G+4 blocks and was achieved within just eight months of 2004. The project was organized by GTZ in collaboration with MH Engineering PLC as the primary consultant (JTZ, 2005).

With this drive, the program had been instituted and scaled up to the Integrated Housing Development Program (IHDP) since 2005, whose objective was to construct over 40,000 housing units annually under the Addis Ababa Housing Development Project Office (AAHDPO)(UN-HABITAT, 2011). The large-scale public housing project with a pro-poor approach was designed as a core urban development strategy. An institutional framework comprising the Ministry of Works and Urban Development (MWUD), Bureau of Works and Urban Development (BWUD), Housing Development Project Office (HDPO), German Technical Cooperation (GTZ), and the Commercial Bank of Ethiopia (CBE) existed to oversee implementation. The state-owned CBE has been the principal financier

since 2006, and the program is therefore deeply dependent on government finance (UN-HABITAT, 2010).

The purchasers of the condominium residential units will make an initial payment of 20% of the price of the unit and finance the remaining 80% through a loan from the CBE. The initial architectural form of the housing was cost-effective, low-rise, walk-up apartments of four stories integrated with social facilities, green spaces, and fundamental infrastructure. Though early projects were built within the city center on small parcels, subsequent projects shifted to peripheral areas with massive-scale plots to accommodate as many as 10,000 units (UN-HABITAT, 2010). According to UN-HABITAT, about 10% of the land in each site is set aside for commercial purposes, typically ground-floor shops and special commercial plots. Besides, there were communal blocks provided to facilitate socio-cultural practices, with space for activities such as slaughtering, washing, and bulk cooking.

Provisions for eligibility among target beneficiaries include at least two years' residence in the city and official identification card. Allocation of units is conducted through computerized drawing lotteries. Resale of property is prohibited for five years following transfer of ownership. Although the program has achieved an unprecedented degree of housing supply in the history of Ethiopia, it has not met real demand and its initial objectives fully. Although the program has enabled a large number of households to acquire better property, the quality and affordability of the housing are debatable. Approximately 70% of the beneficiaries rented their units rather than living in them, undermining the original intent of the program (UN-HABITAT, 2010). Though planned as an anti-poverty project, the units themselves have typically been financially out of reach for the poorest groups. Secondly, the physical form of condominium buildings typically is not compliant with indigenous values and ways of life, with the resultant informal conversion of circulation and common spaces for residential purposes such as cooking and cloth washing (UN-HABITAT, 2011).

Although there have been various empirical studies conducted on residential satisfaction in Ethiopia (e.g., Kidane, 2018; Lisanework, 2015; Samuel, 2017; Tigist, 2015; Warsa,

2017; Charitonidou, 2022), there has not been research that has examined the gaps between what residents actually experience and their needs and aspiration towards their housing. As far as he author's knowledge is concerned, any previous research in the Ethiopian context has explored these gaps and their effects on resident's residential satisfaction and residential adjustment intentions. Therefore, this dissertation aspires to contribute to these empirical gaps by exploring the interconnections among socio-spatial housing attributes, residential satisfaction, and residential adjustment intentions from the Actual-Aspiration Gap Theory perspective, specifically among residents of cost-efficient condominiums in Addis Ababa.

2.8 Housing Provision, Residential Satisfaction and Adjustment: A Cross-Country Perspective

Globally, residential satisfaction, adjustment and housing provision have been shaped by socio-demographic factors, socio-spatial aspects, shifting policy agendas, planning paradigms, and economic capability. Turkey's evolution from state-driven low-cost housing to privately initiate gated communities is a prime example of how socio-economic stratification and market forces shape residential outcomes, residential satisfaction and adjustment. Ulusoy et al. (2012) compared the Konya Garanti Houses, which are among Turkey's largest mass housing programs in a gated complex, and reported high residential satisfaction levels, particularly with respect to indoor and outdoor spatial quality, social amenities, and locational aspects. Based on these findings, the integration of socio-spatial qualities into residential complexes can improve resident experience. However, satisfaction was likewise closely linked to residents' socio-economic and education levels, and emphasized the requirement of providing housing to satisfy different needs and expectations among target groups.

A similar but context-specific scenario exists in India, where housing policy has concentrated on mass-scale provision for economically weaker and low-income groups through mechanisms like the cost-effective housing. While such schemes have been hugely successful in terms of stock growth, studies established that resident satisfaction remains only moderate. Ganga Warrier et al. (2019) pointed out that such an outcome was

generally recognized as the consequence of the failure to contextualize housing design. Local tastes, regional materials, climatic conditions, socio-demographics and community needs are generally overlooked in the urgency to push volume growth. This brings to the fore the necessity of adopting context-sensitive and adaptable design paradigms that go beyond quantity and focus on the socio-spatial, socio-demographic and cultural dimensions of housing quality to bring residential satisfaction.

The Mehr Housing Program, initiated in 2007 in Iran, offers further insights into the complexity of seeking affordability with satisfaction. Designed to reduce housing shortcomings among poor families, the program aimed to reduce housing costs through the abolition of land prices and facilitating mass production. However, Ghasemih & Ozay (2018) observed that residential dissatisfaction was a consequence of various spatial shortcomings, including poor access to services, transportation, and safe public space. The program's suburb location, with limited integration into the urban system, led to social exclusion and increased vulnerability to crime. These problems justify the need for urban housing policy to incorporate accessibility, security, and spatial integration as key factors of residential satisfaction.

These examples demonstrate how failure to engage residents in the policy formulation, planning process, failure to consider socio-demographic factors, socio-spatial diversity and actual-aspired housing needs of residents into account can put long-term housing success at risk and lead to residential dissatisfaction and unintended forms of residential adjustment affecting the social interaction, physical makeup and neighborhood trajectories.

Together, these international examples emphasize the underlying necessity to introduce socio-spatial housing attributes, socio-demographic factors and user perspectives into housing provision. While affordability and scope are still central objectives, the long-term effectiveness of housing projects relies on the extent to which they can respond to local circumstances, satisfy community needs, and enable residents to cope and thrive in the neighborhood environment. This body of literature provides a comparative foundation for

the present research, which seeks to investigate how similar dynamics unfold in the instance of condominium housing in Addis Ababa.

2.9 Research gap

The critical analysis of the existing literature presents strong inconsistencies in findings concerning the effect of socio-spatial housing characteristics, socio-demographic characteristics, and the gap between actual and aspired housing conditions on residential satisfaction and adjustment intention of residents in different contexts. Such inconsistencies are found to be driven by differences in socio-demographic, social , spatial, cultural, geographical, and contextual settings (Afolabia et al., 2024; Clark & Lisowski, 2017; Maleszyk & Kędra, 2020). With regard to growing attention given to subjective and contextual variables within housing research, the Actual-Aspiration Gap theoretical approach has been rather underexplored as regards to residential satisfaction and adjustment investigations. The latter suggests a pressing need for systematic empirical work focused on assessing through this Actual-Aspiration Gap theoretical approach the predominant residential satisfaction determinants in cost-efficient housing neighborhoods.

Although numerous empirical studies have been conducted on residential satisfaction in the Ethiopian context (Charitonidou, 2022; Kidane, 2018; Lisanework, 2015; Samuel, 2017; Tigist, 2015; Warsa, 2017; Workineh, 2022) most of these studies overlook the role of gap between residents' actual experience and their aspirated expectations on residents' residential satisfaction. Up to date, no existing study in the local context has employed the Actual-Aspiration Gap Theory to investigate residential satisfaction as far as the author's knowledge is concerned. Hence, the literature review highlights a major theoretical and empirical gap with this respect. Therefore, firstly, the present study seeks to shed light on the issue by investigation of determinants of residential satisfaction among residents in cost-efficient condominium housing in Addis Ababa, Ethiopia, based on the Actual-Aspiration Gap Theory framework.

In addition, while past studies have extensively explained some forms of residential adjustment, mostly residential mobility (Afolabia et al., 2024; Fattah et al., 2021;

Maleszyk & Kędra, 2020) housing modification (Latifa & Fatiha, 2024; Maina, 2023; Morakinyo, 2021), and cognitive-behavioral adjustment (Obi et al., 2023; Okunola & Bako, 2021; Warakapitiya et al., 2024), each of these forms is primarily studied in isolation. A salient gap still remains in integrative models addressing how various forms of residential adjustment are shaped by shared determinants such as socio-demographics, socio-spatial housing conditions and residential satisfaction. Therefore, secondly, the study pursues to shed light on the subject by examination of determinants of residential adjustment intention among residents in cost-efficient condominium housing in Addis Ababa,

Besides, research on cost-efficient condominium housing in Ethiopia has mainly centered on housing provision issues, affordability issues, and overall levels of generalized satisfaction (Delz, 2016; Hemen, 2020; Sunikka-Blank et al., 2021; Tiumelissan & Pankhurst, 2016; Workineh, 2022). But these studies do not explore residential adjustment responses to housing conditions, such as relocation or modification residential adjustment intentions. There is no local empirical study that fully examined the interrelationship between socio-spatial housing characteristics, residential satisfaction, and adjustment intentions as far as the author's knowledge is concerned.

In addition, there is a clear limitation of research theoretically formulating residential satisfaction as a mediating variable between socio-spatial housing characteristics and diverse types of residential adjustment. Limited efforts at this integration are theoretically under-specified or contextually unattached to low-income urban environments (Jiang, 2018). With the varying empirical results across settings and theoretical underexplored of mediating processes, this study, thirdly, aspires to shed light on the matter by systematic assessment of the mediating role of residential satisfaction in urban housing.

In general, the study attempts to bridge these research gaps by studying the relationships among residential satisfaction, adjustment intentions, and socio-spatial housing attributes of Addis Ababa cost-efficient condominium residents. With special focus on theoretical contribution of Actual-Aspiration Gap approach, this study will also provide empirical

insights towards evidence-informed housing design, planning and policy in similar socio-economic and urban settings.

2.10 Conceptual Frame work

The conceptual framework guiding this dissertation is principally grounded in Galster's (1987) Actual-Aspiration Gap Theory, complemented by Morris and Winter's Family Housing Adjustment Theory and Rossi's (1955) Life Course Theory, and further informed by " Massive Small Changes" approach and findings from the comprehensive literature review. Collectively, these theoretical foundations provide a multidimensional lens for understanding the interrelationships among socio-spatial characteristics, residential satisfaction and the mechanisms underlying residential adjustment intentions in the context of cost-efficient condominium housing.

Galster's (1987) theory posits that an individual's level of residential satisfaction is fundamentally shaped by the gap between actual (perceived) and desired (aspired) residential conditions. This conceptualization suggests that satisfaction is not solely determined by objective housing characteristics but by the perceived gap relative to personal aspiration. The literature corroborates this notion, revealing variations in the impact of socio-demographic characteristics and the actual-aspiration gap on satisfaction outcomes, which are contextually contingent and culturally variable (Amerigo & Aragones, 1997; Maleszyk & Kędra, 2020).

Expanding on this, Morris & Winter's (1975) Family Housing Adjustment Theory introduces a dynamic process wherein residential dissatisfaction beyond a critical threshold triggers the intention to residential adjustment. However, the realization of actual adjustment depends on the household's ability to overcome economic, institutional, and socio-cultural constraints. In parallel, Rossi's (1955) Life Course Theory emphasizes that residential decision-making and adjustment behaviors are intricately linked to life cycle stages and socio-demographic transitions, such as marriage, childbirth, aging, or changes in income and employment.

These theoretical perspectives converge in empirical studies that highlight the combined influence of residential satisfaction and socio-demographic factors in shaping both the type and extent of residential adjustment responses (Fattah et al., 2021; Obi et al., 2023). According to Amerigo & Aragones (1997), individuals first interpret the physical and social features of their living environment through perceptual filters shaped by personal and socio-demographic contexts. Importantly, satisfaction is conceived as an intermediate psychological construct influenced by the subjective interpretation of objective socio-spatial residential attributes.

Building on this theoretical platform, the conceptual framework of this study (see Figure 2-1) operationalizes residential adjustment intention as the principal dependent variable, further disaggregated into five dimensions: Housing Modification Intention (HMI), Residential Mobility Intention (RMI), Neighborhood Modification Participation Intention (NMI), Family Size Adjustment Intention (FAI), and Cognitive Adjustment Intention (CAI). These adjustment intentions are influenced by both the actual-aspiration gaps in housing and neighborhood attributes and residents' socio-demographic characteristics.

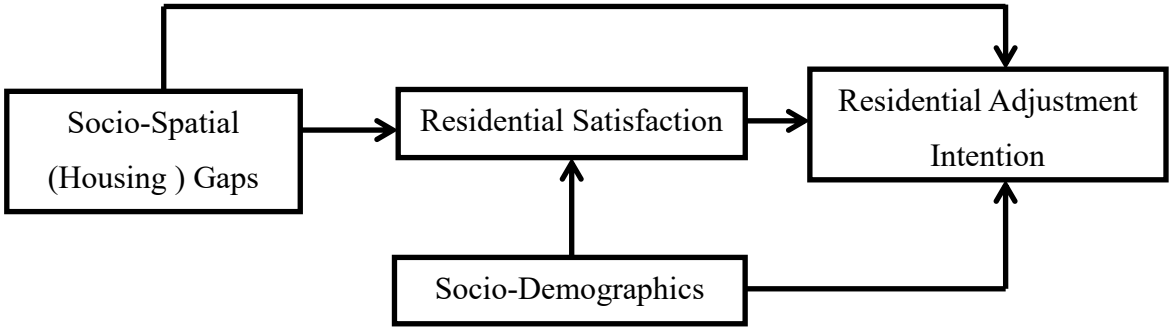

Figure 2-1. Main Conceptual Framework of the Study

Subsequently, the conceptual framework proposes five key housing dimensions socio-spatial gap variables as independent variables: Housing Unit Features Gap (HUFG), Housing Unit Support Services Gap (HUSSG), Public Facilities Gap (PFG), Neighborhood Facilities Gap (NFG), and Social Environment Gap (SEG). These gaps represent the perceived gap between current and aspired housing conditions. Alongside

these, socio-demographic factors (SDG)—such as age, income, education, household size, and tenure—are incorporated as co-determinants.

Residential satisfaction is examined as a mediating variable, reflecting how residents' subjective interpretations of their housing environments modulate the relationship between housing condition gaps and residential adjustment intentions. This mediating construct is further broken down into five satisfaction dimensions: Housing Unit Features Satisfaction (HUFS), Housing Unit Support Services Satisfaction (HUSSS), Public Facilities Satisfaction (PFS), Neighborhood Facilities Satisfaction (NFS), and Social Environment Satisfaction (SES).

In synthesis, the conceptual framework suggests a structured pathway wherein objective housing gaps, filtered through socio-demographic lenses and individual aspirations, influence subjective residential satisfaction across various housing dimensions. This satisfaction, in turn, affects residential adjustment intentions.

In conclusion, the framework posits that: Socio-spatial housing condition gaps and socio-demographic characteristics are the independent variables, multidimensional residential satisfaction operates as a mediator, and residential adjustment intentions constitute the dependent outcomes.

This conceptual framework not only aligns with the main objective of the study but also integrates contemporary empirical insights, providing a robust analytical tool for investigating residential behavior in rapidly urbanizing, low-income settings like Addis Ababa.

3 METHODOLOGY

3.1 Introduction

This chapter describes the methodological procedure applied to study the associations among socio-spatial housing characteristics, residential satisfaction, and adjustment intentions of residents in the context of cost-efficient condominium residential neighborhoods in Addis Ababa. Owing to the multidimensionality and relationally of the study constructs, a quantitative design was employed to facilitate empirical quantification, statistical generalization, and rigorous inferential analysis.

The methodology of this dissertation draws on a post-positivist epistemology that acknowledges the presence of observable realities but also takes into account the complexity of human behavior and perceptions in constructing residential satisfaction and adjustment intentions. The procedure allows for rigorous analysis of how social and spatial aspects of housing dimensions and attributes with residents' aspirations and lived experiences to shape residential satisfaction and adaptive intentions.

To achieve the research objectives, the study uses both descriptive and inferential statistical approaches. Descriptive statistics are utilized to describe extensive patterns and distribution of residential satisfaction and adjustment intentions for different housing dimensions. Inferential models like multiple linear regression, binomial logistic regression, and mediation analysis are utilized in examining the direct, indirect, and mediating impacts between variables. The stepwise modeling strategy permits the identification of the most significant predictors and interaction effects, yielding an insight into the causal processes driving satisfaction and adjustment dynamics.

The chapter then proceeds with the description of the research design, target population, sampling strategy, unit of analysis, sample size, data collection procedures, and instrument development. It further mentions the operationalization of variables, data analysis strategies, as well as ethical issues. Methodological rigor was maintained by pretesting, reliability and validation testing, and upholding institutional ethical requirements, ensuring

validity and reliability of findings. Analytical procedures were carried out using IBM SPSS version 25 and the PROCESS macro (Model 4), with bootstrapping employed in mediation testing to enhance statistical power and precision.

By structuring the methodology in such a manner, the research attempts to provide empirically grounded insights that shape theoretical discussion and action in housing policy, urban development, and residential development planning.

3.2 Description of the Study Area

Ethiopia, which is estimated to have a population of around 133 million as of 2024, is the second most populous country in Africa and the world's tenth. Its capital city, Addis Ababa, has experienced significant demographic and spatial growth, from a perceived 329,000 inhabitants in 1950 to approximately 5.7 million as of 2024, assuming a uniform annual urban growth rate of 4.45% (World-Population-Review, 2024). This accelerated urbanization has put extreme pressure on the housing sector, creating severe shortages and exacerbating the housing affordability crisis for the low- and middle-income sections.

In order to respond to this shortage of housing, the Government of Ethiopia launched the Integrated Housing Development Program (IHDP) in 2005. IHDP is a large-scale public housing project aimed at offering affordable, multi-story condominium apartments as solution to the housing needs of middle- and low-income families while promoting employment generation and urban densification (JTZ, 2005). Through the program, hundreds of thousands of families have become owners of cost-efficient houses in some of Addis Ababa's neighborhoods.

This research aims at four typical IHDP-constructed condominium neighborhoods constructed between 2005 and 2015: Gottera, Gofa Mebrat, Bole Gerji, and Bole Summit. They were chosen on the grounds of their geographic location (inner, intermediate, and suburban of the city), year of completion, and size of housing units to achieve maximum variability and representativeness in geographic, temporal, and social spaces.

Sampling in each neighborhood was proportionally allocated according to its overall residential population and characteristics. Gottera Condominium Neighborhood, located within the inner city in Kirkos Sub-City, has 2,433 units on a total area of 13,525 square meters of land as shown in Figure 3-2. The complex was completed and occupied in 2009 (Tigist, 2015). Gofa Mebrat Condominium, in the inner urban center in Nifas Silk Sub-City, has a capacity for 5,580 units on an overall land area of 38,000 square meters as shown in Figure 3-3. It was occupied beginning in 2009 (Yonas, 2016). Bole Gerji Condominium, situated in the intermediate belt of the city within Bole Sub-City, has 696 units as shown in Figure 3-4. It was completed in 2008 and is a medium-density residential scheme (Samuel, 2017). Bole Summit is located in the suburban part of the city in Lemi Kura sub city. It is consisting of 10,001 residential units. Its area is 55,000 m2 as shown in Figure 3-5. It became operational since 2014 (Hemen, 2020) bringing spatial and developmental diversity to the study sample as shown in the location map in Figure 3-1.

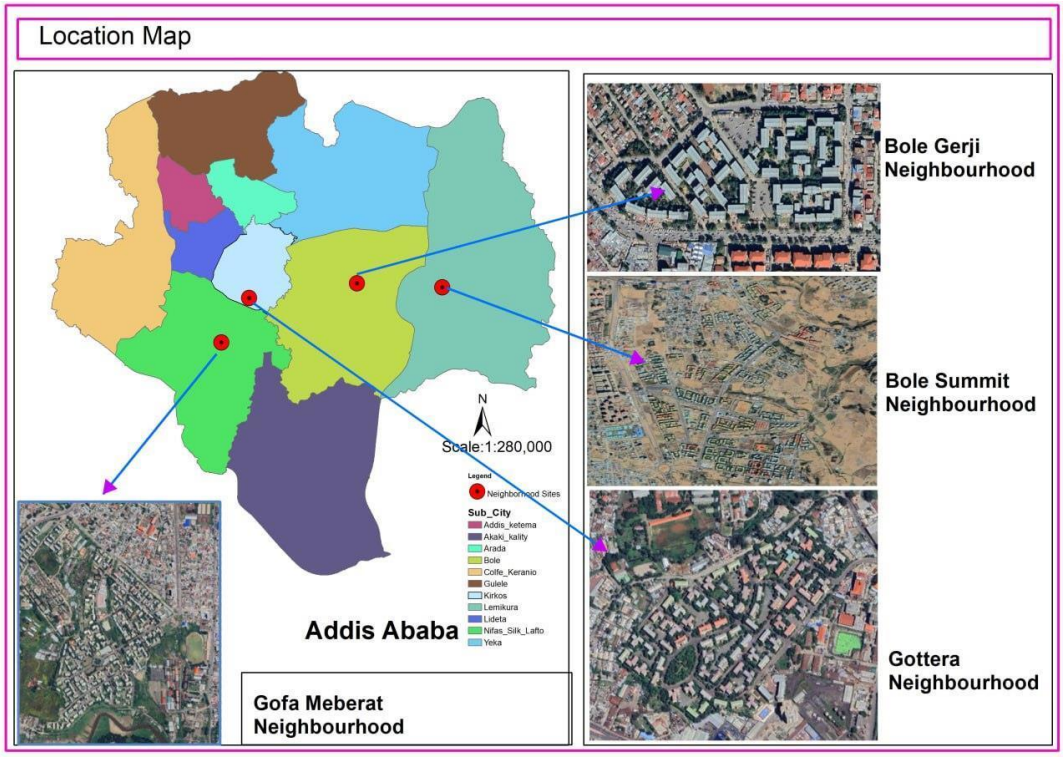

Figure 3-1. Location map of the study area

Each of the neighborhoods is made up of G+4 mid-rise blocks, a structure widely used in the early IHDP to satisfy both affordability and spatial efficiency requirements. The

ground floor is typically reserved for commercial units, which are occupied by micro-enterprises and local services. The four floors above have residential flats, distributed evenly across.

Figure 3-2. Gottera Condominium Neighborhood Site

Source: Google Earth, 2023

Residential units comprise of studio flats with sizes ranging from 20 m² to 35 m²; one-bedroom flats with sizes ranging from 35 m² to 50 m²; two-bedroom units of 50 m² to 65 m²; three-bedroom units of 65 m² to 85 m². Each floor has 4 to 8 residential units, depending on the core and block arrangement (MoUHC, 2014). This relatively compact arrangement is planned to maximize unit count without wasteful land usage.

Structurally and materials, the buildings are reinforced concrete (RC) framed. Agro-stone panels and hollow concrete blocks (HCB) are employed in constructing external and

Figure 3-3. Gofa Meberat Condominium Neighborhood Site
Source: Google Earth, 2023

Figure 3-4. Bole Gereji Condominium Neighborhood Site
Source: Google Earth, 2023

internal partition walls, respectively. Door and window frames are composed of galvanized iron sections. Walls are cement plastered and housing units are handed over to

residents via lottery among in the registered list in a half-finished manner to enable internal finishing by the residents as preferred and affordable by them (MoUHC, 2014).

Figure 3-5. Bole Summit Condominium Neighborhood Site
Source: Google Earth, 2023

Ownership pattern is on a double tenure system—beneficiaries own personal title deeds to their units and common tenancy of common interior and exterior spaces, such as stairs, corridors, open spaces, and green spaces. All compounds have an asphalt or cobblestone access road, storm water drainage, and street lighting facilities. Other facilities include car parking lots, open recreational grounds, and G+0 to G+1 common buildings that house

common washing facilities, common cooking rooms, and animal slaughter areas, typically run by elected condominium housing committees (UN-HABITAT, 2011).

The built environment and public infrastructure of these settlements shed light on broader state-led urban strategies enabling affordable housing while transforming the socio-spatial landscape of Addis Ababa. These physical, architectural, and governance attributes form the empirical basis for the analysis of interconnected dynamics between socio-spatial housing attributes, residential satisfaction, and adjustment intentions in this dissertation.

3.3 Research Philosophy

The study adopts a positivist philosophy of research that is epistemologically based upon the assumption of objectivity in reality and quantitative measurability, and whereby knowledge is achieved optimally via empirical experience and logical analysis. Positivism centers on search for, as well as explication of, cause-and-effect associations among variables, and prioritizes testing or verification of existing theoretical constructions (Creswell, 2009). This philosophical paradigm is especially fitting for the present study, which seeks to empirically examine the applicability of actual–aspiration gap theory in the case of cost-efficient condominium housing developments in Ethiopia, a rapidly urbanizing nation.

The main aim of the study is to investigate direct and indirect cause-and-effect relations among socio-spatial housing features, residential satisfaction and residential adjustment intentions. In keeping with this philosophical stance, the research is operationalized as a quantitative approach, in which standardized, numerical data is collected from a representative sample of residents. This philosophical deployment enables rigorous statistical testing of hypothesized relationships, thereby serving theory confirmation and practical insight. By situating itself in the positivist tradition, the research not only adds to scholarly knowledge of housing-related behavioral outcomes but also generates empirically grounded evidence to inform housing policy, planning, and design practices that are relevant to large-scale housing development programs.

3.4 Research Design

This study utilizes an explanatory research design, a methodological strategy that explains causal relationships between variables in a step-by-step manner, empirically tests theoretical assumptions, and offers evidence-based interpretations (Creswell, 2009). It is particularly suitable to the study's main objective which is to investigate the direct and indirect relationships between socio-spatial housing attributes, residential satisfaction, and residential adaptation intentions in the urban context of cost-efficient condo housing in Ethiopia.

The explanatory approach relies on a theory-based logic of investigation and, as such, is appropriately positioned to test the actual–aspiration gap theory, a theoretical framework implying that dissatisfaction emerges when actual living conditions diverge considerably from aspirations. Such dissatisfaction, in its turn, may trigger various types of residential adjustment intentions, like residential mobility, housing and neighborhood modification, family size or cognitive adjustments. The study therefore demands a design that not only investigates associations but also explains the interrelationship through which residential satisfaction serves as a mediator of the influence of socio-spatial housing attributes on residential adjustment intentions.

Secondly, the study seeks to make a contribution to evidence-based urban housing policy, planning, and design, in the case of large scale low cost-housing interventions. As such, the explanatory design allows for rigorous quantitative analysis, traditionally operationalized through instruments like multiple regression, to produce empirically grounded conclusions. These conclusions are a crucial part of ascertaining what housing dimensions, like housing unit features and support services, public and neighborhood facilities, communal infrastructure, and social environment, influence which type of residential satisfaction and residential adjustment intentions.

By the integration of causal inference with policy implication, the explanatory design enables both theoretical validation and practical implications suggestion. It ensures that the research go beyond descriptive accounts to enable strong hypothesis testing,

conceptual assumption verification, and the development of practical implications intended to address the complexities of Ethiopia's cost-efficient housing sector. Hence, this study design is not just methodologically reasonable but also practically appropriate, re-affirming the objectives of the study to provide scientifically acceptable and policy-informative data on housing performance, residential satisfaction, and residential adjustment intentions in a developing nation context.

3.5 Research Approach

This study adopts a deductive research approach, a methodological standpoint characterized by theory-led investigation, whereby hypotheses derived from existing theoretical perspectives are tested empirically (Creswell & Creswell, 2018). The study is grounded on actual–aspiration gap theory so that deductive research approach is well-suited to investigate the framed causal relationships among socio-spatial housing attributes, residential satisfaction, and residential adjustment intentions in the context of cost-efficient condominium housing complexes in Addis Ababa.

The deductive logic begins by assuming that there is a perceived gap between the experienced and aspired housing conditions of families, such gap creates dissatisfaction that can trigger adjustment intentions and behavior. Such assumptions are translated into quantitatively testable hypotheses and subjected to tests based on structured questionnaires measuring socio-spatial characteristics, residential satisfaction levels, and adjustment intentions.

The deductive approach offers assurance of the alignment between hypothesized concepts and empirical observation, thereby enabling rigorous testing of the direct and indirect causal linkages between the main constructs of the study. Furthermore, the approach allows theory testing and empirical findings relevant to housing policy and urban planning. Therefore, the deductive research design is epistemologically appropriate and methodologically adequate to test the explanatory power of actual–aspiration gap theory in cost-efficient condominium housing in a developing urban context.

3.6 Research Type

The study employs a quantitative research approach, which fundamentally aligns with the positivist approach that aims for empirical verification and objective quantification. Quantitative research is characterized by the investigation of theoretical statements through the analysis of quantitative data to enable the researcher to explore relationships between measurable variables with accuracy and reproducibility (Creswell & Creswell, 2018). Against this background, this study explores causal and correlational relationships among the study constructs: socio-spatial housing attributes, residential satisfaction level, and residential adjustment intentions of residents of cost-efficient condominium estates in Addis Ababa, Ethiopia.

The quantitative paradigm aids in investigating direct and indirect effects among variables according to the Actual–Aspiration Gap Theory. According to this theory, gaps between individuals' current residential conditions and their aspirational desires influence satisfaction and behavioral responses, for example, relocation, housing & neighborhood modification or psychological adaptation. Quantitative inquiry is most suited to investigate such constructs in a systematic manner employing numerical data gathering instruments, primarily Likert-scale questionnaires, intended to obtain objective responses among a large sample of respondents.

To ensure rigorous empirical analysis, the data are examined using descriptive statistics, which provide dispersions summaries; multiple linear regressions, which test the direction and size of the effect of continuous and categorical predictors on residential satisfaction; and binomial logistic regression, which predicts the probability of adjustment intention as a function of satisfaction and socio-spatial variables. These inferential statistical techniques are chosen based on the level of measurement of variables and the nature of relationships to be examined.

Generally, the quantitative research approach is epistemologically and methodologically aligned with the study purpose: to validate theoretical constructs, measure empirical relationships, and generate evidence-based findings pertinent to urban housing policy

formulation, spatial planning, and design strategy. The objective and reproducible nature of quantitative analysis is best applied to inform scientific recommendations in the context of Ethiopia's affordable housing scenario.

3.7 Sampling design

This section explains the sampling plan used in selecting representative participants or respondents from the study population in a way to ensure reliability and validity of the research findings. It defines the target population that the sample is drawn from, delineates the sampling frame that lists eligible units, operationalizes the unit of analysis relevant to the objectives of the study, explains the sampling method utilized to enhance representativeness, and offers the basis on which sample size is determined. These procedures collectively provide a scientifically sound basis for ensuring the study findings generalizable to the broadened population.

3.7.1 Target Population

The study population consists of all the residents of cost-efficient condominium housing neighborhoods constructed and transferred to beneficiaries within the city of Addis Ababa between 2005 and 2015. The condominium residential housing, which began under the Ethiopia's Integrated Housing Development Program (IHDP), represents a large portion of the urban housing intervention within the country. According to reports from data submitted by the Ethiopian Institute of Architecture, Building Construction and City Development (EiABC, 2017), 182,388 condominium housing units were constructed and lawfully transferred to dwellers in different areas of the capital city in this decade.

This research focuses on the population that indeed perceives the space and socio-economic effects of such housing provisions. Consequently, the emphasis of this research is placed on household heads in these units, as they are considered to be primary decision-makers and sources of information regarding residential satisfaction, usage patterns, and adjustment processes. Consequently, the respondents in this research are defined as the household head, which aligns with the research aim to explore the lived experiences,

residential satisfaction and adjustment intention in the urban cost-efficient condominium environment.

Thus, the target population size for the research is synonymous with the number of transferred dwelling units, 182,388, each representing a unique household and household head. This defined and bounded population serves as the base for sampling and ensures the empirical relevance and analytical reliability of the findings in connection with the broader phenomenon of urban cost-efficient housing in developing settings.

3.7.2 Sampling Frame

The sampling frame of the present study is, therefore, the entire list of household heads residing in four sampled cost-efficient condominium neighborhoods in Addis Ababa that were built and allocated to residents between 2005 and 2015. This frame serves as the working population, from which the research sample was randomly drawn, with precision to the larger target population but also with the ability to conduct a reliable and valid empirical inquiry.

These sampled residential areas are representative of the entire implementation of the Integrated Housing Development Program (IHDP) in the city, covering spatial, socio-economic, and architectural diversity in inner, intermediate, and suburban zones. The criteria for selecting the sampling frame were that included individuals should be the official household heads residing in units as owners or renters during the specified period.

By constructing a sampling frame around these already established condominium sites; the study ensures consistency of its sampling process and the accuracy of resulting statistical inferences. Moreover, the sampling frame enhances the legitimacy of findings through the use of an ascertained, bounded, and recorded population, and therefore, both representativeness and reliability in subsequent research on the dynamics of low-income urban housing is facilitated.

3.7.3 Unit of Analysis

The unit of analysis in the present empirical study is the head of household resident in publicly built but privately owned cost-efficient condominium residential buildings in selected sites in Addis Ababa. This choice suits the research purpose, which demands the measurement of subjective experience and personal aspiration toward housing conditions. The process of data collection is operationalized at the individual level, where household heads are the main respondents because they play a pivotal role in residential decision-making, spatial adaptation, and household-level assessment of the built environment.

Each household head provides first-hand data regarding his or her own opinions and expectations concerning various socio-spatial characteristics of housing like size of dwelling, interior layout, location, public facilities, neighborhood facilities, and infrastructural provision. Furthermore, their responses identify individual residential satisfaction and their intention to alter their residential condition, either by physical modification of their own units, through planned relocation, or cognitive adjustment.

Through a focus on the household head as the unit of analysis, the study offers a uniform match between the theoretical model, which focuses on perception–aspiration gaps and individual adjustment intention, and residential satisfaction. Individual-focused unit of analysis is appropriate to quantitative assessment of causal relationships and hypothesis testing in relation to the Actual–Aspiration Gap Theory. It further enables the examination of housing outcome variation as moderated by individual-level factors, including socio-demographic attributes, housing experience, and locational tastes, thereby enhancing the internal validity and theoretical value of the research.

3.7.4 Sampling Technique

For making the study more representative and analysis more accurate, a proportionate stratified random sampling design was used. Being a multistage approach, it enables systematic coverage of various heterogeneous attributes among the research population, thereby making equitable representation possible for various socio-spatial locations. Sampling has been conducted on two hierarchical levels: macro-level (city-level) and micro-level (at sample condominium neighborhood level).

During the first stage, affordable condominium sites were sampled based on three basic criteria: housing neighborhood size, year of transfer to beneficiaries, and urban location typology, more specifically as inner-core, intermediate, and peripheral (suburban) zones in Addis Ababa. Such sampling is consistent with urban morphological and temporal dimensions of housing development, which are hypothesized to influence residents' living experiences and perceptions. Next, representative neighborhood areas were selected randomly from each stratum to correspond with the proportional distribution of the entire cost-efficient condominium population across the city. Hence Gottera and Gofa Meberat, Bole Gerji, and Bole Summit condominium neighborhoods were sampled from inner, intermediate, and suburban part of the city, respectively.

At the second stage, housing units within each of the sampled neighborhoods were sampled by simple random sampling with variation by floor level, bedroom type at block level, and location in the neighborhood. The second level of sampling ensures household-variation at neighborhood and building block level.

Such multilevel stratified random sampling not only increases the statistical representativeness and validity of the sample but also facilitates generalization of findings at city level. Moreover, it facilitates the study's aim of examining complex, multivariate interactions between socio-spatial housing attributes, residential satisfaction, and adjustment behavior in a context-specific manner, proportionate to the architectural and demographic complexity of Addis Ababa's cost-efficient condominium schemes.

3.7.5 Sample Size

According to EiABC (2017) 182,388 housing units are constructed and transferred in Addis Ababa from 2005 t0 2015. The research unit of analysis is a household head so that the population of the research will be 182,388 households. In this study + 5% level of precision, 95% level of confidence and 0.5 degree of variability will be applied. According to Yamane (1967) a simplified sampling formula to calculate sample sizes is stated in Equation (1) below:

$$n = \frac{N}{1 + N(e)^2} \quad \text{..... (1)}$$

Where n is sample size, N is the population size, e is the level of precision. When this formula is applied to this research, the sample size is 399. Hence a sample size of 400 households is considered and respondents are selected based on proportionate stratified random sampling technique to increase the reliability of the date to be collected. Then this total sample is proportionally distributed to the four stratified neighborhoods of the study: Gottera, Gofa Meberat, Bole Gerji and Bole Summit sites. In doing so, stratification formula was employed for calculating the sample size within each site as stated in Equation (2) below:

ni = (Mi/N) x 400…..... (2)

Where ni is the sample size of a neighborhood i, M is the population size of a neighborhood i, and N is the total sum of population size of the four neighborhoods, and i=1,2,3….I is an indication of selected neighborhood type. When this formula is applied to this research, the sample size is become as follows: 16 for Bole Gerji, 53 Gottera, 119 for Gofa Meberat, and 212 for Bole Summit as shown in Table 3-1.

Table 3-1. Sample Size Distribution of Neighborhoods

No	**Name of the condominium neighborhood**	**Population size of a neighborhood**	**Sample size of a neighborhood**
1	Bole Summit	10,001	212
2	Gofa Meberat	5,580	119
3	Gottera	2,433	53
4	Bole Gerji	696	16
Total			400

Source: Author's Survey Data, 2023

3.8 Research Method

This study applied quantitative research design in examining the casual relationship between the study constructs. The research solely depended on primary data and supplemented it with secondary data that was relevant to contextual and comparative purposes. The sources of data included residents in the chosen condominium locations who have been occupying the housing units for a reasonable period of time to enable them to provide comments on actual experiences as well as desired conditions. Data were gathered with the aid of a structured questionnaire survey, adapted to collect quantitative data regarding socio-demographic characteristics of residents, perceived and desired housing attributes, satisfaction level, and adjustment intentions. The survey guideline was based on theoretical frameworks and empirical studies, and it was administered with face-to-face household survey to create responsiveness and high-quality responses. This methodological approach was adopted to facilitate statistical analysis and hypothesis testing to provide a clear understanding of the factors of residential satisfaction and adjustment behavior in the studied area. This subsection is consisting of data type, data source and data collection method of the study.

3.8.1 Data Type

In this research, it is assumed that a wide range of socio-spatial housing factors influence both perceived residential environment quality and residents' behavioral intentions to engage in various types of residential adaptation. This study thus employs a wide variable framework informed by theoretical models and empirical realities in past literature. These variables are defined and categorized to fit the research purposes, enabling effective analysis of the complex interaction between perception, aspiration, satisfaction, and adjustment behaviors in the context of condominium housing in Addis Ababa.

Based on the reviewed literature, the data collected for this research are grouped into three broad categories: (1) socio-demographic household and head attributes, (2) socio-spatial housing dimensions and attributes, and (3) residential perception, aspiration, satisfaction, and intention to adapt variables.

The socio-demographic details include variables such as: Age (measured in years of household head), Gender (biological sex of household head), Marital Status (broken down into single, married, widowed, divorced, or union), Educational Attainment (broken down into no formal schooling, primary, secondary, diploma, degree, and postgraduate), Household Size (number of household members), Number of Children, Employment Sector (broken down into unemployed, public/government, endowment organization, private company, NGO, or self-employed), Employment Category (unemployed, office-based, technical, business, or service-related employment), Length of Residence (expressed in number of years), Location of Residence (inner city, intermediate zone, or suburb). Housing Tenure (owner or tenant), and Household income (aggregate household income from all sources).

Concurrently, socio-spatial housing data are collected on five general housing dimensions, each of which has several attributes: Housing Unit Features: e.g., number of rooms, room size, total floor area, layout, natural daylight, ventilation quality, construction material, electrical and sanitary service quality, and the floor level of the unit. Housing Unit Support Services: such as quality and availability of corridors, staircases, block-level water supply networks, internal drainage networks, electrical networks, telecommunications services, solid waste disposal, hygiene, and maintenance effectiveness. Public Facilities: such as car parking areas, recreational play grounds, outdoor public spaces, internal road networks, street lighting facilities, waste collection spots, environmental hygiene, greenery and landscaping, drainage facilities, and common block amenities. Neighborhood Amenities: measuring accessibility to employment centers, schools, health facilities, markets, recreational spaces, police stations, transport stops, central city services, and religious institutions. Social Environment Factors: such as inter-personal communication frequency, acquaintance with the neighborhood, levels of social interaction, exchange of mutual assistance, resident committee activity, rates of attendance at social and organized community functions, and subjective rates of noise disturbance, crime occurrence, and accident rates.

These variables were measured using structured questionnaire aimed at measuring resident perception, aspiration, satisfaction level, and intentions towards behavioral adaptation on housing change, residential mobility, neighborhood adaptation, family size adjustment, and cognitive adaptation. These variables taken together constitute an integrative framework for the assessment of the effect of socio-spatial disparities and resident aspirations on satisfaction and resulting adaptation intentions.

Table 3-2. Socio-spatial Housing Dimensions and Attributes of the Study

Housing Dimensions	Housing Unit Features (HUF)	Housing Unit Support Services (HUSS)	Public Facilities (PF)	Neighborhood Facilities (NF)	Social Environment (SN)
Housing Attributes	Number of Rooms	Corridor	Car Parking	Workplace Accessibility	Communication Frequency
	Rooms Size	Staircase	Play Field	School Accessibility	Neighbors Familiarity
	House Area	Block Water Supply	Outdoor Spaces	Health Facilities Accessibility	Social Interaction Frequency
	Rooms Arrangement	Block Sewerage System	Local Street	Market Accessibility	Help Exchange Frequency
	Rooms Lighting	Block Drainage System	Street Light	Recreational Facilities Accessibility	Committee Activity Participation
	Rooms Ventilation	Block Electric Installation	Local Greenery	Police Station Accessibility	Social Activity Participation
	Construction Material	Block Telecom Network	Local Drainage System	Transport Accessibility	Organized Activity Participation
	Electrical Installation	Block Waste Disposal	Infrastructure Maintenance	Urban Center Accessibility	Noise Pollution
	Sanitary Installation	Block Cleanness	Local Waste Disposal	Religious Facilities Accessibility	Crime Level
	Floor Level	Block Maintenance	Local Cleanness Communal Block		Accident Level

3.8.2 Data Source

In alignment with the main objective of this research, to quantitatively examine the interrelationships among core constructs such as socio-spatial housing attributes, residential satisfaction, and adjustment intentions, primary data source is employed. Primary data source is employed in the research because of its need for context-sensitive, first-hand empirical data that optimally capture the perceptions, aspirations, satisfaction and intentions of the population under focus. As the study is based on the lived experience and subjective assessment of residents who reside in cost-efficient condominium housing schemes, the use of primary data allows for the collection of detailed, respondent-driven data that cannot be achieved through secondary sources.

For this purpose, household heads residing in condominium housing units constructed and transferred between 2005 and 2015 in Addis Ababa are randomly sampled as the primary units of data collection. Not only are these respondents the most important decision-makers in their respective households, but they are also presumed to be knowledgeable and experienced enough about their housing conditions, spatial arrangements, and neighborhood dynamics. Their position in the household hierarchy places them in a good position to provide informed responses on the perceived quality of their current residential environment, intentions for future housing improvement, and probable behavioral changes resulting from housing dissatisfaction.

The rationale for choosing household heads also stems from the assumption that they play the main role in negotiating housing choices, spatial aspirations, and residential strategies in the long term. Therefore, their answers are expected to yield valid and comprehensive quantitative data on the main constructs of the study such as perception and aspiration of housing attributes, residential satisfaction evaluation, and intention of future housing change. By capturing this information systematically using structured questionnaires, the research maintains methodological consistency with its positivist stance in its focus on objectivity, precision of measurement, and the testing of theoretical propositions through empirical observation.

Briefly, the utilization of household heads as central sources of data not only enhances the methodological rigor of the study but also its analytical relevance by grounding it in the daily lives of the population under investigation. This way, it is ensured that conclusions drawn are not merely contextually relevant but also theoretically illuminating, and hence contribute to the broader discussion of housing policy, planning, and design in urban areas of developing countries.

3.8.3 Data Collection Method

This research utilized the close-ended, structured questionnaire survey as the primary data-gathering tool, in keeping with the quantitative focus of the research and its overall objective, to explore the interrelationships among the study's constructs using descriptive and inferential statistical techniques. The questionnaire was specifically designed to enable the collection of standardized data that could be statistically compared for testing theoretical relationships within the framework of actual–aspiration gap theory.

The questionnaire was categorized into seven general sections. Section one captured respondents' socio-demographic profiles, including variables of age, gender, household size, level of education, income, and tenure status. These background variables are included as potential covariates and control variables at the analytical phase. The subsequent sections (Sections 2 to 6) examined residents' perception, aspirations, and satisfaction levels for five underlying socio-spatial housing dimensions derived from an extensive literature review: (1) housing unit characteristics, (2) housing unit support services, (3) neighborhood facilities, (4) public facilities, and (5) social environment.

Satisfaction was measured on a five-point Likert-type scale ranging from 1 ("very dissatisfied") to 5 ("very satisfied"). Similarly, perceived quality of present housing conditions (perception) was ranked on a five-point scale from 1 ("very poor") to 5 ("very good"), and future housing expectations (aspiration) were ranked on an equivalent five-point scale from 1 ("very low") to 5 ("very high"). This multi-scale approach facilitated the capture of detailed data on all housing dimensions and sub-attributes. The perception–aspiration gap which is central to the actual–aspiration gap theoretical framework was

computed as the difference between perception and aspirations scores for all housing dimensions and attributes.

Also, the dependent construct, residential adjustment intention, was operationalized using a binary response scale, where the respondents indicated whether they intended to move or not (coded as 0 = no, 1 = yes). Composite means were calculated to convey satisfaction and aspiration levels on each of the housing attributes in order to conduct statistical analysis through regression models and comparison methods.

The study adopted a cross-sectional study design, and fieldwork was conducted over a period of four weeks commencing in August 2023. All enumerators were taken through a rigorous pre-survey training exercise to foster methodological consistency, ethical compliance, and quality control. Interviewer-administered questionnaires minimized response error and nonresponse bias, yielding an unprecedented 100% response rate. The high response rate significantly increased the validity and generalization of the finding.

3.9 Models Specification

This study utilized the actual-aspiration gap approach, grounded in actual-aspiration gap theory of Galster (1987), housing needs theory of Rossi (1955), and family housing adjustment theory of Morris & Winter, (1975) to construct the research models. The models' independent variables include socio- demographic factors and the actual-aspiration gaps index across housing unit features, housing units' supportive services, public facilities, neighborhood facilities, social environment and their attributes too. The mediator variable is the residential satisfaction level of households. The dependent variable is the housing adjustment intentions of households. Perception- aspiration gaps index for each socio-spatial housing dimension and attribute were calculated as the difference between perception and aspiration values of each housing dimension and attribute, as represented in Equation (3).

Let m = 1, 2, 3. . . . . M is an index for a dimension or attribute.

Actual-aspiration Gap index is computed as:

$$G_{ijm} = P_{ijm} - A_{ijm} \quad (3)$$

for each individual i and attribute j within a given housing dimension m, G_{ijm} represents the actual-aspiration gap index, P_{ijm} denotes perceived reality (perception), and A_{ijm} indicates aspiration level. A positive gap index indicates that perception (experienced current housing condition) surpasses aspiration (desired future housing condition), hypothesized to contribute to residential satisfaction, and with an increasing gap expected to increase satisfaction levels. Conversely, a negative gap, where perception is below aspiration, is hypothesized to result in residential dissatisfaction, with a larger negative gap anticipated to heighten dissatisfaction. A zero gap, where aspiration aligns with perceived reality, is hypothesized to result in a moderate level of residential satisfaction.

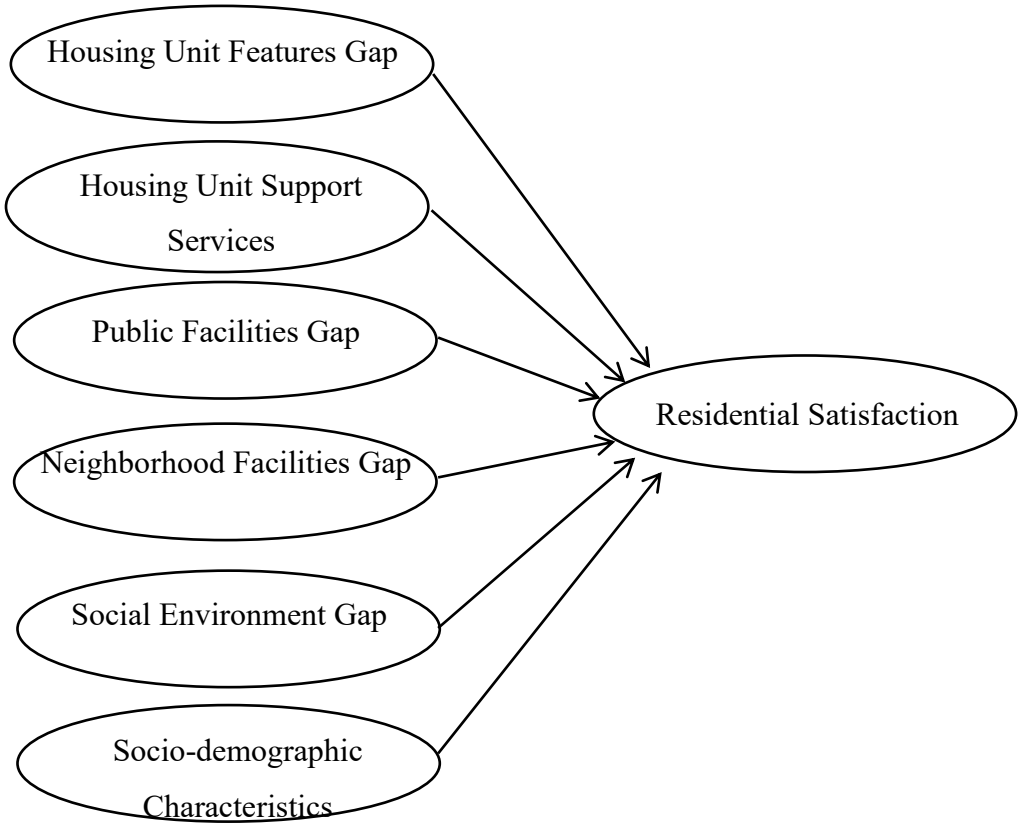

Figure 3-6. Conceptual Framework for Determinants of Residential Satisfaction

Hence, the first model of study is denoted by Equation (4) , as shown in Conceptual Framework in Figure 3-6, to explore the influence of the five housing dimensions actual-aspiration gaps and socio-demographic aspects of residents on overall residential satisfaction, where βo represents the intercept, βi (i = 1, 2, ... , I be an index for a coefficient) indicates the coefficients of each independent variable, ε designates the error term, RS = Overall Residential Satisfaction Index, SDC = Socio demographic characteristics, HUFG = Housing unit features actual-aspiration gap index, HUSSG = Housing unit support services actual-aspiration gap index, PFG = Public facilities actual-aspiration gap index, NFG = Neighborhood facilities actual-aspiration gap index, and SEG = Social environment actual-aspiration gap index.

$$RS = \beta_0 + \beta_1 SDC + \beta_2 HUFG + \beta_3 HUSSG + \beta_4 PFG + \beta_5 NFG + \beta_6 SEG + \varepsilon \dots \dots . (4)$$

A second model denoted by Equation (5), as shown in Conceptual Framework Figure 4-3, is proposed to assess the influence of each housing components (attributes) actual-aspiration gap of the housing dimensions on overall residential satisfaction.

$$RS = \beta_0 + \beta_1 SDC + \beta_2 \Sigma HUFG + \beta_3 \Sigma HUSSG + \beta_4 \Sigma PFG + \beta_5 \Sigma NFG + \beta_6 \Sigma SEG + \varepsilon \dots (5)$$

Moreover, five models were proposed to study the effect of housing dimensions satisfaction and socio-demographic characteristics on five types of housing adjustment intentions. They are denoted by Equation 6–10, as shown in Conceptual Framework in Figure 3-7, where β0 represents the intercept, βi (i = 1, 2, ……, I) indicates the coefficients of each independent variable, ε designates the error term. The dependent variables of the study are Housing modification intention (HMI), Residential mobility intention (RMI), Neighborhood Modification intention (NMI), Family size adjustment intention (FAI), and Cognitive adjustment intention (CAI). Whereas the independent variables are Socio demographic characteristics (SDC), Housing unit features satisfaction (HUFS), Housing unit support services satisfaction (HUSSS), Public facilities satisfaction (PFS), Neighborhood facilities satisfaction (NFS), and Social environment satisfaction (SES) means.

$$HMI = \beta_0 + \beta_1 SDC + \beta_2 HUFS + \beta_3 HUSSS + \beta_4 PFS + \beta_5 NFS + \beta_6 SES + \varepsilon \ldots\ldots (6)$$

$$RMI = \beta_0 + \beta_1 SDC + \beta_2 HUFS + \beta_3 HUSSS + \beta_4 PFS + \beta_5 NFS + \beta_6 SES + \varepsilon \ldots\ldots (7)$$

$$NMI = \beta_0 + \beta_1 SDC + \beta_2 HUFS + \beta_3 HUSSS + \beta_4 PFS + \beta_5 NFS + \beta_6 SES + \varepsilon \ldots\ldots (8)$$

$$FAI = \beta_0 + \beta_1 SDC + \beta_2 HUFS + \beta_3 HUSSS + \beta_4 PFS + \beta_5 NFS + \beta_6 SES + \varepsilon \ldots\ldots (9)$$

$$CAI = \beta_0 + \beta_1 SDC + \beta_2 HUFS + \beta_3 HUSSS + \beta_4 PFS + \beta_5 NFS + \beta_6 SES + \varepsilon \ldots\ldots (10)$$

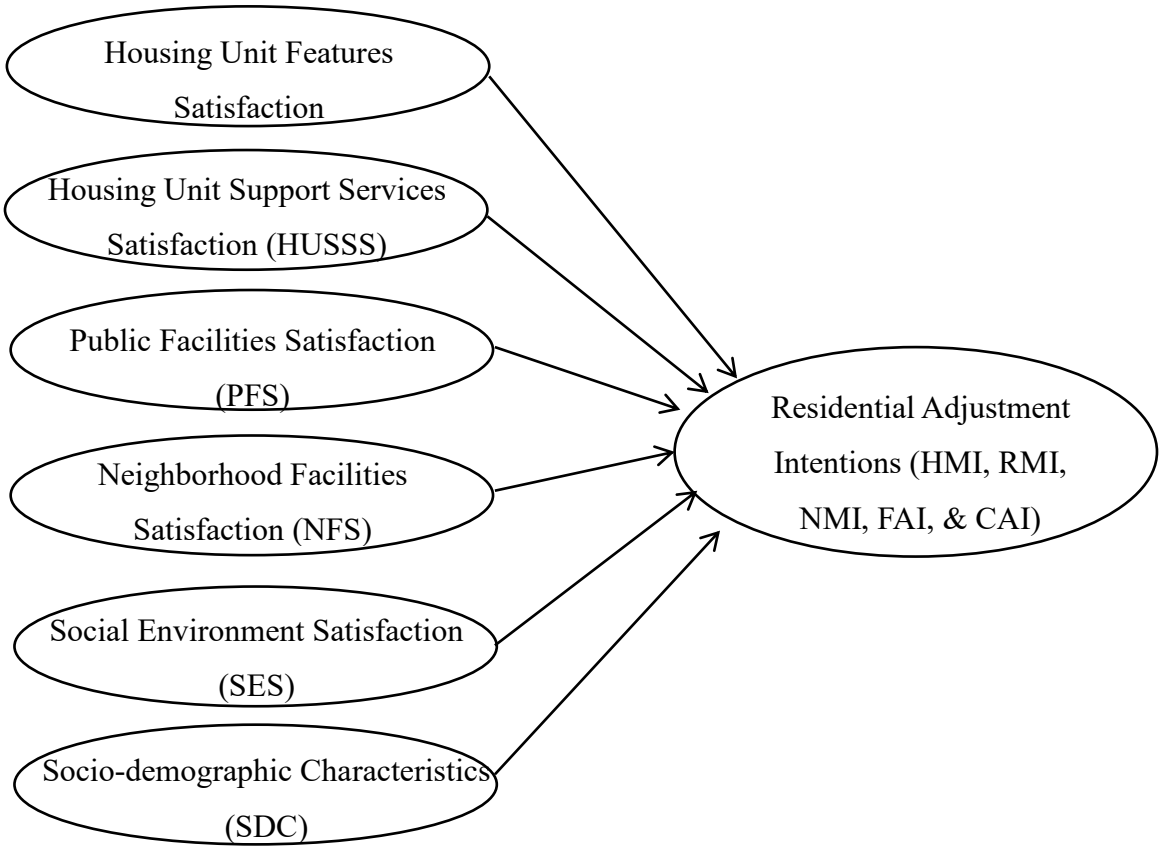

Figure 3-7. Conceptual Framework for Determinants of Residential Adjustment Intention

Furthermore, twenty five models were proposed to study the mediating role of residential satisfaction between socio-spatial housing dimension gaps and the five forms of housing adjustment intentions as shown in Figure 3-8 and 3-9. To do so, the study applies a mediation analysis framework to analyze the indirect and direct influence of socio-spatial

housing gaps across various housing dimensions on various forms of residential adjustment intentions, with the influence being mediated through residents' satisfaction in those particular dimensions. The underlying assumption of the model follows actual-aspiration gap and families housing adjustment theory, and they state that perception–aspiration gaps in the living environment impact adjustment intentions, and satisfaction acts as a vital mediating variable.

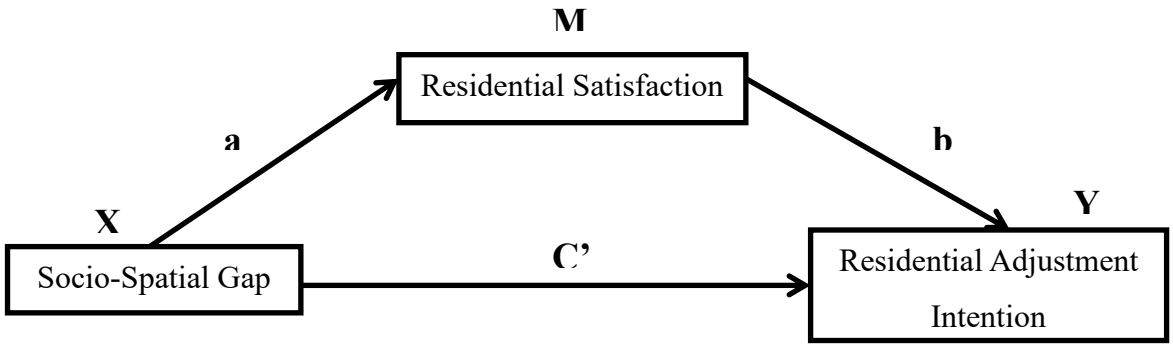

Figure 3-8. Conceptual Framework for Residential Satisfaction as Mediator

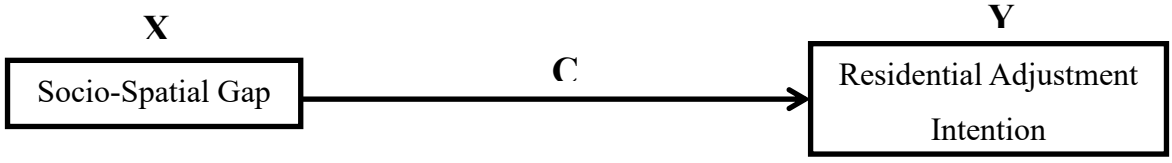

Figure 3-9. Conceptual Framework for Direct Influence of Residential Satisfaction on Adjustment Intention

Each aspect of the interrelationship is theoretically defined as a sequential process where Independent Variables (X), Socio-spatial housing dimension gaps, measured in terms of difference between residents' perceived current status (perception) and their ideal status (aspiration). They are HUF (Housing Unit Features Gap), HUSSG (Housing Unit Support Service Gap), PFG (Public Facilities Gap), NFG (Neighborhood Facilities Gap), and SEG (Social Environment Gap). Mediator Variables (M), residential satisfaction with respective aspects of housing dimensions, measured in terms of mean ratings derived from residents' satisfaction scores. They are HUFS (Housing Unit Features Satisfaction), HUSSGS (Housing Unit Support Service Satisfaction), PFS (Public Facilities Satisfaction), NFS

(Neighborhood Facilities Satisfaction), and SES (Social Environment Satisfaction). Dependent Variables (Y) are the five forms of residential adjustment intention as behavioral and cognitive response which include HMInt (Housing Modification Intention), RMI (Residential Mobility Intention), NMI (Neighborhood Modification Intention), FAI (Family Size Adjustment Intention) and CAI (Cognitive Adjustment Intention).

The mediation analysis is conducted using the causal steps technique (Baron & Kenny, 1986) and bootstrapped confidence intervals for the indirect effect (Preacher & Hayes, 2008). Each mediation pathway is defined by the following two equations. The first equation is a Mediator Equation and defined in equation (11).

$$M_{\mathbf{i}} = \acute{\alpha}_{\mathbf{1}} + aX_{\mathbf{i}} + \varepsilon_{\mathbf{1}} \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots (11)$$

Where:

- M_{i}= satisfaction with housing dimension i,
- X_{i}= socio-spatial gap for dimension $\boldsymbol{i}$,
- a = effect of socio-spatial gap on satisfaction,
- $\varepsilon_{\mathbf{i}}$= error term, and
- $\acute{\alpha}_{\mathbf{1}}$= intercept.

The first equation is an Outcome Equation and defined in equation (12).

$$Y_j = \acute{\alpha}_{\mathbf{2}} + \acute{c}X_{\mathrm{i}} + bM_{\mathrm{i}} + \varepsilon_{\mathbf{2}} \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots (12)$$

Where:

- Y_{j}= residential adjustment intention $\boldsymbol{i}$,
- X_{i}= socio-spatial gap for dimension $\boldsymbol{i}$,
- M_{i}= satisfaction with housing dimension $\boldsymbol{i}$,
- $\acute{\alpha}_{\mathbf{2}}$= intercept,

- $\acute{c}$ = effect of socio-spatial gap on adjustment intention,
- b = effect of satisfaction on adjustment intention, and
- ε_2= error term.

The indirect effect is calculated as ab, representing the mediation pathway. The total effect (c) is calculated by equation (13).

$$c = \acute{c} + ab \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (13)$$

Bootstrapping (5,000 resamples) is employed to assess the statistical significance of the indirect effect. The analysis encompasses a total of 25 mediation models, each corresponding to a unique triad of variables (one independent variable, one mediator, and one dependent variable). The models are tested using SPSS PROCESS macro (Model 4).

3.10 Data Analysis Method

There are five specific research objectives that will direct this study in a bid to examine the direct and in direct interrelationships among socio-spatial housing characteristics, residential satisfaction and adjustment intentions in cost-efficient condominium house settings. Each objective is operationalized with an appropriate quantitative analytical technique to achieve its objective.

The first objective is to examine the level of residential satisfaction of condominium residents. To do this, descriptive statistical analyses are conducted, including computing means and frequency distributions of satisfaction scores on five dimensions of housing: housing unit characteristics, housing unit support services, public facilities, neighborhood facilities, and social environment. This provides a foundation for establishing the distribution and level of residential satisfaction on various dimensions of housing.

The second objective endeavors to examine the socio-spatial determinants of housing satisfaction. This is accomplished through a stepwise multiple linear regression analysis, in two stages. The first model examines the influence of perception–aspiration gaps which

is computed as the difference between residents' perceptions of existing conditions and their aspirations for ideal conditions on the five main housing dimensions. The second model expands the analysis by including perception–aspiration gaps on 51 detailed housing attributes, along with significant socio-demographic characteristics (e.g., age, education, household size, and income), to analyze their joint effect on housing satisfaction.

The third objective deals with identifying the preferred kinds of residential adjustment intentions undertaken by households. For this purpose, descriptive statistics are again used to summarize the frequency distributions of five kinds of adjustment intentions: housing modification (HMI), residential mobility (RMI), neighborhood modification (NMI), family size adjustment (FAI), and cognitive adjustment (CAI).

The fourth objective seeks to identify socio-spatial determinants of residential adjustment intentions. To this end, five separate binary logistic regression models are employed, one for each adjustment intention type. The models estimate the likelihood of a household pursuing a particular adjustment strategy based on both perception–aspiration gaps and socio-demographic characteristics.

The fifth and final objective is to investigate the mediating role of residential satisfaction (mediator variable) in the relationship between socio-spatial housing dimension gaps (independent variables) and residential adjustment intentions (dependent variables). A total of 25 mediation models are developed, each testing a unique triadic relationship involving one perception–aspiration gap, one satisfaction domain, and one adjustment intention outcome. These models are examined using the PROCESS macro for SPSS (Model 4) developed by Hayes & Andrew (2013) with bootstrapping procedures at 5,000 resamples in order to examine the statistical significance of indirect (mediated) effects. This provides a detailed understanding of how satisfaction acts as a bridge between housing condition differences and residents' adjustment reactions in behavior or attitude.

3.11 Data Presentation and Interpretation

The presentation and interpretation of research findings were dealt with in a multimodal fashion by integrating quantitative results and narrative synthesis for the best clarity, accessibility, and depth of analysis. The descriptive statistics were expressed via a mixture of tabular summaries, bar graphs, percentage breakdowns, frequency levels, and mean ratings in order to present the empirical patterns of the principal variables. This large-scale visualization technique facilitates ease of interpretation, making it easier for both technical and non-technical readers to comprehend the underlying trends.

Inferential statistical outcomes, particularly stepwise multiple linear regression, binomial logistic regression, and mediation analyses are laid out clearly in structured statistical tables. They include standardized coefficients, confidence intervals, p-values, odds ratios, and effect sizes, and therefore it becomes transparent and reproducible to describe variable relationships.

So as to bridge the gap between numerical proof and material inference, statistical findings are subsequently reconstructed in terms of analytical reports. Such an endeavor involves translating quantitative facts into narrative reports, connecting empirical regularities with research objectives, on the one hand, and conceptual structures, theoretical rationales, and empirical precursors analyzed along the course of literature review, on the other. Special care is taken so that any conclusion is not taken in vain but founded on broader intellectual and pragmatic argumentations.

Moreover, results are explained with a reference to the five specific study objectives. The structured system accommodates thematic incorporation and implies meanings responses answer precisely to study objectives directly. Explanations on comparative bases with existing empirical have developed. The conclusions about each significant result segment summarize primary interpretation observations by focusing down significant understandings with emphases placed on policy implications, planning, as well as theoretical conceptions.

This interpretive approach is particularly designed to be easy with a broad audience of urban planners, public policymakers, urban housing designers, and academic researchers. By translating technical results into comprehensible insights without compromising methodological precision, the study aims to contribute to evidence-informed decision-making in the urban development and housing policy domains.

3.12 Reliability and Validity

In order to achieve the highest reliability, validity, and generalization of the study's findings, a series of statistical analyses was systematically conducted. The internal consistency reliability of the four primary measurement scales, such as residential dimensions perception, aspiration, satisfaction, and residential adjustment intention, was evaluated using Cronbach's alpha, universally accepted index for assessing the reliability of composite measures. As indicated in Appendix Table A1-A4, the housing dimensions perception scale yielded a Cronbach's alpha coefficient of 0.940, an excellent degree of internal reliability, thus confirming that the items are cohesively bound with the latent construct under measurement. Similarly, the aspiration scale recorded an alpha of 0.973, an outstanding level of internal homogeneity. The residential satisfaction scale yielded a reliability coefficient of 0.938, which further confirms its measurement strength. The residential adjustment intention scale also recorded a Cronbach's alpha of 0.781, exceeding the common cut-off value of $\alpha \geq 0.70$ for satisfactory reliability in social science research. Overall, the findings confirm that all four scales have fair to excellent internal consistency and therefore confirm their reliability for empirical examination.

Aside from internal consistency, construct validity was verified with item-total correlation coefficients computed via Pearson's r. At a sample size $n = 400$, the critical value at the 0.05 level of significance was placed at $r = 0.098$. As shown in Appendix A2, all the items in the four instruments correlated statistically significantly and positively with their respective total scale score ($r > 0.098$, $p < 0.05$), providing empirical evidence of their construct validity and assurance that each item makes an important contribution to the measurement of the latent dimension that it operationalizes.

Furthermore, the study employed rigorous methodological practice in verifying the major assumptions of multivariate statistical modeling. The tests conducted include the Shapiro-Wilk test for the normality of residuals, scatterplot analysis for homoscedasticity, and scatterplots of independent and dependent variables for linearity. Mahalanobis distance was used to verify the presence of potential multivariate outliers, and Variance Inflation Factor (VIF) statistics for multi-collinearity among predictor variables. These diagnostic tests, presented in Appendix Table A3, speak to the empirical robustness of the dataset and confirm its sufficiency for inferential modeling, including multiple regression and mediation analysis.

Overall, the statistical procedures employed not only enhance the methodological rigor of the research but also ensure that the instruments used are methodologically sound and analytically robust for building theoretical insight into the interplay among socio-spatial housing factors, residential satisfaction, and adjustment intention.

3.13 Ethical considerations

The research was conducted in strict compliance with the ethical standards of the Addis Ababa University (AAU) Postgraduate Office of the then EiABC throughout the data collection process. Informed consent was collected from all participants prior to the fieldwork with a guarantee that their participation was strictly voluntary. Participants were assured specifically of the anonymity of their responses and confidentiality of the information throughout the research process. They were also informed of their unrestrained right to withdraw from the study at any moment without any form of penalty or adverse consequence. All data that were collected were safely stored and utilized solely for academic use. Moreover, ethical approval was formally secured from the concerned institutional review board.

4 RESULTS

4.1 Introduction

This chapter presents the key empirical findings of the study, organized in line with the five particular objectives set out in earlier chapters. The objectives of this study are: (1) to quantify the level of residential satisfaction among the residents of cost-efficient condominium housing; (2) to establish the socio-spatial housing attributes that are determinants of residential satisfaction; (3) to examine the preferred type of residential adjustment intentions expressed by households; (4) to investigate the socio-spatial determinants of adjustment intentions; and (5) to examine the mediating role of residential satisfaction between socio-spatial housing attributes and adjustment intentions of the residents.

To facilitate clarity and maintain analytical readability, findings are firmly reported in accordance with each research objective. This structure ensures that each objective is addressed exhaustively, allowing the reader to follow the logical progression of the investigation. The chapter opens with an accurate account of the socio-demographic profiles of the respondents, including variables like age, gender, income, education, and household type, as these characteristics set the important groundwork for the understanding of the findings.

Subsequently, the results are categorized and interpreted according to each objective through a combination of descriptive statistics (e.g., means, percentages, frequencies) and inferential tests (e.g., regression tests, mediation models). This multimodal approach enhances the applicability of the results for a multidisciplinary audience, including urban planners, policymakers, housing researchers, and social scientists.

4.2 Socio-Demographic Profile of Respondents

Earlier theoretical and empirical studies have consistently revealed that the socio-demographic profiles of residents have a decisive role in residential satisfaction and intention to adjust (Abass & Tucker, 2017; Biswas, Ahsan, et al., 2021; Davoodi et al., 2023; Jiang, 2018; Mohit & Azim, 2012; Rossi, 1955; Żelazowski et al., 2022). For the current study, the socio-demographic profile of the respondents was analyzed to describe the picture of these socio-demographic factors which might shape residential satisfaction and adjustment intention as shown in Table 4-1.

Table 4-1. Socio-demographic Profile of Respondents

Scio-Demographics	Variable	Frequency	Percentage
Gender	Female	198	49.50
	Male	202	50.50
Age Group	18-30	120	30.00
	31-40	160	40.00
	41-60	113	28.25
	>60	7	1.75
Marital Status	Single	141	35.25
	Married	224	56.00
	Divorced	12	3.00
	Widowed	10	2.50
	In Union	13	3.25
Education Level	Not Educated	9	2.25
	Primary School	36	9.00
	Secondary School	43	10.75
	Diploma	55	13.75
	Degree	204	51.00
	Post Graduate	53	13.25
Family Size	1	84	21.00
	2	46	11.50
	3	89	22.25
	4	90	22.50
	5	73	18.25
	>=6	18	4.50
Number of Children	0	132	33.00
	1	111	27.75
	2	105	26.25
	3	48	12.00
	>=4	4	1.00

Employment Sector	Unemployed	47	11.75
	Governmental	86	21.50
	Endowment	4	1.00
	Private Company	235	58.75
	NGO	8	2.00
	Own Business	20	5.00
Employment Category	Unemployed	47	11.75
	Office Work	109	27.25
	Technical Work	30	7.50
	Business Work	128	32.00
	Service Work	81	20.25
	Laborer	5	1.25
Length of Residence	0-3 years	98	24.50
	4-6 years	167	41.75
	7-10 years	99	24.75
	11-15 years	34	8.50
	>=16 years	2	0.50
Place of Residence	Gerji	16	4.00
	Gottera	53	13.25
	Gofa	119	29.75
	Summit	212	53.00
Tenure	Owner	132	33.00
	Renter	268	67.00
Household income	<1,500 birr	5	1.25
	1,500 - 3,000 birr	2	0.50
	3,001 - 5,000 birr	12	3.00
	5,001 - 8,000 birr	29	7.25
	8,001 - 11,000 birr	97	24.25
	>11,000	255	63.75

As shown in Table 4-1, the survey's gender distribution was relatively balanced, with women being 49.5% and men 50.5%. The largest age group was 31–40 years (40.0%), then closely followed by 18–30 years (30.0%), 41–60 years accounted for 28.25%, and those over the age of 60 accounted for only 1.75%. Of the marital status, over half (56.0%) were married, with another third (35.25%) single; other smaller parts were divorced (3.0%), widowed (2.5%), or in a union (3.25%).

Educational attainment was largely different, with over half (51.0%) holding a bachelor's degree, 13.75% holding diplomas, and 13.25% having attained postgraduate levels. In

comparison, 2.25% of the respondents had no formal education, 9.0% attained only primary school, and 10.75% attained secondary school.

Family size was also diverse with 22.5% were in four-person households, and 22.25% were in three-person households. 21.0% were in single-person households, and 18.25% were in five-person households. Only 4.5% had six or more. For children, 33.0% had none, 27.75% had one child, 26.25% had two children, and fewer had three or more.

Workplace trends showed that 58.75% were working in the private sector, 21.5% were government employees, and fewer worked for NGOs (2.0%), endowments (1.0%), or were in their own business (5.0%). The unemployment rate was 11.75%. In terms of the nature of the occupation, 32.0% were engaged in business work, 27.25% were office employees, 20.25% were service personnel, and 7.5% were technical personnel. Only 1.25% was laborers.

In terms of length of stay, the highest percentage (41.75%) had been staying in their current residences for 4–6 years. This was then followed by 24.75% for a stay of 7–10 years, 24.5% for 0–3 years, 8.5% for 11–15 years, and a insignificant 0.5% for over 16 years. Locally, the majority of the respondents were located in Summit (53.0%), followed by Gofa Mebrat (29.75%), Gottera (13.25%), and Gerji (4.0%) neighborhoods.

As for tenure of housing, 67.0% were tenants and 33.0% owned their units. Income distribution by households indicated that the vast majority (63.75%) earned over 11,000 Ethiopian birr (ETH birr) monthly. Another 24.25% earned between 8,001 and 11,000 birr. The respondents who earned in the range of 5,001–8,000 birr and 3,001–5,000 birr were fewer (7.25%) and (3.0%), respectively. Little or no representation was seen from the group that earned less than 1,500 birr (1.25%) and in the range of 1,500 to 3,000 birr (0.5%).

This profile further indicates a socio-demographically heterogeneous population of respondents, which presents a rich context for analysis of how personal characteristics

intersect with housing quality perceptions, residential satisfaction, and adjustment processes within the study framework.

4.3 Residential Satisfaction Level of Residents

This part of the study presents the results of the analysis of the study with respect to the first research objective, which focuses on the assessment of the level of residential satisfaction across the residents of cost-efficient condominium housing neighborhood. The analysis is grounded on the operationalization of a multi-dimensional satisfaction framework, where five housing dimensions were measured in an effort to assess level of residential satisfaction of residents in the living settings. The distribution of residential satisfaction mean score is presented graphically in Figure 4-1.

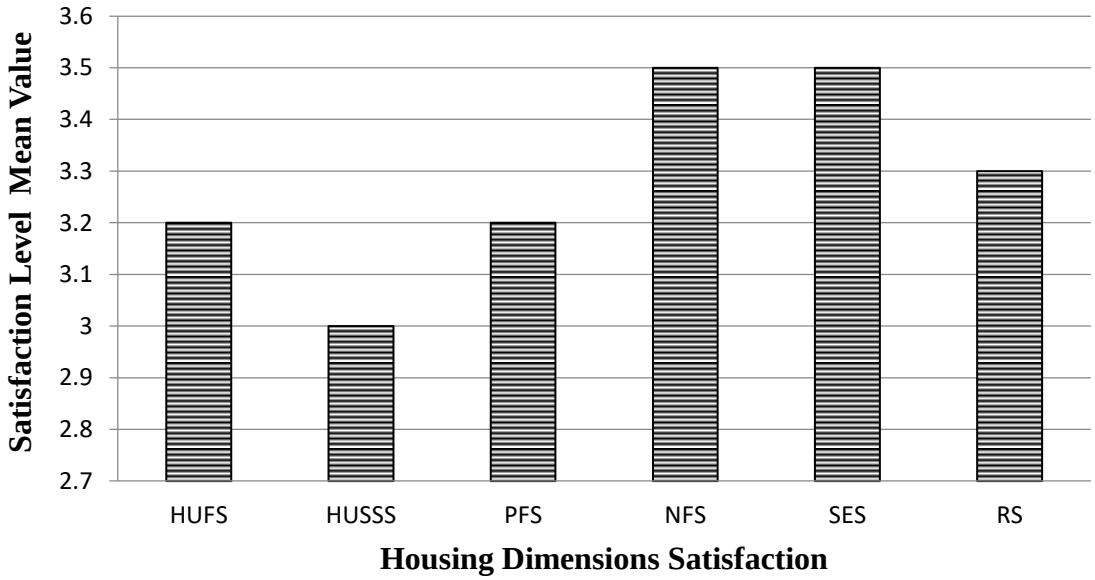

Figure 4-1. Distribution of Residential Satisfaction Mean Score

Note: RS=Overall Residential Satisfaction, HUFS= Housing Unit Features Satisfaction, HUSSS=Housing Unit Support Services Satisfaction, PFS=Public Facilities Satisfaction, and NFS=Neighborhood Facilities Satisfaction, and SES=Social Environment Satisfaction.

In general, the empirical results indicate that residents were moderately satisfied with their housing, with a composite mean of 3.3. Based on the categorical categorization used in the study, Very Dissatisfied (1.00–1.80), Dissatisfied (1.81-2.60), moderately /Slightly

Satisfied (2.61-3.40), Satisfied (3.41-4.20) and Very Satisfied (4.21-5.00) this positions the overall residential satisfaction of residents to moderately satisfied.

Notably, the respondents were more satisfied with regard to neighborhood facilities and the social environment, both reaching a mean score of 3.5, hence falling in the "satisfied" category. These two variables would appear to constitute the most highly rated aspect of the residential satisfaction experience, reflecting a relatively positive perception of access to neighborhood facilities and social interaction in the neighborhood environment.

Conversely, slightly lower satisfaction was observed in three other categories: housing unit features (M = 3.2), public facilities (M = 3.2), and housing unit support services (M = 3.0), all falling in the "slightly satisfied" category. This implies some degree of satisfaction, but also shows rooms for improvement in the condominium housing unit, public facilities, and housing unit support services design and planning.

Table 4-2. Distribution of Residential Satisfaction of Housing Dimensions

Satisfaction with	Very Dissatisfied	Dissatisfied	Slightly Satisfied	Satisfied	Very Satisfied
Housing Unit Features	1.5%	18.5%	39.0%	39.8%	1.3%
Housing Unit Support Services	2.5%	20.8%	47.8%	27.5%	1.5%
Public Facilities	1.5%	16.3%	47.3%	33.0%	2.0%
Neighborhood Facilities	1.8%	13.3%	37.8%	33.3%	14.0%
Social Environment	3.3%	8.5%	29.0%	56.0%	3.3%
Overall Residential	2.10%	15.50%	40.20%	37.90%	4.40%

Table 4-2 above presents the breakdown of level of satisfaction of the respondents. The largest portion (56.0%) stated that they were satisfied with the social environment, testifying to its decisive impact on adding value to residential satisfaction. The majority of respondents (47.8%) marked just slightly satisfaction for support services, 47.3% indicated the same for public facilities, and 39.0% marked just moderate satisfaction with

the features of the housing unit. Surprisingly, 37.8% of the respondents were moderately satisfied despite neighborhood facilities, although its comparatively higher means score.

In conclusion, while overall satisfaction with cost-efficient condominium housing is reported to be moderate, the most favorably evaluated aspects pertain to social environment and access to neighborhood facilities. In contrast, residential satisfaction toward the physical housing unit, housing support supportive services, and public facilities were not as positive and therefore are target areas for future policy intervention and housing design improvement. These results underscore the comparative importance of both the spatial and social environments in shaping residents' satisfaction in cost-efficient condominium housing estates.

4.4 Determinants of Residential Satisfaction

This part of the study presents the results of the analysis of the study with respect to the second research objective, which was to explore determinants of residential satisfaction for residents of cost-efficient condominium housing in Addis Ababa. For this reason, a stepwise multiple linear regression analysis was applied to test the explanatory capacity of both perception–aspiration gaps of socio-spatial housing characteristics and socio-demographic variables in predicting residential satisfaction. The analysis was applied in two consecutive models to examine the roles of housing dimensions and housing attributes separately.

The first model explored specifically the influence of perception–aspiration gaps of socio-spatial housing dimensions on overall residential satisfaction of residents. As can be observed in Table 4-3, the regression model accounted for approximately 57.6% of residential satisfaction score variance ($R^2 = 0.576$), and the model itself was highly statistically significant ($p < .001$), indicating high explanatory power..

Table 4-3. Regression Analysis of Residential Satisfaction across Housing Dimensions Gaps

R=.765	R Square= .586	Adjusted R Square= .576	Std. Error=.373	Sig.= .000

	Unstandardized Coefficients		Standardized Coefficients	t-value	Sig.
	B	Std. Error	Beta		
(Constant)	4.360	0.066		66.347	0.000
Housing unit features composite perception aspiration gap	-0.301	0.037	-0.376	-8.223	0.000
Place of Residence=Summit	-0.192	0.043	-0.168	-4.486	0.000
Public facilities composite perception aspiration gap	-0.154	0.036	-0.180	-4.301	0.000
Employment Category=Service Work	0.177	0.047	0.126	3.748	0.000
Place of Residence=Gottera	0.184	0.061	0.109	3.008	0.003
Social environment composite perception aspiration gap	-0.093	0.034	-0.101	-2.735	0.007
Housing unit support services composite perception aspiration gap	-0.093	0.036	-0.123	-2.624	0.009
Employment Sector=Private Company	-0.089	0.039	-0.076	-2.271	0.024
No of Children>=4	0.378	0.188	0.066	2.008	0.045

The results also showed that perception–aspiration gaps in most of the areas of housing dimensions significantly and negatively affected residential satisfaction, with the only exception being neighborhood facilities whose gap was not statistically significant. Specifically, actual–aspiration gap regarding the characteristics of housing units was found to be the most influential predictor, in that one point increase in the gap resulted in a 37.6% decrease in the level of satisfaction. Similarly, negative effects were reported for

public facilities (18.0% decrease), housing unit support services (12.3% decrease), and social environment (10.1% decrease). The outcomes validate that the greater levels of gap among aspiration and perceptions, where desired is greater than existing housing condition, in these housing dimensions were connected to significantly reduced degrees of residential satisfaction in support of application actual-aspiration gap theory to cost-efficient housing studies.

Socio-demographic factors were also introduced to capture their added explanatory power. The results suggested that employment category influenced residential satisfaction levels to a large extent. More specifically, employees in the service sector showed greater residential satisfaction, and those working in the private sector had a negative relationship with residential satisfaction. These varying findings suggest that job sector characteristics perhaps associated with income security, employment conditions, or housing subsidy, may shape housing-related attitudes.

The location of residence also emerged as a decisive variable. Residents living in Gottera, inner city area, expressed higher residential satisfaction, whereas residents of Summit, an area at the suburban, had lower residential satisfaction. This pattern is likely the outcome of infrastructure quality spatial differences, the distance to job areas, and accessibility to services.

Lastly, household child numbers were found to be positively related to satisfaction, implying that larger families might find more value or usefulness in their housing situation, perhaps because of family-favoring spatial or social benefits.

In general, the analysis emphasizes that residential satisfaction in cost-efficient condominium settings is not only influenced by the current spatial and social quality of housing dimensions but also by how much these match the aspirations of residents. Furthermore, demographic and locational factors such as the nature of employment, place of residence, and household composition significantly influence residential satisfaction levels. These results provide a useful understanding of the socio-demographic and socio-spatial dynamics underlying residential satisfaction in cost-efficient housing systems.

A second stepwise multiple regression analysis was then applied to further investigate the

Table 4-4. Regression Analysis of Residential Satisfaction across Housing Attributes Gaps

R=.818 R Square= .669 Adjusted R Square= .653 Std. Error=.338 Sig.= .000					
	Unstandardized Coefficients		Standardized Coefficients	t-value	Sig.
	B	Std. Error	Beta		
(Constant)	4.309	0.059		72.546	0.000
Room number perception aspiration gap	-0.117	0.021	-0.200	-5.722	0.000
Place of Residence=Summit	-0.197	0.040	-0.171	-4.905	0.000
Block drainage system perception aspiration gap	-0.092	0.021	-0.167	-4.402	0.000
House electrical installation perception aspiration gap	-0.126	0.018	-0.235	-6.874	0.000
Employment Category=Service Work	0.176	0.044	0.125	3.970	0.000
Local street perception aspiration gap	-0.065	0.023	-0.105	-2.806	0.005
Housing regulation perception aspiration gap	-0.056	0.022	-0.086	-2.499	0.013
Length of Residence=11-15years	0.161	0.062	0.079	2.600	0.010
Urban center accessibility perception aspiration gap	-0.081	0.018	-0.180	-4.589	0.000
Local greenery perception aspiration gap	-0.093	0.023	-0.154	-4.123	0.000
Block maintenance perception aspiration gap	-0.076	0.021	-0.133	-3.574	0.000
Block stair perception aspiration gap	0.069	0.022	0.117	3.130	0.002
Communal block perception aspiration gap	0.042	0.019	0.081	2.264	0.024
Social interaction perception aspiration gap	-0.113	0.025	-0.175	-4.477	0.000
Organized activity perception aspiration gap	0.052	0.020	0.098	2.557	0.011
No of Children>=4	0.414	0.174	0.072	2.376	0.018
Family Size=4	0.100	0.042	0.073	2.402	0.017
Crime level perception aspiration gap	-0.036	0.016	-0.075	-2.215	0.027

impacts of perception–aspiration gaps of 51 individual housing attributes, as well as socio-demographic characteristics, on residential satisfaction. The results of this expanded model are presented in Table 4-4, and the model exhibited good explanatory performance, accounting for 65.3% of the total variance in residential satisfaction ratings ($p < .001$), thereby confirming its statistical significance.

The result indicated that various perception–aspiration gaps across various aspects of housing attributes had statistically significant effects on residential satisfaction. In the housing unit characteristics domain, the perception–aspiration gap, where desirable conditions are greater than current conditions, regarding the number of rooms and electrical installations negatively influenced residential satisfaction. Specifically, each one-unit increase was associated with a 20.0% and 23.5% reduction, respectively, in the residential satisfaction, highlighting the critical importance of spatial adequacy and basic utility infrastructure.

Under the support services category, perception–aspiration gaps relating to block drainage systems and block maintenance were accountable for 16.7% and 13.3% reductions, respectively, in residential satisfaction level. Surprisingly, though, there was a notable positive correlation with gaps in block staircases, where gaps with stair quality was linked to an 11.7% increase in satisfaction, suggesting current staircase conditions are greater than their desired conditions.

Amongst the attributes of public facilities, gaps in perception–aspiration in the local street network and urban green parks were both significantly and negatively influenced residential satisfaction by reducing it in 10.5% and 15.4%, respectively. A communal block facility gap was, on the other hand, positively related to an 8.1% rise in satisfaction, possibly indicating residents' appreciation for shared areas even as these do meet their expectations.

For the neighborhood-level facilities, the greatest less level of satisfaction, about 18.0%, corresponded with the gap in access to city centers, emphasizing the impact of mobility and centrality on housing satisfaction.

The social environment yielded a mixed set of results. Perception–aspiration gaps for housing regulations, levels of social interaction, and perceived crime were all associated with reduced residential satisfaction, decreasing satisfaction levels by 8.6%, 17.5%, and 7.5%, respectively. In contrast, gaps in organized social activities were found to increase satisfaction by 9.8%, suggesting experienced is greater than expected organized community activity.

In addition to percept and aspiration gaps, some socio-demographic factors were important predictors. Service sector employment had a positive influence on satisfaction levels, and residing in Summit, the suburban area, was negatively associated with residential satisfaction, reflecting spatial differences in housing experiences. Furthermore, larger household size and more children were positively related to satisfaction, possibly due to more extensive family networks or feeling of the house's effectiveness for large families. Increased length of residency also was related positively with residential satisfaction, which may reflect that the longer someone resides within a house or neighborhood, the better overall residential satisfaction will be.

Broadly speaking, this integrative framework provides useful insight into how some of the housing attribute gaps and socio-demographic characteristics interact to shape residential satisfaction. While most differences in perception and aspiration between housing dimensions were associated with lower satisfaction, certain individual attribute gaps, namely communal and social dimensions, had beneficial impacts. These findings emphasize the multidimensional, multifaceted nature of satisfaction formation in cost-efficient condominium environments and suggest particular areas for housing policy intervention to increase both objective quality of living and correspondence of living conditions with residents' desires.

4.5 Preferred Forms of Residential Adjustment Intention

This section addresses the third objective of the research, exploration of preferred residential adjustment intention by residents of cost-efficient condominium housing neighborhoods in Addis Ababa. Descriptive statistical analysis methods were employed for this purpose so as to uncover prevailing residential adjustment intention trends among the individuals in the sampled populations. Through this analysis, a number of residential adjustment preferences were brought to light as well as proving the residents' adaptation and initiative spirit towards their living conditions.

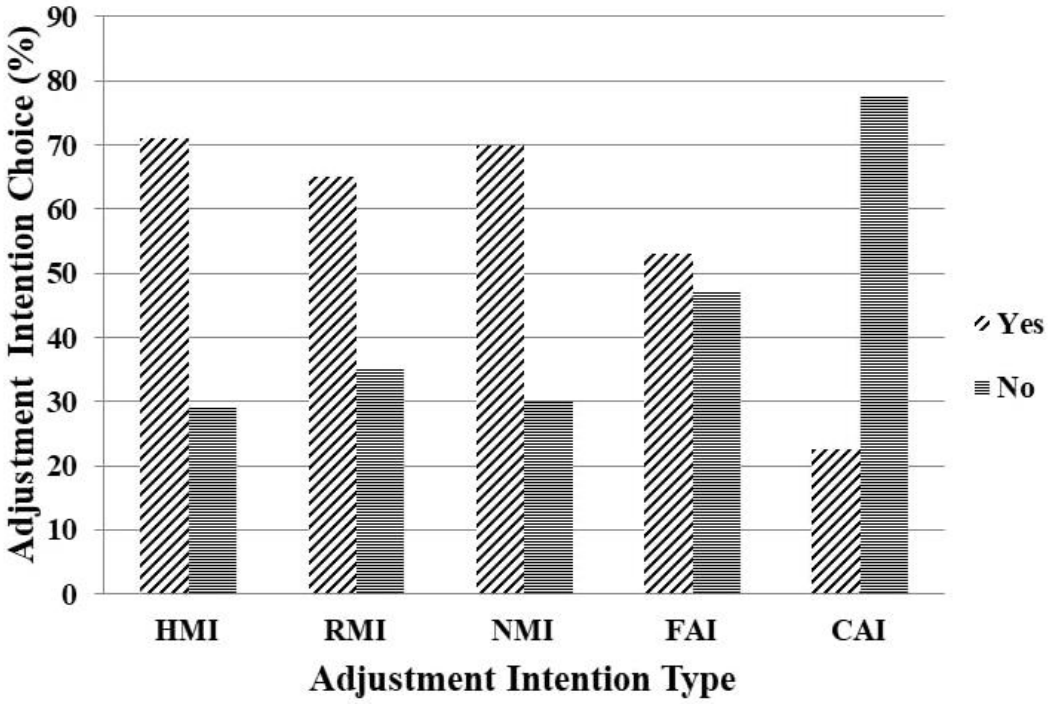

Figure 4-2. Distribution of Residential Adjustment Intentions

Note: Housing Modification Intention=HMI, Residential Mobility Intention=RMI, Neighborhood Modification Participation Intention= NMI, Family Size Adjustment Intention= FAI and Cognitive Adjustment Intention=CAI.

The most prevailing residential adjustment intentions reported were housing modification intention (71%), participation in neighborhood modification intention (70%) and residential mobility intention (65%) as shown in Figure 4-2. Conversely, relatively fewer

residents reported plans for altering family composition, just 53% wanted to change household size. Furthermore, cognitive adjustment, mental acceptance of the current housing condition, was the least favored, with only 22.5% of the residents showing such intentions. This shows that while a majority of the residents are keen on making physical change intentions, fewer residents are willing to change psychologically or restructure their family size, perhaps because they are more interested in tangible changes rather than internal or demographic transformation.

4.6 Determinants of Residential Adjustment Intention

Table 4-5. Housing Modification Intention Binary Logistic Regression Result

Variable	B	S.E.	Sig.	Exp.(B)
Age group				
41-60 yrs.	3.088	1.247	0.013	21.936
Family size				
One	-1.484	0.662	0.025	0.227
Five	2.707	1.266	0.033	14.990
Length of residence				
0-3yrs.	0.847	0.392	0.031	2.332
7-10yrs	1.816	0.726	0.012	6.148
Owners	1.597	0.478	0.001	4.939
Housing unit features satisfaction	-0.839	0.350	0.016	0.432
Neighborhood facilities satisfaction	0.690	0.206	0.001	1.993
Constant	-2.022	2.314	0.382	0.132
-2 Log likelihood	328.102			
Cox & Snell R Square	0.319			
Nagelkerke R Square	0.456			
Sig. (Significance)	0.000			

Note: Independent Variable is Housing Modification Intention

This subsection presents the results of the analysis for the fourth research objective of study, determining the determinants of residential adjustment intentions of residents in cost-efficient condominium settings of Addis Ababa. Five separate individual binary logistic regression models were employed with each model considering a specific type of residential adjustment intention: housing modification, residential mobility, neighborhood modification, family size adjustment, and cognitive adjustment.

The first binary logistic regression model explored predictors of housing modification intention, modifying housing units in terms of intentions. As shown in Table 4-5, themodel was very significant ($p < .001$) and accounted for 45.6% of modification intention variance. The results showed that dissatisfaction with housing unit features increased the likelihood of intending to modify the house by 56.8%. Interestingly, greater satisfaction with the neighborhood facilities was also linked to a 99.3% higher probability of housing modification, perhaps reflecting residents' persistence on remaining in the area while improving living standards. Demographically, residents falling in the age group of 41-60 years were 21.94 times more likely to intend housing modifications compared to younger residents, and the larger the number of household members, the 14.99 times more likely the household was to intend modifications compared to one-person households. In addition, residents lived 7 to 10 years in their housing unit were 6.15 times more likely to change their accommodations than residents with shorter stays.

The second regression model evaluated the likelihood of residential mobility intention. The model was significant ($p < .001$), explaining 35.9% of the variance in moving intentions as shown in Table 4-6. Improved satisfaction with public facilities was associated with a 58% decrease in the likelihood of residential mobility intention. Conversely, improved satisfaction with support services to the housing unit and social environment (though marginally significant) increased the probability of moving by 86% and 112%, respectively. Residents with four children were 95% less likely to have residential mobility intention, though this was again marginally significant. Employment status impacted residential mobility intention: unemployed and employees working in endowment sector, private sector, and NGOs were all significantly less likely to have

residential mobility intention (with odds ratios of 87%, 87%, 94%, and 92%, respectively). Technical employees, though, were 10 times as likely to report residential mobility intentions, and low-income monthly earners (1,501–3,000 ETB) were 25 times more likely to have residential mobility intentions.

Table 4-6. Residential Mobility Intention Binary Logistic Regression Result

Variable	B	S.E.	Sig.	Exp.(B)
Number of children(4)	-2.975	1.551	0.055	0.051
Sector of employment				
Unemployed	-2.068	0.987	0.036	0.126
Endowment	-2.025	0.949	0.033	0.132
Private	-2.800	1.356	0.039	0.061
NGO	-2.510	1.128	0.026	0.081
Category of employment				
Technical work	2.360	1.054	0.025	10.594
Monthly income				
3,001 to 5,000 birr	3.219	1.581	0.042	24.999
Housing unit support services satisfaction	0.621	0.324	0.055	1.861
Public facilities satisfaction	-0.870	0.279	0.002	0.419
Social environment satisfaction	0.752	0.297	0.011	2.122
Constant	-4.931	2.188	0.024	0.007
-2 Log likelihood	397.203			
Cox & Snell R Square	0.261			
Nagelkerke R Square	0.359			
Sig. (Significance)	0.000			

Note: Independent Variable is Residential Mobility Intention

The third binary logistic regression model examined participation in neighborhood modification and was statistically significant ($p < .001$) and explained 46.3% of this adjustment intention variation as shown in Table 4-7. Satisfied residents more with their housing unit features were 74.7% less likely to engage in neighborhood modification.

Increased satisfaction, however, with housing unit support services, increased participation by 3.5 times. Both perceived satisfaction with social environment and with neighborhood facilities increased participation in neighborhood modification by 2.7 and 1.5 times, respectively, though the finding for neighborhood facilities was only weakly significant..

Table 4-7. Neighborhood Modification Intention Binary Logistic Regression Result

Variable	B	S.E.	Sig.	Exp.(B)
Education level				
High School	3.764	1.366	0.006	43.132
Diploma	2.491	1.323	0.060	12.079
Family size				
Five	3.062	1.131	0.007	21.370
Number of children				
Four	-4.174	1.787	0.019	0.015
Category of employment				
Endowment	1.678	0.823	0.041	5.354
Length of residence				
4 to 6yrs	-1.117	0.537	0.038	0.327
Housing unit features satisfaction	-1.375	0.364	0.000	0.253
Housing unit support services satisfaction	1.266	0.348	0.000	3.547
Neighborhood facilities satisfaction	0.384	0.199	0.054	1.468
Social environment satisfaction	1.001	0.328	0.002	2.721
Constant	-6.955	2.476	0.005	0.001
-2 Log likelihood	330.711			
Cox and Snell R Square	0.326			
Nagelkerke R Square	0.463			
(Sig.)Significance	0.000			

Note: Independent Variable is Neighborhood Modification Participation Intention

Education was also a factor: high school graduates were over 43 times as likely, and diploma holders 12 times as likely, to engage in neighborhood improvement (the latter

weakly significant). Large families were 21 times more likely to participate, while four-child families were 97% less likely. Working in the endowment industry raised the probability of participation by more than five times, while medium-term residents (4 to 6 years) were 67.3% less likely to participate

The fourth model estimated intentions to family size and composition adjustment and also was found statistically significant ($p < .001$) to account for 25.9% of variation in family size adjustment intention as shown in Table 4.8. Household with single members was 55.1% less likely to possess family size adjustment intentions, but married and divorced households were 7 and 8 times, respectively, likely to consider family size adjustment intention. Two, three and four member households were 3, 5, and 20 times more likely to

Table 4-8. Family Size Adjustment Intention Binary Logistic Regression Result

Variable	B	S.E.	Sig.	Exp.(B)
Marital status				
Single	-0.800	0.370	0.030	0.449
Married	1.970	0.938	0.036	7.171
Divorced	2.116	1.021	0.038	8.298
Family size				
Two	1.159	0.550	0.035	3.187
Three	1.610	0.686	0.019	5.001
Four	3.034	0.985	0.002	20.772
Number of children				
Two	-1.801	0.557	0.001	0.165
Neighborhood facilities satisfaction	0.472	0.173	0.006	1.603
-2 Log likelihood	466.811			
Cox and Snell R Square	0.194			
Nagelkerke R Square	0.259			
Sig.	0.001			

Note: Independent Variable is Family Size Adjustment Intention

consider family size adjustment. However, two-child households were 83.5% less likely to consider such changes. Moreover, those who were more satisfied with neighborhood facilities were 60.3% more likely to consider household size changes.

The final binary logistic regression model assessed cognitive adjustment intentions and was statistically significant ($p < .001$), explaining 23.9% of the variance as shown in Table 4-9. Adults were over 4.5 times more likely than young people to have cognitive adjustment intentions. Moreover, residents reporting greater satisfaction with housing unit support services were 92.2% more likely to have such intentions. In contrast, residents with greater satisfaction with neighborhood facilities were 46.1% less likely to have cognitive adjustment intentions.

Table 4-9. Cognitive Adjustment Intention Binary Logistic Regression Result

Variable	B	S.E.	Sig.	Ext(B)
Age group				
31 to 40 yrs.	1.514	0.572	0.008	4.543
Housing unit support services satisfaction	0.654	0.319	0.041	1.922
Neighborhood facilities satisfaction	-0.617	0.202	0.002	0.539
Constant	0.114	2.087	0.956	1.121
-2 Log likelihood	358.242			
Cox and Snell R Square	0.157			
Nagelkerke R Square	0.239			
Sig. (Significance)	0.036			

Note: Independent Variable is Cognitive Adjustment Intention

Overall, the findings, grounded on five statistically significant binary logistic regression models, present specific and intricate accounts of socio-spatial housing dimensions residential satisfaction and socio-demographic predictors of residential adjustment intentions. Specifically, dissatisfaction with housing unit features of residence and demographic factors like household size, duration of stay, and age were primary predictors

of housing modification intention. Conversely, residential mobility intention was primarily determined by public facilities and social environment residential satisfaction. Participation in neighborhood modification was motivated by satisfaction with the housing unit support service, neighborhood facilities, education level, year of residence and household size. Family size adjustment intentions were affected by marital status, family size, number of children and residential satisfaction with neighborhood facilities, confirming to evolving household requirements. Lastly, cognitive adjustment intention was strongly influenced by age and satisfaction with housing unit support services and neighborhood facilities. Together, these findings point to the multilateral nature of residential adjustment intention and illustrate the significance of spatial and social housing characteristics in housing development and policy. This result adds to the body of urban housing literature through the provision of context-specific findings applicable to sustainable, resident-centered housing policy planning and design in rapidly urbanizing environments like Addis Ababa.

4.7 Residential Satisfaction as a Mediator Variable

This section presents the outcomes of a mediation analysis conducted to examine the effect of socio spatial housing dimensions actual-aspiration gaps such as Housing Unit Features Gap (HUFG), Housing Unit Support Service Gap (HUSSG), Public Facilities Gap (PFG), Neighborhood Facilities Gap and (NFG), and Social Environment (SEG) on residential adjustment intentions such as Housing Modification Intention (HMI), Residential Mobility Intention (RMI), Neighborhood Modification Participation Intention (NMI), Family Size Adjustment Intention (FAI) and Cognitive Adjustment Intention (CAI)), with residential satisfaction as mediator such as Housing Unit Features Satisfaction (HUFS), Housing Unit Support Services Satisfaction (HUSSS), Public Facilities Satisfaction (PFS), Neighborhood Facilities Satisfaction (NFS), and Social Environment Satisfaction (SES)). The analysis employed twenty five mediation models of the PROCESS macro Model 4 using 5,000 bootstrap samples and a 95% confidence level (Hayes, 2018).

4.7.1 RS as Mediator between Socio-Spatial Gaps and HMI

These five subsequent subsections present the mediation models results that examined the effect of five Housing Dimensions Actual-aspiration Gaps on Housing Modification Intention (HMI), with five parallel mediators: Housing Unit Features Satisfaction (HUFS), Housing Unit Support Services Satisfaction (HUSSS), Public Facilities Satisfaction (PFS), Neighborhood Facilities Satisfaction (NFS), and Social Environment Satisfaction (SES).

The first mediation model, in this category, investigated the mediating roles of various satisfaction dimensions in the relationship between the Housing Unit Features Gap (HUFG) and Housing Modification Intention (HMI). As shown in Table 4-10, the result revealed that perceived housing unit feature gaps (HUFG) were found to have a statistically significant and negative influence on all five mediating satisfaction variables. Among them, satisfaction with housing unit features (HUFS) was the most influenced (β = -0.769, p <.001), highlighting its key role in residents' judgment of housing adequacy. HUFG also highly anticipated lower satisfaction for housing unit support services (HUSS), public facilities (PF), neighborhood facilities (NF), and social environment satisfaction (SE) with varying effect sizes from β = -0.289 to -0.503 and p < .001.

Table 4-10. Analysis Result of Influence HUFG on HMI with RS as Mediator

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Mediation Effect		
	HUFS	HUSSS	PFS	NFS	SES	HMI	Indirect effect of HUFG on HMI		
Constant	4.461*	-3.893**	3.764**	4.196**	3.838**	3.409**	Effect	LLCI	ULCI
HUFG	-0.769*	-0.50***	-0.329***	-0.390***	-0.289***	-0.818**	0.981	0.391	1.731
HUFS						-1.589***	1.221	0.574	1.999
SSS						0.099	-0.051	-0.313	0.226
PFS						-0.150	0.049	-0.111	0.227
NFS						0.594***	-0.231	-0.411	-0.985
SES						0.026	-0.008	-0.158	0.142
R^2	0.69**	0.32***	0.13***	0.12***	0.15***	0.16***			

Note. N = 400; †p 0.1, *p 0.05, **p 0.01, ***p 0.001 (one-tailed). Unstandardized coefficients are reported; Mediation & Model 6 results are expressed in log-odds metric and Nagelkerke R^2.

In the housing modification intention (HMI) model, HUFG retained a direct negative influence (β = -0.818, p <.01). This suggests that lower housing gaps are associated with

increased intention for adjustment, even after accounting for mediating variables. The total indirect effect of HUFG on HMI through the mediators was positive and statistically significant, β = 0.98, CI [0.39, 1.73], indicating that the mediators, taken together, significantly transmit the effect of housing unit features gaps on housing adjustment intention. Mediation analysis also supported significant indirect effects of HUFG on HMI through HUFS (β = 1.221, CI [0.5741, 1.999]) and NFS (β = -0.231, CI [-0.410, -0.099]). The indirect effects through HUSSS, PFS, and SES were statistically non- significant. These findings collectively describe a dual partial mediation path in which HUFS exerts enhancer influence. Housing unit features dissatisfaction increases housing modification intentions, and NFS exerts a suppressor influence, neighborhood facilities satisfaction decreases housing modification intentions. This implies the dual significance of internal housing units' features quality and external neighborhood facilities conditions in shaping residents' housing modification intention within cost-efficient condominium environments. Moreover, it underscores the importance of considering the individual paths of influence when planning for housing intervention as people make decisions based on a variety of interacting perceptions of their environment and their home.

The second mediation model, in this category, examined the mediating roles of various satisfaction dimensions in the relationship between the Housing Unit Support Services Gap (HUSSG) and Housing Modification Intention (HMI). As shown in Table 4-11, the regression analysis results identified the Housing Unit Support Service Gap (HUSSG) significantly and negatively influence all five satisfaction measures, and this supported the fact that greater gaps between perceived support services and expectations corresponded (where perception is less than expectation) to lower satisfaction scores. HUSSG was specifically identified to have negative correlations with HUFS, HUSSS, PFS, NFS, and SES (all $p < .001$).

Table 4-11. Analysis Result of Influence HUSSG on HMI with RS as Mediator

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Mediation Effect		
	HUFS	HUSSS	PFS	NFS	SES	HMI	Direct & Indirect effect of HUSSG on HMI		
Constant	4.012***	-4.243***	3.789***	4.353***	3.660***	1.661	Effect	LLCI	ULCI
HUSSG	-0.444***	-0.669***	-0.319***	-0.452***	-0.162***	-0.426	0.330	-0.143	0.905
HUFS						-.787**	0.350	0.105	0.666
HUSSS						-0.289	0.194	-0.324	0.760
PFS						-0.243	0.077	-0.077	0.244
NFS						0.640***	-0.289	-0.505	-0.133
SES						0.007	-0.001	-0.094	0.091
R^2	0.26***	0.62***	0.13***	0.18***	0.05***	0.14***			

Note. N = 400; †p 0.1, *p 0.05, **p 0.01, ***p 0.001 (one-tailed). Unstandardized coefficients are reported; Mediation & Model 6 results are expressed in log-odds metric and Nagelkerke R^2 .

The analysis revealed that the direct effect of HUSSG on HMI was non-significant (p =-.43), suggesting full mediation. The total indirect effect of HUSSG on HMI was also non-significant, CI [-0.143, 0.905], indicating the absence of the mediation of mediators together. However, there was a significant indirect effect, with positive indirect through HUFS, β = 0.350, CI [0.105, 0.666], and negative indirect through NFS, β = -0.289, CI [-0.505, -0.133]. The other mediators did not show significant indirect effects. These findings reveal a double full mediation model: growing dissatisfaction with housing unit features increases housing modification intention, while dissatisfaction with neighborhood facilities, decreases it, illustrating the combined influence of housing unit features and neighborhood facilities dissatisfaction on housing modification intention.

The third mediation model, in this category, explored the mediating roles of various satisfaction dimensions in the relationship between the Public Facilities Gap (PFG) and Housing Modification Intention (HMI). As shown in Table 4-12, the regression analysis results revealed that Public Facility Gap (PFG) significantly and negatively predicted all five

Table 4-12. Analysis Result of Influence PFG on HMI with RS as Mediator

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Mediation Effect		
	HUFS	HUSSS	PFS	NFS	SES	HMI	Direct & Indirect effect of PFG on HMI		
Constant	3.918***	3.888***	4.382***	4.235***	3.749***	5.339**	Effect	LLCI	ULCI
PFG	-0.433***	-0.513***	-0.741***	-0.425***	-0.238***	-1.237***	0.983	0.501	1.747
HUFS						-0.699 **	0.303	0.052	0.619
HUSSS						-0.047	0.024	-0.273	0.310
PFS						-1.186***	0.879	0.430	1.515
NFS						0.552***	-0.235	-0.416	-0.084
SES						-0.051	0.012	-0.113	0.159
R^2	0.19***	0.29***	0.57***	0.12***	0.09***	0.20***			

Note. N = 400; †p 0.1, *p 0.05, **p 0.01, ***p 0.001 (one-tailed). Unstandardized coefficients are reported; Mediation & Model 6 results are expressed in log-odds metric and Nagelkerke R^2 .

areas of satisfaction (p <.001), implying that increased perceived public facilities shortage was associated with decreased satisfaction with housing unit features (HUFS), support services (HUSSS), public facilities (PFS), neighborhood facilities (NFS), and social environment (SES). The highest impact was on PFS (β = -0.741), then HUSSS (β = -0.513) and HUFS (β = -0.433), which shows the inadequacies of public facilities impact on housing units and facilities satisfaction.

The regression equation for Housing Modification Intention (HMI) was significant, with PFG exerting a strong negative direct influence (β = -1.237, p < .001). The total indirect effect of PFG on HMI through the mediators was positive and statistically significant, β = 0.983, CI [0.501, 1.747], indicating that the mediators, taken together, mediate the dependent variable. Mediation analysis revealed two large partial mediation and positive effects: through PFS (β = 0.879, CI [0.430, 1.515]) and HUFS (β = 0.303, CI [0.052, 0.619]), which means that gap with public facilities increases the likelihood of housing modification intention through increase of dissatisfaction with both the public facilities and housing unit features. The partial mediation through NFS was negative and statistically significant (β = -0.235, CI [-0.416, -0.084]), implying that public facilities gap decreases the likelihood of housing modification intention through the increase of dissatisfaction with neighborhood facilities.

These findings support a dual positive partial mediation process by which gaps in public facilities increase housing modification intention when residents dissatisfied more with housing unit features and public facilities. Moreover it revealed a negative partial mediation process by which gaps in public facilities decrease housing modification intention when residents dissatisfied more with neighborhood facilities. The study also brings out the interdependence of spatial quality and housing modification adjustment intention, stressing that modification intentions are shaped by housing units' features, public facilities and neighborhood facilities satisfaction levels partially.

The fourth mediation model, in this category, studied the mediating roles of various satisfaction dimensions in the relationship between the Neighborhood Facilities Gap (NFG) and Housing Modification Intention (HMI). As shown in Table 4-13, the regression analysis findings supported that Neighborhood Facility Gap (NFG) significantly and negatively predicted all the five satisfaction constructs ($p < .001$), indicating that higher perceived neighborhood facilities gap reduced satisfaction in housing unit features (HUFS; $\beta = -0.137$), housing support services (HUSSS; $\beta = -0.196$), public facilities (PFS; $\beta = -0.072$, $p < .05$), neighborhood facilities (NFS; $\beta = -0.780$), and social environment (SES; $\beta = -0.111$). These trends portray the influence of neighborhood facilities gap on different aspects of residential satisfaction.

Table 4-13. Analysis Result of Influence NFG on HMI with RS as Mediator

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Mediation Effect		
	HUFS	HUSSS	PFS	NFS	SES	HMI	Direct & Indirect effect of NFG on HMI		
Constant	3.430***	3.354***	3.340***	4.579***	3.525***	5.066**	Effect	LLCI	ULCI
NFG	-0.137***	-0.196***	-0.072**	-0.780***	-0.111***	-1.155***	0.466	-0.177	1.233
HUFS						-0.817 **	0.112	0.027	0.229
HUSSS						-0.083	-0.016	-0.126	0.091
PFS						-0.086	0.006	-0.036	0.061
NFS						0.454	0.354	-0.283	1.106
SES						-0.094	0.01	-0.049	0.073
R^2	0.04***	0.08***	0.01***	0.79***	0.04***	0.19***			

Note. N = 400; †p 0.1, *p 0.05, **p 0.01, ***p 0.001 (one-tailed). Unstandardized coefficients are reported; Mediation & Model 6 results are expressed in log-odds metric and Nagelkerke R^2.

The regression analysis of Housing Modification Intention (HMI) yielded a significant model, with NFG exerting a significant direct negative influence (β = -1.155, p <.001), with greater neighborhood facilities gap decreasing residents' intentions to modify housing. Mediation analysis revealed HUFS to be a significant indirect path (β = 0.112, CI [0.027, 0.230]), indicating that lower satisfaction with housing unit features due to neighborhood facilities gap enhances housing modification intent. The other indirect paths (through HUSSS, PFS, SES, and NFS) were statistically non-significant.

Collectively, the findings indicate a partial mediation process wherein neighborhood facilities gaps perceived indirectly drive housing modification intention when residents are dissatisfied with housing unit features. The results further underscore that housing modification adjustment intentions are driven by an indirect interaction between neighborhood facilities gap and housing unit features satisfaction.

The fifth mediation model, in this category, examined the mediating roles of various satisfaction dimensions in the relationship between the Social Environment Gap (NFG) and Housing Modification Intention (HMI). As shown in Table 4-14, the regression analysis confirmed that Social Environment Gap (SEG) negatively and significantly predicted the five satisfaction constructs (p <.001), indicating that higher perceived deficiencies in social environment decreased satisfaction with housing unit features (HUFS; β = -0.353), housing support services (HUSSS; β = -0.194), public facilities (PFS; β = -0.142, p <.05), neighborhood facilities (NFS; β = -0.378), and social environment (SES; β = -0.696). These patterns reveal the cascading influence of social environment gap on private home and shared spaces satisfaction.

Table 4-14. Analysis Result of Influence SEG on HMI with RS as Mediator

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Mediation Effect		
	HUFS	HUSSS	PFS	NFS	SES	HMI	Direct & Indirect effect of SEG on HMI		
Constant	3.768***	3.386***	3.454***	4.134***	4.394***	4.305**	Effect	LLCI	ULCI
SEG	-0.353***	-0.194***	-0.142**	-0.378***	-0.696***	-1.004**	0.706	0.099	1.385
HUFS						-0.825**	0.291	0.089	0.522
HUSSS						-0.111	-0.022	-0.152	0.082
PFS						-0.148	0.021	-0.045	0.112
NFS						0.567***	0.215	-0.382	-0.087
SES						-0.906**	0.630	0.064	1.267
R^2	0.11***	0.04***	0.02**	0.08***	0.64***	0.17***			

Note. N = 400; †p 0.1, *p 0.05, **p 0.01, ***p 0.001 (one-tailed). Unstandardized coefficients are reported; Mediation & Model 6 results are expressed in log-odds metric and Nagelkerke R^2 .

The regression of Housing Modification Intention (HMI) revealed a direct negative significant impact of SEG (β = -1.004, p <.05), indicating that social environment gap lowers the intention to housing modification. The total indirect influence of SEG through the satisfaction mediators was, however, positive and significant (β = 0.706, CI [0.099, 1.385]), indicating that mediators, together, enhance housing modification intention.

Specifically, HUFS had a substantial positive and partial mediating effect (β = 0.291, CI [0.089, 0.522]), suggesting that higher dissatisfaction with the housing unit features increases HMI. SES also showed a strong positive mediation effect (β = 0.630, CI [0.064, 1.267]), suggesting dissatisfaction with the social environment increases HMI. Conversely, NFS exhibited a substantial negative indirect effect (β = -0.215, CI [-0.382, -0.087]), indicating dissatisfaction with the neighborhood facilities decreases HMI. Mediation through HUSSS and PFS was not significant.

These results point to a modest interaction between social environment gap and housing modification intention. Whereas perceived social environment gap directly decreases housing modification intentions, residential dissatisfaction with housing unit spatial aspects and social relations has the potential to reverse this trend. Meanwhile,

dissatisfaction with neighborhood facilities decreases housing modification adjustment intentions.

In conclusion, all five gaps between actuality and aspirations across housing dimensions had significant and negative impacts on their respective satisfaction levels. This implies that, the greater the gap between residents' aspirations and their actual experienced housing conditions, the lower their residential satisfaction across all housing dimensions. Besides, all actual-aspiration gaps across housing dimensions had a direct negative impact on intention to modify housing except the housing unit support services gap, which was not significant.

The mediation analysis revealed partial mediation, where the effects were stronger for housing unit features satisfaction (HUFS) and neighborhood facilities satisfaction (NFS). HUFS served as a positive mediator in the sense that dissatisfaction in this factor enhanced the likelihood of housing modification intention. Conversely, NFS acted as an inhibitory (Suppressing) mediator, implying dissatisfaction with neighborhood facilities decreased the likelihood of housing modification intention. The remaining satisfaction dimensions had weak and inconsistent mediation effects. These results confirm the relevance of housing unit and neighborhood level residential satisfaction in influencing residents' intentions to modify their housing, indicating the indirect processes through which socio-spatial gaps trigger behavioral responses within urban housing contexts.

4.7.2 RS as Mediator between Socio-Spatial Gaps and RMI

The following five subsections present the findings from a parallel multiple mediation analysis examining the effect of five housing dimensions actual-aspiration gaps on Residential Mobility Intention (RMI), with mediating roles played by five residential satisfaction variables: Housing Unit Features Satisfaction (HUFS), Housing Unit Support Service Satisfaction (HUSSS), Public Facilities Satisfaction (PFS), Neighborhood Facilities Satisfaction (NFS), and Social Environment Satisfaction (SES).

The first mediation model, in this category, explored the mediating roles of various satisfaction dimensions in the relationship between the Housing Unit Features Gap

(HUFG) and Residential Mobility Intention (RMI). As shown in Table 4-15, the regression analysis proved that Housing Unit Feature Gap (HUFG) had significant negative impacts on all five satisfaction mediators, validating that perceived lack of adequacy in housing features consistently lowers satisfaction across all residential areas.

Table 4-15. Analysis Result of Influence HUFG on RMI with RS as Mediator

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Mediation Effect		
	HUFS	HUSSS	PFS	NFS	SES	RMI	Direct & Indirect effect of HUFG on RMI		
Constant	4.461***	3.894***	3.764***	4.196***	3.838***	-0.992***	Effect	LLCI	ULCI
HUFG	-0.769***	-0.503***	-0.329***	-0.390***	-0.289***	-0.360	-0.021	-0.530	0.517
HUFS						-0.075	0.229	-0.052	0.430
HUSSS						0.008	-0.022	-0.152	0.082
PFS						-0.668**	0.219	0.062	0.430
NFS						0.168	-0.329	0.515	-0.180
SES						0.791***	-0.229	-0.415	-0.090
R^2	0.69***	0.34***	0.13***	0.12***	0.15***	0.09***			

Note. N = 400; †p 0.1, *p 0.05, **p 0.01, ***p 0.001 (one-tailed). Unstandardized coefficients are reported; Mediation & Model 6 results are expressed in log-odds metric and Nagelkerke R^2 .

However, the direct effect of HUFG on Residential Mobility Intention (RMI) was not significant, which implies full mediation. The total indirect effect via all five mediators was also non-significant (β = -0.021, CI [-0.530, 0.517]), which implies weak overall mediation.

Two single indirect paths were, however, statistically significant. Public Facilities Satisfaction (PFS) mediated a significant positive indirect effect (β = 0.219, CI [0.062, 0.4302]), such that public facilities dissatisfaction raises mobility intent. Social Environment Satisfaction (SES) mediated a significant negative indirect effect (β = -0.229, CI [-0.416, -0.090]), such that higher social environment satisfaction reduces relocation intention. Indirect effects via HUFS, HUSSS, and NFS were not statistically significant with confidence intervals that crossed zero.

Although HUFG itself does not influence residential mobility intention, the analysis identifies that public facilities and social environment satisfaction levels are the key variables determining residential mobility intentions. The results then show that housing unit features gap can influence residential mobility intention indirectly through residential satisfaction where public facilities dissatisfaction encouraging mobility and social environment satisfaction reducing relocation intentions.

The second mediation model, in this category, examined the mediating roles of various satisfaction dimensions in the relationship between the Housing Unit Support Services Gap (HUSSG) and Residential Mobility Intention (RMI). As shown in Table 4-16, the regression analysis confirmed that HUSSG lowered satisfaction in all five areas of residence substantially. HUSSG impact on RMI was not statistically significant ($p > .05$), and the total indirect effect via the five mediators (CI [-0.342, 0.503]) also wasn't significant.

Table 4-16. Analysis Result of Influence HUSSG on RMI with RS as Mediator

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Mediation Effect		
	HUFS	HUSSS	PFS	NFS	SES	RMI	Direct & Indirect effect of HUSSG on RMI		
Constant	4.012***	4.243***	3.789***	4.353***	3.660***	-1.224	Effect	LLCI	ULCI
HUSSG	-0.444***	-0.669***	-0.318***	-0.452***	-0.162***	-0.296	-0.701	-0.342	0.503
HUFS						-0.261	-0.116	-0.386	0.107
HUSSS						-0.252	0.169	-0.322	0.668
PFS						-0.696**	0.221	0.074	0.429
NFS						0.168	-0.076	-0.229	0.062
SES						0.785**	-0.127	-0.267	-0.037
R^2	0.26***	0.62***	0.14***	0.18***	0.05***	0.09***			

Note. N = 400; †p 0.1, *p 0.05, **p 0.01, ***p 0.001 (one-tailed). Unstandardized coefficients are reported; Mediation & Model 6 results are expressed in log-odds metric and Nagelkerke R^2 .

While the total mediation was not significant, there were two indirect paths, which were significant. Public Facilities Satisfaction (PFS) positively mediated the effect ($\beta = 0.221$, BootCI [0.074, 0.429]), suggesting higher mobility intention when public facilities are perceived as dissatisfactory. Social Environment Satisfaction (SES) negatively mediated

the effect (β = -0.127, BootCI [-0.267, -0.037]), suggesting lower relocation intention due to higher social environment satisfaction. Other mediators (HUFS, HUSSS, and NFS) yielded non-significant indirect effects.

Although HUSSG itself does not directly influence residential mobility intention, dissatisfaction with public facilities and satisfaction with social environments are full mediators for this relationship. This underscores the external, public facilities and social relationships conditions, instead of housing unit features and support services, as key mediators to relocate intention.

The third mediation model, in this category, examined the mediating roles of various satisfaction dimensions in the relationship between the Public Facility Gap (PFG) and Residential Mobility Intention (RMI). As shown in Table 4-17, the regression analysis confirmed that PFG lowered satisfaction in all five areas of residential housing dimensions significantly with p<.001.

Table 4-17. Analysis Result of Influence PFG on RMI with RS as Mediator

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Mediation Effect		
	HUFS	HUSSS	PFS	NFS	SES	RMI	Direct & Indirect effect of PFG on RMI		
Constant	3.918***	3.888***	4.381***	4.235***	3.749***	1.631	Effect	LLCI	ULCI
PFG	-0.43***	-0.512***	-0.741***	-0.425***	-0.238***	-0.937***	0.726	0.292	1.343
HUFS						0.363	-0.157	-0.413	0.073
HUSSS						-0.117	0.060	-0.244	0.347
PFS						-1.405***	1.041	0.619	1.694
NFS						0.088	-0.038	-0.170	0.099
SES						0.757**	-0.180	-0.353	-0.059
	0.19***	0.29***	0.57***	0.12***	0.09***	0.13***			

Note. N = 400; †p 0.1, *p 0.05, **p 0.01, ***p 0.001 (one-tailed). Unstandardized coefficients are reported; Mediation & Model 6 results are expressed in log-odds metric and Nagelkerke R^2 .

The direct influence of PFG on RMI was significant with clear indication of the role that enhanced gap in public facilities decrease residential mobility intent. Total indirect effect was also significant (β = 0.726, CI [0.292, 1.343]), further asserting collective mediation.

Specifically, PFS partially mediated the effect (β = 1.041, CI [0.6187, 1.6943]), indicating dissatisfaction with public facilities triggers residential mobility intention. SES reported strong negative mediation (β = -0.180, CI [-0.353, -0.059]), illustrating that satisfaction with social environment decreases residential mobility intention.

In conclusion, perceived public facilities gap contributes to residential mobility intention both directly and indirectly through public facilities dissatisfaction where as social environment satisfaction discourages relocation intention, revealing varying roots of residential mobility intentions.

The fourth mediation model, in this category, examined the mediating roles of various satisfaction dimensions in the relationship between the Neighborhood Facility Gap (NFG) and Residential Mobility Intention (RMI). As shown in Table 4-18, the regression analysis confirmed that PSG reduced residential satisfaction of all the five housing dimensions significantly with p<.001.

Table 4-18. Analysis Result of Influence NFG on RMI with RS as Mediator

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Mediation Effect		
	HUFS	HUSSS	PFS	NFS	SES	RMI	Direct & Indirect effect of NFG on RMI		
Constant	3.430***	3.354***	3.339***	4.578***	3.525***	3.375**	Effect	LLCI	ULCI
NFG	-0.137***	-0.196***	-0.072***	-0.780***	-0.111***	-1.411***	0.884	0.376	1.501
HUFS						0.305	-0.042	-0.130	0.028
HUSSS						-0.088	0.017	-0.097	0.133
PFS						-0.481**	0.035	-0.002	0.113
NFS						-1.218***	0.950	0.452	1.560
SES						0.693**	-0.077	-0.1577	-0.020
R^2	0.04***	0.08***	0.01**	0.79***	0.04***	0.16***			

Note. N = 400; †p 0.1, *p 0.05, **p 0.01, ***p 0.001 (one-tailed). Unstandardized coefficients are reported; Mediation & Model 6 results are expressed in log-odds metric and Nagelkerke R^2 .

Regression analysis also revealed a significant direct effect of Neighborhood Facilities Gap (NFG) on Residential Mobility Intention (RMI) (β = -1.411, p <.001), indicating greater gap with neighborhood facilities strongly predicts greater intent to move from the

neighborhood. The total indirect effect via five satisfaction mediators was also significant (β = 0.884, BCI [0.376, 1.501]), and supporting a collective mediating influence.

In some pathways, Neighborhood Facilities Satisfaction (NFS) positively and partially mediated the relationship (β = 0.950, CI [0.452, 1.560]), and Social Environment Satisfaction (SES) showed a significant negative mediation effect (Effect = -0.0766, BootCI [-0.157, -0.020]). The other mediators (HUFS, HUSSS, and PFS) did not have significant indirect effects.

NFG significantly enhances residential mobility intent directly and indirectly through dissatisfaction with neighborhood facilities which facilities increases relocation intention, where as social environment satisfaction decreases residential mobility intention. The findings underscore the essential role of neighborhood facilities and social environment in residential mobility intention in cost-efficient urban housing.

The fifth mediation model, in this category, surveyed the mediating roles of various satisfaction dimensions in the relationship between the Social Environment Gap (SEG) and Residential Mobility Intention (RMI). As shown in Table 4-19, the regression analysis revealed that SEG negatively influenced all the five housing dimensions residential satisfaction significantly with p<.001 and p<.01.

Table 4-19. Analysis Result of Influence SEG on RMI with RS as Mediator

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Mediation Effect		
	HUFS	HUSSS	PFS	NFS	SES	RMI	Direct & Indirect effect of SeG on RMI		
Constant	3.768***	3.386***	3.454***	4.134***	4.394***	0.610	Effect	LLCI	ULCI
SEG	-0.353***	-0.194***	-0.142**	-0.379***	-0.696***	-0.702**	-0.144	-0.709	0.417
HUFS						0.258	-0.091	-0.296	0.079
HUSSS						0.014	0.003	-0.118	0.123
PFS						-0.624**	0.089	0.006	0.241
NFS						0.121	-0.046	-0.165	0.069
SES						0.133	-0.093	-0.641	0.462
R^2	0.11***	0.04***	0.02**	0.08***	0.64***	0.10***			

Note. N = 400; †p 0.1, *p 0.05, **p 0.01, ***p 0.001 (one-tailed). Unstandardized coefficients are reported; Mediation & Model 6 results are expressed in log-odds metric and Nagelkerke R^2.

Regression analysis showed that SEG had a strong direct effect on RMI (β = -0.702, p <.05), suggesting that the higher the perceived social environment gap, the more likely is relocation intention. The aggregated indirect effect through the five satisfaction mediators was not significant (β = -0.1438, [-0.7091, 0.4167]), reflecting a non-significant collective mediating effect.

However, Public Facilities Satisfaction (PFS): Positive and significant mediation (β = 0.089, BootCI [0.006, 0.241]), in which public facilities dissatisfaction acts as a mediator of social environment gap effect on mobility intent to some degree. Other mediators did not have significant effects:

Findings confirm that social environment gap substantially increases residential mobility intention, largely via a direct mechanism. While most satisfaction-based mediators had no significant impacts, dissatisfaction with public facilities increases residential mobility intention. This highlights the importance of fair access to public facilities in consolidating residential mobility in the face of social environment disparities or gaps.

In conclusion, actual-aspiration gaps in all the housing dimensions were found to reduce residents' satisfaction across all the housing dimensions. Most of these gaps influenced residents' relocation intention except for housing unit features gap (HUFG) and housing unit support services gap (HUSSG), where no significant effect on residential mobility intention (RMI) was found. Instead, the two gaps operated exclusively through full mediation of satisfaction variables, where the focus is on the central role that perceived satisfaction plays in redirecting spatial gaps to behavioral intention. Among the mediators, public facilities satisfaction continually exerted a positive and significant indirect effect on mobility intention, implying that dissatisfaction in this domain increases the likelihood of movement.

Similarly, neighborhood facilities dissatisfaction was linked to increased mobility in at least one model. Conversely, satisfaction with social environment was playing the role of a suppression factor under all the conditions and was discouraging the intention to move

strongly. The rest of the dimensions of satisfaction were showing weak and inconsistent mediating effects. These findings place additional significance on the role of public facilities and social environment satisfaction in mediating the impact of socio-spatial housing gaps on residential mobility, particularly under low-income urban housing circumstances.

4.7.3 RS as Mediator between Socio-Spatial Gaps and NMI

The following five subsections present the findings from a parallel multiple mediation analysis exploring the effect of five Housing Dimensions Actual-aspiration Gaps on Neighborhood Modification Participation Intention (NMI), with mediating roles played by five residential satisfaction variables: Housing Unit Features Satisfaction (HUFS), Housing Unit Support Service Satisfaction (HUSSS), Public Facilities Satisfaction (PFS), Neighborhood Facilities Satisfaction (NFS), and Social Environment Satisfaction (SES).

The first mediation model, in this category, examined the mediating roles of various satisfaction dimensions in the relationship between the Housing Unit Features Gap (HUFG) and Neighborhood Modification Intention (NMI). As shown in Table 4-20, the regression analysis revealed that HUFG negatively influenced all the five housing dimensions residential satisfaction significantly with p<.001 and p<.01.

Table 4-20. Analysis Result of Influence SEG on NMI with RS as Mediator

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Mediation Effect		
	HUFS	HUSSS	PFS	NFS	SES	NMI	Direct & Indirect effect of HUFG on NMI		
Constant	4.461***	3.894***	3.764***	4.196***	3.838***	1.883	Effect	LLCI	ULCI
HUFG	-0.769***	-0.503***	-0.329**	-0.390***	-0.289***	-0.781**	0.816	0.302	1.481
HUFS						-1.696***	1.303	0.752	2.045
HUSSS						-0.291**	0.292	-0.627	-0.028
PFS						-0.484**	0.159	-0.006	0.368
NFS						0.477**	-0.186	-0.349	-0.052
SES						0.584**	-1.169	-0.349	-0.026
	0.69***	0.32***	0.13**	0.59***	0.15***	0.17***			

Note. N = 400; †p 0.1, *p 0.05, **p 0.01, ***p 0.001 (one-tailed). Unstandardized coefficients are reported; Mediation & Model 6 results are expressed in log-odds metric and Nagelkerke R^2 .

The analysis revealed that HUFG had a statistically inverse and significant effect on the intention to neighborhoods modification (β = -0.781, p<.01), and that a lower housing unit features gap bring about an improvement in the residents' tendency to participate in neighborhoods modification. The indirect overall effect through the five satisfaction domains was also large & significant (β = 0.816, CI [0.302, 1.481]), suggesting that the housing dimension satisfaction variables collectively mediate the relationship between HUFG and NMI.

Housing Unit Features Satisfaction (HUFS) and Housing Unit Support Services Satisfaction (HUSS) exerted a strong and significant positive mediation effect (β = 1.303, CI [0.7520, 2.0449]; β = 0.2919, CI [-0.6271, -0.0281]) indicating their dissatisfaction led to neighborhood modification intention. Neighborhood Facilities Satisfaction (NFS) and Social Environment Satisfaction (SES) both displayed significant negative mediation effects on neighborhood modification intention (NFS: β = -0.186, CI [-0.349, -0.052]; SES: β = -0.169, CI [-0.349, -0.0269]) indicating their satisfaction led to neighborhood modification intention. However, Public Facilities Satisfaction (PFS) displayed a non-significant mediation effect.

The findings verify that housing units feature gaps directly and indirectly increase neighborhood modification intention through different areas of satisfaction. Satisfaction with housing unit features & housing unit support services emerged as the strongest mediator, followed by dissatisfaction with neighborhood facilities, and social environment. These findings imply the interconnectedness of physical and social housing conditions and residential satisfaction as a whole in influencing participation in neighborhood modification decisions.

The second mediation model, in this category, explored the mediating roles of various satisfaction dimensions in the relationship between the Housing Unit Support Services Gap (HUSSG) and Neighborhood Modification Intention (NMI). As shown in Table 4-21, the regression analysis discovered that HUSSG negatively influenced all the five housing dimensions residential satisfaction significantly with p<.001 and p<.01.

Table 4-21. Analysis Result of Influence HUSSG on NMI with RS as Mediator

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Mediation Effect		
	HUFS	HUSSS	PFS	NFS	SES	NMI	Direct & Indirect effect of HUSSG on NMI		
Constant	4.012***	4.243***	3.789***	4.353***	3.660***	2.085	Effect	LLCI	ULCI
HUSSG	-0.444***	-0.669***	-0.318**	-0.452***	-0.162***	0.794**	0.399	-0.048	1.034
HUFS						-0.936***	0.416	0.187	0.774
HUSSS						-0.167	0.118	-0.410	0.718
PFS						-0.526**	0.167	0.004	0.365
NFS						0.464**	-0.210	-0.381	-0.046
SES						0.569**	-0.092	-0.219	-0.011
R^2	0.26***	0.62***	0.14**	0.18***	0.05***	0.18***			

Note. N = 400; †p 0.1, *p 0.05, **p 0.01, ***p 0.001 (one-tailed). Unstandardized coefficients are reported; Mediation & Model 6 results are expressed in log-odds metric and Nagelkerke R^2.

The analysis revealed that HUSSG negatively and directly had a statistically significant effect on the intention to neighborhoods modification (β = -0.794, p,<.01), and that a lower perceived housing unit support services gap increases participate in neighborhoods modification. Moreover, it revealed that the overall indirect effect of the Housing Unit Support Services Gap (HUSSG) on Neighborhood Modification Intention (NMI) was not statistically significant (β = 0.393, CI [-0.048, 1.034]), as the confidence interval cut through zero. That implies certain individual indirect paths had significant mediation effects.

Notably, Housing Unit Features Satisfaction (HUFS) was a significant positive mediator (β = 0.416, CI [0.187, 0.774]), which suggests that housing support services gap decreases satisfaction with housing features, enhancing the likelihood of neighborhood modification intention. The same was observed for Public Facilities Satisfaction (PFS) (β = 0.167, CI [0.004, 0.365]), which suggests that housing unit support services gap indirectly influence neighborhood modification intention through public facilities dissatisfaction.

Conversely, Neighborhood Facilities Satisfaction (NFS) was found to have a negative indirect effect (β = -0.2095, CI [-0.3812, -0.0456]), indicating that satisfaction with neighborhood facilities can increase neighborhood modification intention. Likewise, Social Environment Satisfaction (SES) was found to have a small but significant negative

mediation effect (β = -0.092, CI [-0.219, -0.011]), indicating that satisfaction with social environment induces participation in neighborhood modification intention.

On the other hand, the indirect effect through Housing Unit Support Services Satisfaction (HUSSS) itself was not significant. Collectively, these findings describe a complicated mediation model whereby perceived housing unit support service gap affects neighborhood modification intentions through direct and indirect paths. Reduced satisfaction with housing unit features and public facilities trigger neighborhood modification desire, while increased satisfaction with neighborhood facilities and social environments diminish that desire. This indicates the multi-dimensional nature of residential satisfaction to affect urban housing modification intentions.

The third mediation model, in this category, investigated the mediating roles of various satisfaction dimensions in the relationship between Public Facilities Gap (PFG) and Neighborhood Modification Intention (NMI). As shown in Table 4-22, the regression analysis discovered that PFG negatively influenced all the five housing dimensions residential satisfaction significantly with p<.001 and p<.01.

Table 4-22. Analysis Result of Influence PFG on NMI with RS as Mediator

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Mediation Effect		
	HUFS	HUSSS	PFS	NFS	SES	NMI	Direct & Indirect effect of PFG on NMI		
Constant	3.918***	3.888***	4.382***	4.235***	3.749***	5.114***	Effect	LLCI	ULCI
PFG	-0.433***	-0.512***	-0.741**	-0.425***	-0.238***	-1.486***	1.119	0.591	1.990
HUFS						-0.855**	0.370	0.126	0.736
HUSSS						0.434	-0.222	-0.594	0.057
PFS						-1.702***	1.260	0.776	2.034
NFS						0.393**	-0.167	-0.336	0.015
SES						0.515**	-0.123	-0.281	-0.001
R^2	0.19***	0.29***	0.57**	0.12***	0.09***	0.23***			

Note. N = 400; †p 0.1, *p 0.05, **p 0.01, ***p 0.001 (one-tailed). Unstandardized coefficients are reported; Mediation & Model 4 results are expressed in log-odds metric and Nagelkerke R^2.

The mediation analysis revealed PFG possessed a statistically significant and direct inverse relationship with NMI (B = -1.486, p < .001), meaning that residents with a lower

perceived gap in public facilities were more likely to have a need for neighborhood modification, when controlling for the mediator variables of satisfaction. The analysis also uncovered that a statistically significant total indirect effect of the Public Facilities Gap (PFG) on Neighborhood Modification Intention (NMI) via five satisfaction domains (β = 1.119, CI [0.591, 1.990]), indicating a substantial mediating structure.

Specifically, Housing Unit Features Satisfaction (HUFS) exhibited a significant positive mediation effect (β = 0.370, CI [0.126, 0.736]), suggesting that public facility gaps decreased housing satisfaction, which in turn increased residents' intention to modify their neighborhood. Likewise, Public Facilities Satisfaction (PFS) produced a robust positive mediation effect (β = 1.260, CI [0.776, 2.034]), confirming that dissatisfaction with public amenities directly reinforces neighborhood modification intention.

In contrast, Housing Unit Support Services Satisfaction (HUSSS) and Neighborhood Facilities Satisfaction (NFS) showed a non-significant effect, indicating no substantial mediating role. Social Environment Satisfaction (SES) displayed a small but significant negative mediation effect (β = -0.123, CI [-0.281, -0.001]), highlighting a buffering social environment satisfaction triggers neighborhood modification intention in the presence of public facility gap.

In summary, while the PFG reduces NMI directly, it indirectly increases NMI through dissatisfaction with housing unit features and public facilities and satisfaction with the social environment. These dynamics underscore the multifaceted interplay between public facilities gaps and residential satisfaction in shaping neighborhood modification intentions, and point to the need for holistic urban planning strategies that address both objective spatial gaps and perceived residential dissatisfaction.

The fourth mediation model, in this category, investigated the mediating roles of various satisfaction dimensions in the relationship between Neighborhood Facilities Gap (NFG) and Neighborhood Modification Intention (NMI). As shown in Table 4-23, the regression analysis revealed that NFG negatively influenced all the five housing dimensions residential satisfaction significantly with $p<.001$ and $p<.01$.

Table 4-23. Analysis Result of Influence NFG on NMI with RS as Mediator

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Mediation Effect		
	HUFS	HUSSS	PFS	NFS	SES	NMI	Direct & Indirect effect of NFG on NMI		
Constant	3.430***	3.354***	3.340***	4.579***	3.525***	3.974**	Effect	LLCI	ULCI
NFG	-0.137***	-0.196***	-0.072**	-0.780***	-0.111***	-1.192***	0.481	-0.163	1.253
HUFS						-0.962***	0.132	0.049	0.244
HUSSS						0.553**	-0.108	-0.257	-0.004
PFS						-0.412	0.030	-0.009	0.104
NFS						-0.612	0.477	-0.168	1.226
SES						0.449	-0.050	-0.120	0.003
R^2.	0.04***	0.08***	0.01**	0.79***	0.04***	0.20***			

Note. N = 400; †p 0.1, *p 0.05, **p 0.01, ***p 0.001 (one-tailed). Unstandardized coefficients are reported; Mediation & Model 6 results are expressed in log-odds metric and Nagelkerke R^2.

The mediation analysis revealed that the direct effect of the Neighborhood Facilities Gap (NFG) on Neighborhood Modification Intention (NMI) remained statistically significant after accounting for mediators (β = -1.192, $p < .001$), indicating that a perceived gap in neighborhood facilities inversely influenced the likelihood of Neighborhood Modification Intention. While the total indirect effect through the five satisfaction dimensions was not statistically significant (β = 0.481, CI [–0.163, 1.253]), specific mediation pathways revealed differential effects. A significant positive indirect effect was observed through Housing Unit Features Satisfaction (β = 0.132, CI [0.049, 0.244]), suggesting that neighborhood facilities gap reduces housing satisfaction, thereby reduced housing satisfaction induces neighborhood modification intention. Conversely, Housing Unit Support Services Satisfaction demonstrated a significant negative indirect effect (β = –0.108, CI [–0.259, –0.004]), indicating satisfaction with housing unit support services, triggers the intent to neighborhood modification. Other pathways through Public Facilities Satisfaction (PFS), Neighborhood Facilities Satisfaction (NFS), and Social Environment Satisfaction (SES) did not yield significant effects.

In summary, although NFG exerts a strong direct negative influence on NMI, only HUFS, with positive effect, and HUSSS, with negative effect, act as meaningful mediators, with opposing effects. These findings underscore the mixed and sometimes counterbalancing

roles of residential satisfaction components in shaping neighborhood modification intentions in a presence of neighborhood facility gaps.

The fifth mediation model, in this category, examined the mediating roles of various satisfaction dimensions in the relationship between Social Environment Gap (SEG) and Neighborhood Modification Intention (NMI). As shown in Table 4-24, the regression analysis revealed that SEG negatively influenced all the five housing dimensions residential satisfaction significantly with $p<.001$ and $p<.01$.

The mediation analysis disclosed that the direct effect of Social Environment Gap (SEG) on Neighborhood Modification Intention (NMI) was statistically significant ($\beta = -0.739$, $p <.05$), indicating that lower gap with the social environment has a significant increase in the residents' intention to neighborhood modification.

Table 4-24. Analysis Result of Influence SEG on NMI with RS as Mediator

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Mediation Effect		
	HUFS	HUSSS	PFS	NFS	SES	NMI	Direct & Indirect effect of SEG on NMI		
Constant	3.768***	3.386***	3.454***	4.134***	4.394***	1.722	Effect	LLCI	ULCI
SEG	-0.353***	-0.194***	-0.142**	-0.379***	-0.696***	-0.739**	0.194	-0.358	0.800
HUFS						-0.958***	0.339	0.152	0.578
HUSSS						0.597**	-0.115	-0.278	-0.012
PFS						-0.510**	0.073	-0.004	0.203
NFS						0.477**	-0.180	-0.338	-0.056
SES						-0.114	0.079	-0.462	0.667
R^2	0.11***	0.04***	0.02**	0.08***	0.64***	0.17***			

Note. N = 400; †p 0.1, *p 0.05, **p 0.01, ***p 0.001 (one-tailed). Unstandardized coefficients are reported; Mediation & Model 6 results are expressed in log-odds metric and Nagelkerke R^2.

The total indirect effect of SEG on NMI through the five dimensions of satisfaction did not reach statistical significance. However, some indirect pathways showed distinctive patterns. Housing Unit Features Satisfaction (HUFS) exhibited a significant positive mediating impact ($\beta = 0.339$, CI [0.1515, 0.5782]), indicating that decreases housing unit features satisfaction increases NMI. Housing Unit Support Services Satisfaction (HUSSS)

had a significant negative mediation effect (β = -0.1154, CI [-0.278, -0.012]), revealing that satisfaction with housing unit support services satisfaction reduces NMI. Neighborhood Facilities Satisfaction (NFS) also mediated negatively to a significant extent (β = -0.181, CI [-0.338, -0.056]), indicating satisfaction with neighborhood facilities lowers NMI. The paths through Public Facilities and Social Environment Satisfaction (SES) were not statistically significant.

Briefly, SEG exerts a substantial direct influence on neighborhood change intention, with contradictory indirect influences. While social environment gap increases neighborhood modification intention through diminished housing unit features satisfaction, increase of satisfaction in housing unit support services and neighborhood facilities may reduce neighborhood modification intention. These dynamics illustrate the complicated interplay of environmental perceptions and neighborhood modification intention within urban residential environments.

In conclusion, actual-aspiration gaps across all housing dimensions were found to significantly decrease residential satisfaction in their respective domains, and these gaps influenced neighborhood modification intention (NMI) directly and indirectly. Among the mediating variables, Housing Unit Features Satisfaction (HUFS) and Housing Unit Support Services Satisfaction (HUSSS) consistently demonstrated strong and significant positive mediation effects on NMI. Conversely, Neighborhood Facilities Satisfaction (NFS) and Social Environment Satisfaction (SES) had significant negative mediation effects, particularly under conditions of perceived gaps in housing unit features and housing unit support services. This suggests that dissatisfaction with housing unit features and support services is able to motivate neighborhood improvement intention. However, satisfaction with neighborhood facilities and social environment is likely to reduce such intention.

Patterns of mediation also varied according to the type of socio-spatial gap under investigation. These highlight the multi-faceted nature of residential satisfaction mediating the impact of perceived housing gaps towards neighborhood modification intention. In conclusion, findings highlight the complex, but significant, role various housing

dimensions satisfaction play in shaping residents' action intentions toward neighborhood change through socio-spatial gaps in urban housing system.

4.7.4 RS as Mediator between Socio-Spatial Gaps and FAI

The following five subsections present the findings from a parallel multiple mediation analysis exploring the effect of five Housing Dimensions Actual-aspiration Gaps on Family Size Adjustment Intention (FAI), with mediating roles played by five residential satisfaction variables: Housing Unit Features Satisfaction (HUFS), Housing Unit Support Service Satisfaction (HUSSS), Public Facilities Satisfaction (PFS), Neighborhood Facilities Satisfaction (NFS), and Social Environment Satisfaction (SES).

The first mediation model, in this category, examined the mediating roles of various satisfaction dimensions in the relationship between Housing Unit Features Gap (HUFG) and Family Size Adjustment Intention (FAI). As shown in Table 4-25, the regression analysis revealed that HUFG negatively influenced all the five housing dimensions residential satisfaction significantly with p<.001.

Table 4-25. Analysis Result of Influence HUFG on FAI with RS as Mediator

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Mediation Effect		
	HUFS	HUSSS	PFS	NFS	SES	FAI	Direct & Indirect effect of HUFG on FAI		
Constant	4.461***	3.894***	3.764***	4.196***	3.838***	-1.192	Effect	LLCI	ULCI
HUFG	-0.769***	-0.503***	-0.329***	-0.390***	-0.289***	0.036	-0.037	-0.544	0.426
HUFS						-0.092	0.071	-0.511	0.592
HUSSS						-0.150	0.075	-0.162	0.338
PFS						-0.106	0.035	-0.096	0.192
NFS						0.435**	-0.170	-0.307	-0.065
SES						0.167	0.048	-0.185	0.074
R^2	0.69***	0.32***	0.13***	0.12***	0.15***	0.04			

Note. N = 400; †p 0.1, *p 0.05, **p 0.01, ***p 0.001 (one-tailed). Unstandardized coefficients are reported; Mediation & Model 6 results are expressed in log-odds metric and Nagelkerke R^2.

The direct effect of HUFG on FAI was not significant (p >.05). The total indirect effect of HUFG through the mediators was not significant (CI [-0.5444, 0.4264]). However, NFS was the sole specific mediator to exert a notable indirect effect (β=-0.169, CI [-0.307, -

0.065]). This suggests that residential satisfaction with neighborhood amenities can indirectly fosters residents' intentions of making family-size adjustments.

This analysis identified important dynamic where HUFG does not have a direct effect on family size adjustment intention, but it has an indirect effect through neighborhood facilities satisfaction. In this manner, satisfaction with neighborhood facilities fosters family size adjustment intentions. The other housing dimensions of satisfaction (HUFS, HUSSS, PFS, and SES) were not effective mediators in this pathway. This finding implies an inclusive policy focus that extends beyond the upgrading of dwelling units to include the creation of neighborhood facilities and infrastructure.

The second mediation model, in this category, investigated the mediating roles of various satisfaction dimensions in the relationship between Housing Unit Supporting Services Gap (HUSSG) and Family Size Adjustment Intention (FAI). As shown in Table 4-26, the regression analysis revealed that HUFG negatively influenced all the five housing dimensions residential satisfaction significantly with $p<.001$.

The analysis revealed that statistical significance for the direct impact of Housing Unit Support Services Gap (HUSSG) on Family Size Adjustment Intention (FAI) was not confirmed ($p>.05$), indicating no direct relationship between housing unit support service gaps and family size adjustment intentions.

Table 4-26. Analysis Result of Influence HUSSG on FAI with RS as Mediator

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Mediation Effect		
	HUFS	HUSSS	PFS	NFS	SES	FAI	Direct & Indirect effect of HUSSG on FAI		
Constant	4.002***	4.243***	3.789***	4.353***	3.660***	0.818	Effect	LLCI	ULCI
HUSSG	-0.444***	-0.669***	-0.318***	-0.452***	-0.162***	-0.384	0.219	-0.180	0.649
HUFS						-0.119	0.053	-0.156	0.268
HUSSS						-0.516	0.345	-0.098	0.846
PFS						-0.041	0.013	-0.121	0.152
NFS						0.374**	-0.169	-0.334	-0.038
SES						0.147	0.024	-0.110	0.048
R^2	0.26***	0.62***	0.14***	0.18***	0.05***	0.05**			

Note. N = 400; †p 0.1, *p 0.05, **p 0.01, ***p 0.001 (one-tailed). Unstandardized coefficients are reported; Mediation & Model 6 results are expressed in log-odds metric and Nagelkerke R^2.

The total indirect effect was also not significant (CI [-0.180, 0.649]), suggesting weak overall mediation. However, individual indirect paths examination revealed significant mediation through Neighborhood Facilities Satisfaction (NFS) (β = -0.169, CI [-0.334, -0.038]). The remaining mediators, HUFS, HUSSS, PFS, and SES, produced non-significant effects with confidence intervals crossing zero.

While HUSSG didn't exert direct or general indirect influence on FAI, the model provided an essential indirect influence through NFS where satisfaction with neighborhood facilities encourages residents to change family size. The mediating chain demonstrates how the neighborhood environment determines demographic choice. These findings imply that alterations to the external neighborhood facilities may indirectly affect individual and household-level planning decisions, for example, altering family size.

The third mediation model, in this category, examined the mediating roles of various satisfaction dimensions in the relationship between Public Facilities Gap (PFG) and Family Size Adjustment Intention (FAI). As shown in Table 4-27, the regression analysis revealed that PFG negatively influenced all the five housing dimensions residential satisfaction significantly with $p<.001$.

Table 4-27. Analysis Result of Influence PFG on FAI with RS as Mediator

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Mediation Effect		
	HUFS	HUSSS	PFS	NFS	SES	FAI	Direct & Indirect effect of PFG on FAI		
Constant	3.918***	3.888***	4.382***	4.235***	3.749***	1.135	Effect	LLCI	ULCI
PFG	-0.433***	-0.512***	-0.741***	-0.425***	-0.238***	-0.465	0.271	-0.150	0.706
HUFS						-0.079	0.034	-0.178	0.235
HUSSS						-0.222	0.113	-0.134	0.360
PFS						-0.422	0.313	-0.078	0.747
NFS						0.370**	-0.157	-0.318	-0.037
SES						0.132	-0.031	-0.152	0.069
R^2	0.19***	0.29***	0.58***	0.12***	0.09***	0.05**			

Note. N = 400; †p 0.1, *p 0.05, **p 0.01, ***p 0.001 (one-tailed). Unstandardized coefficients are reported; Mediation & Model 6 results are expressed in log-odds metric and Nagelkerke R^2.

The analysis also uncovered that the direct influence of Public Facilities Gap (PFG) on Family Size Adjustment Intention (FAI) was not statistically significant (p >.05). The indirect effect of PFG through the five mediators in total was not significant (CI [-0.150, 0.706]). Neighborhood Facilities Satisfaction (NFS) alone was a significant mediator (β = -0.157, CI [-0.318, -0.037]), indicating increase in satisfaction with neighborhood facilities, further increases FAI. Indirect paths through HUFS, HUSSS, PFS, and SES were non-significant because their confidence intervals included zero.

The results indicate that expanding neighborhood-level facilities may be more effective in shaping residents' demographic choice-making. Thus, urban housing policy must integrate resident driven neighborhood planning into housing agenda to enable adaptive family choice-making.

The fourth mediation model, in this category, explored the mediating roles of various satisfaction dimensions in the relationship between Neighborhood Facilities Gap (NFG) and Family Size Adjustment Intention (FAI). As shown in Table 4-28, the regression analysis the regression analysis revealed that NFG negatively influenced all the five housing dimensions residential satisfaction significantly with p<.001 & p<.01.

Table 4-28. Analysis Result of Influence NFG on FAI with RS as Mediator

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Mediation Effect		
	HUFS	HUSSS	PFS	NFS	SES	FAI	Direct & Indirect effect of PFG on FAI		
Constant	3.430***	3.354***	3.340***	4.579***	3.525***	1.482	Effect	LLCI	ULCI
NFG	-0.137***	-0.196***	-0.072**	-0.780***	-0.111***	-0.522**	-0.522	-1.026	0.018
HUFS						-0.122	0.017	-0.050	0.085
HUSSS						-0.174	0.034	-0.065	0.146
PFS						-0.002	0.000	-0.037	0.041
NFS						-0.099	-0.157	-0.318	0.680
SES						0.107	-0.031	-0.152	0.037
R^2	0.04***	0.08***	0.01**	0.79***	0.04***	0.05**			

Note. N = 400; †p 0.1, *p 0.05, **p 0.01, ***p 0.001 (one-tailed). Unstandardized coefficients are reported; Mediation & Model 6 results are expressed in log-odds metric and Nagelkerke R^2.

The analysis also discovered that Neighborhood Facility Gap (NFG) directly significantly influenced Family Size Adjustment Intention (FAI) (β = -0.522, $p < .01$), such that increased neighborhood facilities gap reduces the likelihood of having intention to adjust family size.

The overall indirect effect of NFG on FAI through the five mediators (HUFS, HUSSS, PFS, NFS, and SES) was not significant and neither was the individual indirect path significant since their confidence intervals had zero.

This analysis underscores a direct, strong association between neighborhood facility gaps and residents' plans to adjust family size, independent of intermediate satisfaction factors. Although NFG exerted adverse effects in some satisfaction domains, namely neighborhood facilities satisfaction, such dimensions themselves failed to mediate the observed effect on FAI.

The results highlight the salience of experienced neighborhood facilities gaps in shaping family size decision, since direct NFG effects trumps indirect ones. Urban intervention for the immediate surrounding neighborhood area is therefore likely to affect residential stability and demographic action more than general strategies for overall satisfaction.

The fifth mediation model, in this category, investigated the mediating roles of various satisfaction dimensions in the relationship between Social Environ met Gap (SEG) and Family Size Adjustment Intention (FAI). As shown in Table 4-29, the regression analysis revealed that SEG negatively influenced all the five housing dimensions residential satisfaction significantly with p<.001 & p<.01.

Table 4-29. Analysis Result of Influence SEG on FAI with RS as Mediator

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Mediation Effect		
	HUFS	HUSSS	PFS	NFS	SES	FAI	Direct & Indirect effect of SEG on FAI		
Constant	3.768***	3.386***	3.454***	4.134***	4.394***	0.018	Effect	LLCI	ULCI
SEG	-0.353***	-0.194***	-0.142**	-0.379***	-0.696***	-0.224	-0.036	-0.536	0.509
HUFS						-0.128	0.045	-0.121	0.22
HUSSS						-0.152	0.029	-0.065	0.137
PFS						-0.063	0.009	-0.052	0.088
NFS						0.399**	-0.151	-0.274	-0.049
SES						-0.045	-0.031	-0.466	0.572
R^2	0.11***	0.04***	0.02**	0.08***	0.64***	0.04**			

Note. N = 400; †p 0.1, *p 0.05, **p 0.01, ***p 0.001 (one-tailed). Unstandardized coefficients are reported; Mediation & Model 6 results are expressed in log-odds metric and Nagelkerke R^2.

The findings revealed that the direct effect of SEG on FAI was not significant (p >.0.05), implying that perceived social environment gap do not directly influence residents' adjustment intentions for family arrangements. Moreover, the total indirect effect of SEG to FAI was not significant (β = -0.036, BootCI [-0.536, 0.509]). But the specific indirect effect through NFS was statistically significant (β = -0.151,CI [-0.274, -0.049]), supporting a mediating role. The remaining dimensions of satisfaction (HUFS, HUSSS, PFS, and SES) could not mediate the SEG–FAI relation since their confidence intervals included zero.

The analysis confirms that SEG doesn't directly influence family size adjustment intentions, whereas its influence passes indirectly through the satisfaction of neighborhoods facilities. The process is such that perceived increased satisfaction with neighborhood facilities fosters family size adjustment intentions. The results underscore the key mediating role of neighborhood facilities satisfaction between social environment and family size adjustment behavior. Public policy measures to enhance neighborhood

solidarity and community amenities may therefore provide indirect leverage in influencing household decision-making processes.

In conclusion, gaps in all socio-spatial aspects of housing were found to have strong and negative impacts on residential satisfaction in all five dimensions of housing. While most of the gaps had indirect impacts on family size adjustment (FAI) through satisfaction-based mediation, the neighborhood facilities gap (NFG) had a unique direct impact on FAI that did not pass through other satisfaction-based mediators. Among all the measures of satisfaction, NFS alone consistently emerged as a mediator. In particular, higher satisfaction with neighborhood facilities was found to be positively associated with households' willingness to change their family size, suggesting a close perceptual relationship between the quality of neighborhoods and internal household restructuring behavior.

These findings emphasize the mediating role of NFS, especially in linking larger social-spatial issues with family level adjustment responses. The implications from the findings are that families do consider the quality, accessibility and distribution of neighborhood facilities in decision-making regarding family composition. Urban housing policies targeting increased neighborhood affiliation, higher availability of public space, and neighborhood facilities investment may therefore indirectly encourage more adaptive household behavior.

4.7.5 RS as Mediator between Socio-Spatial Gaps and CAI

The following five subsections present the findings from a parallel multiple mediation analysis exploring the effect of five Housing Dimensions Actual-aspiration Gaps on Cognitive Adjustment Intention (CAI), with mediating roles played by five residential satisfaction variables: Housing Unit Features Satisfaction (HUFS), Housing Unit Support Service Satisfaction (HUSSS), Public Facilities Satisfaction (PFS), Neighborhood Facilities Satisfaction (NFS), and Social Environment Satisfaction (SES).

The first mediation model, in this category, explored the mediating roles of various satisfaction dimensions in the relationship between Housing Unit Features Gap (HUFG)

and Cognitive Adjustment Intention (CAI). As shown in Table 4-30, the regression analysis revealed that HUFG negatively influenced all the five housing dimensions residential satisfaction significantly with p<.001 & p<.01.

Table 4-30. Analysis Result of Influence HUFG on CAI with RS as Mediator

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Mediation Effect		
	HUFS	HUSSS	PFS	NFS	SES	CAI	Direct & Indirect effect HUFG on CAI		
Constant	4.461***	3.894***	3.763***	4.196***	3.383***	1.135	Effect	LLCI	ULCI
HUFG	-0.769***	-0.503***	-0.320**	-0.390***	-0.289***	0.063	-0.011	-0.658	0.639
HUFS						-0.016	0.012	-0.690	0.768
HUSSS						0.208	-0.105	-0.429	0.174
PFS						0.260	-0.085	-0.274	0.093
NFS						-0.598***	0.233	0.095	0.415
SES						0.229	-0.066	-0.221	0.093
R^2.	0.69***	0.32***	0.13***	0.12***	0.15***	0.06**			

Note. N = 400; †p 0.1, *p 0.05, **p 0.01, ***p 0.001 (one-tailed). Unstandardized coefficients are reported; Mediation & Model 6 results are expressed in log-odds metric and Nagelkerke R^2.

The findings revealed that the direct effect of Housing Unit Features Gap (HUFG) on CAI was not significant (p >.05), which suggests the absence of a direct relationship between housing unit features gap and cognitive adaptation intention. The net indirect effect of HUFG on CAI was also not significant (CI [-0.658, 0.639]). The specific indirect path through NFS was statistically significant (β = 0.233, CI [0.095, 0.415]), indicating a suppression effect. That is, HUFG negatively affected NFS, while less NFS positively increased CAI, leading to an indirect positive effect. The remaining mediators (HUFS, HUSSS, PFS, SES) did not demonstrate significant mediation, as all the confidence intervals included zero.

Although HUFG did not have a direct influence on residents' cognitive adaptation intentions, its influence operates indirectly through neighborhood facilities satisfaction, and NFS alone was a significant mediator. The overpowering effect in this case suggests that dissatisfied residents with neighborhood facilities are more likely to cognitively adapt to their living situations. Intervention that enhances neighborhood-level infrastructure thus

may be adaptive-attitude supporting despite unsatisfying in housing unit features conditions.

The second mediation model, in this category, investigated the mediating roles of various satisfaction dimensions in the relationship between Housing Unit Support Services Gap (HUSSG) and Cognitive Adjustment Intention (CAI). As shown in Table 4-31, the regression analysis revealed that HUSSG negatively influenced all the five housing dimensions residential satisfaction significantly with p<.001 and p<.01.

Table 4-31. Analysis Result of Influence HUSSG on CAI with RS as Mediator

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Mediation Effect		
	HUFS	HUSSS	PFS	NFS	SES	CAI	Direct & Indirect effect of HUSSG on CAI		
Constant	4.012***	4.243***	3.789***	4.353***	3.660***	1.972	Effect	LLCI	ULCI
HUSSG	-0.444***	-0.669***	-0.318**	-0.452***	-0.162***	-0.111	0.118	-0.405	0.624
HUFS						-0.075	0.033	-0.229	0.331
HUSSS						0.105	-0.070	-0.681	0.442
PFS						0.291	-0.093	-0.280	0.066
NFS						-0.624***	0.282	0.125	0.503
SES						0.215	-0.035	-0.134	0.051
R^2	0.26***	0.62***	0.14***	0.18***	0.05***	0.06**			

Note. N = 400; †p 0.1, *p 0.05, **p 0.01, ***p 0.001 (one-tailed). Unstandardized coefficients are reported; Mediation & Model 6 results are expressed in log-odds metric and Nagelkerke R^2.

The findings revealed that the direct path from HUSSG to CAI was not significant, p >.05. The total indirect effect of HUSSG on CAI was not significant (β = 0.118, CI [-0.405, 0.624]). However, the indirect path through NFS was significant (β = 0.282, CI [0.125, 0.503]), indicating that neighborhood facilities dissatisfaction increases cognitive adaptation intention. Other indirect paths through HUFS, HUSSS, PFS, and SES were not significant, since their confidence intervals contained zero.

Whereas the Socio-Spatial Gap of Housing Unit Support Services does not affect cognitive adjustment intention directly, indirect effect through dissatisfaction with neighborhood facilities is substantial. It testifies to the critical role neighborhood facilities

play in setting residents' psychological adjustment. Empowering housings with neighborhood facilities could then be a means for triggering cognitive adjustment intentions even though residents are exposed to bigger Housing Unit Support Services gap.

The third mediation model, in this category, evaluated the mediating roles of various satisfaction dimensions in the relationship between Public Facilities Gap (PFG) and Cognitive Adjustment Intention (CAI). As shown in Table 4-32, the regression analysis revealed that PFG negatively influenced all the five housing dimensions residential satisfaction significantly with $p<.001$ and $p<.01$.

Table 4-32. Analysis Result of Influence PFG on CAI with RS as Mediator

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Mediation Effect		
	HUFS	HUSSS	PFS	NFS	SES	CAI	Direct & Indirect effect of PFG on CAI		
Constant	3.918***	3.388***	4.382***	4.235***	3.749***	1.918	Effect	LLCI	ULCI
PFG	-0.433***	-0.512***	-0.741***	-0.425***	-0.238***	-0.104	-0.007	-0.515	0.509
HUFS						-0.067	0.029	-0.241	0.331
HUSSS						0.196	-0.100	-0.454	0.185
PFS						0.200	-0.148	-0.677	0.333
NFS						-0.62***	0.264	0.114	0.481
SES						0.216	-0.051	-0.193	0.075
R^2	0.19***	0.29***	0.58***	0.12***	0.09***	0.06**			

Note. N = 400; †p 0.1, *p 0.05, **p 0.01, ***p 0.001 (one-tailed). Unstandardized coefficients are reported; Mediation & Model 6 results are expressed in log-odds metric and Nagelkerke R^2.

The findings showed that the direct effect of the Public Facilities Gap (PFG) was not significant, $p>.05$. The total indirect effect of PFG on CAI was not significant, CI [-.0515, 0.509]. However, the indirect path through NFS was significant ($\beta = 0.264$, CI [0.114, 0.481]), indicating dissatisfaction with neighborhood facilities increases the intention to cognitive adjustment. Indirect effects through HUFS, HUSSS, PFS, and SES were statistically not significant as all corresponding confidence intervals included zero.

Although the Public Facilities Gap does not directly influence Cognitive Adjustment Intention, its indirect influence through dissatisfaction with neighborhood facilities is evident. Among all satisfaction aspects, NFS is the only one mediating the influence of perceived deficiencies in public facilities. These findings suggest that it might be necessary to enhance neighborhood-level facilities and services, and not only in-unit housing issues, to foster cognitive adjustment intention in urban cost-efficient condominium housing environments such as Addis Ababa.

The fourth mediation model, in this category, investigated the mediating roles of various satisfaction dimensions in the relationship between Neighborhood Facilities Gap (NFG) and Cognitive Adjustment Intention (CAI). As shown in Table 4-33, the regression analysis revealed that NFG negatively influenced all the five housing dimensions of residential satisfaction significantly with $p<.001$ and $p<.01$.

Table 4-33. Analysis Result of Influence NFG on CAI with RS as Mediator

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Mediation Effect		
	HUFS	HUSSS	PFS	NFS	SES	CAI	Direct & Indirect effect of NFG on CAI		
Constant	3.430***	3.354***	4.382***	4.579***	3.525***	0.335	Effect	LLCI	ULCI
NFG	-0.137***	-0.196***	-0.072**	-0.780***	-0.111***	0.233	0.217	-0.348	0.813
HUFS						-0.078	0.011	-0.074	0.101
HUSSS						0.211	-0.041	-0.173	0.065
PFS						0.230	-0.017	-0.075	0.022
NFS						-0.374	0.292	-0.260	0.894
SES						0.256	-0.051	-0.094	0.029
R^2.	0.04***	0.08***	0.01**	0.79***	0.04***	0.06**			

Note. N = 400; †p 0.1, *p 0.05, **p 0.01, ***p 0.001 (one-tailed). Unstandardized coefficients are reported; Mediation & Model 6 results are expressed in log-odds metric and Nagelkerke R^2.

The direct impact of Neighborhood Facilities Gap (NFG) on Cognitive Adjustment Intention (CAI) was not significant, $p>.05$. The total indirect effect of NFG on CAI through all five mediators was also not significant, CI [-0.348, 0.813]. None of the other mediators (HUFS, HUSSS, PFS, NFS and SES) produced significant indirect effects.

Neighborhood Facilities Gap (NFG) does not have a direct and indirect effect on residents' Cognitive Adjustment Intention. This finding indicates that Neighborhood Facilities don't directly affects Cognitive Adjustment Intention but mediator between other socio-spatial gaps and Cognitive Adjustment Intention.

The fifth mediation model, in this category, examined the mediating roles of various satisfaction dimensions in the relationship between Social Environment Gap (SEG) and Cognitive Adjustment Intention (CAI). As shown in Table 4-34, the regression analysis revealed that SEG negatively influenced all the five housing dimensions residential satisfaction significantly with $p<.001$ and $p<.01$.

Table 4-34. Analysis Result of Influence SEG on CAI with RS as Mediator

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Mediation Effect		
	HUFS	HUSSS	PFS	NFS	SES	CAI	Direct & Indirect effect of SEG on CAI		
Constant	3.768***	3.386***	3.454***	4.134***	4.394***	-1.282	Effect	LLCI	ULCI
SEG	-0.353***	-0.194***	-0.142**	-0.379***	-0.696***	0.582	0.582	-0.047	1.211
HUFS						-0.071	0.025	-0.188	0.264
HUSSS						0.217	-0.042	-0.180	0.074
PFS						0.175	-0.025	-0.121	0.051
NFS						-0.524**	0.198	0.067	0.375
SES						0.773**	-0.538	-1.094	0.098
R^2.	0.11***	0.04***	0.02**	0.08***	0.64***	0.07**			

Note. N = 400; †p 0.1, *p 0.05, **p 0.01, ***p 0.001 (one-tailed). Unstandardized coefficients are reported; Mediation & Model 6 results are expressed in log-odds metric and Nagelkerke R^2.

The findings revealed that the total direct and indirect effect of SEG on CAG was not significant. But there existed one particular indirect effect through NFS that was statistically significant ($\beta = 0.198$, CI [0.067, 0.375]), indicating dissatisfaction with neighborhood facilities increase intention to cognitive adjustment. Other mediators were not significant:

Whereas the direct association between Social Environment Gap (SEG) and Cognitive Adjustment Intention (CAG) was non-significant, the findings capture a significant indirect relationship through Neighborhood Facilities Satisfaction (NFS). This implies that perceived gaps in the social environment decrease NFS, which, in turn, enhances residents' cognitive adjustment intentions. These results underscore the importance of neighborhood facilities in structuring psychological adaptation to cost-efficient housing in urban residential settings.

In conclusion, the perceived gaps in every socio-spatial dimension of housing were found to significantly decrease residential satisfaction in the five domains measured. The socio-spatial gaps did not directly, though, affect cognitive adjustment intention. Rather, their effects were transmitted indirectly in most cases except for the neighborhood facilities gap, which did not have any mediating or direct effect. Interestingly, the mediation between socio-spatial gaps and cognitive adjustment intention was always through neighborhood facility satisfaction, whereby higher dissatisfaction with neighborhood facilities increased higher cognitive adjustment tendencies for residents.

These findings emphasize the critical role that neighborhood facilities play in shaping psychological adaptation in cost-efficient urban housing settings. The findings, specifically, suggest that mental readiness to cognitively adapt, such as deferring maintenance, reevaluate expectations or accept living condition as it is, is enhanced when residents perceive dissatisfaction with neighboring satisfaction under socio-spatial gaps. This emphasizes the need for urban housing interventions that pay attention to neighborhood-level improvements as a means of promoting psychological resilience and adaptation in economically constrained communities.

4.7.6 Conclusion to Mediation Findings

This section of the study presents the findings of the mediation analysis of the study. In Overall, the gaps between aspiration and reality on all socio-spatial dimensions of housing significantly reduced each respective housing dimension's satisfaction. This negative effect reveals that whenever the gap between residents' aspirations and their own housing situation increases, where actual is less than aspired, levels of satisfaction decline across

all housing dimensions of the neighborhoods. These imply that the current actual housing is less that the aspired housing conditions of residents and the validation of actual-aspiration gap theory in understanding the dynamics of residential satisfaction in cost-efficient housing discourse.

In terms of mediation analysis, residential satisfaction was found to partially mediate the effects of the majority of socio-spatial housing gaps on housing adjustment intention. For housing modification intention, all actual-aspiration gaps for all dimensions of housing directly and negatively affected housing modification intention except for the housing unit support services gap, which was not significant. The test for mediation showed dual partial mediation. Housing Unit Features Satisfaction (HUFS) was facilitator where dissatisfaction in this area increases housing modification intention. On the other hand, Neighborhood Facilities Satisfaction (NFS) was a suppressing mediator, where higher satisfaction reduced housing modification inclinations.

For residential mobility intention (RMI), all the gaps of socio-spatial influenced the residents' desire to relocate directly and indirectly except housing unit features gap (HUFG) and housing unit support services gap (HUSSG), where the two gaps operated through full mediation of satisfaction variables. Public Facilities Satisfaction (PFS) mostly enhanced mobility, where dissatisfaction in this area increases residential mobility. However, Social Environment Satisfaction (SES) discouraged relocation.

For Neighborhood modification intention (NMI), gaps between aspirations and actual in all aspects of housing negatively influenced neighborhood modification intention (NMI) directly and indirectly. NMI was also positively mediated by HUFS and Housing Unit Support Services Satisfaction (HUSSS), where dissatisfaction in these areas increases neighborhood modification intention. However NMI was mediated negatively by NFS and SES, where satisfaction in these areas increases neighborhood modification intention.

For family size adjustment intention (FAI), all socio-spatial gaps had indirect effects through NFS positively except Neighborhood Facilities Gap (NFG), which had a direct negative effect on FAI without indirect effect. This implies full mediation of family size

adjustment intention through neighborhood facilities satisfaction, where satisfaction increase in this area increases family size adjustment intention.

For cognitive adjustment intention, the socio-spatial gaps did not have direct effect. Cognitive adjustment intention (CAI) was mediated through NFS negatively, excluding NFG, which had no direct or indirect effects. This implies full mediation of cognitive adjustment intention through neighborhood facilities satisfaction, where dissatisfaction in this area increases cognitive adjustment intention. In general, the findings indicated that residential satisfaction mediated housing modification, residential mobility and neighborhood modification participation intentions partially whereas family size and cognitive adjustment intentions fully. These findings indicate that the effects of socio-spatial housing aspects on residential adjustment intentions are meditated or shaped by residential satisfaction.

5 DISCUSSION

5.1 Introduction

This study examined the relationship among socio-spatial housing attributes, residential satisfaction and adjustment intention of residents living in cost-efficient condominium housing in Addis Ababa, using the Actual Aspiration Gap Theory. It provides valuable insights into the level of residential satisfaction, preferred forms of residential adjustment intention, determinants of residential satisfaction and residential adjustment intention, and mediation role of residential satisfaction in cost-efficient condominium housing context, contributing to the expanding field of urban housing research. It highlights the crucial role of the socio-demographic factors and actual-aspiration gap across various socio-spatial housing dimension significantly influence residential satisfaction levels and residential adjustment intentions. Moreover, it remarks the partial and full mediation of residential satisfaction on the relationship between socio-spatial housing attributes and residential adjustment intention of residents.

Throughout this discussion part, these findings will be interpreted in light of what has previously been studied and within theoretical contexts for enhanced understanding of their implications. The discussion is organized into five general sections according to each objective: (1) residential satisfaction level among residents; (2) determinants of residential satisfaction; (3) preferred forms of residential adjustment intention; (4) determinants of residential adjustment intention; and (5) residential satisfaction as a mediator variable.

5.2 Residential Satisfaction Level among Residents

The first objective of the study is to determine the residential satisfaction level for families residing in cost-efficient condominium housing projects. The results revealed that residents have a moderate level of overall satisfaction. This finding agrees with available empirical studies in other socio-spatial contexts. For example, Bi (2018) captured similar levels of satisfaction in government-subsidized housing in Qingdao, China, while Mohit et al. (2010) discovered moderate levels of satisfaction in Kuala Lumpur, Malaysia, and

Hulhumale, Maldives. Likewise, Kshetrimayum et al. (2020) captured similar results in slum rehabilitation housing in Mumbai, India. Generally, these researches and this current finding show that more affordable housing developments tend to provide tolerable, although not ideal, living conditions which fall short by a little way of meeting residents' hopes or expectations.

The moderate level of residential satisfaction detected here appears to be caused to a great extent by low satisfaction with the physical aspects of house unit features, housing unit support facilities and their surrounding public facilities. Specifically, design deficits, spatial inadequacy, and insufficient public facilities of the housing complex were the striking issues. This, thus, implies that satisfaction in cost-efficient housing not only relies on the simple provision of shelter but also the qualitative characteristics of space and neighborhood design (Mohit & Raja, 2014). Hence, future housing policy and interventions would need to prioritize more the spatial quality and adequacy of both housing units and neighborhood ones, like number of rooms, public space, green areas and local-street. Planning systems would aim to create more interactive, participative, and amenity-rich spaces that are not just shelter but improve the social and psychological welfare of users.

In contrast to the comparative low level of satisfaction with housing unit features, housing unit support services and public facilities conditions of the housing, the research concluded higher satisfaction with neighborhood facilities and the social environment. This dimension of satisfaction was found to be more robust and stable across settings, as previously documented by Onifade (2021) in Nigeria and Mohit & KhanbashiRaja (2014) in Malaysia. The findings underpin the need for community inclusion, social cohesiveness, and access to neighborhood facilities to enhance the perceived quality of life in affordable housing settings. Ease of access to schools, healthcare facilities, shopping centers, and recreational facilities, is complemented by the presence of active social networks, to offset some of the dissatisfaction with the physical form itself.

This aligns with the theoretical argument that residential satisfaction is a multi-faceted concept, not only grounded in physical quality of housing but in an interrelationship

among social and spatial components (Amerigo & Aragones, 1997; Lu, 1999). This implies that a neighborhood's social infrastructure can play a critical role by buffering partly housing spatial shortfalls, particularly in cost-efficient housing neighborhoods where modest expectations coexist with unmet current housing needs. This finding stresses the core role of local planning and social services delivery in impacting housing satisfaction among rapidly growing cities like Addis Ababa.

5.3 Determinants of Residential Satisfaction

The second purpose of this study was to examine the socio-spatial housing dimensions determinants of residential satisfaction among cost-efficient condominium residents from the Perception–Aspiration Gap Theory viewpoint. In this regard, the research formulated a double-model approach to determine the impact on overall satisfaction due to gaps between actual perceptions and aspirational desires among various residential dimensions, attributes, and socio-demographic groups. The findings revealed that the two models are statistically significant, approving the application of actual-aspiration gap theory in cost-efficient condominium housing in a developing country. Moreover, the results revealed that a number of socio-spatial gaps across housing dimension and attributes as well as socio-demographic factors affect residential satisfaction of residents. Elaborated discussions of this result are presented in the subsequent sections.

5.3.1 Housing Dimension Determinants of Residential Satisfaction

The first model, the actual–aspiration gap model across housing dimensions, proved to be statistically significant and was consistent with the primary postulates of Actual–Aspiration Gap Theory. The model is consistent with previous theoretical and empirical studies by Jiang & Timmermans (2021) and Jiang (2018) in China, providing validation for the applications of actual-aspiration gap theory to residential satisfaction study in cost-efficient housing settings. These findings reinforce that satisfaction is not merely a function of objective quality of housing but an active evaluation determined by the extent to which existing housing conditions diverge from residents' idealized housing conditions.

Notably, the analysis revealed that perception–aspiration gaps in all aspects of housing dimensions, except neighborhood facilities, have a large and negative impact on residential satisfaction in general. This indicates perceived actual living conditions are considerably lower compared to desired living conditions. This finding differs from findings reported by Phyu et al. (2024), Jiang & Timmermans (2021) and Jiang (2018), which reported that all dimensions of housing gaps, including neighborhood facilities, were significant in enhancing satisfaction. The current result indicates context based phenomena where residents' actual-aspiration neighborhood facilities gaps can be relatively lower or already partially met so that a non-significant contribution of this gap is exhibited in Addis Ababa's cost-efficient condominium context. On the other hand, the persistent dissatisfaction on other dimensions suggests that perceived conditions are well below aspired housing conditions, creating a psychological stress that lowers overall satisfaction. This highlights the need for planning and housing policies that are not only supply-driven but also accustomed to the subjective valuations and lived ambitions of residents (Lu, 1999; Amerigo & Aragones, 1997).

Of the tested dimensions, housing unit features gap was the most significant predictor of residential satisfaction, followed by housing unit support services gap and the public facility gap. In contrast, the social environment gap indicated only a slight effect. This result is consistent with Jiang & Timmermans (2021), who concluded that actual-aspiration gaps with physical housing infrastructure has a stronger effect on satisfaction than with social or communal aspects in the Chinese context. The greater actual-aspiration gaps of physical and spatial features in this study would probably be a sign of condition in which residents' basic spatial and functional needs are not fulfilled, whereas social relations have comparatively contributed a lot to the satisfaction, flexible and resilient when it comes to cost-efficient housing environments. Implication is that spatial design interventions, especially in the context of enhancing housing unit features, housing unit public service, and public facilities quality, should be given priority. Nonetheless, social context should not be ignored as it has exhibited community resilience, satisfaction and long-term amalgamation.

For socio-demographic predictors, a set of variables was identified to be strong predictors of residential satisfaction. Of significant predictors, employment status was especially significant where service-sector job is positively correlated with residential satisfaction, while private-sector job has negatively impacted it. This is in consistent with Ibem & Aduwo (2013) findings, who also found that public-sector workers were satisfied with their living environment, perhaps as a consequence of their recurrent public contact and exposure to mixed living standards. Contrasting residential dissatisfaction among the private sector would then be associated with higher and more demanding standard of expectations, a conclusion contrary to that of Gang Waziri et al. (2014), whose research found none of such job-related influences existing in Nigeria. This inconsistent finding underscores the need for context-sensitive policy and planning in urban housing development.

Home location also significantly influences residential satisfaction. Living in Gotera, which is an inner part of the city, is positively correlated with satisfaction, and this supported the spatial rationale advanced by Ogu (2002), who found that residential satisfaction grew with increasing physical proximity to city centers. In contrast, Summit residents, a peripheral housing development, report lower satisfaction, a finding that contradicts with Alam & Matsuyuki (2018), which indicated slum dwellers who relocated to suburban settlements in Mumbai reported higher satisfaction. This peripheral housing dissatisfaction is perhaps attributable to the insufficient transport supply in suburban, proving the premise that spatial proximity to employment opportunities and services matters to residential satisfaction.

Another socio-demographic aspect is household composition, in this instance, the number of children. Not perhaps un-expectantly, this was found to be positively associated with dwelling satisfaction, counter to Żelazowski et al. (2022) whose findings indicated that families who had children were less satisfied with the living space they had. The difference, in this instance, likely stems from the proximity of open areas and social facilities in the study environment, which suggests that childbearing families can gain, increased access for their immediate vicinity to communal facilities such as playgrounds

and schools. This conclusion substantiates the argument that public spaces and accessible social facilities are essential in enabling satisfaction among extended families.

5.3.2 Housing Attributes Determinants of Residential Satisfaction

The second regression model has also validated the theoretical and empirical robustness of the actual–aspiration gap theory for residential satisfaction in the case of cost-efficient condominium housing. Consistent with Jiang & Timmermans (2021) and Jiang (2018), the model had strong predictive power, integrating perception–aspiration gaps in housing attributes and socio-demographic characteristics in explaining variance in residents' satisfaction. This supports the theoretical proposition that the gap between current residential conditions and residents' aspirations is one of the fundamental predictors of satisfaction levels, particularly in socio-spatially constrained urban residential housing contexts.

Among the housing unit attributes, gaps in atual–aspiration linked with the number of rooms and electrical fittings significantly and negatively affected residential satisfaction. This finding agrees with Mohit & Azim (2012), who identified insufficient electrical points as a source of dissatisfaction in Malaysian public housing, and Ibem & Aduwo (2013), who documented dissatisfaction due to unstable electricity supply in Nigerian estates. Similarly, Phyu et al. (2024) established that insufficient provision of rooms in relation to household requirements negatively impacted satisfaction in Myanmar. The present findings confirm that these very basic physical attributes, both infrastructural (electrical installations) and spatial (number of rooms), are unmet in low-housing in Addis Ababa. Their shortage relative to residents' aspirations reflects the fact that there is still a persisting gap in the quality of cost-efficient housing supply in the city. Increasing the number, size and internal space configurations of housing units, particularly increasing bedroom number and the quality and safety of engineering installations, should thus be prioritized by housing authorities and developers in future housing programs. It is recommendable to involve end-users in planning and design stages.

In housing support services, actual–aspiration gaps in drainage systems and maintenance services are also negatively related to residential satisfaction. The results agree with Ogu

(2002), who found poor drainage and lack of regular maintenance to be significant residential dissatisfaction sources in Nigerian urban housing. Functional deficiency of these services creates discomfort, safety risks, and quicker deterioration of the housing stock. Surprisingly, the staircase gap has showed a positive correlation with residential satisfaction. This agrees with Phyu et al. (2024) finding that high-quality staircases in Myanmar high-rise housing positively influenced users' experience. It appears that where particular current conditions of features exceeds expectations, supporting actual-aspiration gap theory, they can contribute to residential satisfaction, even within the context of cost-efficient housing environment and development. This implies there is a need to systematically improve and regularly maintain housing unit support systems of the buildings, as well as keep or enhance well-performing elements such as staircases.

For public facilities, the study found that actual–aspiration gaps in local greenery and local streets reduced satisfaction greatly, substantiating Abass & Tucker's (2017) findings in a research in Australian suburban. However, it contrasts with Jiang & Timmermans, (2021) who discovered local greenery and local streets increased residential satisfaction in China, where residents appeared to appreciate the available such infrastructure in the area. The perceived residential dissatisfaction with the street and greenery design in the present study is likely an outcome of limited walk ways, unmaintained green areas, and reduced street amenities, which are all constituent elements of satisfactory urban living. Communal block facilities, however, have exhibited a satisfaction state, and somewhat surprising, positive gap effect, indicating that they either met or exceeded resident expectations. This surprising finding may result from either resident’s relatively lower expectations for such communal facilities or from having actively managed communal areas for social interaction.

For the category of neighborhood facilities, urban center proximity had a negative influence on satisfaction when found below expectations. This is unlike studies by Jiang & Timmermans (2021) and (Dekker et al. (2011), where spatial distance measures were not found to have any significant effect on satisfaction. This result, however, aligns with Kellekci & Berköz (2006), where a strong positive relationship between centrality and

residential satisfaction in Turkey was identified. The dissatisfaction likely lies in the peripheral nature of the majority of cost-efficient condominium sites, which are poorly linked with centers of employment, services, and public amenities. Accordingly, future housing development plans must address locational disadvantage by improving urban integration, transport linkages, and strategic site location.

Within the social environment, gaps in housing regulation, crime prevention, and social interaction were negatively correlated with residential satisfaction. These findings differ from the positive impacts of neighborhood relationships reported by Kshetrimayum et al. (2020) in India and Kellekci & Berköz (2006) in Turkey. The negative actual–aspiration gaps in this instance are attributable to the weakened governance structures, rapid turnover of residents, and lack of integrated community structures in new condominium developments, all of which weaken trust and collective efficacy. The strong effect of crime perception also points to the presence of high rate of poverty and unemployment in poor urban areas. Contrary to expectation, formal social activities have associated positively with residential satisfaction, which suggests that organized community activities, such as Ider. Mahiber and Ikub can make up for deficiency in social environment quality in general. This goes in harmony with research by Alam & Matsuyuki (2018), who found social participation to be a source of satisfaction in Indian urban settlements. Support and encouragement in terms of community governance structures and social programming, thus, can be effective in fostering social cohesion and collective sense of place.

Socio-demographic characteristics with actual-aspiration gap of housing attributes also affect residential satisfaction outcomes. Employment in the service sector contributed positively to residential satisfaction, substantiating Ibem & Aduwo's (2013), and perhaps reflecting the relational competencies and adaptive behaviors acquired through working with public. Conversely, the negative contribution of residence in Summit, a peripheral condominium neighborhood, is in consistent with Lu (1999) and Ogu (2002), who found that spatial distance from central amenities explained dissatisfaction. Family size, particularly the presence of children, was positively correlated with satisfaction, explainable by living in proximity to social infrastructure such as schools, health centers,

and playgrounds. This contradicts with the findings of Żelazowski et al. (2022), in which lower satisfaction among bigger families in Poland was identified, where spatial limitations were more noticeable. In addition, the duration of residency was found to enhance satisfaction, validating the importance of place attachment, as supported by Gang Waziri et al. (2014). Longer durations of residency may be able to encourage familiarity, emotional attachment, and creating informal support networks, thereby enhancing perceived residential satisfaction.

In summary, the second model reaffirms the applicability and explanatory capacity of the actual–aspiration gap theory in residential satisfaction research, particularly in the socio-spatial setting of cost-efficient condominium housing in Addis Ababa. The findings present a multifaceted picture wherein actual–aspiration gaps in housing unit features, housing unit support services, public facilities, neighborhood facilities and social environment are powerful predictors of satisfaction. Notably, socio-demographic variables of residents also act as determinants and predictors of residential satisfaction outcomes. These findings underscore that housing design, planning, strategy and policy must be based on the perceived needs, aspirations and socio-demographic conditions of residents, such that the spatial, social, and infrastructural aspects of housing are not just technologically sufficient but also sensitive to residents' lived experience and aspirations as well as socio-economic variations.

5.4 Preferred Forms of Residential Adjustment Intentions

The third objective of this study was to identify the most prevalent residential adjustment intentions among the residents of cost-efficient condominium neighborhoods. Outcomes indicated physical adjustment strategies, including housing modification, such as room widening and function change, and engaging in neighborhood modification activities, to be the prevailing residential adjustment intentions. Residential mobility, following theses residential adjustment intentions, is practiced at a secondary level with lesser degree. Conversely, cognitive adjustments (e.g., reduced ambitions or attitudinal change) and family size adjustments (changing family size and composition) were reported to be the least preferable adjustment intention responses.

The findings agree with previous empirical studies by Bunster & Bustamante (2019), which reported that 87.5% of Chile's low-income residents preferred in-situ physical upgrading over relocation. Similarly, Bravo et al. (2019) stated that 88% of Swedish residents opted to improve their current dwelling over looking for alternative shelter. This is a central phenomenon of residents living in cost-efficient housings, where households turn to undertake spatially and functional modifications and rearrangements within the existing built environment, rather than more intrusive or resource-intensive forms of adjustment like relocation to another neighborhood.

The prevalence of physical adjustment intentions can be also attributed to various interrelated determinants. Initially, economic limits are the prime barrier to home mobility in cost-efficient housing environments. Moreover, residing in better-quality housing tends to require frequent maintenance and up keeping costs, including transaction expenses, new mortgage or rental rates, and removal services too. Families therefore resort to more step-by-step and location-related interventions permitting them to cope with the inconsistency between their needs and current unmet housing conditions.

Second, the psychosocial significance of place attachment can deter residential mobility. There exist strong emotional bonds toward one's neighborhood and living unit that help to deter residents from relocating even in times of dissatisfaction. Adaption is not merely a routine necessity but a psychological strategy in an attempt to preserve continuity and social attachment.

In addition, the low level of cognitive adjustment means that residents are not passively coming to terms with dissatisfaction through adjusting their expectations. Instead, they are more likely to do something about dissatisfaction through concrete measures, which indicates a proactive stance towards the improvement of housing conditions. The limited intention to adjustment of family size further reflects more fundamental economic and socio-cultural issues, such as norms around the structure of the family and impracticality of fertility or household structure as a spatial satisfaction adjustment (Lu, 1999).

The significance of these findings is extensive for urban housing design, planning and policy. If physical adaptation continues to be the dominant coping mechanism among poor households, then housing interventions need to include adaptability in design, for example, vertical or horizontal expansion, modular additions, and neighborhood improvements within communities. Furthermore, policies of financing and technical assistance for self-help upgrades could create long-term residential satisfaction and reduce the need for costly resettlement.

Generally, the study portrays an order of home adjustment behavior whereby physical modification is the first preference, and mobility follows secondarily, while psychological and demographic adaptation play the least roles. Residential adjustment rationality is influenced by economic need, spatial constraint, cultural context, and institutional context, and the study picks up on the need for adaptive, resident-centered housing intervention in the low-income urban setting.

5.5 Determinants of Residential Adjustment Intention

Five binary logistic regression models were analyzed and found that residential satisfaction significantly to influence residential adjustment intentions through distinct processes. The findings revealed that housing modifications intentions are essentially triggered by housing unit features dissatisfaction and neighborhood facility satisfaction, while neighborhood facility satisfaction discourages residential mobility intention and favors adaptations in existing neighborhood, emphasizing the compensatory worth of easily accessible services to families with children (Maina, 2023; Umeh & Ezeji, 2023). Such local residential adjustment preference instead of residential mobility confirms the social and functional value of neighborhood facilities and services to low-income housing areas.

The findings also uncovered that neighborhood modification participation intention is positively affected by satisfaction with housing unit support service and social environment, but negatively affected by satisfaction with internal housing features. These results agrees with Cirman et al. (2013) and Umeh & Ezeji (2023), who found that in spite

of lack of internal quality of houses, households, satisfied with social interaction and support service tend to engage in public space improvement instead of relocation to other neighborhoods.

On the contrary, the findings revealed that satisfaction with housing support services and social environment increased the likelihood of residential mobility, while satisfaction with public facilities reduced it. This is in contrast to previous studies of Fattah et al. (202 and Nasrollahzadeh et al. (2021), who found that dissatisfaction drove mobility. It reflects that households will aspire to better quality housing even when they are satisfied with some of their current housing dimensions, demonstrating hierarchical search of aspirations across various dimensions of satisfaction.

With regard to non-physical residential adjustment intention, satisfaction with neighborhood facilities promotes family size change but inhibits cognitive adjustment intention. Satisfaction with housing support services, however, enhances cognitive accommodation. These findings agrees with study of Obi et al. (2023), who found out the way differentiated levels of satisfaction influence both behavioral and psychological adjustment intention.

The study also found that socio-demographic factors exerted a strong influence on residential adjustment intention. Older residents, large households, and long-term dwellers are more probable to engage in housing modification, in line with previous evidence from Sweden and Central-Eastern Europe which were discovered in the studies of Bravo et al. (2019) and Cirman et al. (2013), respectively. This suggests that residential adjustment intention is also motivated by space attachment and evolving family needs over time. On the other hand, low-income and technically employed individuals have showed greater residential mobility intention, against the findings of the study of Aliu, (2019) and Pagani et al. (2021). This trend likely stems from the search for housing affordability in tight markets.

Engagement in neighborhood modification intention is widespread among individuals with high educational levels, endowment-sector employees, and large families, in line with

evidence by Maina (2023) and Ahmad et al. (2000). On the other hand, medium-term residency families with multiple children were comparatively passive with regard to neighborhood modification intention, since household troubles and reduced spatial attachment reduced participation in neighborhood modification (Bravo et al., 2019; Morakinyo, 2021).

Family size adjustment intention is more prevalent among married or divorced families and large families, consistent with adaptive fertility planning behavior under spatial constraints found in the studies of Yu et al. (2023) and Sinai (2001). Cognitive adjustment intention is more prevalent among the elderly, consistent with place attachment by age and adherence to life course expectations (Bravo et al., 2019; Cirman et al., 2013; Rossi, 1955).

As a whole, household adjustment intentions emerge as a multi-dimensional interaction among housing dimensions satisfaction areas and socio-demographic characteristics. Despite the fact that housing modification and neighborhood modification participation followed by residential mobility intention are dominant strategies, family size and cognition adjustment intentions are the less common ones. Moreover, residential satisfaction and socio-demographics are found to be predictors of residential adjustment intentions. These findings endorse the effectiveness of housing dimension-specific, targeted interventions and underscore the necessity to develop adaptive housing systems that can be responsive to the diverse household needs across the life course.

5.6 Residential Satisfaction as a Mediator Variable

The fifth objective of the study is to examine the mediation role of residential satisfaction between socio-spatial housing characteristics and residential adjustment intentions. Twenty five mediation models were tested and the findings revealed that residential satisfaction mediated the relationship between socio-spatial housing characteristics and residential adjustment intentions partially as well as fully. These findings agree with the study findings of Deane (1990), Jiang, (2018) and Lu (1998), who found that residential satisfaction mediated the relationship between housing characteristics and residential

adjustment in USA and China. This implies the critical role of residential satisfaction of residents in shaping their residential adjustment intention as response to socio-spatial housing dimensions gap. This remarks that housing design, planning and policy should be residents' needs and aspiration driven so as to come up with workable housing solution and development.

The findings also revealed that the actual-aspiration gaps across all socio-spatial housing dimensions significantly reduce each respective housing dimension's satisfaction. This finding is in contrary with the findings of Jiang (2018), who found actual-aspiration gaps increased residential satisfaction among residents living in historical sites in China. This is because the actual living condition is less than the aspired and expected residential condition in cost-efficient condominium housing in Addis Ababa city. This implies that housing planning and policy intervention should focus on households' needs and aspiration instead of top-down prescriptive approach. This finding is also proved the application of actual- aspiration gap theory of Galster (1987) in cost-efficient condominium housing setting.

The findings also showed that residential satisfaction mediates the relationship between most actual-aspiration gaps across housing dimensions and housing modification intention partially except for the housing unit support services gap, which was not significant. These findings agree with the findings of Galster & Hesser (1981) and Jiang (2018), who found the partial mediation role of residential satisfaction in USA and China, respectively. This implies that residents develop housing modification intentions after they feel some degree of satisfaction or dissatisfaction partially even if the perceived actual-aspiration gaps. Hence this remarks the critical role of residential satisfaction in shaping housing adjustment intentions as response to housing socio-spatial gaps.

The findings, further, revealed a dual partial mediation where dissatisfaction with housing unit features increases housing modification intention while higher satisfaction with neighborhood facilities reduces housing modification inclinations. This finding agrees with findings of Deane (1990), who found that residential dissatisfaction prompted adaptive behavior in USA. This remarks that households will be triggered to housing

modification intention when they not only perceive housing unit features gap but also they are dissatisfied with them. This implies that housing designers, planners and policy makers should also focus on issues which affect residential satisfactions too.

Residential satisfaction mediated the relationship between most of socio-spatial gaps across housing dimension and residential mobility intention partially except for housing unit features gap and housing unit support services gap, where the two gaps are mediated fully. These findings are in consistent with the findings of Diaz-Serrano & Stoyanova (2010), who discovered that residential satisfaction robustly mediated the relationship between housing characteristics and residential mobility in 12 European countries. This remarks that households will prompted to relocation intentions based their level of residential satisfaction mostly even if they are exposed to actual-aspiration gaps. This implies once again that housing planners and policy makers should give due attention to residential satisfaction to create a stable housing community.

The findings, furthermore, uncovered that dissatisfaction with public facilities increases residential mobility intention while satisfaction with social environment discourages relocation intention. This finding supports the finding of Oh (2003), who empirically validated the mediating role of satisfaction in the mobility decision-making process in an urban South Korean context. This remarks the role of satisfaction with social interaction in creating a stable housing community even if residents are exposed to socio-spatial gap. This suggests that housing designers, planners and policy makers can come up with intervention that enhance social interactions so as to create a satisfied and stable housing community.

Residential satisfaction mediated the relationship between all of socio-spatial gaps across housing dimension and neighborhood modification intention partially. The findings, furthermore, uncovered that dissatisfaction with housing unit features and housing unit support services increases neighborhood modification intention while satisfaction with neighborhood facilities and social environment increases neighborhood modification intention. These findings agree with the study of Deane (1990), who found that residential dissatisfaction prompts adaptive behavior, whether through in-place modification,

depending on the household's resources and constraints in USA. This remarks the critical role of satisfaction with access to neighborhood facilities and social interactions in motivating residents to participate in improvement of the neighborhood even if they are dissatisfied with their housing unit conditions and exposed to socio-spatial gaps. This gives an insight about the importance of neighborhood facilities and social interactions in creating vibrant and active housing neighborhoods.

Residential satisfaction mediated the relationship between most of socio-spatial gaps across housing dimension and family size adjustment intention fully except neighborhood facilities gap, which had a direct negative effect on family size adjustment intention without indirect effect. The findings, furthermore, disclosed that satisfaction with neighborhood facilities increases family size adjustment intention. These findings align with Sinai (2001) and Yu et al. (2023), who noted that households were more likely to adopt non-relocation adaptations. This remarks the strong role of satisfaction with neighborhood facilities like access to education, health and recreational facilities in motivating families rearrange their family size and composition to create a stable community. This implies housing planners and policy makers to give due attention to the provision of social service near housing neighborhoods so as to create a stable and sustainable housing community.

Residential satisfaction mediated the relationship between most of socio-spatial gaps across housing dimension and cognitive adjustment intention fully except which had no direct or indirect effects. The findings, furthermore, disclosed that dissatisfaction with neighborhood facilities increases cognitive adjustment intention. These finding are in line with the findings of Lu (1999), who found that satisfaction mediates residential self-help improvements and psychological adaptation in low-income and urbanized settings. This remarks the role of dissatisfaction with neighborhood facilities in creating passive residential community which defer critical modifications like maintenance. This implies the side effect of lack of social service which may create a dormant residential community.

In general, the findings indicated that residential satisfaction mediated housing modification, residential mobility and neighborhood modification participation intentions

partially whereas family size and cognitive adjustment intentions fully. These findings indicate that critical role of residential satisfaction, in housing design, planning and policy making, in shaping and influencing residents' intention to engage in various kinds of residential adjustment and improvement activities.

6 CONCLUSION, IMPLICATION AND RECCOMENDATIONS

6.1 Introduction

This chapter provides a concise concluding insights, possible recommendations and future research suggestions on residential satisfaction and residential adjustment intentions for residents of cost-efficient condominium housing in Addis Ababa City, Ethiopia. It consolidates the study's rationale, objectives, methodologies, and findings, along with research limitations. The conclusion section highlights key insights aligned with each research objective such as examining levels of residential satisfaction, socio- spatial determinants of residential satisfaction, preferred forms of residential adjustment intention, determinants of residential adjustment intention, and the relationship among socio-spatial housing attribute, residential satisfaction and residential adjustment intention. The recommendations section suggests targeted design, planning, policy and practical measures to address these challenges and promoting housing development based on residents need and aspiration. Finally, the future research section outlines gaps and potential avenues for further study, contributing to a deeper understanding of urban housing decision making dynamics and sustainable housing strategies.

6.2 Conclusion

The main focus of this dissertation is to analyze the interrelationship among socio-spatial housing attributes, residential satisfaction and residential adjustment intention in cost-efficient housing neighborhoods in Addis Ababa city. Specifically, the study aims to evaluate the level of residential satisfaction of residents living in selected cost-efficient condominium housing neighborhoods. Apart from this, it also tries to examine the socio-spatial determinants of residential satisfaction of cost-efficient condominium residents in rapidly transforming city life of Addis Ababa. Furthermore, the study attempts to identify preferred forms of residential adjustment intentions of households as a response to different levels of satisfaction and socio-demographic context. Moreover, the study attempts to examine socio-spatial and socio-demographic determinants of residential adjustment intentions among families. Finally, it tries to uncover the direct and indirect

relationship among socio-spatial housing attributes, residential satisfaction and residential adjustment intention. In doing, the study contributes to understanding of housing discourse and housing decision- making processes in urban housing design, planning, practice and policy.

The study's findings identify major insights regarding levels of residential satisfaction, socio- spatial determinants of residential satisfaction, preferred forms of residential adjustment intention, determinants of residential adjustment intention and relationship among socio-spatial housing attribute, residential satisfaction and residential adjustment intention. Regarding residential satisfaction levels among residents of cost-efficient condominium neighborhoods in Addis Ababa, the findings indicate that households in cost-efficient condominium housing generally reported a moderate level of satisfaction. This is not surprising that as the program employed a top down planning and design approach without taking into consideration the actual need and future aspiration of residents. It implies that current interventions and future planning and polices should take into consideration the current need and future aspiration of residents into consideration.

Moreover, the findings reveal that residential satisfaction is higher with the social environment and neighborhood facilities but it tends to be lower with housing unit features, support services, and public facilities. This gives insight that residents are better satisfied with their social interaction and the surrounding neighborhood facilities like access and adequacy of health and education facilities. However, they are not satisfied with housing features like number, size and arrangement of rooms; housing support systems like corridor and engineering installation; and public facilities like nearby car parking, open spaces, green space and local-street. This implies that housing interventions and housing policies should give due attention to the improvement of spatial aspects of the cost-efficient housing buildings and their immediate surrounding facilities, while enhancing the good social interaction and access to neighborhood facilities.

Regarding examining determinates of residential satisfaction of residents in the perspective of actual-aspiration theory; results confirm the validity of the actual-aspiration gap theory in analyzing residential satisfaction in the contexts of cost-efficient

condominium housing. It highlights the combined predictive power of housing attributes gaps and socio-demographic variables. It also confirms that actual aspiration-gap theory performed well in case of low cost condominium housing.

Moreover, the result revealed that among all the mentioned socio-spatial housing dimensions gaps, housing unit feature dimensions gaps were the most negative determinant of the overall residential satisfaction, followed by housing unit support services and then the public facility gaps. On the other hand, the social environment dimension gap has a very small negative effect while neighborhood facilities dimension none at all. These show that actual housing unit, housing support services and public services conditions are below the desired housing condition as perceived by residents. Once again, the results imply that any future housing program and policy should target spatial characteristics improvement of cost-efficient houses while nurturing and developing social relationship and neighborhood facilities in these societies.

Related to socio-demographic predictors of residential satisfaction, employment type emerges as a significant factor; with service-sector employment is associated with satisfaction positively, while private-sector employment exhibits a negative effect. Similarly, place of residence plays a critical role, with living in Gottera (an inner-city location) positively contributing to residential satisfaction. However, residing in Summit (a peripheral area) has a negative impact on residential satisfaction. Additionally, the number of children shows a positive relationship with residential satisfaction. Moreover, longer residency durations are positively impacted residential satisfaction. These highlight the need for housing policies and planning to account for residents' diverse profiles during housing intervention.

Furthermore, key housing unit features, including the number of rooms and electrical installation perception aspiration gaps, are found negatively impacted with residential satisfaction. This indicates that the perceived adequacy of the number of rooms and electrical installations falls short of residents’ expectations. Among housing unit support services, actual-aspiration gaps of building drainage systems and maintenance are found as negative predictors of residential satisfaction while stair case gap is found as a positive

predictor of residential satisfaction. This exhibits that the drainage systems and maintenance practices fall short of residents' expectations, while the building's staircases meet or exceed their aspirations. Within public facilities, gaps in local street and local greenery impact residential satisfaction negatively, while gaps in communal block facilities influence residential satisfaction positively. This demonstrates that local greenery and street layouts fall short of residents' expectations, negatively affecting them, while communal blocks meet or exceed expectations.

Regarding neighborhood facilities, gap for urban center accessibility impacts residential satisfaction negatively. This highlights that neighborhood proximity to social services falls short of residents' expectations, impacting their daily lives, particularly as most of the big neighborhoods are located on the city's outskirts. In relation to social environment, actual-aspiration gaps in housing regulation, social interaction, and crime level influence residential satisfaction negatively. This highlights that housing regulations and crime levels do not meet residents' expectations, negatively impacting their daily lives. In contrast, gaps in organized activities impacts residential satisfaction positively.

In conclusion, regarding determinates of residential satisfaction through the lens of actual-aspiration gap theory; the study revealed that households residing in cost-efficient condominiums reported moderate overall satisfaction, with notably higher levels of satisfaction associated with the social environment and neighborhood facilities. The findings emphasize the higher impact of actual-aspiration gaps across various residential dimensions, including housing features, public facilities, support services, but lower impact from the social environment and none from the neighborhood facilities. Moreover, the study has identified a number of housing attributes and socio-demographic factors influencing residential satisfaction of the residents. Hence, the study underscores the importance of implementing targeted strategies in housing design, planning, and policy to address these gaps effectively.

Regarding preferred forms of residential adjustment intention, findings revealed that physical adjustment intentions, such as housing modifications, neighborhood modification participations followed by residential mobility, are the most prevalent forms of residential

adjustment intention, while family size and cognitive adjustment intentions remain less frequent.

Moreover, the study revealed that residential satisfaction across various housing dimensions is a vital predictor of residential adjustment intentions. Dissatisfaction with housing unit features and satisfaction with neighborhood facilities encourage housing modification intentions. This implies that families opt to invest in modification of their housing unit when they are satisfied with their neighborhood facilities but dissatisfied with their housing units. This gives a vital insight of the critical role of access and quality of neighborhood facilities to trigger families and improve their housings conditions which create a vibrant residential neighborhood in aggregate subsequently.

Satisfaction with housing unit support services and the social environment promotes participation in neighborhood modification intentions while housing unit feature satisfaction has a negative impact on such participation. This implies that the critical role of housing support services and social interactions in triggering households to engage in neighborhood facilities improvements, even if residents are satisfied with their housing unit features.

While satisfaction with housing unit support services and the social environment fosters residential mobility intention, satisfaction with public facilities reduces relocation intentions. The results imply that even when households are satisfied with certain dimensions of their living conditions, they may relocate to fulfill broader aspirations. It also implies the critical role of satisfaction with public facilities in reducing relocation intentions.

Furthermore, satisfaction with neighborhood facilities supports family size adjustments but diminishes cognitive adjustment intentions whereas housing support service satisfaction fosters cognitive adjustments intentions. This implies that families adjust their family size and composition deferring psychological adaptation according to their satisfaction with the neighborhood facilities. This suggests the critical role of neighborhood facilities satisfaction in triggering families to engage in active adjustment

like family composition adjustment deferring psychological adaptation like deferring maintenance. Moreover it implies the critical role of housing support service satisfaction to encourage families to psychological adapt with their living environment contributing to family stability. The findings highlight the critical role of residential satisfaction dynamics in residential decision-making of families.

The findings also revealed that socio-demographic factors significantly influence residential adjustment intentions across various dimensions. Older individuals, larger households, and long-term residents exhibited a greater inclination for housing modifications. This implies the critical roles of growing family size, living together and the sense of attachment in triggering housing modification intention.

Furthermore, low-income families and individuals in technical jobs demonstrated a higher likelihood of relocating while larger families and households employed across multiple sectors are less likely to relocate The findings imply that low income status with technical type of employment contribute to residential relocation, which larger family size with some type of employment to encourage families to remain in a particular location.

Similarly, larger families, individuals with higher education, and those employed in the endowment sector exhibited a greater involvement in neighborhood modifications. Meanwhile, families with more children and medium term residence durations are less inclined to engage in neighborhood modifications. This implies that if a family increases in size and gets resources, it will involve in neighborhood modification activities.

Similarly, married or divorced households and larger families were more likely to adjust their family size, while single-family households and those with less number of children were less inclined. This implies that larger families may undertake family size or composition adjustment during family formation or dissolution. Similarly, adults were more inclined to adopt cognitive adjustments. This implies the role of age in cognitive adaptation. These findings underscore the distinct influence of life course factors such as socio-demographic factors, on residential adjustment decisions in line with Life course theory of Rossi (1955), highlighting how socio-demographic characteristics shape

residents' preference of residential adjustment intention in their residential environments. In summary, the results highlight the critical need to address residents' satisfaction across specific housing dimensions and account for socio-demographic variations of households when designing targeted interventions, programs and policies to meet the diverse needs of residents instead of top-down approach in cost-efficient housing developments.

Regarding to examining mediation role of residential satisfaction, the study discovered that the effects of socio-spatial gaps across different housing dimension on housing modification, residential mobility and neighborhood modification intentions are meditated partially whereas family size and cognitive adjustment intentions are mediated fully by residential satisfaction across varying housing dimensions.

Moreover, the study revealed that varying types of residential satisfaction mediate the effects of socio-spatial gaps on residential adjustment intentions. For example, the study discovered that dissatisfaction with housing unit features and satisfaction with neighborhood facilities encourage housing modification intentions, implying that socio-spatial gaps trigger families to engage into housing modification when they are dissatisfied with housing unit features but satisfied with surrounding neighborhood facilities. This remarks the critical role of access and quality of neighborhood facilities like health, education, transport and recreational facilities in housing development.

Moreover, the study revealed that dissatisfaction with public facilities increases residential mobility intention while satisfaction with social environment discourages relocation intention, implying that socio-spatial gaps initiate households to think about relocation when they are dissatisfied with public facilities in the neighborhood compound but if households are satisfied with the social interaction, they opt to stay. This remarks the critical role of public facilities and social interaction satisfaction in creating a stable community.

Furthermore, the study uncovered that dissatisfaction with housing unit features and housing unit support services motivates neighborhood modification intention while satisfaction with neighborhood facilities and social environment increases the intention in

neighborhood modification, implying that socio-spatial gaps pledge households to engage in neighborhood modification when they are dissatisfied with housing unit features and support services but satisfied with neighborhood facilities and social environment. This remarks the vital role of neighborhood facilities and social environment satisfaction in motivating households to actively engage in their housing issues subsequently in creating active housing community.

In addition, the study disclosed that satisfaction with neighborhood facilities increases family size adjustment intention while dissatisfaction with neighborhood facilities increases cognitive adjustment intention, implying that socio-spatial gaps motivate families to engage in family size and composition adjustment when they are satisfied with neighborhood facilities increases but cognitive adjustment like differing maintenance when they are dissatisfied with their surround neighborhood facilities. This remarks the crucial role of neighborhood facilities in creating active households in cost-efficient housing settings.

In summary, the study concludes that socio-spatial gaps across various housing dimensions motivate families to engage in various types of residential adjustments and improvements indirectly through residential satisfaction mostly and directly in few cases. The results confirm that the actual-aspiration gap theory, which states that perceived actual-aspiration gaps across housing dimensions influence residential satisfaction which affects residential adjustment intentions subsequently.

6.3 Implications

The findings of this study offer significant understanding of daily life experience among residents living in cost-efficient condominium housing in Addis Ababa. The discussed implications combine theoretical, empirical, and contextual data to inform policy, design, and planning interventions.

The results show that there is a moderate level of residential satisfaction, and it points to the need for both design and policy interventions to enhance living conditions. This

conforms to theories of housing and urban planning, which emphasize the need for user centered housing and urban design, planning and policies.

Moreover, the difference between higher satisfaction with the social environment and neighborhood amenities, and lower satisfaction with housing unit features, housing unit support services, and public facilities implies that housing policy and design should focus on physical issues mostly and spatial aspects of the house too so as to enhance socio-spatial experiences and residential satisfaction among residents

Moreover, the study reaffirms the actual-aspiration gap theory to this effect contributes to housing satisfaction research, implying that housing planning and policy should give due attention to resident needs and expectations so as to come up with sustainable housing conditions. In particular, the negative role played by gaps in housing unit features highlights the importance of internal housing design quality, with direct consequences for revising building codes and design standards in favor of livability and human-scale design.

In addition, socio-demographic determinants of satisfaction substantiate the importance of life-course theory to housing studies, indicating that housing design, planning and policy should be responsive to socio-demographic variation among residents such as age, household size, and marriage.

Moreover, the varying impacts of different housing dimensions actual –aspiration gap on residential satisfaction, such as local street, greenery and communal blocks, substantiate the need for comprehensive urban planning and design solutions that address both the built and the natural environment.

Residents' preference to physical adjustment intentions indicates that residents are likely to react to dissatisfaction with changes in the physical environment and not with behavioral or cognitive activities. This suggests the potential for promoting resident-initiated improvements through participatory planning and design.

In addition, the varying effect of satisfaction factors on various adjustment intentions establishes that residential adjustment behavior is complex and requires adaptive planning mechanisms. For example, dissatisfaction with housing unit features typically predicts housing modification intentions and suggests that housing design, planning and policy may promote flexible arrangements so as to promote resident-driven physical modification coping strategy.

Moreover, the difference between housing unit modification at the unit level and neighborhood modification participation levels shows a paradox between individual spatial control and collective agency. These points to the necessity of spatial arrangements, which support individual personalization and collective action.

In addition, the interaction between socio-spatial gaps, dissatisfaction, and residential mobility allows push-pull migration models to be applied within intra-urban areas. In particular, dissatisfaction with public facilities is the motivator while satisfaction with neighborhood facilities is the discourager for mobility, pointing towards the criticality of infrastructure and services as part of the retention strategy.

In addition, the role of neighborhood facilities and social interaction in defining family and cognitive adaptations are testaments to the behavioral flexibility of inhabitants within cost-efficient housing settings. These results strongly support the need to housing planning and policy that motivates psychosocial reactions to housing settings.

It should also be noted that demographic characteristics such as age, household size, and tenure are of vital importance in adjustment intentions. In a similar manner, a employment and income trend to affect residential adjustment intentions. These imply to the use of segmentation in housing planning and policy.

Certain groups, particularly those with greater socio-economic capital, exhibit greater participation in residential mobility, suggesting policies must leverage resources from the community in the development of local areas. Similarly, findings linking family size and

marital status with adjustment decisions suggest the need for more adaptive and flexible types of housing.

The relevance of life-course theory is further proven, with the study informing dynamic housing preference analysis models. Residential satisfaction also emerges as a mediating variable for adjustment behavior, confirming its double role in housing models.

Furthermore, the presence of socio-spatial gaps and the manner in which they influence modification intentions raise spatial justice issues, which have to be addressed using equitable planning strategies. The study further concludes that mobility decisions linked to dissatisfaction with public infrastructure have to be addressed in urban retention policies.

Of particular interest is the interactivity of residential satisfaction and dissatisfaction as mediators of residential adjustment intentions in neighborhoods, highlighting the need for hybrid planning strategies which respond to existing opportunities and constraints. The interconnection of neighborhood facilities satisfaction and cognitive or family adaptation intentions also serves to illustrate the psychological and affective dimensions of housing experience.

Finally, the empirical evidence base for the actual-aspiration gap theory serves as a bridge between psychological, spatial, and behavioral models of housing building towards an integrated and cross-disciplinary understanding of urban housing dynamics.

6.4 Recommendations

On the basis of the findings of the study, several targeted recommendations are proposed to guide future policy, planning, and design interventions in urban housing.

Policy makers are encouraged to prioritize selective housing interventions of cost-efficient condominium housing in general but with particular emphasis on the enhancement of the provision of public services and incentives that motivate residents to engage in housing modification to enhance overall residential satisfaction. Moreover, housing policy and

intervention recommendations include bottom up urban housing like “Massive Small Changes’ approach to improve housing in Addis Ababa.

Secondly, social and community spaces ought to be incorporated into or upgraded in condominium neighborhoods through residents’ involvement so as to maximize and strengthen the satisfaction with social environment and interaction as it currently stands. Housing need and expectation management strategies, through resident involvement through community outreach and co-design, should also be incorporated into housing policies.

Developers and planners should give utmost importance to resident-initiated items such as housing unit features and support services, which have been identified as primary sources of dissatisfaction. Housing interventions should specifically be directed at certain demographic groups, particularly large families and long-term residents as satisfaction varies across socio-demographic characteristics.

Furthermore, design standards should call for public housing schemes to include well maintained green areas, open spaces, and local recreational facilities. Institutionalized support mechanisms such as microfinance, technical assistance, and adaptive renovation policies must be established to assist the residents in upgrading these components of their residential neighborhood.

In acknowledging residential satisfaction and adjustment intention vary across housing dimensions and demographic subgroups, planning has to be context-sensitive. Adaptive design regulations facilitating user adaptation can empower residents to assume control over their surroundings. Community participation programs should provide for consideration of psychological ownership and levels of satisfaction as the major indicators of success of engagement.

Interventions should be formulated to preserve longer residency, social ties and upgrade public facilities in order to counteract dissatisfaction-induced relocations. Behavioral

adjustment mechanisms such as cognitive and family adjustments can be assisted by counseling services, community forums, and adaptable housing types.

There has to be a life-course based housing planning to ensure a range of adaptable housing forms suitable for different life stages and household types. Employment-linked housing incentives need to be implemented to extend a helping hand to low-income and technical employees facing displacement.

Community participation programs have to access existing social capital, especially among waged and educated workers. Housing forms, responsive to demographic needs such as shared and intergenerational housing, need to be built to suit differing household types. Policy frameworks need to increasingly incorporate life-course theory in their response to evolving needs of urban families. Moreover, housing satisfaction needs to be included as a mediating indicator in housing surveys and urban performance measures.

Urban upgrading strategies, focusing on public facilities and involving the residents, need to address socio-spatial inequalities by using inclusive and equitable forms of planning strategies, particularly in disadvantaged neighborhoods. Expanding public infrastructure upgrades needs to be prioritized in spatial justice agendas to prevent forced displacement.

Urban areas are characterized and urged to promote participatory government as well as co-management of local resources that construct collective modes of adjustment. Furthermore, cognitive and psychosocial dimensions of housing satisfaction should be addressed in urban housing policy. It is hoped that such kind of recommended housing design, planning and policy intervention will enhance the housing condition of residents, bring sustainable housing neighborhoods and increase the residential satisfaction of residents.

6.4.1 Future Research Recommendations

This study identifies several directions for future academic investigation that can contribute to housing discourse of residential satisfaction, adjustment behavior, and socio-

spatial processes of cost-efficient housing. Although the present study includes aspiration as a central factor in explaining residential differences, it fails to question the underlying psychological construct that shapes housing aspirations. Future research, then, should delve into the psycho-cognitive aspects of aspirational gaps, such as how subjective experience, value systems, and socio-cultural conditioning shape housing aspirations. That would be policy-relevant insofar as it could inform more responsive and sensitive policy mechanisms, particularly in alleviating the psychological distress brought about by spatial and socio-economic constraints in the cities.

Also, while this study assumes aspiration to be a fairly homogeneous construct, it fails to control for between-individual heterogeneity in aspirational perception. It remains empirically unclear whether different demographic or socio-economic groups frame and prioritize aspirations differently. Subsequent research should therefore explore the determinants of housing aspirations to clarify the heterogeneity of resident expectations.

One other essential aspect that has been inadequately covered in the current study is the financial aspect of residential satisfaction and adjustment. The omission of economic factors restricts the explanatory capacity of the research in terms of how residents cope with or compensate for dissatisfaction in cost-efficient housing schemes. Further empirical studies must incorporate economic stressors and coping mechanisms, including income volatility, job insecurity, and inflationary pressures, to explain how such mediate or moderate residential adjustment decisions.

In addition, this dissertation adopts a micro-level analytical focus, with primary emphasis centered at the household-level socio-spatial determinants. Meso- and macro-level analyses, like neighborhood characteristics, municipal governance structures, and national housing policies, remain underexplored. Research in the future ought to pursue multi-scalar approaches in investigating how institutional, spatial, and policy-level processes collectively shape residential satisfaction and adjustment trajectories. This would provide a more integrated understanding of residential behavior across spatial and administrative hierarchies.

Furthermore, as mentioned in the theoretical discussion, behavioral intention does not always lead to actual behavior. While this study is concerned with residential adjustment intentions, it does not empirically test if such intentions are followed through to actual adjustment behavior (e.g., moving, changing, or restructuring the household). Follow-up research would have to employ behavior tracking techniques, possibly through the utilization of panel or longitudinal data sets, to determine the extent to which stated intentions are translated into observable behaviors over a period of time.

The cross-sectional design employed in this dissertation has additional limitations by measuring residential satisfaction and adjustment behavior at a single point in time. Longitudinal research is thus necessary to investigate temporal processes and causal assumptions, for instance, how levels of satisfaction evolve and adjustment strategies unfold in response to housing quality change, neighborhood quality change, or personal circumstance change.

Finally, a promising avenue of research is the construction of composite decision-making models that simulate how socio-spatial gaps prompt specific forms of residential adjustment. Such models may synthesize behavioral economics, decision theory, and spatial analysis to untangle the complex relationship among aspirations, constraints, and actualized behavioral response. Unfortunately, due to scope limitations, this dissertation does not construct this cognitive-decisional interface. Future research must attempt to close this gap, enhancing the predictive and explanatory power of residential satisfaction and adjustment models.

In general, future studies must follow interdisciplinary, longitudinal, and multi-scalar research approaches in order to deepen both the empirical and theoretical understanding of residential behavior in cost-efficient urban housing settings. By addressing these gaps, scholars could make a significant contribution to the formulation of more inclusive and context-aware housing policies in rapidly urbanizing contexts such as Addis Ababa.

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APPENDICES

Appendix A: Statistical Tests

A number of statistical tests for the various model estimations employed in the study were conducted. The outcomes ensured that the data gathered were suitable and credible, hence maintaining their relevance for ensuing analysis processes and conclusion drawing as explained below.

Appendix A1: Reliability Test

Table A1. Reliability Test for Residential Adjustment Intention Questionnaire

Cronbach's Alpha	N of Items
0.781	5

Table A2. Reliability Test for Housing Dimensions Perception Questionnaire

Cronbach's Alpha	N of Items
0.940	51

Table A3. Reliability Test for Housing Dimensions Aspiration Questionnaire

Cronbach's Alpha	N of Items
0.973	51

Table A4. Reliability Test for Housing Dimensions Satisfaction Questionnaire

Cronbach's Alpha	N of Items
0.938	51

All computed Cronbach's Alpha values are greater than 0.7. Hence the data is reliable.

Appendix A2: Validity Test

The construct validity of the Questionnaires of the study was assessed using item-total correlation via Pearson's correlation coefficient. Based on the sample size (n = 400), the critical value for Pearson's r at a significance level of $p < 0.05$ was determined to be 0.098.

If all questionnaire items are correlated with the total scale score exceeded this threshold (0.098, $p < 0.05$). It confirms that all items meaningfully contribute to the overall construct being measured, thus demonstrating satisfactory construct validity for the questionnaire. Hence, analysis to validate each questionnaire was and disused below but the statistical tables aren't attached here because the y are too long to be included but can be available at any time of request.

Validity Test of Housing Dimensions Satisfaction Questionnaire

The construct validity of the Housing Dimensions Satisfaction Questionnaire was assessed using item-total correlation via Pearson's correlation coefficient. Based on the sample size (n = 400), the critical value for Pearson's r at a significance level of $p < 0.05$ was determined to be 0.098.

All individual item correlations with the total scale score exceeded this threshold, indicating statistically significant and positive associations ($r > 0.098$, $p < 0.05$). This confirms that all items meaningfully contribute to the overall construct being measured, thus demonstrating satisfactory construct validity for the questionnaire.

Validity Test of Housing Dimensions Perception Questionnaire

The construct validity of the Housing Dimensions Perception Questionnaire was assessed using item-total correlation via Pearson's correlation coefficient. Based on the sample size

(n = 400), the critical value for Pearson's r at a significance level of $p < 0.05$ was determined to be 0.098.

All individual item correlations with the total scale score exceeded this threshold, indicating statistically significant and positive associations ($r > 0.098$, $p < 0.05$). This confirms that all items meaningfully contribute to the overall construct being measured, thus demonstrating satisfactory construct validity for the questionnaire.

Validity Test of Housing Dimensions Aspiration Questionnaire

The construct validity of the Housing Dimensions Aspiration Questionnaire was assessed using item-total correlation via Pearson's correlation coefficient. Based on the sample size (n = 400), the critical value for Pearson's r at a significance level of $p < 0.05$ was determined to be 0.098.

All individual item correlations with the total scale score exceeded this threshold, indicating statistically significant and positive associations ($r > 0.098$, $p < 0.05$). This confirms that all items meaningfully contribute to the overall construct being measured, thus demonstrating satisfactory construct validity for the questionnaire.

Validity Test of Residential Adjustment Intention Questionnaire

The construct validity of the Residential Adjustment Questionnaire was assessed using item-total correlation via Pearson's correlation coefficient. Based on the sample size (n = 400), the critical value for Pearson's r at a significance level of $p < 0.05$ was determined to be 0.098.

All individual item correlations with the total scale score exceeded this threshold, indicating statistically significant and positive associations ($r > 0.098$, $p < 0.05$). This confirms that all items meaningfully contribute to the overall construct being measured, thus demonstrating satisfactory construct validity for the questionnaire.

Conclusion

The construct validity of all four questionnaires—Housing Dimensions Satisfaction, Housing Dimensions Perception, Housing Dimensions Aspiration, and Residential Adjustment Intention—was evaluated using item-total correlation based on Pearson's correlation coefficient. With a sample size of n = 400, the critical value for Pearson's r at the 0.05 significance level was established at 0.098. In each case, all individual items demonstrated a statistically significant and positive correlation with the total scale score ($r > 0.098$, $p < 0.05$). These results indicate that all questionnaire items contribute meaningfully to the underlying constructs being measured, thereby confirming that the instruments possess adequate construct validity.

Appendix A3: Multi Collinearity Test

Table A5. Multi-Collinearity Test for Housing Attributes Independent Variables

`	**Tolerance**	**VIF**
(Constant)		
Room number perception aspiration gap	0.711	1.407
Place of Residence=Summit	0.714	1.402
Block drainage system perception aspiration gap	0.602	1.660
House electrical installation perception aspiration gap	0.744	1.343
Employment Category=Service Work	0.884	1.132
Local street perception aspiration gap	0.618	1.619
Housing regulation perception aspiration gap	0.742	1.348

Length of Residence=11-15years	0.951	1.051
Urban center accessibility perception aspiration gap	0.565	1.769
Local greenery perception aspiration gap	0.623	1.606
Block maintenance perception aspiration gap	0.631	1.585
Block stair perception aspiration gap	0.626	1.597
`Communal block perception aspiration gap	0.682	1.467
Social interaction perception aspiration gap	0.569	1.757
Organized activity perception aspiration gap	0.592	1.689
No of Children>=4	0.950	1.053
Family Size=4	0.940	1.064
Crime level perception aspiration gap	0.767	1.304

Dependent Variable: Residential Satisfaction

All variance inflation factors of the independent variables are less than 10 and values of tolerance are greater than 10% as tabulated in Table A5. Thus there is no multi collinearity effect of independent variables.

Table A6. Multi-Collinearity Test for Housing Attributes Independent Variables

	Tolerance	**VIF**
(Constant)		
Housing unit features composite perception aspiration gap	0.507	1.974
Place of Residence=Summit	0.760	1.315
Public facilities composite perception aspiration gap	0.609	1.641
Employment Category=Service Work	0.946	1.058
Place of Residence=Gottera	0.807	1.240
Social environment composite perception aspiration gap	0.785	1.274
Housing unit support services composite perception aspiration gap	0.483	2.071
Employment Sector=Private Company	0.936	1.068
No of Children>=4	0.991	1.009

Dependent Variable: Residential Satisfaction

All variance inflation factors of the independent variables are less than 10 and values of tolerance are greater than 10% as tabulated in Table A6. Thus there is no multi collinearity effect of independent variables.

Table A7. Multi-Collinearity Test for Residential Satisfaction Mediating Variables

	Tolerance	VIF
(Constant)		
HUFS	0.444	2.254
HUSSS	0.461	2.171
PFS	0.612	1.634
NFS	0.868	1.152
SES	0.778	1.285

Dependent Variable: Residential Adjustment Intention

All variance inflation factors of the mediating variables are less than 10 and values of tolerance are greater than 10% as tabulated in Table A7. Thus there is no multi collinearity effect of mediating variables.

Appendix A4: Normality Test

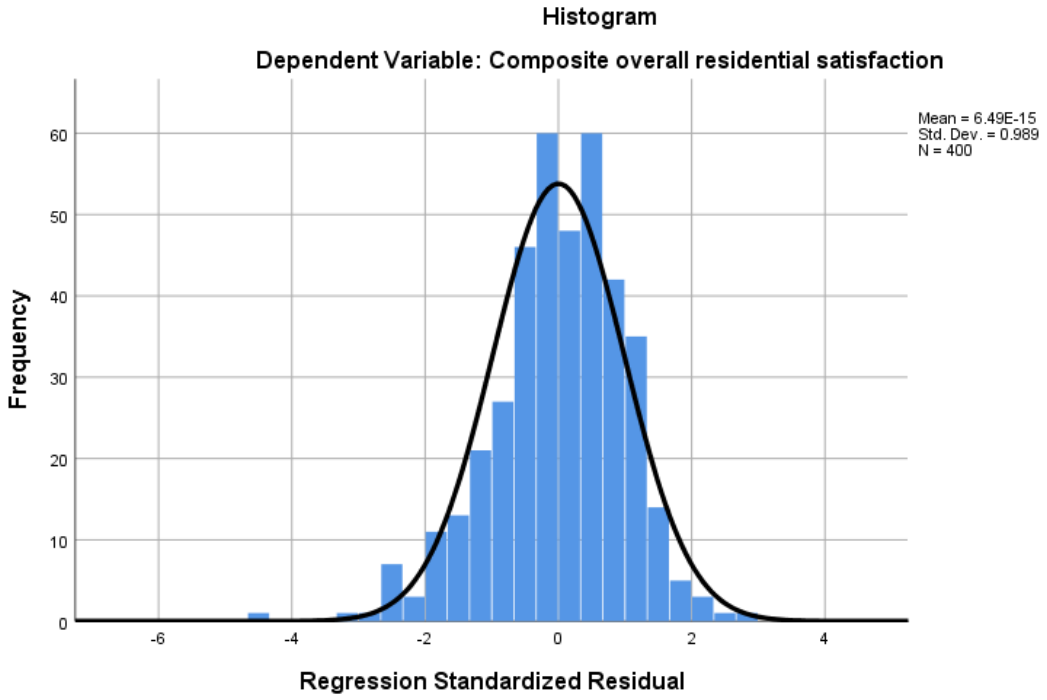

Figure A1. Normality Test of Socio-Spatial Housing Dimensions & Residential Satisfaction

In a normal distribution, the curve in a histogram graph should be close to a belly or normal curve. In this case, as shown in Figure A1 above, the curve is close to the normal curve. Hence, there is normal distribution of the independent (Socio-Spatial Housing Dimensions) and dependent (Residential Satisfaction) variables to undertake MLR.

Appendix A5: Linearity Test

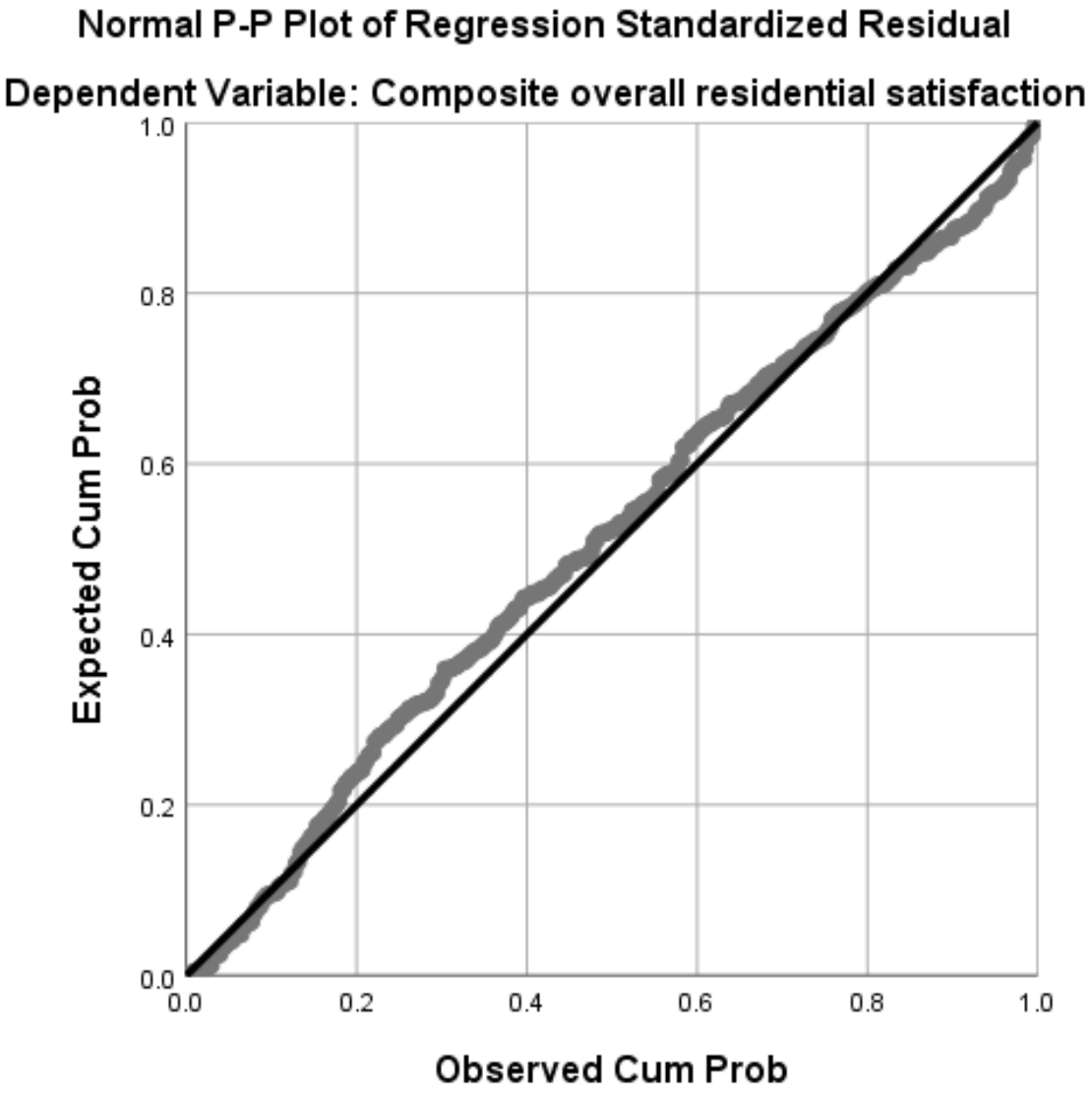

Figure A2. Linearity Test of Socio-Spatial Housing Dimensions & Residential Satisfaction

In a linear distribution, the line in a point graph should be close to a line. In this case, as shown in Figure A2 above, the line is close to the straight line. Hence, there is normality relationship between the independent (Socio-Spatial Housing Dimensions) and dependent (Residential Satisfaction) variables to undertake MLR.

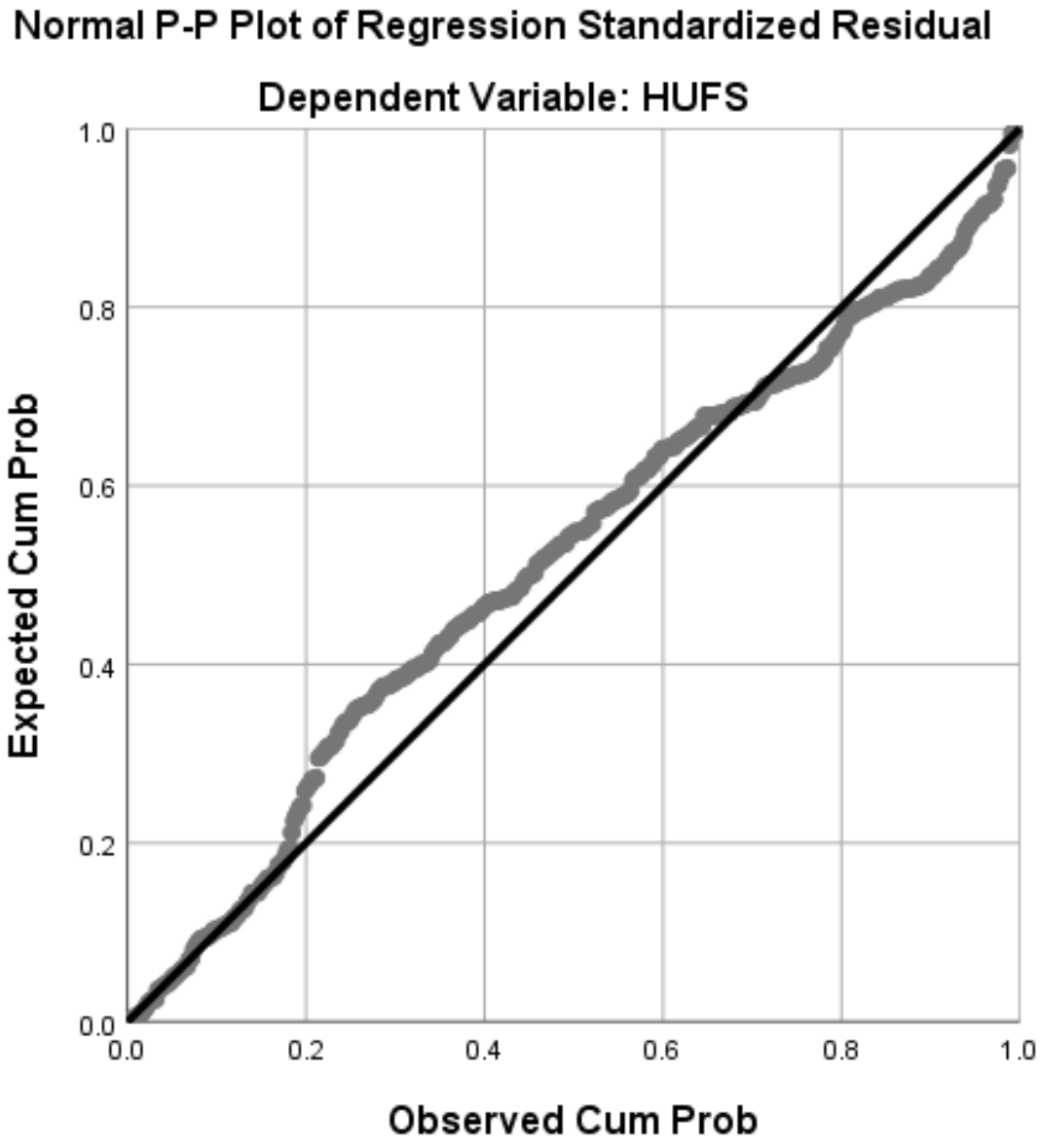

Figure A3. Normal P-P Plot (Probability-Probability Plot) of regression standardized residuals

In a normal distribution, the points in a P-P plot should fall close to the 45-degree line (the diagonal). The points follow the diagonal fairly closely with some deviation, especially at the tails as shown in Figure A3. This suggests that the residuals are approximately normally distributed, which is acceptable for most regression assumptions. Hence, there is normality relationship between the independent and mediating variables.

Appendix A6: Homoscedasticity Test

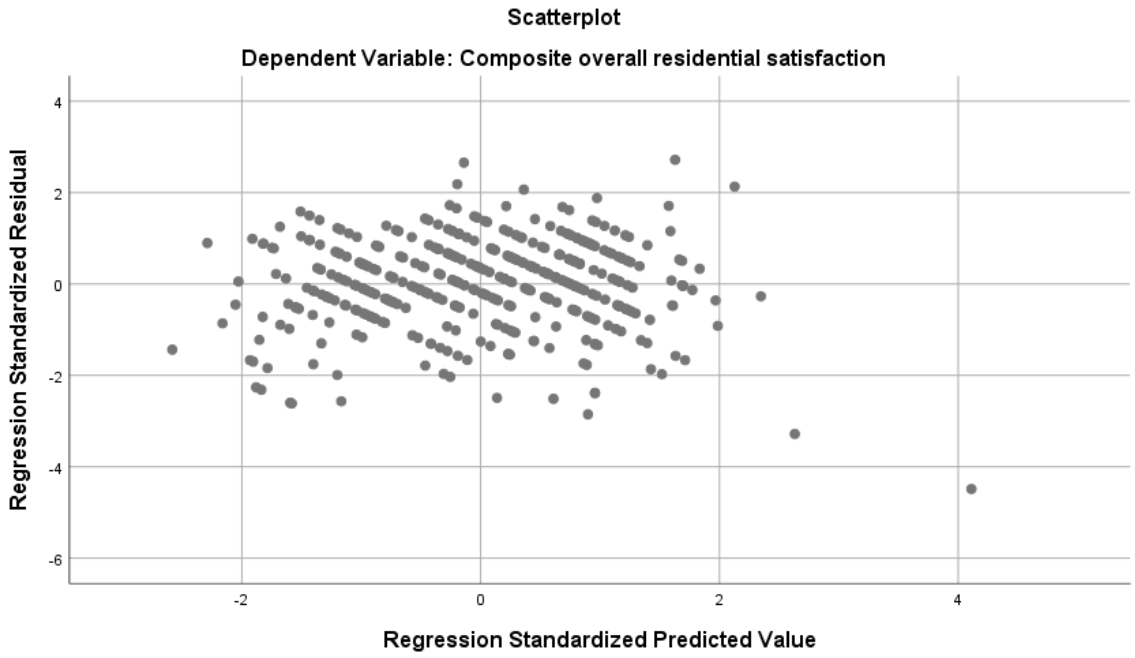

Figure A4. Homoscedasticity of Socio-Spatial Housing Dimensions Gaps

Homoscedasticity is checked using Residuals versus Fitted Values plot. A random scatter of points is observed in Residuals versus Fitted Values plot graph as shown in Figure A4. This finding supports the homoscedasticity assumption. This shows that the variance of the residuals is constant across all levels of the independent variables to undertake MLR.

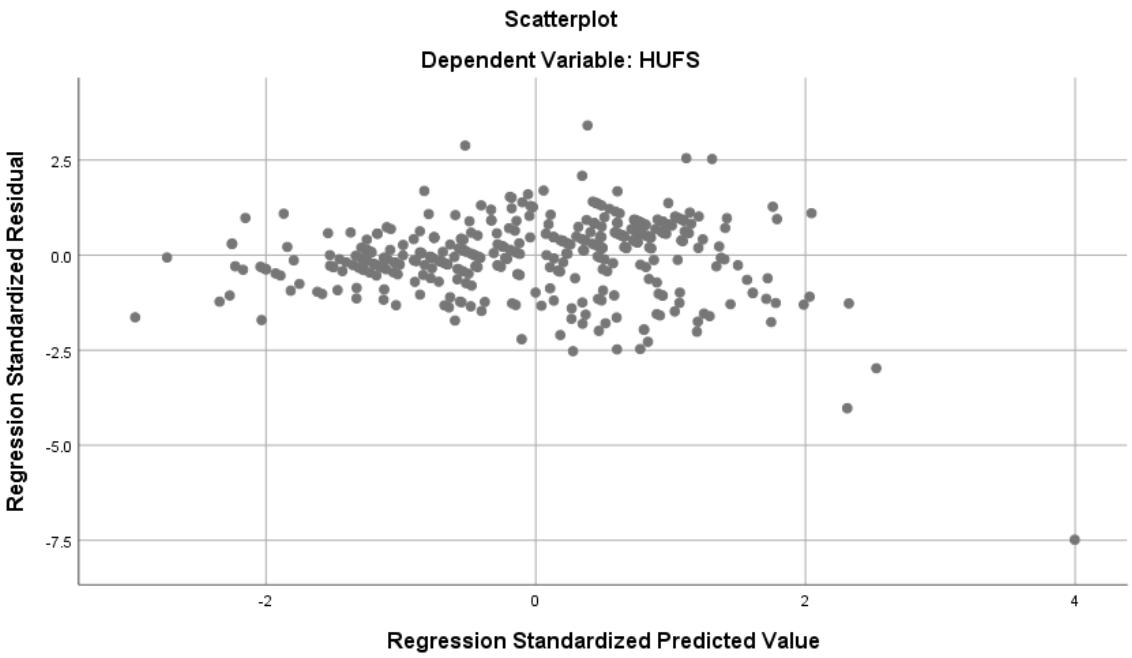

Figure A5. Scatterplot of standardized residuals vs. standardized predicted values

A scatterplot plot shows that the spread of residuals is fairly consistent, though there is slightly more variability on the right side (for higher predicted values). However, this is not extreme, so the assumption of homoscedasticity is reasonably met. Hence, Homoscedasticity is fairly satisfied.

Appendix B: Survey Questionnaire for Residents

The purpose of this study is to assess the relationship among Socio Spatial Housing Attributes, Satisfaction and Adjustment Intention in cost-efficient condominium housing neighborhood, Addis Ababa. The reason behind the study is to identify factors that affect residents' level of satisfaction and adjustment intention so as to propose implication for future planning and policy intervention, further study and housing discourse. All answer that you give will be kept confidential. Therefore, you are kindly requested your cooperation to offer honest answers for the following questions. We would like to thank you for your invaluable time devoted to respond to the questions.

Part One: Structured close ended questionnaire questions for head of households.

1. Household Demographic, Social and Economic Characteristics

1.1. Choose the age group where your age falls. ____

1. 18 to 30yrs 2. 31 to 40yrs 3. 41 to 60yrs 4. ≥ 61yrs

1.2. Choose your sex/Gender type._____

1. Male 2. Female

1.3. Choose your marital status._____

1. Single 2. Married 3. Divorced 4. Widow

1.4. Choose your educational status._____

1. Uneducated 2. Primary School (1-8) 3. Secondary School

4. Diploma 5. B.Sc/BA Degree 6. Post Graduate (M.Sc/M.BA /PhD Degrees)

1.5. How many are the members of your family._____

1. One 2. Two 3. Three 4. Four 5. Five 6. ≥ Six

1.6. How many children do you have under 18 years?_____

1. One 2. Two 3. Three 4. Four 5. ≥ Five

1.7. Choose your occupation sector._____

1. Unemployed 2. Government 3. State Owned Enterprise

4. NGO 5. Private Business 6. Own Business

1.8. Choose your employment type._____

1. Office Work 2. Technical Work 3. Commerce

4. Service 5. Laborer

1.9. How many is your `years of residency?_____

1. 1 -3yrs 2. 4-6 yrs 3. 7-10yrs 4. 11-15yrs 5. ≥16yrs

1.10. Choose your tenure status._____

1. Owner 2. Renter

1.11. How much is your household monthly total income?_____

1. ≤ 1,500br 2. 1,501 to 3,000br 3. 3001 to 5,000

4. 5001 to 8,000br 5. 8,001 to 11,000br 6. ≥ 11,001br

1.12. What is your main means of transportation?_____

1. On foot 2. Private Car 3. Public Transport

1.13. On which floor is your housing unit found?_____

1. Ground 2. First 3. Second 4. Third 5. Fourth 6. ≥ Fifth

Part Two: Fill in the table below with your appropriate perception, aspiration and satisfaction level:

A. Perception: How do you evaluate the current state of the attribute listed in the table?

1. Very Poor 2. Poor 3. Neutral 4. Good 5. Very Good

B. Expectation: What was your expectation level about the attributes listed in the table before living in the house?

1. Very Low 2. Low 3. Neutral 4. High 5. Very High

C. Satisfaction: What is your current satisfaction level about the attributes listed in the table before?

1. Very Dissatisfied 2. Dissatisfied 3. Neutral 4. Satisfied 5. Very Satisfied

2.1 Housing / Dwelling Unit (Spatial) Characteristic/ Features/ Attributes

	Attribute	**Perception**	**Aspiration**	**Satisfaction**
1.	Number of rooms			
2.	Size of rooms			
3.	Overall size of the Dwelling Unit			
4.	Arrangement of Rooms			
5.	Natural Lighting in Rooms			
6.	Natural Ventilation in Rooms			
7.	Construction Material			
8.	Electrical System in Rooms			
9.	Sanitary System in Rooms			
10.	Floor Level			
11.	Noise from Neighbors			

12. What is your over satisfaction level with dwelling unit attributes?_____

1. V. Dissatisfied 2. Dissatisfied 3. Neutral 4. Satisfied 5. V. Satisfied

2.2 Housing Unit Support Service

	Attribute	**Perception**	**Aspiration**	**Satisfaction**
1.	Corridor Space			
2.	Staircase Space			
3.	Water Supply System			
4.	Sewerage System			
5.	Drainage System			
6.	Electric System			
7.	Telecom System			
8.	Garbage Collection System			
9.	Level of Cleanliness			
10.	Level of Maintenance			
11.	Commercial Units			

13. What is your over satisfaction level with dwelling unit support system?_____

1. V. Dissatisfied 2. Dissatisfied 3. Neutral 4. Satisfied 5. V. Satisfied

2.3 Housing Neighborhood Spatial Characteristic

	Attribute	**Perception**	**Aspiration**	**Satisfaction**
1.	Adequacy of Parking Space			
2.	Adequacy of Open Space			
3.	Adequacy of Children Playground			
4.	Adequacy of Perimeter Street			
5.	Adequacy of Street Lighting			
6.	Adequacy of Greenery Space			

7.	Adequacy of Drainage System			
8.	Adequacy of Maintenance			
9.	Adequacy of Solid Waste Disposal System			
10.	Adequacy of Cleanness			
11.	Adequacy of Communal Spaces			

12. What is your overall satisfaction level with neighborhood spatial characteristics?_____
    1. V. Dissatisfied 2. Dissatisfied 3. Neutral 4. Satisfied 5. V. Satisfied

2.4 Housing Neighborhood Support Services

	Attribute	**Perception**	**Aspiration**	**Satisfaction**
1.	Proximity to Work Place			
2.	Proximity to School			
3.	Proximity to Health Services			
4.	Proximity to Recreational Facility			
5.	Proximity to Market Place			
6.	Proximity to Police Station			
7.	Proximity to Public Transport			
8.	Proximity to Nearest City Center			
9.	Proximity to Religious Buildings			

10. What is your overall satisfaction level with housing neighborhood support services?___
    1. V. Dissatisfied 2. Dissatisfied 3. Neutral 4. Satisfied 5. V. Satisfied

2.5 Housing Neighborhood Social Characteristics

	Attribute	Perception	Aspiration	Satisfaction
1.	Adequacy of Chat with Neighbors			
2.	Frequency of Availability of Relatives			
3.	Frequency of Meeting Neighbors			
4.	Frequency of Help Exchange			
5.	Frequency of Community Activity Participation			
6.	Frequency of Civic Activity Participation			
7.	Rate of Condominium Committee Engagement			
8.	Level of Noise			
9.	Level of Crime			
10	Rate of Accident			
11	Regulations			

11. What is your over satisfaction level with housing neighborhood social characteristics?

_____ 1.V. Dissatisfied 2. Dissatisfied 3. Neutral 4. Satisfied 5. V. Satisfied

12. What is your over satisfaction level with the neighborhood? _____

1.V. Dissatisfied 2. Dissatisfied 3. Neutral 4. Satisfied 5. V. Satisfied

Part Three: Residential Adjustment Intention

1 Do you have a thought of moving from here (intention to residential mobility)? _____

1. Yes 2. No

2 Do you have a thought of modifying some parts of your apartment (intention to housing adaptation)? _____

1. Yes 2. No

3 Do you have a thought to involve in improvement of some parts of your neighborhood now (intention to neighborhood adaptation)? ____

1. Yes 2. No

4 Don't you do something even if your housing has not full filled most of your needs (intention of cognitive adaptation)?_____

1. Yes 2. No

5 Do you have a thought of changing the size or composition of your family (intention to family adaptation)?_____

1. Yes 2. No

Appendix C: Declaration of Interest Statement

Ethical approval and informed consent

This study paper was ethically cleared by the then Institute of Architecture, Building Construction, and City Development (EiABC) of Addis Ababa University, Ethiopia. The Ethical Review Board consisted of four people: Dr. Mintesnot Woldeamanuel (Chairperson), Dr. Fisseha Wegayehu (Member), Dr. Dipl-Ing Berhanu Woldetensae .(Member), and Dr. Dagnachew Adugna (Member).

Before collecting primary data through a survey questionnaire, written informed consent was obtained from the Thesis Proposal Evaluation Committee. The conclusions, recommendations, and Ph.D. thesis proposal evaluation findings were part of the Ethical Approval Letter.

Subsequently, the university provided cooperation letters to the respondents and respective institutions for the study. Confidential letters were sent via cellphone and email to individual offices and respondents. After all subjects, individuals, and institutions included in the study had provided their informed consent, data collection commenced.

Author contribution statement

Lissanework Sileshi Alaemu: Conceptualization, data collection, contributing materials and analysis tools, data analysis, data interpretation, write up, review and editing.

Dr Wubshet Berhan: Conceptualization, supervision, contributing materials and analysis tools, review and editing.

Dr Daniel Lirebo Sokkido: Conceptualization, supervision, contributing materials and analysis tools, review and editing.

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Data availability statement

The collected data was filled in hard and soft copy, included, referred in study. And also the data provided in this study are with corresponding author and can be provided if, the concerned body required it any time.

Additional information

There is no additional information is available for this study.

Appendix D: List of Publications

Appendix D1. Published Articles

1. Alemu, L. S., Berhanu, W., & Sokkido, D. L. (2025a). Determinants of residential adjustment intentions : insights from cost-efficient condominium housing in addis ababa, Ethiopia. Frontiers in Built Environment, 11(1). https://doi.org/10.3389/fbuil.2025.1565545
2. Alemu, L. S., Berhanu, W., & Sokkido, D. L. (2025b). Determinants of residential satisfaction: an actual-aspiration gap theory analysis in cost-efficient condominium housing, Addis Ababa, Ethiopia. Urban, Planning and Transport Research, 13(1). https://doi.org/10.1080/21650020.2025.2475960

Appendix D2. Manuscripts under Review for Publication

3. Alemu, L. S., Berhanu, W., & Sokkido, D. L. (2025c). Interweaving Socio-Spatial Gaps, Residential Satisfaction and Mobility: An Actual-Aspiration Gap Theory Analysis in Cost-efficient Housing, Addis Ababa, Ethiopia. Manuscript No. 255656291, Journal of Urban, Planning and Transport Research of Taylor and Francis Group.

Appendix D2. Manuscripts Prepared for Publication

4. Alemu, L. S., Berhanu, W., & Sokkido, D. L. (2025d). Linking Socio-Spatial Gaps, Residential Satisfaction and Housing Modification: An Actual-Aspiration Gap Theory Analysis in Cost-efficient Housing, Addis Ababa, Ethiopia.

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Determinants of residential satisfaction: an actual-aspiration gap theory analysis in low-cost condominium housing, Addis Ababa, Ethiopia

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ABSTRACT

Residential satisfaction is a critical factor in evaluating housing programs; however, research that applies the Actual-Aspiration Gap Theory remains scarce, particularly in Ethiopia. This study contributes to the global housing discourse employing this theory to examine determinants of residential satisfaction among low-cost condominium residents in Addis Ababa, Ethiopia. Data were collected from 400 households living in four neighborhoods using stratified random sampling. The study analyzes how socio-demographic factors and perception-aspiration gaps across housing dimensions and attributes influence residential satisfaction. Descriptive and regression analyses revealed moderate overall satisfaction levels, with higher satisfaction reported for the social environment and neighborhood facilities. Two regression models were employed which significantly explained 57.6% and 65.3% of the variance in satisfaction across most housing features gaps, affirming the application of actual-aspiration gap theory in low-cost housing. Significant predictors include number of rooms, electrical installation, housing location, local street and greenery, urban center accessibility, social interactions, and crime level, alongside socio-demographic factors such as length of residence, family size, and employment type. Hence, to improve satisfaction, housing policymakers and planners should prioritize bridging perception-aspiration gaps. Future research incorporating longitudinal and cross-cultural analyses is essential to enhance generalizability, and capture evolving needs and refine housing strategies.

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Residential satisfaction; low-cost housing; actual-aspiration gap theory; perception-aspiration gaps; Addis Ababa

1. Introduction

Urbanization, as a multifaceted process, brings both opportunities and challenges. On one hand, it fosters economic, infrastructure and services development. On the other hand, it introduces rapid population growth, which leads to an escalating demand for housing. Currently, approximately 830 million individuals reside in slums (UN-

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HABITAT, 2023). To address these pressing demands, many countries have initiated various low-cost housing schemes, for example Ganga Warrier et al. (2019) discussed low-cost housing scheme in India; Ghasemih and Ozay (2018) elaborated affordable housing provision in Iran; Ulusoy et al. (2012) explained about mass housing scheme in Turkey; Wang and Murie (2011) mentioned affordable and social housing provision system in China. In response to one million housing shortage and 70% of slum housing prevalence, Ethiopia initiated similar scheme in 2005. The primary objectives of the initiative were increasing housing supply for the low-income population, upgrading slum areas, fostering job creation and curbing urban poverty. The initiative enabled thousands of low-income households to own decent houses (UN-HABITAT, 2011). While these initiatives aim to provide affordable housing solutions, they often fail to adequately consider the actual needs and aspirations of residents (Charitonidou, 2022). According to Jiang and Timmermans (2021) such a gap often results in varying levels of residential satisfaction, which refers to the level of fulfillment residents feel with respect to their housing.

When residents feel dissatisfaction stress beyond a critical threshold, they resort to a range of residential adaptation strategies (Priemus, 1986). Some who may be better off choose to move to other neighborhoods, thereby contributing to the deterioration of the original neighborhood (Andersen, 2003; Chen et al., 2023). Others improve their housing to align with their needs, enhancing neighborhood conditions (Obi et al., 2023). These adaptive behaviors underline the importance of understanding determinants of residential satisfaction levels in low-cost housing because several studies revealed that residential satisfaction affected residential adaptive behaviors of residents (Jiang et al., 2019; Maina, 2023; Nasrollahzadeh et al., 2021; Pagani et al., 2021; Umeh & Ezeji, 2023).

Hence, a number of empirical studies have investigated the determinants of residential satisfaction in various contexts. For instance, Sabah (2023) assessed internationally funded housing in Palestine, Kshetrimayum et al. (2020) explored slum rehabilitation housing in India, Davoodi et al. (2023) examined historical areas in Cyprus, Maina and Mohammed (2021) studied public housing in Nigeria, Jahanshahloo and Daroudi (2015) focused on affordable housing in Turkey, Abass and Tucker (2017) analyzed suburban housing in Australia, and Bian and Choi (2023) assessed condominium apartments in China. However, these studies revealed varying results. Consequently, further studies on residential satisfaction in specific contexts are essential to guide housing policy development (Mohit et al., 2010). Moreover, studies exploring residential satisfaction through the framework of the actual-aspiration gap theory, which suggests that the degree of residential satisfaction is influenced by the extent of the gap between what residents expect and what they experience, are limited (Jiang, 2018). Furthermore, there is considerable empirical research on residential satisfaction in local context (Kidane, 2018; Lisanework, 2015; Samuel, 2017; Tigist, 2015; Warsa, 2017). But they did not address the gap between residents' actual perceptions and aspirations. To the authors' knowledge, no prior study has been conducted within the local context that addresses such a topic. Hence, this research aims to bridge these gaps by examining the determinants of residential satisfaction among residents of low-cost condominium housing from the perspective of the Actual Aspiration Gap Theory in Addis Ababa, Ethiopia.

Exploring residential satisfaction through the Actual Aspiration Gap Theory provides critical insights for housing research, policy, and practice. It reveals perception-

aspiration dynamics, refines the theoretical framework, identifies key determinants, and offers actionable guidance for housing, planning and policy to better meet residents' needs, enhancing satisfaction and community well-being. Moreover, A deeper understanding of residential satisfaction determinants is essential to housing policymakers and urban planners as it enables them to develop resident-centered housing policy and neighborhood interventions. This ensures that the housing developments meet the needs and aspirations of the residents, and ultimately, it contributes to sustainable urban planning and improved quality of life. The article is structured as follows: Section Two reviews literature and conceptual framework; Section Three details methods and materials; Section Four analyzes results and discussion; and Section Five presents conclusion.

2. Literature review

2.1. Residential satisfaction and its determinants

Residential satisfaction refers to the level of contentment individuals feel with respect to their residential environment (Mohit & Al-Khanbashi Raja, 2014). It has been the subject of numerous studies and publications worldwide (Biswas et al., 2021). According to Galster (1985), most residential satisfaction studies are grounded in two empirical approaches: the 'purposive approach' and the 'actual aspiration gap approach'.

The purposive approach posits that individuals pursue specific goals, and their activities are oriented toward achieving these goals. Satisfaction is determined by how well the residential environment supports these goal-directed activities. The actual aspiration gap approach, on the other hand, suggests that individuals evaluate their residential environment by comparing it to their desired living conditions. Satisfaction is determined by the amount of gap between the experienced and perceived reality (perception), and the desired standard (aspiration) (Galster, 1985). This article follows the actual aspiration gap approach. Because the actual-aspiration approach is better suited to the objective of this study than the purposive approach, as it captures the dynamic nature of residential satisfaction by measuring the gap between individuals' actual living conditions and their aspirations, offering a more comprehensive insight into how unmet expectations shape overall satisfaction.

To understand what factors contribute to residential satisfaction, several theoretical frameworks have been developed. The three major theories that underpinned much of the research on residential satisfaction are housing needs, housing deficit, and psychological construct theory (Mohit & Al-Khanbashi Raja, 2014). Housing needs theory argues that a household's housing requirements evolve throughout the life cycle, creating a gap between the current housing conditions and evolving needs, which leads to varying satisfaction levels (Rossi, 1955). Housing deficit theory suggests that households assess their housing conditions against societal or cultural standards. Discrepancies between these standards and actual conditions result in differing satisfaction levels (Morris & Winter, 1975). Psychological construct theory, based on the actual aspiration gap theory, emphasizes that households compare their housing conditions with their ideal standards. When a significant gap exists, dissatisfaction or satisfaction arise (Galster, 1987). This theory postulates actual-aspiration gaps influence residential satisfaction. Satisfaction

increases when the experienced and perceived reality (perception) surpasses the desired standard (aspiration), whereas a larger gap, where aspirations exceed perception, leads to lower satisfaction. This article is grounded in actual-aspiration gap theory on which psychological construct theory is founded.

Based on these theories, several works have been done to understand various drivers of residential satisfaction. The housing unit features, as evidenced from some studies, are drivers of residential satisfaction. For example, Biswas et al. (2021) showed that residents reported being most satisfied with features of the dwelling unit compared to the social environment, public services, and conditions of neighborhood in Bangladesh. Alam and Matsuyuki (2018) found positive associations of housing unit size and natural lighting, while a negative association of electric lighting use with satisfaction in India. In a similar pattern, Kshetrimayum et al. (2020) demonstrated natural lighting and room adequacy to be the predictors of housing satisfaction but not electric supply in Mumbai. Other researches such as that of Ogu (2002) and Forte and Russo (2017) had revealed housing unit condition and construction materials, and the sufficiency of rooms and sanitary facilities influenced residential satisfaction. Such studies have underlined the role of housing unit features regarding residential satisfaction.

Of the many determinants, housing unit support services have also been found to play a very important role. The study by Maina & Mohammed (2021) has found a solid connection between the housing support services and the residential satisfaction that had succeeded the housing unit features and neighborhood conditions in Nigeria. Alam and Matsuyuki (2018) reported the positive association of corridor width, cleanliness, and maintenance with satisfaction in slum rehabilitation schemes in India. Similarly, Mohit and Azim (2012) identified cleaning of corridors and staircases as a significant predictor of residential satisfaction in the Maldives. Ibem and Aduwo (2013) explained the dissatisfaction in Nigeria was mainly due to a lack of adequate electricity and water supply, while Lara and Bekker (2012) reported dissatisfaction with fixed telephone services in Angola. Awolowo (2014) confirmed a significant positive association between waste disposal response and tenant satisfaction in Nigeria. These findings reflected the significant influence of housing unit support services on residential satisfaction.

Public services are also crucial in shaping residents' overall satisfaction. For example, Jiang and Timmermans (2021) identified public services as the second most influential factor in overall residential satisfaction in China. Similarly, Jiang (2018) highlighted the positive impact of road benches, sewer pipes, greenery, pedestrian walkways, and gas pipelines on environmental satisfaction in China. Phyu et al. (2024) emphasized the role of car parking and street lighting in enhancing satisfaction in Myanmar, while Abass and Tucker (2017) found tree coverage, walkability, open and community spaces, and facade car parking to be significant contributors to neighborhood satisfaction in Australia. Conversely, Lara and Bekker (2012) reported dissatisfaction with insufficient green spaces, sidewalks, and parking facilities in Angola. These studies demonstrated the inconsistent effect of public services on residential satisfaction.

Meanwhile, proximity to the main facilities in the neighborhood also plays a significant role. For instance, Kshetrimayum et al. (2020) reported that proximity to post offices, metro stations, fire stations, government offices, health centers, and banks were the most important predictors of residential satisfaction in Mumbai. In a similar manner, Mohit et al. (2010) identified distance to shopping centers as one of the

influential factors affecting satisfaction in Malaysia. Onifade (2021) stated that closeness to medical services, schools, and community associations contributed positively to housing satisfaction in Nigeria. In contrast, Biswas et al. (2021) indicated dissatisfaction from residents in Bangladesh due to inadequate access to recreational, health, and educational facilities. Such studies reveal that the availability of neighborhood facilities contributes greatly toward shaping residential satisfaction.

Apart from the spatial factors, the social environment contributes a lot to residential satisfaction. For example, Biswas et al. (2021) identified the social environment as one of the most contributing factors to overall residential satisfaction in Bangladesh. Alam and Matsuyuki (2018) reported that frequent social interactions, such as chatting and participation in social events, positively influenced satisfaction in India. In a similar manner, Kshetrimayum et al. (2020) reported that neighborly trust, mutual care, and interaction were the strongest social factors in determining satisfaction in Mumbai. Kellekci and Berköz (2006) showed that good neighbor relationships were the most influential in increasing satisfaction in Turkey, while Joseph-Agyei et al. (2014) reported higher levels of satisfaction among respondents as a result of less crime in Ghana. These studies highlighted the importance of the social environment in residential satisfaction.

Besides spatial and social factors, residential satisfaction is also influenced by socio-demographic characteristics. On the one hand, the household size yielded different impacts such as a positive relationship was reported by Biswas et al. (2021), no correlation was demonstrated by Alam and Matsuyuki (2018), and family size was found as a negative predictor by Davoodi et al. (2023). Age also presented inconsistencies such as Dekker et al. (2011) found older residents more satisfied, Żelazowski et al. (2022) observed a U-shaped trend, and Onibokun (1976) reported no significant relationship. Similarly, education had contrasting effects, with Biswas et al. (2021) found a positive link, Żelazowski et al. (2022) noted no impact, and Onibokun (1976) reported an inverse relationship. On the other hand, gender correlations presented opposing results because Jiang (2018) reported higher satisfaction in males, while Abass and Tucker (2017) found no significant relationship. Residential tenure presented conflicting findings since Davoodi et al. (2023) reported a negative association, while Mohit and Azim (2012) presented a positive association. Ownership status also presented some conflicting findings where Dekker et al. (2011) identified higher satisfaction among owners, and Abass and Tucker (2017) noted no effect. Income and employment showed mixed effects, while Lu (1999) and Mohit et al. (2010) found positive association; but Onibokun (1976) found that income and occupational status were not related to satisfaction. Finally, marital status positively influenced satisfaction, according to Davoodi et al. (2023) and households with more children were reported to have lower satisfaction (Biswas et al., 2021). Thus, studies have exhibited mixed outcomes regarding the association of residential satisfaction with socio-demographic characteristics.

Further, research that utilized the actual-aspiration gap framework contributed useful insights into residential satisfaction. Jiang and Timmermans (2021) proved that the actual aspiration gap model outperformed traditional approaches by showing significant positive effects of gaps in housing units, public and neighborhood facilities, social environment, and economic dimensions on overall satisfaction in China. Phyu et al. (2024) also found all perceived realities for the residents of Myanmar exceeded the expectations, bringing overall satisfaction. Nevertheless, at

this point in time, little research has put into practice an actual-aspiration gap theory applied to residential satisfaction (Jiang, 2018). In conclusion, the reviewed literature revealed the limited application of actual-aspiration gap approach in residential satisfaction studies. Similarly, it revealed the inconsistent influence of housing dimensions, socio-demographics and actual-aspiration gaps on residential satisfaction. This indicates that further research is needed in order to clearly point out main determinants of residential satisfaction, and guide housing policies and planning in varied contexts.

2.2. Conceptual framework

The conceptual framework of the study is based on Galster's (1985) actual aspiration gap theory, and the results of the literature review. The theory postulates that the cause of an individual's residential satisfaction originates from the gaps between perceived and desired residential conditions. Hence, housing dimensions gaps are proposed as independent variables. Moreover, the review indicated that there is variation in the influence on satisfaction brought by socio-demographics and actual-aspiration gaps. Hence, socio-demographics are also proposed as independent variables. Moreover, housing satisfaction is affected by both objective and subjective features. Individuals first perceive the objective characteristics of their environment, which then undergo a subjective processing influenced by socio-demographic factors (Amerigo & Aragones, 1997). This subjective evaluation results in some degree of residential satisfaction (Mohit & Azim, 2012; Mohit et al., 2010). Hence, as shown in Figure 1, the conceptual framework suggests that residents' evaluation of housing attributes, viewed through the lens of their socio-demographics and perception-aspiration gap, becomes subjective. This subjective evaluation is categorized into five independent variables: housing unit features (HUFG), housing unit support services (HUSSG), public facilities (PFG), neighborhood facilities (NFG), and social

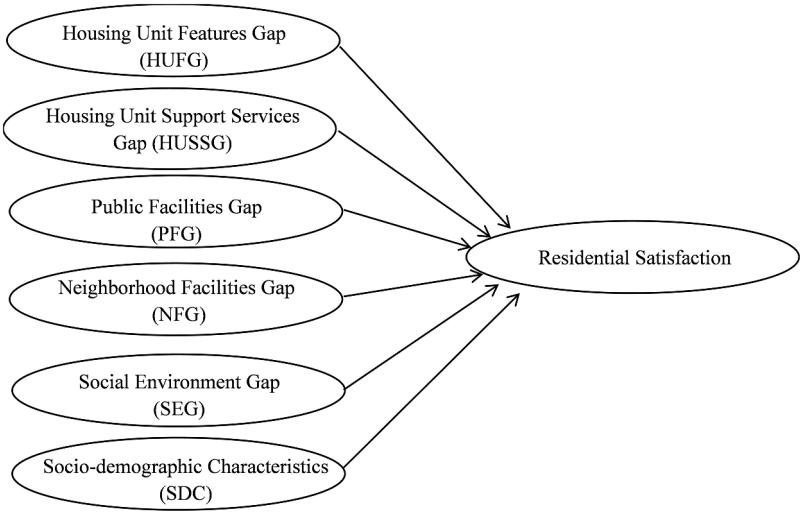

Figure 1. Conceptual framework of the study based on Galster (1985).

environment gaps (SEG). These factors, alongside socio-demographics (SDG), influence residential satisfaction, the dependent variable in this study.

3. Materials and methods

3.1. Study areas

Ethiopia ranks as the second most populous country in Africa and the tenth in the world, with a population of 133 million in 2024. Its capital, Addis Ababa, has grown rapidly, reaching a population of 5.7 million in 2024, up from 329,000 in 1950, with an annual growth rate of 4.45% (World-Population-Review, 2024). Such accelerated rate of urbanization has resulted in a shortage of housing within the city. To address the heightened demand for housing associated with this rapid urban growth, the government introduced the Integrated Housing Development Program (IHDP) in 2005, a low-cost condominium housing initiative designed to mitigate the urban housing shortfall (JTZ, 2005). The program successfully constructed and allocated thousands of housing units to beneficiaries across various neighborhoods within the city. However, they often fail to adequately consider the actual needs and aspirations of residents (Charitonidou, 2022).

Hence, this study examines four of these low-cost condominium housing neighborhoods: Gottera, Gofa Mebrat, Bole Gerji, and Bole Summit as shown in the location map in Figure 2. The Gottera housing neighborhood in the inner part of Addis Ababa is a housing scheme consisting of a total of 2,433 housing units with

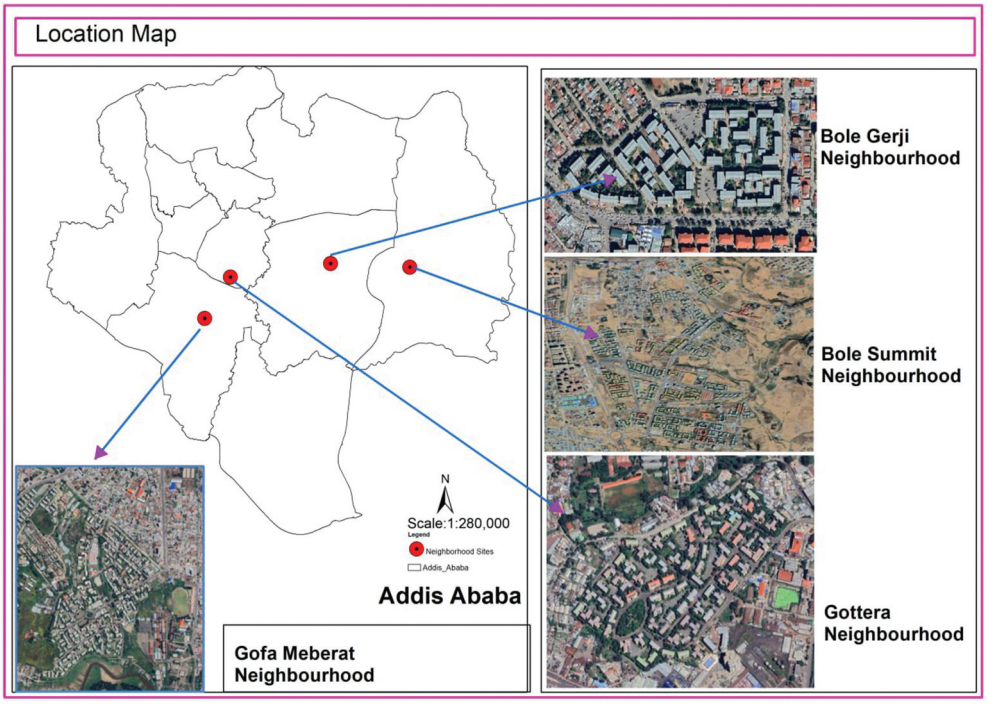

Figure 2. Location map of study area.

a total area of 13,525 square meters and which started its function in 2009 (Tigist, 2015). The Gofa (Meberat) housing neighborhood is located also in the inner part of Addis Ababa with a total of 5,580 residential units in a total area of 38,000 square meters and also became functional in 2009 (Yonas, 2016). (Bole) Gerji neighborhood is located in the intermediate part of the city consisting of 696 residential units. The neighborhood was finalized and open to residents in 2008 (Samuel, 2017). (Bole) Summit neighborhood is located in the outskirt part of the city consisting of 10,001 residential units with an area of 55,000 m2 and operational since 2014 (Hemen, 2020).

3.2. Methodology

This study employed stratified random sampling to select respondents: low-cost condominium housing household heads. The population was divided into strata based on geographical location: inner, intermediate, and outskirt. Given the large number of inner neighborhoods, two areas (Gottera and Gofa Meberat) were selected randomly. Bole Gerji and Bole Summit neighborhoods were then randomly chosen to represent the intermediate and outskirts neighborhoods, respectively. The number of respondents from each neighborhood was determined proportionally to their population size. Finally, each respondent household was randomly selected, resulting in a total sample size of 400 to ensure robustness, even though a sample size of 391 was calculated using Yamane's sample size determination formula (Yamane, 1967). Moreover, the sample sizes were as follows: 16 for Bole Gerji, 53 for Gottera, 119 for Gofa Meberat, and 212 for Bole Summit as shown in Appendix Table A2. The field survey was conducted over a four-week period, beginning in August 2023. To optimize response rates, data collectors received training, and an interviewer-administered questionnaire approach was implemented resulting 100% response rate.

The questionnaire comprised of six sections: the first addressed households' social, economic, and demographic characteristics, while sections two to six covered households' perceptions, aspirations, and satisfaction levels regarding each attributes of housing dimensions, (housing unit features, housing unit support services, public facilities, neighborhood facilities, and the social environment) as shown in Table 1. Respondents rated their satisfaction level with housing dimensions and their attributes on a 5-point Likert scale, where 1 = very dissatisfied, 2 = dissatisfied, 3 = slightly satisfied, 4 = satisfied, and 5 = very satisfied. Moreover, households' perceptions were assessed for housing dimensions and their attributes on a five-point Likert scale, where 1 indicated very poor, 2 poor, 3 slightly good, 4 good, and 5 very good. Additionally, households' aspirations were assessed for attributes of housing dimensions on a 5-point Likert scale, where 1 indicated very low, 2 low, 3 slightly high, 4 high, and 5 very high. Cronbach's alpha was used to assess the internal reliability of the variables. Cronbach's alpha values ranged from 0.78 to 0.90 for perception, 0.84 to 0.96 for aspiration, and 0.79 to 0.95 for satisfaction attributes, indicating strong reliability of the variables as shown in Table A1. The mean value of each respective attributes was computed to derive housing dimensions and overall constructs. Perception-aspiration gaps for each attribute of housing dimensions were calculated

Table 1. Residential dimensions and attributes of the study (variables).

Housing Dimensions	Housing Unit Features (HUF)	Housing Unit Support Services (HUSS)	Public Facilities (PF)	Neighborhood Facilities (NF)	Social Environment (SN)
Housing Attributes	Number of Rooms	Corridor	Car Parking	Workplace Accessibility	Communication Frequency
	Rooms Size	Staircase	Play Field	School Accessibility	Neighbors Familiarity
	House Area	Block Water Supply	Outdoor Spaces	Health Facilities Accessibility	Social Interaction Frequency
	Rooms Arrangement	Block Sewerage System	Local Street	Market Accessibility	Help Exchange Frequency
	Rooms Lighting	Block Drainage System	Street Light	Recreational Facilities Accessibility	Committee Activity Participation
	Rooms Ventilation	Block Electric Installation	Local Greenery	Police Station Accessibility	Social Activity Participation
	Construction Material	Block Telecom Network	Local Drainage System	Transport Accessibility	Organized Activity Participation
	Electrical Installation	Block Waste Disposal	Infrastructure Maintenance	Urban Center Accessibility	Noise Pollution
	Sanitary Installation	Block Cleanness	Local Waste Disposal	Religious Facilities Accessibility	Crime Level
	Floor Level	Block Maintenance	Local Cleanness		Accident Level
			Communal Block		

as a difference of perception and aspiration values. The collected data were analyzed using the Statistical Package for Social Sciences (SPSS, version 25) to assess percentage distributions, compute mean and conduct multiple linear regression analysis on the study variables.

3.3. Models

This study utilized the actual-aspiration gap approach, grounded in actual aspiration gap theory, to construct the research models. The models' independent variables include socio-demographic factors and the perception-aspiration gaps index across housing unit features, supportive services, public facilities, neighborhood facilities, social environment and their attributes. The dependent variable is the overall satisfaction level of households. Perception-aspiration gaps index for each attribute of housing dimension were calculated as the difference between perception and aspiration values of each attribute of housing dimension, as represented in Equation 1.

Let $m = 1, 2, \ldots\ldots$ M be an index for a dimension.

Perception Aspiration Gap index is computed as

$$G_{ijm} = P_{ijm} - A_{ijm} \tag{1}$$

or each individual i and attribute j within a given housing dimension m, G_{ijm}represents the perception-aspiration gap index, P_{ijm} denotes perceived reality, and A_{ijm} indicates aspiration level. A positive gap index indicates that perception surpasses aspiration, hypothesized to contribute to residential satisfaction, with an increasing gap expected to increase satisfaction levels. Conversely, a negative gap, where perception is below aspiration, is hypothesized to result in residential dissatisfaction, with a larger negative gap anticipated to heighten dissatisfaction. A zero gap, where aspiration aligns with perceived reality, is hypothesized to result in a moderate level of residential satisfaction.

The first model of study is denoted by Equation (2) to explore the influence of the five housing dimensions perception aspiration gaps on overall residential satisfaction., where β_o represents the intercept β_i (i = 1, 2, ... , I be an index for a coefficient) indicates the coefficients of each independent variable, ε designates the error term, RS = Overall Residential Satisfaction Index, SDC = Socio demographic characteristics, HUFG = Housing unit features perception aspiration gap index, HUSSG = Housing unit support services perception aspiration gap index, PFG = Public facilities perception aspiration gap index, NFG = Neighborhood facilities perception aspiration gap index, and SEG = Social environment perception aspiration gap index.

$$\mathrm{RS} = \beta_0 + \beta_1 \mathrm{SDC} + \beta_2 \mathrm{HUFG} + \beta_3 \mathrm{HUSSG} + \beta_4 \mathrm{PFG} + \beta_5 \mathrm{NFG} + \beta_6 \mathrm{SEG} + \varepsilon \tag{2}$$

A second model denoted by Equation (3) is proposed to assess the influence of each housing components (attributes) perception aspiration gap of the housing dimensions on overall residential satisfaction.

$$\mathrm{RS} = \beta_0 + \beta_1 \mathrm{SDC} + \beta_2 \Sigma\ \mathrm{HUFG} + \beta_3 \Sigma\ \mathrm{HUSSG} + \beta_4 \Sigma\ \mathrm{PFG} + \beta_5 \Sigma\ \mathrm{NFG} + \beta_6 \Sigma\ \mathrm{SEG} + \varepsilon \tag{3}$$

4. Results and discussions

4.1. Results

4.1.1. Socio-demographic profile of respondents

The socio-demographic profile of the respondents was analyzed, providing a comprehensive overview of the key characteristics of residents as shown in Table A2. Gender distribution was nearly balanced, with 49.5% of respondents identifying as female and 50.5% as male. The majority of participants fell within the age group of 31–40 years (40.0%), followed by those aged 18–30 years (30.0%). A smaller proportion of respondents were aged between 41 and 60 years (28.25%), and a very small percentage (1.75%) was over 60 years old. Marital status showed that the majority were married (56.0%), while 35.25% were single. Smaller percentages of respondents were divorced (3.0%), widowed (2.5%), or in union (3.25%). Educational attainment varied, with the highest proportion having a degree (51.0%), followed by those holding a diploma (13.75%) or post-graduate qualifications (13.25%). A notable 2.25% of respondents had no formal education, while 9.0% had completed primary school, and 10.75% had secondary school education.

Family size distribution showed that 22.5% of respondents had four members in their household, with 22.25% reporting three members. Smaller households were also represented, with 21.0% of respondents living alone, 18.25% in households of five, and only 4.5% with six or more members. Regarding children, 33.0% of respondents had no children, while 27.75% had one child, 26.25% had two, and smaller numbers had three or more children. Employment status revealed that the majority (58.75%) worked in private companies, followed by 21.5% in governmental sectors. Smaller percentages were employed in endowments (1.0%), NGOs (2.0%), or owned businesses (5.0%). A significant portion of respondents (11.75%) were unemployed. When categorized by employment type, the largest group was involved in business work (32.0%), followed by office work (27.25%), service work (20.25%), and technical work (7.5%). A small percentage worked as labourers (1.25%).

In terms of length of residence, most respondents (41.75%) had lived in their current residence for 4–6 years, while 24.75% had resided for 7–10 years. A smaller group (24.5%) had lived in their current location for 0–3 years, with just 8.5% residing there for 11–15 years, and a very small percentage (0.5%) for over 16 years. The majority of respondents resided in Summit (53.0%), followed by Gofa (29.75%), Gottera (13.25%), and a small number in Gerji (4.0%). Housing tenure showed that 67.0% of respondents were renters, while 33.0% were homeowners. Family income distribution revealed that most respondents (63.75%) earned more than 11,000 birr, with 24.25% earning between 8,001 and 11,000 birr. Smaller groups earned between 5,001 and 8,000 birr (7.25%), 3,001 and 5,000 birr (3.0%), and only a very small percentage earned less than 1,500 birr (1.25%) or between 1,500 and 3,000 birr (0.5%). This analysis highlights the diverse socio-demographic characteristics of the respondents, providing a comprehensive foundation for further investigation and analysis in the study.

4.1.2. Residential satisfaction level analysis

The distribution of residential satisfaction mean across five housing dimensions is summarized in Figure 3. The findings indicate that households in low-cost condominium

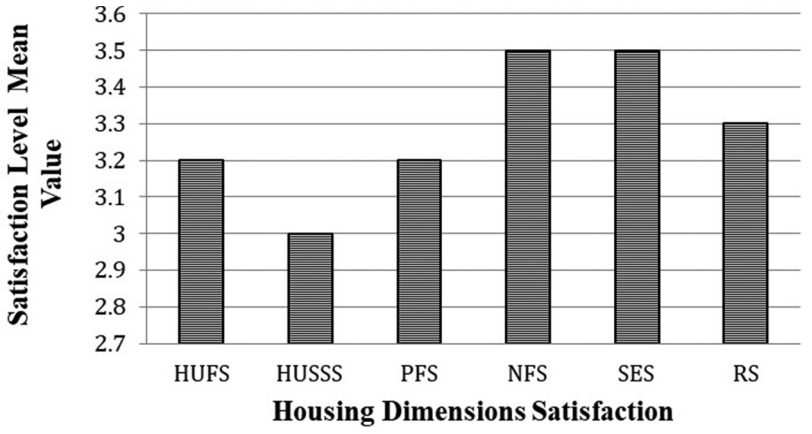

Figure 3. Residential satisfaction mean across housing dimensions.
RS = Overall Residential Satisfaction, HUFS = Housing Unit Features Satisfaction, HUSSS = Housing Unit Support Services Satisfaction, PFS = Public Facilities Satisfaction, and NFS = Neighborhood Facilities Satisfaction, and SES = Social Environment Satisfaction.

Table 2. Distribution of residential satisfaction of housing dimensions.

Satisfaction with	Very Dissatisfied	Dissatisfied	Slightly Satisfied	Satisfied	Very Satisfied
Housing Unit Features	1.5%	18.5%	39.0%	39.8%	1.3%
Housing Unit Support Services	2.5%	20.8%	47.8%	27.5%	1.5%
Public Facilities	1.5%	16.3%	47.3%	33.0%	2.0%
Neighborhood Facilities	1.8%	13.3%	37.8%	33.3%	14.0%
Social Environment	3.3%	8.5%	29.0%	56.0%	3.3%
Overall Residential	2.10%	15.50%	40.20%	37.90%	4.40%

housing generally reported a moderate level of satisfaction, with an overall score of 3.3 mean values. Respondents expressed better satisfaction with neighborhood facilities and the social environment, both rated at 3.5 mean values. However, they reported slightly lower satisfaction levels with housing unit features (3.2), public facilities (3.2), and housing unit support services (3.0).

A majority of households expressed satisfaction primarily with the social environment (56.0%), while the majority was only slightly satisfied with housing unit support services (47.8%), public facilities (47.3%), housing unit features (39.0%), and neighborhood facilities (37.8%) as shown in Table 2. In summary, households in low-cost condominium housing reported moderate overall satisfaction with their housing conditions. The most notable areas of satisfaction were related to the social environment and neighborhood facilities.

4.1.3. Regression analysis of residential satisfaction

A stepwise multiple linear regression analysis was employed to assess the influence of perception-aspiration gaps of residential dimensions and socio-demographic variables on residential satisfaction with two models. The first model is to assess the impact of the perception-aspiration gaps of residential dimensions on residential satisfaction, as outlined in Table 3. The results reveal that the combined predictors explained 57.6% of the variance in residential satisfaction, with the model achieving statistical significance at $p < .001$. Moreover, the finding reveals perception-aspiration gaps in all

Table 3. Regression analysis of residential satisfaction across housing dimensions gaps.

R = .765 R Square = .586 Adjusted R Square = .576 Std. Error = .373 Sig. = .000 N = 400

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t-value	Sig.
(Constant)	4.360	0.066		66.347	0.000
Housing unit features composite perception aspiration gap	−0.301	0.037	−0.376	−8.223	0.000
Place of Residence = Summit	−0.192	0.043	−0.168	−4.486	0.000
Public facilities composite perception aspiration gap	−0.154	0.036	−0.180	−4.301	0.000
Employment Category = Service Work	0.177	0.047	0.126	3.748	0.000
Place of Residence = Gottera	0.184	0.061	0.109	3.008	0.003
Social environment composite perception aspiration gap	−0.093	0.034	−0.101	−2.735	0.007
Housing unit support services composite perception aspiration gap	−0.093	0.036	−0.123	−2.624	0.009
Employment Sector = Private Company	−0.089	0.039	−0.076	−2.271	0.024
No of Children ≥ 4	0.378	0.188	0.066	2.008	0.045

Dependent Variable = Composite overall residential satisfaction.

residential dimensions, except for neighborhood facilities (which were not significant), negatively impact residential satisfaction. Specifically, a one-unit increase in perception-aspiration gaps for housing unit features, public facilities, housing unit support services, and the social environment corresponds to reductions of 37.6%, 18.0%, 12.3%, and 10.1%, respectively, in the likelihood of achieving residential satisfaction.

Related to socio-demographic predictors, employment type emerged as a significant factor, with service-sector employment positively associated with satisfaction, while private-sector employment exhibited a negative effect. Similarly, place of residence played a critical role, with living in Gottera (an inner-city location) positively contributed to satisfaction and residing in Summit (a peripheral area) having a negative impact. Additionally, the number of children showed a positive relationship with residential satisfaction, suggesting that larger households tend to report higher levels of satisfaction.

A second stepwise regression analysis was also conducted to explore the impact of perception-aspiration gaps across 51 housing attributes and socio-demographic variables on residential satisfaction, as detailed in Table 4. Overall, the model significantly explained 65.3% of the variance in residential satisfaction ($p < 0.001$). The analysis identified significant predictors across various attributes. Key housing unit features, including the number of rooms and electrical installation perception aspiration gaps, negatively influenced residential satisfaction, where a one-unit increase in perception-aspiration gaps reduced satisfaction likelihood by 20.0% and 23.5%, respectively.

Among housing unit support services, perception-aspiration gaps for block drainage systems and block maintenance reduced satisfaction by 16.7% and 13.3%, respectively. Interestingly, a similar gap for block staircases was linked to an 11.7% increase in satisfaction. Within public facilities, gaps in local street and local greenery reduced satisfaction by 10.5% and 15.4%, respectively, while gaps in communal block facilities increased satisfaction by 8.1%. Regarding neighborhood facilities, a one-unit increase in the perception-aspiration gap for urban center accessibility led to an 18.0% reduction in satisfaction.

Table 4. Regression analysis of residential satisfaction across housing attributes gaps.

R = .818 R Square = .669 Adjusted R Square = .653 Std. Error = .338 Sig. = .000 *N* = 400

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t-value	Sig.
(Constant)	4.309	0.059		72.546	0.000
Room number perception aspiration gap	−0.117	0.021	−0.200	−5.722	0.000
Place of Residence = Summit	−0.197	0.040	−0.171	−4.905	0.000
Block drainage system perception aspiration gap	−0.092	0.021	−0.167	−4.402	0.000
House electrical installation perception aspiration gap	−0.126	0.018	−0.235	−6.874	0.000
Employment Category = Service Work	0.176	0.044	0.125	3.970	0.000
Local street perception aspiration gap	−0.065	0.023	−0.105	−2.806	0.005
Housing regulation perception aspiration gap	−0.056	0.022	−0.086	−2.499	0.013
Length of Residence = 11-15years	0.161	0.062	0.079	2.600	0.010
Urban center accessibility perception aspiration gap	−0.081	0.018	−0.180	−4.589	0.000
Local greenery perception aspiration gap	−0.093	0.023	−0.154	−4.123	0.000
Block maintenance perception aspiration gap	−0.076	0.021	−0.133	−3.574	0.000
Block stair perception aspiration gap	0.069	0.022	0.117	3.130	0.002
Communal block perception aspiration gap	0.042	0.019	0.081	2.264	0.024
Social interaction perception aspiration gap	−0.113	0.025	−0.175	−4.477	0.000
Organized activity perception aspiration gap	0.052	0.020	0.098	2.557	0.011
No of Children≥4	0.414	0.174	0.072	2.376	0.018
Family Size = 4	0.100	0.042	0.073	2.402	0.017
Crime level perception aspiration gap	−0.036	0.016	−0.075	−2.215	0.027

Dependent Variable = Composite overall residential satisfaction.

The social environment factors revealed mixed effects. Perception-aspiration gaps in housing regulation, social interaction, and crime levels reduced satisfaction by 8.6%, 17.5%, and 7.5%, respectively. In contrast, gaps in organized activities were associated with a 9.8% increase in satisfaction.

Socio-demographic factors also played a significant role. Employment in the service sector positively influenced satisfaction, while living in Summit, a peripheral neighborhood, negatively affected satisfaction. Larger families and households with more children reported higher satisfaction levels. Additionally, longer residency durations were positively associated with satisfaction.

In conclusion, both proposed models significantly explained the variance in residential satisfaction. Moreover, the results reveal that almost all housing dimension gaps negatively influenced residential satisfaction whereas housing attributes gaps and socio-demographics influenced residential satisfaction in various ways.

4.2 Discussions

This study examined determinants of residential satisfaction in low-cost condominium housing. Findings revealed that households in low-cost condominiums reported moderate overall satisfaction. This aligns with studies by Bi (2018) on affordable housing in Qingdao, China; Mohit et al. (2010) in Kuala Lumpur, Malaysia; Mohit et al. (2010) in Hulhumale, Maldives; and Kshetrimayum et al. (2020) on slum rehabilitation housing in Mumbai, India. This can be attributed to the lower satisfaction levels residents experienced with the physical aspects of their housing and immediate surroundings, such as housing unit features, public facilities, and housing unit support services. This implies housing interventions and future housing policies should give due attention to spatial

aspects of housing and its immediate surroundings, fostering social interaction and neighborhood facilities.

Residents demonstrated more satisfaction with facilities in the neighborhood and the social environment. This finding agrees with Onifade (2021) and Mohit et al. (2010), who reported higher satisfaction with social environments and neighborhood facilities in Nigeria and Malaysia, respectively. The finding corroborates that proximity to social facilities and strong community relationships play an important role in residential satisfaction, underlining the importance of available social services and community interaction.

This study also analyzed the effect of perception-aspiration gaps across residential dimensions and socio-demographic variables on residential satisfaction with the use of two models. The first model was significant for the proposed actual-aspiration model of housing dimensions satisfaction, evident in the works of Jiang and Timmermans (2021) and Jiang (2018). These results confirm the validity of the actual aspiration gap theory in analyzing residential satisfaction in contexts of low-cost condominium housing. Moreover, it was found that the perception-aspiration gaps for all residential dimensions except neighborhood facilities affect residential satisfaction significantly and negatively. This contrasts with the findings in the works by Phyu et al. (2024), Jiang and Timmermans (2021), and Jiang (2018) where all housing dimensions were positively associated with satisfaction. This suggests that the perceived housing conditions didn't meet the residents' expectations along a variety of housing dimensions. Hence, housing policies and planning should consider the real needs and aspirations of the residents.

Moreover, the result revealed that among all the mentioned gaps, housing unit feature dimensions were the most determinant of the overall residential satisfaction, followed by housing unit support services and then the public facility gap. On the other hand, the social environment dimension gap has a very small effect. These results agree with the findings of Jiang and Timmermans (2021) and Jiang (2018) that the physical condition of housing gap was the most important dimension affecting overall residential satisfaction, followed by public and neighborhood facilities in China. This is attributed to the spatial perceptions of residents falling further below their aspirations when compared to aspects of the social environment. The results suggest that any future housing program should target spatial characteristics improvement of low-cost houses, while nurturing and developing social relationship in these societies.

Related to socio-demographic predictors, employment type emerged as a significant factor, with service-sector employment positively associated with satisfaction, while private-sector employment exhibited a negative effect. This finding is in line with the findings of Ibem and Aduwo (2013) but in contrary to the finding of Waziri et al. (2014) in Nigeria. This may stem from the customer-oriented nature of service-sector jobs, while private-sector employees exhibit higher expectations. This highlights the need for housing policies and planning to account for residents' diverse profiles. Similarly, place of residence played a critical role, with living in Gottera (an inner-city location) positively contributing to satisfaction in line with Ogu (2002) who indicated that the percentage of dissatisfied resident increase as one moves from core to outer zone in Nigeria. However, residing in Summit (a peripheral area) have a negative impact in contrary to Alam and Matsuyuki (2018) who found slum residents relocated to suburbs more satisfied in Mumbai, India. This results from the abundance of social services in inner areas and

their scarcity in the outskirts, emphasizing the need for social facilities close to neighborhoods. Additionally, the number of children showed a positive relationship with residential satisfaction opposing Żelazowski et al. (2022) who found families with children were less satisfied with living space in Poland. This stems from the proximity of open spaces and social facilities to the neighborhoods, highlighting the significance of public spaces and social amenities for larger families with children.

In line with the first model, the second regression model finding revealed the proposed actual-aspiration model of housing attributes satisfaction is significant in line with the findings of Jiang and Timmermans (2021) and Jiang (2018). It highlights the combined predictive power of housing attributes gaps and socio-demographic variables. It also confirms that the actual aspiration gap theory performed well in case of low-cost condominium housing. Key housing unit features, including the number of rooms and electrical installation perception aspiration gaps, were found negatively impacted with residential satisfaction. These finding are in line with the work of Mohit and Azim (2012) where number of power sockets in Malaysia, Ibem and Aduwo (2013) where inadequate supply of electricity in Nigeria, and Phyu et al. (2024) where number of rooms gaps in Myanmar were found as negative predictors of residential satisfaction. This indicates that the perceived adequacy of the number of rooms and electrical installations falls short of residents' expectations. It suggests that future housing developments should prioritize increasing the number of rooms, particularly bedrooms, and enhancing the quality of engineering installations in both existing and upcoming housing projects.

Among housing unit support services, perception-aspiration gaps of building drainage systems and maintenance were found as negative predictors of residential satisfaction, while the stair case gap is found as a positive predictor of residential satisfaction. This is in line with the findings of Ogu (2002) where storm-water drains and maintenance practices in Nigeria negatively and Phyu et al. (2024) where staircase design in Myanmar positively impacted residential satisfaction, respectively. This exhibits that the drainage systems and maintenance practices fall short of residents' expectations, while the building's staircases meet or exceed their aspirations. This highlights the need to enhance installation systems and maintenance practices in both current and future housing developments.

Within public facilities, gaps in local street and local greenery impacted residential satisfaction negatively, while gaps in communal block facilities impacted residential satisfaction positively. This finding is in contrary to the findings of Jiang and Timmermans (2021) & Jiang (2018) where street and greenery gaps were positive predictors of residential satisfaction in China but in line with Abass and Tucker (2017) where street type was found as negative predictor residential satisfaction in Australia. This demonstrates that local greenery and street layouts fall below residents' expectations, negatively affecting them, while communal blocks meet or exceed expectations. The underdevelopment of greenery and streets underscores the need for local authorities and residents' associations to prioritize improving local infrastructure.

Regarding neighborhood facilities, the gap for urban center accessibility impacted residential satisfaction negatively. This finding is in contrary to Dekker et al. (2011), Jiang and Timmermans (2021) & (Jiang, 2018) where none of the gap indices for distances had an impact on residential satisfaction in China, but in line with the findings of Kellekci and Berköz (2006) where centrality were found to impact residential satisfaction

positively in Turkey. This highlights that neighborhood proximity to social services falls short of residents' expectations, impacting their daily lives, particularly as most of the big neighborhoods are located on the city's outskirts. Future housing developments should prioritize closer integration with city centers.

In relation to social environment, perception-aspiration gaps in housing regulation, social interaction, and crime level impacted residential satisfaction negatively. These findings are in contrary with the findings of Kshetrimayum et al. (2020) where contact with neighbors in India & Kellekci and Berköz (2006) where neighbor relationships in Turkey were found to have positive impact on residential satisfaction. This highlights that housing regulations and crime levels do not meet residents' expectations, negatively impacting their daily lives. Moreover, the high turnover of renters contributed to challenges in fostering effective regulations, social relationships, and trust within the community. In contrast, gaps in organized activities impacted residential satisfaction positively. This finding is in line with the findings of Alam and Matsuyuki (2018) where participation in social events was a positive predictor of satisfaction in India. This is resulted from the presence of robust social organizations within the community. It suggests that future housing developments should foster social organizations and strengthen community relationships.

Socio-demographic factors also played a significant role. Employment in the service sector positively influenced satisfaction. This finding is in line with the findings of Ibem and Aduwo (2013) but in contrary to the finding of Waziri et al. (2014). This might be due to residents who work in the service sector developed a habit of enjoying interacting with many people at a time. Living in Summit, a peripheral neighborhood, negatively affected satisfaction in line with the findings of Lu (1999) & Ogu (2002). This might be due to as residents get further away from their work place and some major services. Larger families and households with more children reported higher satisfaction levels. This is in line with the finding of (Ibem & Aduwo, 2013) but in contrary to the findings of Davoodi et al. (2023). This could be attributed to the proximity of the neighborhoods to schools, health centers, and religious establishments. Longer residency durations were positively impacted residential satisfaction in line with the findings of Waziri et al. (2014) but in contrary with Davoodi et al. (2023). This might be due to longer residents developed place attachment and strong social relationships. These findings underscore the need to consider socio-demographics in housing policies, planning and design.

In conclusion, the study revealed that households residing in low-cost condominiums reported moderate overall satisfaction, with notably higher levels of satisfaction associated with the social environment and neighborhood facilities. The findings emphasize the impact of perception-aspiration gaps across various residential dimensions, including housing features, public facilities, support services, and the social environment. Influential gaps were identified in housing attributes such as number of rooms, electrical installation, housing location, local Street and greenery, urban center accessibility, social interaction, and crime level. Additionally, socio-demographic factors, including family size, employment type, and length of residency, played a significant role in shaping satisfaction levels. These results validate the relevance of the actual-aspiration gap theory in the context of low-cost housing, with the models demonstrating significant

explanatory power. The study underscores the importance of implementing targeted strategies in housing design, planning, and policy to address these gaps effectively.

5. Conclusion

This study examined the determinants of residential satisfaction in low-cost condominium housing in Addis Ababa, using the Actual Aspiration Gap Theory. It provides valuable insights into the determinants of residential satisfaction in low-cost condominium housing context, contributing to the expanding field of urban housing research. It highlights the crucial role of the perception-aspiration gap, where the disparity between residents' expectations and their actual housing experiences significantly influences satisfaction levels. Findings suggest that while satisfaction is higher with the social environment and neighborhood facilities, it tends to be lower with housing features, support services, and public facilities.

Findings also affirm the application of actual-aspiration gap theory in low-cost housing with key predictors of satisfaction include perception-aspiration gaps in housing dimensions, such as housing unit features, housing unit support services, public facilities and the social environment; housing attributes such as number of rooms, electrical installation, housing location, local street and greenery, urban center accessibility, social interaction, and crime level; and socio-demographic factors like employment type, family size, and length of residence. These findings emphasize the need for housing policies to better align housing attributes with residents' expectations, especially in peripheral neighborhoods where dissatisfaction is more pronounced. To address these gaps, policies should prioritize improvements in essential services, such as public transportation, healthcare, and education, while enhancing the quality of housing features and support services to reduce the mismatch between residents' aspirations and their lived experiences.

The study is based on cross-sectional data from four specific neighborhoods, which limits its generalizability to a larger context. However, it underscores the importance of addressing both the perception-aspiration gaps and socio-demographic factors in housing policy and planning. Future research should consider incorporating longitudinal data, a large number of neigborhoods and cross-cultural studies to increase generalizability, and capture the evolving needs of residents, and further refine housing strategies. By integrating these findings, urban housing planning and policies can move beyond surface-level interventions and foster environments where the aspirations and needs of residents are met, ensuring long-term satisfaction and well-being in low-cost housing communities. Moreover, considering the constraints and challenges that are typical of low-cost housing, such as scarce resources, particularly in environments like Ethiopia. Urban housing planners and policy-makers may utilize the findings of this study in housing policies and interventions formulation that are tailored to the distinctive socio-economic and infrastructural conditions of low-cost housing environments.

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Appendix A

Table A1. Reliability analysis, Cronbach's alpha values of constructs variables.

	Constructs		
Housing Dimensions	Perception	Aspiration	Satisfaction
HUF	0.886	0.935	0.887
HUSS	0.886	0.835	0.868
PF	0.900	0.948	0.899
NF	0.926	0.960	0.949
SE	0.780	0.886	0.798
Range	0.780–0.900	0.835–0.960	0.788–0.949
Average	0.876	0.913	0.880

HUF = Housing Unit Features, HUSS = Housing Unit Support Services, PF = Public Facilities, NF = Neighborhood Facilities, EN = Social Environment.

Table A2. Socio-demographic characteristics of respondents.

Scio-Demographics	Variable	Frequency	Percentage
Gender	Female	198	49.50
	Male	202	50.50
Age Group	18–30	120	30.00
	31–40	160	40.00
	41–60	113	28.25
	>60	7	1.75
Marital Status	Single	141	35.25
	Married	224	56.00
	Divorced	12	3.00
	Widowed	10	2.50
	In Union	13	3.25
Education Level	Not Educated	9	2.25
	Primary School	36	9.00
	Secondary School	43	10.75
	Diploma	55	13.75
	Degree	204	51.00
	Post Graduate	53	13.25
Family Size	1	84	21.00
	2	46	11.50
	3	89	22.25
	4	90	22.50
	5	73	18.25
	≥6	18	4.50
Number of Children	0	132	33.00
	1	111	27.75
	2	105	26.25
	3	48	12.00
	≥4	4	1.00
Employment Sector	Unemployed	47	11.75
	Governmental	86	21.50
	Endowment	4	1.00
	Private Company	235	58.75
	NGO	8	2.00
	Own Business	20	5.00
Employment Category	Unemployed	47	11.75
	Office Work	109	27.25
	Technical Work	30	7.50
	Business Work	128	32.00
	Service Work	81	20.25
	Laborer	5	1.25
Length of Residence	0–3 years	98	24.50
	4–6 years	167	41.75
	7–10 years	99	24.75
	11–15 years	34	8.50
	≥16 years	2	0.50
Place of Residence	Gerji	16	4.00
	Gottera	53	13.25
	Gofa	119	29.75
	Summit	212	53.00
Tenure	Owner	132	33.00
	Renter	268	67.00
Family Income	<1,500 birr	5	1.25
	1,500–3,000 birr	2	0.50
	3,001–5,000 birr	12	3.00
	5,001–8,000 birr	29	7.25
	8,001–11,000 birr	97	24.25
	>11,000	255	63.75

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Determinants of residential adjustment intentions: insights from low-cost condominium housing in addis ababa, Ethiopia

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Although families often evaluate and modify their housing to meet evolving needs, leading to decline or improvement of neighborhoods, comprehensive studies on residential adjustment intentions remain scarce, particularly in Ethiopia. This study explores determinants of residential adjustment intentions among low-cost condominium residents in Addis Ababa. Using stratified random sampling, 400 households were randomly sampled from inner, intermediate, and outskirt neighborhoods and data were analyzed using descriptive statistics and binomial logistic regression. The study operationalized residential adjustment intentions as dichotomous while residential dimensions satisfaction as ordinal variable with a five-point Likert scale. Results indicate that physical adjustment intentions, like housing modifications and neighborhood improvement participation followed by residential mobility, are the most common, while non-physical adjustment intentions, family size and cognitive adjustments are less frequent. Socio-demographic factors, including age, marriage, family size, number of children, education level, employment type, ownership, and residence duration, influence adjustment intentions, reflecting the impact of life course dynamics. Residential satisfaction is a crucial factor, where satisfaction with neighborhood facilities encourages physical and family size adjustments, satisfaction with public facilities reduces the likelihood of relocation but promote cognitive adjustment, and dissatisfaction with housing characteristics promotes housing unit modifications. These findings underscore the importance of developing housing policies and planning strategies as per the various dimensions of residential satisfaction and adjustment intentions of residents. The study also implies tailored planning interventions to address the unique needs of different groups. Furthermore, the research calls for longitudinal and cross-cultural studies to strengthen its generalizability and practicality of evidence-based interventions.

KEYWORDS

residential adjustment, residential satisfaction, socio-demographics, low-cost housing, condominium, addis ababa

1 Introduction

Global housing shortages, exacerbated by rapid urbanization, necessitate the annual construction of approximately 28.25 million new housing units (UN-HABITAT, 2023). To address these pressing needs, some countries have initiated various schemes of low-cost housing like Ganga Warrier et al. (2019) discussed low-cost housing scheme in India; Ghasemih and Ozay (2018) discussed affordable housing provision in Iran; Ulusoy et al. (2012) discussed mass housing scheme in Turkey; Wang and Murie (2011) discussed affordable and social housing provision system in China. Similarly, Addis Ababa, Ethiopia's capital faces a similar challenge, with its growing population intensifying the demand for affordable housing. In response, low-cost condominium housing program targeting low- and middle-income groups has been implemented since 2005 (UN-HABITAT and Rollnik, 2010). While the program has contributed a lot to address quantitative housing shortages, it has not sufficiently met the qualitative needs of residents (Charitonidou, 2022; Delz, 2016). According to Priemus (1986) such a mismatch between housing conditions and resident needs diminishes satisfaction, potentially leading to stress. When this dissatisfaction stress surpasses a certain threshold, households may consider housing adjustment options (Morris and Winter 1975).

Residential adjustment intention refers to the desire to change one's living situation and is typically influenced by residential satisfaction levels (Fattah et al., 2021; Maina and Mohammed, 2021; Obi et al., 2023). According to Rossi's (1955) Life Course, Morris and Winter (1975) Family Housing Adjustment theory and Speare's (1974) seminal work, residential adjustment can take various forms, including physical modifications to the dwelling, relocation, changes in family size and adaptation with existing condition. There are considerable studies employed these theory but the majority focus on residential mobility. For example, Aliu (2019), Clark and Lisowski (2016) and Courter and Scott (2015) employed life course theory to investigate dynamics of intra-urban residential mobility in Nigeria, Australia and Great Britain, respectively, and found that family life course, socio-demographic factors and levels of residential satisfaction were significant predictors of residential mobility. Moreover, Willibald et al. (2018) utilized family house adjustment framework to evaluate the reasons for people's residential mobility and found that housing space deficient and the subsequent conflict are among the reasons for moving. There is also considerable empirical research on the determinants of different forms of residential adjustment, such as residential mobility adjustment (Afolabia et al., 2024; Fattah et al., 2021; Maleszyk and Kędra, 2020), housing modification adjustment (Latifa and Fatiha, 2024; Maina, 2023; Morakinyo, 2021), and cognitive or behavioral adjustment (Obi et al., 2023; Okunola and Bako, 2021; Warakapitiya et al., 2024). However, most research has primarily focused on residential mobility and one form of residential adjustment independently, leaving other forms of residential adjustment and their determinants underexplored. Moreover, findings across studies have shown inconsistencies, with household characteristics influencing residential adjustments in varying ways. These discrepancies underline the need for context-specific studies. Moreover, numerous studies on low-cost condominium housing in local contexts primarily focus on provision, satisfaction, and affordability (Delz, 2016; Hemen, 2020; Sunikka-Blank et al., 2021; Tiumelissan and Pankhurst, 2016; Workineh, 2022). However, to the best of our knowledge, no similar research has been conducted within the context of Ethiopia. This study aims to fill this gap by examining the forms and determinants of residential adjustment intentions among residents of low-cost condominium housing in Addis Ababa, with a particular focus on residential satisfaction as a key determinant.

Understanding the factors that drive residential adjustments is essential for effective housing policy and planning. For instance, residential mobility can lead to the outmigration of higher-income residents, resulting in the concentration of lower-income households and accelerating neighborhood decline (Andersen, 2003). Cognitive adjustments, such as neglecting maintenance, can exacerbate this decline, while housing improvements and balanced mobility can enhance neighborhood conditions (Clark and Maas, 2013; Land and Doff, 2010; Seek, 1983). By identifying the factors driving residential adjustment intentions, this study will provide valuable insights to policymakers, urban planners, and designers, enabling the development of targeted interventions.

This paper is structured as follows: first, a review of the forms and determinants of residential adjustment, followed by a detailed description of the study's methodology. The results are then presented, followed by a discussion and conclusion.

2 Literature review

2.1 Residential adjustment and its determinants

Residential adjustment intention refers to a household's propensity to modify their current living condition or environment to meet changing housing needs (Priemus, 1986). Residential adjustment can be categorized into five distinct forms. The first two are non-physical adjustments: (1) Cognitive adjustment, where households adapt their needs to align with current housing conditions, and (2) Family size adjustment, involving compositional or organizational changes within the household to suit the existing housing situation. The remaining three forms involve physical alterations; (3) Residential mobility, specifically confined to relocation within the same urban area; (4) Housing modification adjustment, where physical alterations are made to improve the suitability of the dwelling; and (5) Neighborhood modification participation adjustment, which entails active involvement in neighborhood-level physical changes to enhance housing suitability (Morris and Winter 1975; Priemus, 1986; Rossi, 1955). Unlike most residential or housing adjustment studies, this study deals with all the above forms of residential adjustment intentions.

A great deal of research has been conducted on residential adjustment, drawing on two key theories: Life Course and Family Housing Adjustment. According to Morris and Winter's (1975) family housing adjustment theory, families engage in an ongoing process of evaluating their housing environment's quality and adequacy against established cultural and familial norms. Discrepancies between the actual and preferred housing conditions, as defined by these norms, result in dissatisfaction. When the deviation becomes significant enough to generate substantial housing dissatisfaction, families are most likely to consider various

forms of residential adjustment like residential mobility, residential modification, and family size adjustment. Residential satisfaction, which ones level of confinement with one's residential environment, is seen as driver of residential adjustment in this theory.

However, Rossi's (1955) Life course theory focuses on how families adjust their housing in response to changing needs over time. It suggests that family decisions regarding housing, such as moving or modifying their home, are influenced by factors like family size, composition, and economic conditions. The theory posits that as families progress through different life stages, their housing preferences and requirements evolve, requiring adjustments to meet new needs. Socio-demographic and economic aspects of households are seen as drivers of residential adjustment in this theory. The preceding review of these theories suggests that socio-demographic factors and residential satisfaction play a significant role in influencing various forms of residential adjustment. This study investigates the determinants of residential adjustment intentions through the lens of the aforementioned theories.

Multiple studies have explored determinants of residential adjustment based on Life Course and Family Housing Adjustment theory. Some of these studies suggest that socio-demographic and economic aspects of households are driver of residential adjustment. For example, studies have consistently demonstrated that residential mobility decreases as age increases (Afolabia et al., 2024; Aliu, 2019; Barreira et al., 2019; Clark and Lisowski, 2016; Jiang et al., 2019). Similarly, most studies have found that older households are more likely to undertake housing modifications or improvements (Ahmad et al., 2000; Bravo et al., 2019; Cirman et al., 2013; Lee, 2000; Sinai, 2001). However, Plaut & Plaut (2010) found that young households are more likely to undertake housing modifications.

The association between marital status and residential adjustment has been extensively studied. Most studies found that marital status plays a significant positive role in residential mobility, particularly through events like marriage, family formation, and union dissolution (Aliu, 2019; Clark and Lisowski, 2017; Jiang et al., 2019; Maleszyk and Kędra, 2020; Pagani et al., 2021; Spackova et al., 2016; Willibald et al., 2018). Likewise, married household heads are more likely to engage in housing improvement (Sinai, 2001). However, Yu et al. (2023) found that unmarried low-income residents are significantly more likely to move than married residents.

The other determinant of residential adjustment that has been widely discussed in the literature is income. High income households are found to be more mobile in many studies (Afolabia et al., 2024; Aliu, 2019; Clark and Lisowski, 2017; Diaz-Serrano and Stoyanova, 2010; Pagani et al., 2021). Similarly, high income positively affects home improvement (Avogo et al., 2017; Bravo et al., 2019; Kularatne et al., 2019; Latifa and Fatiha, 2024; Maina and Mohammed, 2021). Likewise, Kirtania et al. (2022) found that family income is a significant positive predictor for cognitive adjustment among higher secondary students. Nevertheless, Morakinyo (2021) found that higher income levels were associated with a lower likelihood of dwelling modification and Willibald et al. (2018) discovered that low income families are more mobile than high income ones due to affordability issues.

Residential adjustment is also influenced by factors such as homeownership status and the duration of residence. Most studies consistently have showed that ownership generally reduced residential mobility compared to renting (Aliu, 2019; Clark and Lisowski, 2017; Fattah et al., 2015; Pagani et al., 2021; Spackova et al., 2016). Nevertheless, Jiang et al. (2019) found that renters exhibited lower intentions to move. Moreover, most studies consistently have found that homeowners were significantly more likely to improve or modify their housing than renters (Ahmad et al., 2000; Avogo et al., 2017; Bravo et al., 2019; Culp, 2011; Kularatne et al., 2019; Sinai, 2001). Similarly, several studies have demonstrated that the likelihood of relocation diminished with an increase in the duration of residence (Afolabia et al., 2024; Basolo and Yerena, 2016; Clark and Lisowski, 2017; Diaz-Serrano and Stoyanova, 2010; Spackova et al., 2016). Likewise, some studies indicated that a longer duration of residence was positively associated with the likelihood of renovations (Ahmad et al., 2000; Bravo et al., 2019; Sinai, 2001).

The association between household size and residential adjustment is context-dependent. Larger households frequently exhibit reduced mobility due to logistical and financial constraints (Afolabia et al., 2024; Clark and Lisowski, 2017). However, in situations where space becomes inadequate, increased household size can act as a catalyst for mobility (Aliu, 2019; Pagani et al., 2021; Willibald et al., 2018). Furthermore, numerous studies consistently have showed that household size increase generally triggered housing modification (Kularatne et al., 2019; Latifa and Fatiha, 2024; Maina, 2023; Umeh and Ezeji, 2023). Nonetheless, Morakinyo (2021) found that households with more than four members are less likely to personalize dwellings compared to smaller households.

The number of children in a household also has a notable influence on residential adjustment in various contexts. Families that experience growth due to the addition of children are more inclined to move in order to meet spatial requirements and enhance living conditions (Aliu, 2019; Spackova et al., 2016; Willibald et al., 2018). However, Clark & Lisowski (2017) observed that couples with children tend to be less likely to relocate, as the family structure often serves to anchor them to their current residence. Similarly, the presence of children, especially in relation to household size, appears to be a substantial factor in the decision to modify or improve housing (Kularatne et al., 2019; Latifa and Fatiha, 2024; Maina, 2023). On the other hand, Morakinyo (2021) discovered that as the number of children in a family increased, the likelihood of personalizing their dwellings decreased.

Several studies have indicated that gender does not significantly influence residential adjustment (Aliu, 2019; Barreira et al., 2019; Clark and Lisowski, 2017; Maleszyk and Kędra, 2020). However, Yu et al. (2023) found that males were more likely to relocate compared to females, whereas Morakinyo (2021) and Schwanitz et al. (2021) observed that females were significantly more likely to engage in housing personalization and residential mobility, respectively. Similarly, the impact of education level and employment type on residential adjustment found to vary across studies. Aliu (2019) and Clark and Lisowski (2017) found that higher education increased mobility. Likewise, Diaz-Serrano & Stoyanova (2010) found that job mobility increased likelihood to move while Barreira et al. (2019) found that higher employment status negatively correlated with residential mobility. However, Avogo et al. (2017), Bravo et al. (2019) and Plaut and Plaut (2010) found that households with higher education levels are more inclined to renovate while Morakinyo

(2021) found that as education level increases, the likelihood of personalization decreases.

Residential satisfaction impact on residential adjustment varies over housing dimensions. Numerous studies consistently found that dissatisfaction with housing unit features, housing unit support services, public facilities, neighborhood facilities, and social environment increased residential mobility (Aliu, 2019; Barreira et al., 2019; Basolo and Yerena, 2016; Diaz-Serrano and Stoyanova, 2010; Fattah et al., 2015; 2021; Jahanshahloo and Daroudi, 2015; Jiang et al., 2019; Maleszyk and Kędra, 2020; Nasrollahzadeh et al., 2021; Pagani et al., 2021; Spackova et al., 2016; Willibald et al., 2018). Several studies also found that dissatisfaction with housing unit features increased the likelihood of modification (Carrasco et al., 2017; Lee, 2000; Maina, 2023; Umeh and Ezeji, 2023). However, Cirman et al. (2013) found that social environment satisfaction significantly increased the likelihood of housing modification. Moreover, housing unit features, housing unit support services, public facilities, neighborhood facilities, and social environment satisfaction had positive impact on behavioral or cognitive adjustment (Obi et al., 2023; Rahim and Hashim, 2018; Warakapitiya et al., 2024).

The foregoing review of theories and empirical studies on residential adjustment reveals that residential satisfaction and socio-demographic factors influence adjustment levels and forms, but their impacts vary by context, highlighting the need for case-specific and comprehensive investigations to inform housing policies and planning efforts. Moreover, most the empirical studies have focused on residential mobility or housing improvement adjustment forms independently, overlooking comprehensive assessments of multiple forms of residential adjustment. This research aims to address these gaps by exploring the determinants and multiple forms of residential adjustment in Addis Ababa's low-cost condominium housing.

2.2 Conceptual framework

The study's conceptual framework is grounded in Morris and Winter's (1975) Family Housing Adjustment Theory, Rossi's (1955) Life Course Theory, and findings from the foregoing review of empirical studies. The Family Housing Adjustment Theory asserts that dissatisfaction with one's housing leads to intentions for residential adjustment, which may ultimately result in actual changes. Conversely, the Life Course Theory emphasizes that life cycle factors, including socio-demographic characteristics, drive residential adjustment. Empirical studies on residential adjustment have highlighted the role of both residential satisfaction and socio-demographic factors in shaping the levels and types of residential adjustments. In alignment with these theories, the conceptual framework of this study (illustrated in Figure 1) categorizes Residential Adjustment Intentions—such as Housing Modification, Residential Mobility, Neighborhood Modification Participation, Family Size, and Cognitive Adjustment—as dependent variables. Meanwhile, the independent variables consist of dimensions of residential satisfaction (such as Housing Unit Features, Housing Unit Support Services, Public Services, Neighborhood Facilities, and Social Environment Satisfaction) and socio-demographic characteristics of households.

3 Materials and methods

3.1 Study areas

Ethiopia, the second most populous country in Africa, has experienced rapid urbanization, particularly in its capital, Addis Ababa, which has put immense pressure on the city's housing supply. To address the housing shortfall, the government launched the Integrated Housing Development Program (IHDP) in 2005, a low-cost condominium initiative aimed at alleviating the housing deficit, successfully providing thousands of housing units in the city (JTZ, 2005). To the best of the authors' knowledge, no research has been conducted on residential adjustment activities in IHDP neighborhoods so far. This study focuses on four low-cost condominium housing neighborhoods as shown in Figure 2: Gottera, Gofa Mebrat, Bole Gerji, and Bole Summit. Gottera, located in the core of Addis Ababa, contains 2,433 units and operationalized in 2009 (Tigist, 2015). Gofa Mebrat, also in the inner city, includes 5,580 units and became functional in 2009 (Yonas, 2016). Bole Gerji, situated in the intermediate part of the city, contains 696 and transferred in 2006 (Samuel, 2017). Bole Summit, on the outskirts, contains 10,001 units and operational since 2014 (Hemen, 2020).

3.2 Methodology

This study employed stratified random sampling to select respondents, specifically household heads from low-cost condominium housing units. The population was categorized into three strata based on geographical location: inner, intermediate, and outskirts neighborhoods. Given the large number of inner-city neighborhoods, Gottera and Gofa Meberat were randomly sampled to represent this stratum. Bole Gerji and Bole Summit were similarly chosen for the intermediate and outskirts areas, respectively. These neighborhoods are sampled taking into consideration variability of time period, neighborhood location and size to get a better representative sample in context, time and space horizon. The number of respondents from each neighborhood was determined proportional to its population size.

Although Yamane's (1967) formula calculated a sample size of 391, a total of 400 household heads sample size was determined by considering response rate expectations, population heterogeneity, and logistical feasibility, ensuring robust and reliable findings. The field survey, conducted continuously over 4 weeks starting in August 2023, achieved a remarkable 100% response rate. This success was attributed to thorough training of data collectors and the use of interviewer-administered questionnaires, which minimized non-response bias.

The questionnaire consisted of seven sections. The first section focused on the social, economic, and demographic characteristics of households. Sections two to six assessed satisfaction levels regarding various housing dimensions selected based on a literature review (Table 1). Respondents rated their satisfaction using a five-point Likert scale, ranging from 1 (very dissatisfied) to 5 (very satisfied).

Additionally, housing adjustment were evaluated using a binomial scale (0 = yes, 1 = no). Mean values for each attribute were computed to derive satisfaction levels for each housing

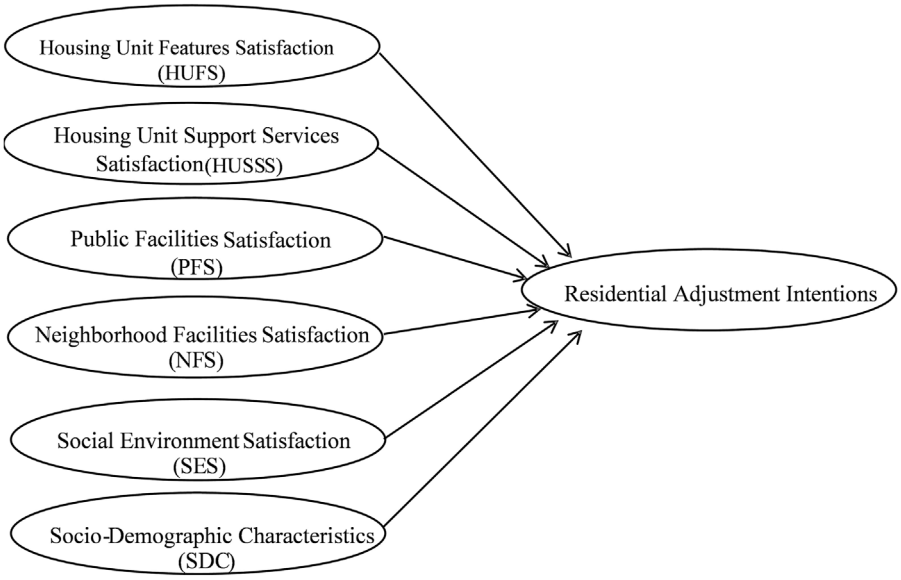

FIGURE 1
Conceptual framework of the study based on Morris and Winter's (1975) and Rossi's (1955) Theory.

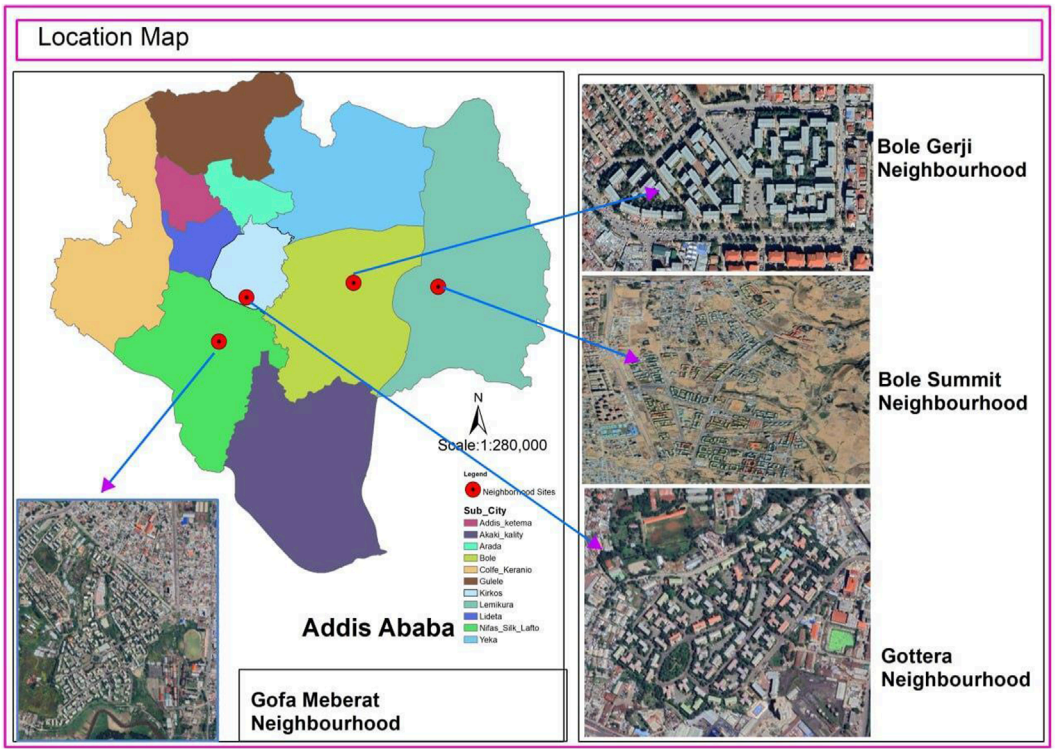

FIGURE 2
Location map of the study area.

dimension. Cronbach's alpha was used to assess internal reliability, yielding values between 0.79 and 0.95, which indicate strong reliability. Data analysis was performed using SPSS (version 25), employing percentage distributions and binomial logistic regression.

3.3 Models

Five models were proposed to study the effect of housing dimensions satisfaction and socio demographic characteristics on five types of housing adjustment intentions. They are denoted by

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TABLE 1 Residential dimension and their attributes of the study.

Dimension	Housing unit features (HUF)	Housing unit support services (HUSS)	Public facilities (PF)	Neighborhood facilities (NF)	Social environment (SN)
Attributes	Number of Rooms	Corridor	Car Parking	Workplace Accessibility	Communication Frequency
	Rooms Size	Staircase	Play Field	School Accessibility	Neighbors Familiarity
	House Area	Block Water Supply	Outdoor Spaces	Health Facilities Accessibility	Social Interaction Frequency
	Rooms Arrangement	Block Sewerage System	Local Street	Market Accessibility	Help Exchange Frequency
	Rooms Lighting	Block Drainage System	Street Light	Recreational Facilities Accessibility	Committee Activity Participation
	Rooms Ventilation	Block Electric Installation	Local Greenery	Police Station Accessibility	Social Activity Participation
	Construction Material	Block Telecom Network	Local Drainage System	Transport Accessibility	Organized Activity Participation
	Housing Unit Electrical Installation	Block Waste Disposal	Infrastructure Maintenance	Urban Center Accessibility	Noise Pollution
	Housing Unit Sanitary Installation	Block Cleanness	Local Waste Disposal	Religious Facilities Accessibility	Crime Level
	Floor Level	Block Maintenance	Local Cleanness		Accident Level
			Communal Block		

Equation 1–5, where β_0 represents the intercept, β_i (i = 1, 2, ……, I) indicates the coefficients of each independent variable, ε designates the error term. The dependent variables of the study are Housing modification intention (HMI), Residential mobility intention (RMI), Neighborhood Modification intention (NMI), Family size adjustment intention (FAI), and Cognitive adjustment intention (CAI). Whereas the independent variables are Socio demographic characteristics (SDC), Housing unit features satisfaction (HUFS), Housing unit support services satisfaction (HUSSS), Public facilities satisfaction (PFS), Neighborhood facilities satisfaction (NFS), and Social environment satisfaction (SES) means.

$$HMI = \beta_0 + \beta_1 \mathrm{SDC} + \beta_2 \mathrm{HUFS} + \beta_3 \mathrm{HUSSS} + \beta_4 \mathrm{PFS} + \beta_5 \mathrm{NFS} + \beta_6 \mathrm{SES} + \varepsilon \quad (1)$$

$$RMI = \beta_0 + \beta_1 SDC + \beta_2 HUFS + \beta_3 HUSSS + \beta_4 PFS + \beta_5 NFS + \beta_6 SES + \varepsilon \quad (2)$$

$$NMI = \beta_0 + \beta_1 \mathrm{SDC} + \beta_2 \mathrm{HUFS} + \beta_3 \mathrm{HUSSS} + \beta_4 \mathrm{PFS} + \beta_5 \mathrm{NFS} + \beta_6 \mathrm{SES} + \varepsilon \quad (3)$$

$$FAI = \beta_0 + \beta_1 \mathrm{SDC} + \beta_2 \mathrm{HUFS} + \beta_3 \mathrm{HUSSS} + \beta_4 \mathrm{PFS} + \beta_5 \mathrm{NFS} + \beta_6 \mathrm{SES} + \varepsilon \quad (4)$$

$$CAI = \beta_0 + \beta_1 \mathrm{SDC} + \beta_2 \mathrm{HUFS} + \beta_3 \mathrm{HUSSS} + \beta_4 \mathrm{PFS} + \beta_5 \mathrm{NFS} + \beta_6 \mathrm{SES} + \varepsilon \quad (5)$$

4 Results

4.1 Socio-demographic profile of respondents

The socio-demographic profile of the respondents, as summarized in Supplementary Appendix Table A1, reveals a balanced gender distribution (49.5% female, 50.5% male). The majority (40.0%) were aged 31–40 years, with 30.0% in the 18–30 range, 28.25% between 41–60 years, and 1.75% over 60 years. Most respondents were married (56.0%), with 35.25% single, and smaller proportions divorced (3.0%), widowed (2.5%), or in union (3.25%). Educationally, 51.0% held a degree, 13.75% had a diploma and 13.25% possessed post-graduate qualifications. Family size showed 22.5% with four members and 21.0% living alone. A significant portion (33.0%) had no children, while 27.75% had one, and 26.25% had two. Regarding employment, 58.75% worked in the private sector, 21.5% in government, and 11.75% were unemployed. The largest occupational group (32.0%) was engaged in business work, followed by office work (27.25%) and service work (20.25%). Most respondents (41.75%) had lived in their current residence for 4–6 years, with 53.0% residing in Summit, 29.75% in Gofa, 13.25% in Gottera, and 4.0% in Gerji. Housing tenure revealed 67.0% were renters. Family income showed that 63.75% earned over 11,000 birr. These diverse socio-demographic characteristics provide a comprehensive foundation for further study analysis.

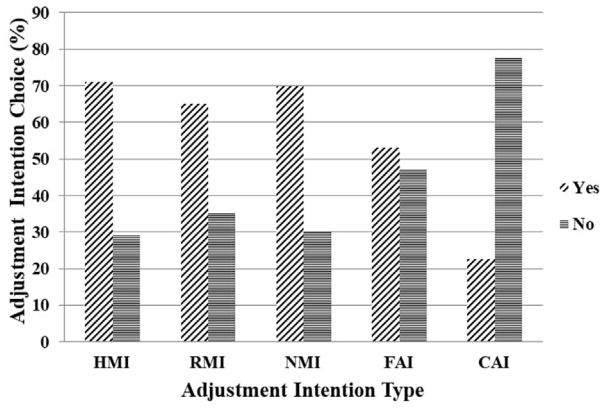

FIGURE 3
Distribution of residential adjustment intentions.

4.2 Residential adjustment intentions choice

Descriptive analysis was undertaken to identify the dominant residential adjustment forms. The findings revealed diverse adjustment intentions among residents, with the highest percentages observed residential mobility in housing modification (71%), neighborhood modification participation (70%), and (65%) as shown in Figure 3. However just over half of the residents (53%) reported an intention to adjust their family size and only 22.5% of residents expressed cognitive adjustment intentions, indicating a low perceived need for altering their family size and mind-set.

4.3 Logistic regression analysis of housing adjustment intentions

Five logistic regression models were analysed to identify determinates of housing adjustment intentions. The first model is a logistic regression analysis of housing modification intention which resulted in p-value <0.001 and explained only 45.6% of the variance in intention to modify housing as shown in Table 2. While the analysis provides useful insight, the model's variance is not high, indicating a limitation of the model that could be improved in future studies by incorporating more data.

The regression analysis on housing modification intention revealed several factors with p-value <0.05. Dissatisfaction with housing unit features was associated with a 56.8% increase in the likelihood of housing modification. Conversely, higher satisfaction with neighborhood facilities increased the likelihood of housing modification by 99.3%. Moreover, middle-aged individuals (41–60 years) were found to be 21.94 times more likely to express housing modification intentions compared to younger residents. Additionally, larger households were 14.99 times more likely to undertake housing modifications than single family. In contrast, single families exhibited lower likelihoods of modification. Residents with longer lengths of residence, particularly those residing between 7 and 10 years, were 6.15 times more likely to modify their housing.

The second model is a logistic regression analysis of residential mobility intention. This logistic regression model resulted in p-value <0.001 and explained only 35.9% of the variance in the residential mobility intention as shown in Table 3. Though the analysis provides useful insight, the variance explained by the model is not high, indicating the limitation of the model that could be improved in future studies by incorporating more data. The regression analysis indicates that a higher level of satisfaction with public facilities reduces the likelihood of moving by approximately 58%. On the other hand, greater satisfaction with housing unit support services though this result is marginally significant and social environment increases the likelihood of moving, with the odds of moving increasing by 86% for housing unit services and 112% for social environment satisfaction. Families with four children are 95% less likely to move compared to other family sizes, although this result is marginally significant. Furthermore, unemployed residents, those working in the endowment sector, the private sector, and NGOs are all less likely to move, with the likelihood of moving decreasing by 87%, 87%, 94%, and 92% respectively. Furthermore, unemployed residents, those working in the endowment sector, the private sector, and NGOs are all less likely to move, with the likelihood of moving decreasing by 87%, 87%, 94%, and 92% respectively. However, individuals in technical work are 10 times more likely to express an intention to move. Similarly, families with a low income (1,501 to 3,000 birr) are 25 times more likely to express an intention to move.

The third model is a logistic regression analysis of neighborhood modification intention. This logistic regression model resulted in p-value <0.001 and explained only 46.3% of the variance in the neighborhood modification participation intention as shown in Table 4. Although the model provides useful insight, the variance explained by the model is not high, indicating a limitation of the model that could be enhanced in future studies by incorporating more data. The regression analysis indicates that families with higher satisfaction with housing unit features are 74.7% less likely to engage in neighborhood modification. In contrast, families with greater satisfaction with housing unit support services are 3.5 times more likely to participate, those satisfied with neighborhood facilities are 1.5 times more likely to participate even though this result is marginally significant, and those satisfied with the social environment are 2.7 times more likely to participate. Additionally, individuals with a high school education are over 43 times more likely and those with a diploma are 12 times more likely to participate although this result is marginally significant. Larger families are over 21 times more likely to engage in neighborhood modification. However, families with four children are 97% less likely to participate. Families employed in the endowment sector are over 5 times more likely to participate. Furthermore, families with medium (4–6 years) term residence durations are 67.3% less likely to engage.

The fourth model is a logistic regression analysis of family size adjustment intention. This logistic regression model resulted in p-value = 0.001 and explained only 25.9% of the variance in the family size adjustment intention as shown in Table 5. Though the analysis provides useful insight, the variance explained by the model is not high, indicating the limitation of the model that could be improved in future studies by incorporating more data. The regression analysis revealed that single families are 55.1% less likely while married families are over 7 time and divorced ones are over 8 times more

TABLE 2 Housing modification intention regression result.

Variable	B	S.E.	Sig	Exp(B)
Age group				
41–60 years	3.088	1.247	0.013	21.936
Family size				
One	−1.484	0.662	0.025	0.227
Five	2.707	1.266	0.033	14.990
Length of residence				
0–3years	0.847	0.392	0.031	2.332
7–10years	1.816	0.726	0.012	6.148
Ownership				
Owners	1.597	0.478	0.001	4.939
Housing unit features satisfaction	−0.839	0.350	0.016	0.432
Neighborhood facilities satisfaction	0.690	0.206	0.001	1.993
Constant	−2.022	2.314	0.382	0.132
−2 Log likelihood Cox & Snell R Square Nagelkerke R Square Sig. (Significance)	328.102 0.319 0.456 0.000			

Independent Variable: Housing Modification Intention.

likely to adjust family size. Similarly, families with two, three and four members are over three, five and twenty times more likely to adjust family size. Families with two children are 83.5% less likely to adjust family size. Families having higher satisfaction with neighborhood facilities are 60.3% times more likely to express an intention to undertake family size adjustment.

The fifth model is a logistic regression analysis of cognitive adjustment intention which resulted in p-value <0.05 and explained only 23.9% of the variance in cognitive adjustment intention as shown in Table 6. While the analysis provides useful insight, the model's variance is not high, indicating a limitation of the model that could be improved in future studies by incorporating more data. The regression analysis revealed that adults are over 4.5 times more likely to report cognitive adjustment intentions compared to youths. Similarly, higher satisfaction with housing unit support services increases the likelihood of cognitive adjustment intentions by approximately 92.2%. However, higher satisfaction with neighborhood facilities decreases the likelihood of cognitive adjustment intentions by 46.1%

5 Discussion

Families frequently evaluate and modify their housing to meet changing needs, a process that can influence neighborhood dynamics, either enhancing or deteriorating the local environment. Despite the critical role of these adjustments, empirical research on residential adjustment intentions remains limited, particularly in the Ethiopian context. This study aims to explore the factors shaping multiple residential adjustment intentions among low-cost housing residents in Addis Ababa. The findings reveal that residents primarily prioritize physical adjustments, such as housing modifications and neighborhood improvement activities, followed by residential mobility. In contrast, family size and cognitive adjustments is significantly lower. These results align with Bunster and Bustamante (2019) and Bravo et al. (2019) studies, which found that most households preferred improving their housing in Chile (87.5%) and Sweden (88%), respectively. This preference likely reflects the financial constraints typical of low- and middle-income households, which limit their ability to move to better housing and encourage adaptation within their existing living environments.

The findings also revealed that socio-demographic factors significantly influence residential adjustment intentions across various dimensions. Older individuals, larger households, and long-term residents exhibited a greater propensity for housing modifications. These findings align with previous studies: Bravo et al. (2019) and Cirman et al. (2013) observed that older households were more likely to engage in housing improvements in Kronoberg County, Sweden, and Central and East European countries, respectively; Kularatne et al. (2019) and Umeh and Ezeji (2023) found that larger families had a higher likelihood

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TABLE 3 Residential mobility intention regression result.

Variable	B	S.E.	Sig	Exp(B)
Number of Children				
Number of children (4)	−2.975	1.551	0.055	0.051
Sector of employment				
Unemployed	−2.068	0.987	0.036	0.126
Endowment	−2.025	0.949	0.033	0.132
Private	−2.800	1.356	0.039	0.061
NGO	−2.510	1.128	0.026	0.081
Category of employment				
Technical work	2.360	1.054	0.025	10.594
Monthly Income				
3,001 to 5,000 birr	3.219	1.581	0.042	24.999
Housing unit support services satisfaction	0.621	0.324	0.055	1.861
Public facilities satisfaction	−0.870	0.279	0.002	0.419
Social environment satisfaction	0.752	0.297	0.011	2.122
Constant	−4.931	2.188	0.024	0.007
−2 Log likelihood Cox & Snell R Square Nagelkerke R Square Sig. (Significance)	397.203 0.261 0.359 0.000			

Independent Variable: Residential Mobility Intention.

of undertaking such improvements in Sri Lanka and Nigeria, respectively; and Bravo et al. (2019) highlighted the positive influence of extended residency on housing modifications in Sweden. This could be attributed to the increasing space demands associated with growing family size and the sense of attachment developed over prolonged residence. These results suggest that extended residency and family size growth over the life cycle can drive the physical modification of housing.

Furthermore, low-income families and individuals in technical jobs demonstrated a higher likelihood of relocating. These findings contradict the conclusions of the majority of empirical studies, including those by Afolabia et al. (2024), Aliu (2019), Clark and Lisowski (2017), Diaz-Serrano and Stoyanova (2010), and Pagani et al. (2021), which had consistently established a positive association between income levels, employment, and residential mobility in Nigeria, Australia, South Europe and Switzerland respectively. The findings suggest that, contrary to the majority of existing studies, low-income families and individuals in technical jobs are more likely to relocate. This is due to socio-economic differences between the study area and previously studied contexts. Predominantly renters, low-income families face persistent rent increases, making them highly susceptible to affordability problems. Consequently, frequent mobility emerges as an adaptive strategy to mitigate housing cost burdens. On the other hand, larger families and households employed across multiple sectors are less likely to relocate, contradicting studies such as those by Aliu (2019), Diaz-Serrano and Stoyanova (2010), Pagani et al. (2021), Spackova et al. (2016), and Willibald et al. (2018), which found that growing family size often preferred relocation for larger accommodations. However, these findings align with Afolabi et al. (2024), who suggested that logistical costs and family decision-making reduced relocation likelihood in Nigeria, as well as Barreira et al. (2019) and Fattha et al. (2015), who reported families employed across various levels of employment were also less likely to move in Portugal and Malaysia, respectively. The findings show that while family size generates spatial pressure, housing affordability is the main driver of mobility in the study area due to low socio-economic status of the residents unlike earlier researches with different socio-economic background. In conclusion, the residential mobility patterns observed among low-income families adhere to Life Course Theory, which states that housing decisions evolve based on life course factors like family size, income and employment change. As families progress through life course, mismatched housing needs result in dissatisfaction, prompting them to seek residential adjustments

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TABLE 4 Neighborhood modification participation intention regression result.

Variable	B	S.E.	Sig	Exp(B)
Education level				
High School	3.764	1.366	0.006	43.132
Diploma	2.491	1.323	0.060	12.079
Family size				
Five	3.062	1.131	0.007	21.370
Number of children				
Four	−4.174	1.787	0.019	0.015
Category of employment				
Endowment	1.678	0.823	0.041	5.354
Length of Residence				
4–6years	−1.117	0.537	0.038	0.327
Housing unit features satisfaction	−1.375	0.364	0.000	0.253
Housing unit support services satisfaction	1.266	0.348	0.000	3.547
Neighborhood facilities satisfaction	0.384	0.199	0.054	1.468
Social environment satisfaction	1.001	0.328	0.002	2.721
Constant	−6.955	2.476	0.005	0.001
−2 Log likelihood Cox and Snell R Square Nagelkerke R Square (Sig.)Significance	330.711 0.326 0.463 0.000			

Independent Variable: Neighborhood modification participation intention.

like residential mobility in an effort to restore compatibility (Rossi, 1955).

Similarly, larger families, individuals with higher education, and those employed in the endowment sector exhibited a greater involvement in neighborhood modifications. These findings align with the research of Latifa and Fatiha (2024) and Maina (2023), which indicated that family size growth correlated with increased participation in modifications; Plaut and Plaut (2010), Bravo et al. (2019), and Avogo et al. (2017), who found that educated households were more inclined to engage in modification activities; and Ahmad et al. (2002), who observed that permanent employment was associated with a higher likelihood of undertaking improvements. This is due to the essential role social facilities play in the daily activities of larger, working families. The findings indicate that these families prioritize the accessibility of social facilities within their neighborhood. Meanwhile, families with more children and medium term residence durations are less inclined to engage in neighborhood modifications. This aligns with Morakinyo (2021), who found that households with more than four children were less likely to participate in neighborhood improvements in Nigeria, and Bravo (2019), who noted that longer residence time was positively associated with neighborhood improvements in Sweden. These findings suggest that families with many children and limited neighborhood attachment prioritize internal housing needs over neighborhood modifications due to the stresses of managing children and settling in.

Similarly, married or divorced households and larger families were more likely to adjust their family size, while single-family households and those with two children were less inclined. These findings align with Sinai (2001) and Yu et al. (2023), who noted that married household heads were more likely to adopt non-relocation adaptations. This tendency may result from their ability to postpone or plan childbirth in response to spatial constraints in their housing. The results underscore family size and composition adjustment as a possible and effective form of adaptation to housing conditions.

Similarly, adults were more inclined to adopt cognitive adjustments. This finding is consistent with Bravo et al. (2019) and Cirman et al. (2013), who observed that older households were more likely to engage in non-relocation housing improvements. This tendency may be attributed to their strong attachment to their

TABLE 5 Family size adjustment intention logistic regression result.

Variable	B	S.E.	Sig	Exp(B)
Marital status				
Single	−0.800	0.370	0.030	0.449
Married	1.970	0.938	0.036	7.171
Divorced	2.116	1.021	0.038	8.298
Family size				
Two	1.159	0.550	0.035	3.187
Three	1.610	0.686	0.019	5.001
Four	3.034	0.985	0.002	20.772
Number of children				
Two	−1.801	0.557	0.001	0.165
Neighborhood facilities satisfaction	0.472	0.173	0.006	1.603
−2 Log likelihood Cox and Snell R Square Nagelkerke R Square Sig	466.811 0.194 0.259 0.001			

Independent Variable: Family Size Adjustment Intention.

TABLE 6 Cognitive adjustment intention regression result.

Variable	B	S.E.	Sig	Ext(B)
Age group				
31–40 years	1.514	0.572	0.008	4.543
Housing unit support services satisfaction	0.654	0.319	0.041	1.922
Neighborhood facilities satisfaction	−0.617	0.202	0.002	0.539
Constant	0.114	2.087	0.956	1.121
−2 Log likelihood Cox and Snell R Square Nagelkerke R Square Sig. (Significance)	358.242 0.157 0.239 0.036			

Independent Variable: Cognitive Adjustment Intention.

home and neighborhood, emphasizing the significance of spatial attachment for older households. These findings underscore the distinct influence of life course factors on residential adjustment decisions in line with Life course theory of Rossi (1955), highlighting how socio-demographic characteristics shape residents' preferences and behaviors in their residential environments.

The level of residential satisfaction was also found to influence residential adjustment intentions through diverse pathways. For example, satisfaction with neighborhood facilities and dissatisfaction with housing unit features were key drivers of housing modifications. This aligns with the findings of Maina (2023) and Umeh and Ezeji (2023), who reported that dissatisfaction with dwelling unit design significantly triggered housing modifications in Nigeria. The preference for housing modification over relocation can be attributed to families' satisfaction with social services in neighborhood for their children, emphasizing the critical role of accessible social services in housing decisions.

Satisfaction with housing unit support services and the social environment fostered participation in neighborhood modifications. However, housing unit feature satisfaction has a negative impact on

such participation. This result corroborates Cirman et al. (2013), who found that positive perceptions of the social environment significantly increased modification likelihood in Central and Eastern Europe, as well as Umeh and Ezeji (2023), who observed that dissatisfaction with housing features prompted participation in modifications in Nigeria. Families satisfied with housing support services and social interactions are more likely to invest in neighborhood improvements, even when dissatisfied with their housing unit features, as they seek to compensate for deficiencies in social interaction without opting for relocation. This underscores the importance of social interaction facilities in shaping housing decisions.

While satisfaction with housing unit support services and the social environment encouraged residential mobility, satisfaction with public facilities reduced relocation intentions. These findings contradict Fattha et al. (2021) and Nasrollahzadeh et al. (2021), who observed that dissatisfaction with housing unit support services and the social environment increased mobility in Malaysia and Turkey, respectively. Similarly, they diverge from the findings of Maleszyk and Kędra (2020) and Spackova et al. (2016), which showed that dissatisfaction with public facilities heightened mobility in Poland and the Czech Republic, respectively. This disparity could be explained by households prioritizing aspirations for improved housing unit support services and social environments, whereas satisfaction with public facilities contributes to residential stability. The results suggest that even when households are satisfied with certain dimensions of their living conditions, they may relocate to fulfill broader aspirations.

Furthermore, satisfaction with neighborhood facilities facilitated family size adjustments but reduced cognitive adjustment intentions, while housing support service satisfaction fostered cognitive adjustments. These results are at odds with Obi et al. (2023), who found that neighborhood facility satisfaction contributed to cognitive adjustments in Nigeria. However, they align with Obi et al.'s (2023) observation that meeting service expectations positively impacted cognitive adjustments. This is because decisions regarding household size adjustment are influenced by the availability of social facilities in the neighborhood. Additionally, when housing support services meet expectations, households adapt to their living conditions through minor improvements. These findings align with the Family Housing Adjustment Theory proposed by Morris and Winter (1975), which emphasizes that residential satisfaction influences diverse patterns of residential adjustment. In summary, the results highlight the critical need to address specific dimensions of satisfaction and account for socio-demographic variations when designing targeted interventions to meet the diverse needs of residents in low-cost housing developments.

6 Conclusion

Although several empirical studies have investigated determinates of residential adjustment intention, the focus is on residential mobility while other forms of residential adjustment are underexplored, particularly in Ethiopia. This study provides a comprehensive analysis of the determinants of residential adjustment intentions across five dimensions, housing modifications, neighborhood modification participation, residential mobility, family size adjustments, and cognitive adjustments, in low-cost housing contexts. The findings revealed that physical adjustment intentions, such as housing modifications, neighborhood modification participations followed by residential mobility, are the most prevalent forms of adjustment, while family size and cognitive adjustments remain less frequent. Socio-demographic factors, including age, marriage, family size, number of children, education level, employment type, ownership, and residence duration, significantly shape these intentions, highlighting the critical role of life course dynamics in residential decision-making. For instance, older individuals and larger families are more likely to engage in housing modifications, whereas low-income families exhibited higher mobility intentions, highlighting the roles of socio-demographics in housing decision-making.

Moreover, the study revealed that residential satisfaction is vital predictor of residential adjustment intentions. Satisfaction with neighborhood facilities and dissatisfaction with housing unit features encourage housing modification intentions. Satisfaction with housing unit support services and the social environment promotes participation in neighborhood modification intentions. While satisfaction with housing unit support services and the social environment fosters residential mobility intention, satisfaction with public facilities reduces relocation intentions. Furthermore, satisfaction with neighborhood facilities supports family size adjustments but diminishes cognitive adjustment intentions whereas housing support service satisfaction fosters cognitive adjustments intentions, highlighting the critical role of residential satisfaction dynamics in residential decision-making.

This study enhances our understanding of the factors influencing residential adjustments, offering valuable insights to housing policymakers, urban planners, and municipalities for developing sustainable, resident-centered housing policies, strategies, and practical interventions. Thus, the study implies planning and policy interventions to target affordable housing units and neighborhood features improvement, social engagement and interaction schemes expansion, and selective investments in infrastructure to promote residents residential satisfaction based on socio-demographic profiles. However, the proposed models explain small portion of the variance in residential adjustment intentions which shows the goodness of fit of the models are not so high. This is a limitation of the study and because there are additional factors not included in the model which may influence the model explanatory power. Hence, future studies should include more data and additional variables such as economic, psychological and cultural dimensions of housing to increase the model robustness and cautions should be taken in to consideration concerning the practicality of the study recommendations in different context. Moreover, the findings are drawn from cross-sectional data limited to four low-cost housing neighborhoods in Addis Ababa. This compromises the generalizability of the findings to larger context even if the findings provide a useful foundation for future research. Hence, longitudinal studies with additional number of housing neighborhoods, settings and typologies are needed to track evolving residential adjustments over time, space and contexts, particularly in rapidly changing urban areas. Expanding this approach to include economic, environmental, psychological and cultural dimensions and conducting cross-cultural analyses will further enhance our

understanding of low-cost housing dynamics. By integrating these findings into housing policies and urban planning efforts, stakeholders can address the diverse and complex needs of low-cost housing residents effectively.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. Written informed consent from the [patients/ participants OR patients/participants legal guardian/next of kin] was not required to participate in this study in accordance with the national legislation and the institutional requirements.

Author contributions

LA: Conceptualization, Data curation, Formal Analysis, Investigation, Methodology, Project administration, Resources, Software, Validation, Visualization, Writing – original draft, Writing – review and editing. WB: Conceptualization, Resources, Supervision, Validation, Writing – review and editing. Daniel LS: Conceptualization, Supervision, Validation, Writing – review and editing.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Supplementary material

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fbuil.2025.1565545/full#supplementary-material

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