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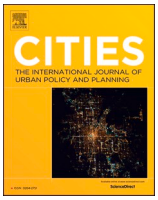

Post-disaster permanent housing and life satisfaction in Van, Turkey: Impacts of housing satisfaction, socioeconomic and demographic factors☆

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ABSTRACT

This study investigates the factors influencing life satisfaction among residents of post-disaster permanent housing in Van, Turkey, following the 2011 earthquake. Data were collected through a survey of 382 households across five districts, examining socioeconomic factors, housing satisfaction, and their impact on overall life satisfaction. Multiple regression analysis revealed that income, satisfactions from housing attributes, neighborhood characteristics and social activities, and demographic factors significantly influence residents' life satisfaction. Households facing fewer difficulties meeting housing expenditures reported higher levels of life satisfaction. The study highlights that both objective housing attributes, such as housing quality, and subjective perceptions, such as neighborhood satisfaction and sense of community, significantly influence residents' overall life satisfaction. These findings, consistent with existing research, underscore the importance of addressing socioeconomic disparities and improving housing quality to enhance residents' well-being. The study emphasizes the need to incorporate residents' needs and preferences into post-disaster permanent housing policies to promote successful resettlement and ensure the long-term well-being of disaster-affected communities.

1. Introduction

Housing satisfaction represents a multidimensional construct that significantly influences life satisfaction, examined through physical, social, and psychological dimensions in theoretical literature. Galster's (1985) Psychological Construct Theory conceptualizes residential satisfaction as the alignment between current housing conditions and residents' ideal home aspirations. Complementary theoretical perspectives include: Environmental-Behavioral Theory (Amérigo & Aragonés, 1997; Michelson, 1977) emphasizing design-psychology congruence; Quality of Life Theory (Marans & Stimson, 2011; Pacione, 2003) focusing on holistic living experiences; and Housing-Needs Theory (Hulse & Saugeres, 2008; Rossi, 1955) analyzing life-cycle needs. Additional frameworks include Social-Cultural Theory (Liu et al., 2017) on neighborhood belonging, Psycho-Social Theory (Gifford, 2007) on identity formation, and Economic Theory (Galster, 1987) on cost-benefit considerations. Hirschman's (1970) Dissatisfaction Theory further outlines behavioral responses (exit, voice, loyalty) to residential discontent. These theoretical perspectives form the basis for the operational framework used in this study. In the Methodology section, they guide the selection and interpretation of variables related to housing, environment, and resident perceptions.

Building upon these theoretical foundations, empirical studies have increasingly examined housing satisfaction as a significant predictor of life satisfaction, especially among vulnerable or disadvantaged populations facing housing insecurity or displacement. Speare's (1974) Mobility Model demonstrates that dissatisfied individuals are significantly more likely to relocate, while Canter and Rees (1982) conceptualize housing as a psycho-spatial system that fulfills security and identity needs. Riazi and Emami (2018) provides an interdisciplinary framework that incorporates subjective perceptions, design quality, and social interaction. Ghezelseflou and Emami (2024) extend this discussion by showing how economically constrained households engage in cognitive adaptation rather than physical relocation, particularly in standardized housing environments. Emami and Sadeghlou (2020) synthesize 107 studies and highlight four core determinants of satisfaction: (1) urban

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policy/planning (Galster, 1987; Marans & Stimson, 2011), (2) design principles (Watson & Bentley, 2007), (3) social environment (Liu et al., 2017), and (4) resident attributes (Rossi, 1955).

Housing satisfaction refers to individuals' perceived contentment with their residential environment, encompassing both the physical dwelling unit and its surrounding socio-physical context (Oladosu et al., 2023). This multidimensional construct emerges when housing fulfills residents' functional needs and emotional expectations for both their home and neighborhood. Given that individuals spend substantial time in their residences, ensuring perceived safety and satisfaction with living spaces and associated amenities becomes crucial for overall well-being. Consequently, examining the relationship between life satisfaction and residential comfort represents a vital research focus. The achievement of housing satisfaction depends on the alignment between residents' expectations and their actual living conditions - a balance frequently disrupted in post-disaster contexts where standardized reconstruction solutions often fail to accommodate cultural preferences or long-term adaptability requirements (Shrestha et al., 2023). The integrated frameworks of housing satisfaction provide a foundation for understanding the housing–life satisfaction relationship in vulnerable contexts such as post-disaster settlements (Comerio, 2014; Shrestha et al., 2023). In this context, the present study aims to examine housing satisfaction within post-disaster housing areas.

Extensive research has identified multiple factors influencing housing satisfaction across diverse contexts. For instance, Dekker et al. (2011) found that in post-World War II housing estates across European cities, housing satisfaction was associated with larger house sizes, homeownership, older age, and higher income levels. Lu (1999) observed that residents of public housing tended to report higher levels of satisfaction. However, findings on the relationship between housing type and satisfaction are not always consistent. Chen et al. (2013) reported that individuals residing in commodity housing were less likely to express residential satisfaction. In contrast, Huang and Du (2015) analyzed various housing options and determined that public housing generally resulted in greater satisfaction, with inexpensive rental housing producing the highest levels of contentment. Expanding on their analysis of housing type, Huang and Du (2015) also investigated the impact of specific housing attributes on satisfaction. They considered both physical features (such as kitchen facilities, garden space, balconies, internet access, natural gas supply, bathroom and heating systems, toilets, and courtyards) and housing value, which included internal structural features, external environments, and community amenities. Their findings indicated that both housing amenities and neighborhood characteristics significantly influence housing satisfaction.

Another subject to be addressed in this context is life satisfaction because a substantial body of research consistently shows a strong positive link between housing satisfaction and overall life satisfaction (Carp, 1975; Peck & Kay Stewart, 1985; Westaway, 2006). Housing satisfaction is a key component of subjective well-being, a multifaceted concept that encompasses an individual's overall sense of contentment and fulfillment in life (Diener, 1984). This concept goes beyond traditional economic indicators like income and wealth and instead focuses on how individuals perceive and evaluate their lives (Diener, 2000). Subjective well-being is measured through various factors, including feelings of happiness, purpose, and satisfaction with different life domains (Dolan & White, 2007). Researchers recognize that individuals are the best judges of their own well-being, and their subjective evaluations provide valuable insights into their quality of life (Camfield & Skevington, 2008). Within the broader framework of subjective well-being, life satisfaction is a particularly important dimension that has been extensively studied (Diener & Ryan, 2009; George, 2010). It refers to individuals' cognitive evaluations of their current life circumstances in relation to their own personal standards and societal norms and expectations (Diener & Ryan, 2009; George, 2010). Life satisfaction, a concept first introduced by Neugarten et al. (1961), represents an individual's comprehensive positive evaluation of their life based on personal standards (Diener, Sandvik, & Larsen, 1985). This multifaceted construct integrates several critical dimensions: satisfaction with past experiences and future expectations (Diener, 2006), aspirations for personal growth and change (Koestner et al., 2006; Steger et al., 2006), and perceptions of how others evaluate one's life (Dutot, 2020). These components collectively shape an individual's subjective well-being, reflecting both internal psychological processes and external social influences.

The foundation of life satisfaction lies in how individuals perceive their personal attributes and competencies relative to their current life situation (Pavot & Diener, 1993). This cognitive-emotional appraisal process highlights the dynamic interaction between personal factors and environmental circumstances in determining overall well-being. Rather than being confined to specific life domains, life satisfaction emerges from the continuous interplay between individuals and their social-physical environments, ultimately representing a global assessment of one's existence and happiness (Diener et al., 1999; Pavot & Diener, 2008). Several factors contribute to life satisfaction, including demographic characteristics, socioeconomic factors, occupation, social networks, government policies, and aspects of neighborhood and housing (Hu et al., 2022). Research on demographic influences by Patino et al. (2023) has shown a positive correlation between life satisfaction and socioeconomic status, but no significant associations were found with age or gender.

Homeownership is generally associated with higher housing satisfaction; however, its impact on life satisfaction may vary depending on contextual and individual factors (Clark & Diaz-Serrano, 2023; Hu, 2013; Will & Renz, 2023). Providing permanent and secure housing—particularly for low-income or elderly individuals—significantly enhances both housing and life satisfaction (Tran & Van Vu, 2018; van der Pas et al., 2015). Moreover, neighborhood characteristics such as social participation and access to services play indirect yet important roles in shaping life satisfaction (McCrea et al., 2005; Sirgy & Cornwell, 2002). This relationship has been investigated while considering various factors:

- Demographic and economic factors: Age, gender, education level, income, and relationship status, (Appleton & Song, 2008; Clark & Diaz-Serrano, 2023; Han, 2015; Hu, 2013; Lu, 1999; Ma et al., 2018; Park et al., 2019; Tran & Van Vu, 2018; van der Pas et al., 2015). Notably, a U-shaped pattern has emerged when examining the relationship between age and life satisfaction, suggesting that life satisfaction may dip in middle age and rise again in later years (Appleton & Song, 2008; Han, 2015; Ma et al., 2018; Park et al., 2019).
- Housing-related variables: Physical housing conditions, security, safety, occupancy rates, mortgage payment and housing costs, as well as housing tenure type or housing use pattern (e.g., ownership, renting, temporary or free occupancy), are commonly analyzed in relation to satisfaction outcomes (Carp, 1975; Clark & Diaz-Serrano, 2023; Han, 2015; Hu, 2013; Peck & Kay Stewart, 1985; Will & Renz, 2023; Zhang et al., 2018). Improved housing conditions, lower occupancy rates, and reduced housing costs are consistently linked to higher levels of both housing and life satisfaction (Acolin & Reina, 2022; Carp, 1975; Han, 2015; Ibem & Amole, 2013; McCrea et al., 2005; Peck & Kay Stewart, 1985; Tran & Van Vu, 2018; van der Pas et al., 2015). Housing affordability also emerges as a crucial factor in shaping both housing and life satisfaction (Chen et al., 2013; Huang & Du, 2015; Zhang et al., 2018).
- Neighborhood satisfaction: This social dimension of housing satisfaction encompasses aspects such as the quality of health services, housing, employment opportunities, recreational facilities, schools, and transportation systems (Ibem & Amole, 2013; Lu, 1999; Ma et al., 2018; Møller, 2001; Peck & Kay Stewart, 1985; Sirgy & Cornwell, 2002; Tran & Van Vu, 2018; van der Pas et al., 2015).

These neighborhood attributes have been found to have a positive impact on life satisfaction (Ibem & Amole, 2013; Lu, 1999; Ma et al., 2018; Møller, 2001; Sirgy & Cornwell, 2002).

In developing countries, affordability, tenure status, and access to urban services are frequently cited as key determinants of both housing and life satisfaction (Marans & Stimson, 2011; Sirgy & Cornwell, 2002). Low-income households often experience lower levels of satisfaction due to inadequate housing conditions and limited access to amenities. However, some studies note that subjective well-being can remain stable despite poor objective housing conditions, highlighting the role of personal expectations, coping strategies, and cultural norms (Ghezelseflou & Emami, 2024).

A comprehensive review of literature on housing satisfaction and life satisfaction in the Web of Science database revealed a significant research gap. While the keyword "life satisfaction" appeared in 94,832 articles and "housing satisfaction" in 4990, only 29 articles incorporated both keywords. This scarcity underscores the need for further research that integrates both dimensions. Of the 29 studies reviewed, several did not directly assess variables associated with life satisfaction or housing satisfaction. Some focused on specific subgroups (e.g., individuals with mental health disorders in supported housing, elderly populations using reverse mortgage schemes), while others prioritized methodological comparisons. Due to their limited relevance to the scope of the present study, these works were excluded from Table 1. Table 1 provides a concise summary of existing literature, highlighting the relationship between life satisfaction and various socio-demographic and housing-related factors. Notably, the table illustrates that while some studies yield consistent findings, others present contrasting results. Consequently, investigating the interplay between these factors and life satisfaction in the Turkish context offers a valuable and underexplored research avenue.

A growing body of theoretical and empirical research emphasizes the link between housing satisfaction and overall life satisfaction. Theoretical perspectives such as Housing-Needs Theory, Economic Theory, and Dissatisfaction Theory propose that individuals' subjective evaluations of their housing conditions reflect not only physical adequacy but also their broader psychological and social well-being (Galster, 1985; Mohit et al., 2010). These theories suggest that housing satisfaction operates as both a direct contributor to life satisfaction and an indirect indicator of socio-economic stability and community integration.

Building on this theoretical foundation, post-disaster housing has emerged as a critical context where the interplay between housing and life satisfaction can be observed most vividly. Although studies on life satisfaction and housing satisfaction occupy a significant place in the literature, there are fewer studies linking life satisfaction to post-disaster housing. To address this gap, the present study investigates the factors influencing life satisfaction among residents of post-disaster permanent housing in Van. Government-led post-disaster housing reconstruction efforts are crucial for community recovery (Bodur, 2020), but the success of these efforts hinges on residents' long-term satisfaction with their new housing (Shrestha et al., 2023). Beyond simply providing shelter, effective recovery programs should prioritize resident well-being by considering both the technical aspects of resilient housing and the social needs of the community (Ahmed, 2022). Objectively evaluating residents' long-term satisfaction is crucial for assessing the effectiveness of housing reconstruction programs (Oo et al., 2018). While community reconstruction depends on various political, economic, legal, and disaster management factors, the government plays a crucial role in facilitating the process through funding, management, and coordination (Comerio, 2014). Additionally, greater individual choice in housing options, coupled with citizen participation in planning processes, has been shown to improve overall recovery outcomes (Comerio, 2014). For individuals displaced by natural disasters, such as earthquakes, satisfaction with their new living spaces is a significant determinant of their overall well-being and adaptation to post-disaster life. Therefore, this study focuses on the relationship between post-disaster permanent housing characteristics and the life satisfaction of residents resettled after the 2011 Van earthquake in Turkey.

Table 1
Associated variables in the relationship between housing satisfaction and life satisfaction.

Examined variables	Relationships with life satisfaction	Authors
Socio-Demographic Factors		
Age	U-shaped pattern	Appleton and Song (2008); Han (2015); Hu (2013)
	Not Significant	Patino et al. (2023); Tran and Van Vu (2018); van der Pas et al. (2015)
	Positively correlated	Ma et al. (2018)
Gender	Positively correlated for women	Hu (2013); Park et al. (2019)
	Not Significant	Han (2015); Patino et al. (2023); Tran and Van Vu (2018); van der Pas et al. (2015)
Income	Positively correlated	Clark and Diaz-Serrano (2023); Han (2015); Ma et al. (2018); Park et al. (2019); Tran and Van Vu (2018)
	Negatively correlated	van der Pas et al. (2015)
Relationship Status	Positively correlated for married individuals	Clark and Diaz-Serrano (2023); Han (2015); Ma et al. (2018)
Education	Not Significant	Han (2015); Hu (2013)
	Positively correlated	Ma et al. (2018); van der Pas et al. (2015)
Having Children	Negatively correlated	Clark and Diaz-Serrano (2023); Ma et al. (2018)
Employment Status	Negatively correlated for unemployed	Hu (2013)
	Not significant	Tran and Van Vu (2018)
Mortgage Payment	Negative	Will and Renz (2023)
Housing Factors		
House Ownership	Positively correlated	Clark and Diaz-Serrano (2023); Hu (2013); Ma et al. (2018); McCrea et al. (2005); Will and Renz (2023); Zhang et al. (2018)
Commodity Housing	Positively correlated	Ma et al. (2018); Zhang et al. (2018)
Size	Positively correlated	Hu (2013); Ibem and Amole (2013); Ma et al. (2018)
	Not significant	McCrea et al. (2005)
Housing Difficulties and Amenities		
Improved Living Standards	Positively correlated	McCrea et al. (2005); Peck and Kay Stewart (1985); van der Pas et al. (2015)
Physical health	Positively correlated	Peck and Kay Stewart (1985)
Neighborhood Factors		
Physical Features	Positively correlated	Sirgy and Cornwell (2002); van der Pas et al. (2015)
	Not significant	McCrea et al. (2005)
Social Features	Positively correlated	Sirgy and Cornwell (2002); Tran and Van Vu (2018)
	Not significant	McCrea et al. (2005)
Economic Features	Not significant	Sirgy and Cornwell (2002)

Note 1: Contradictory findings for some variables (e.g., Age, Gender) reflect differences in study methodologies or cultural contexts.

Empirical studies across various global contexts have explored the multifaceted factors that shape housing satisfaction, and ultimately, life satisfaction, for individuals resettled in post-disaster permanent housing (Bodur, 2020; Comerio, 2014; Kamacı-Karahan & Kemeç, 2022; Manatunge & Abeysinghe, 2017; Pormon et al., 2023; Rand et al., 2011; Shrestha et al., 2023; Tharim et al., 2021). While factors like access to water, improved livelihoods, quality construction, and resident

participation during construction are crucial for initial satisfaction (Bodur, 2020; Comerio, 2014; Manatunge & Abeysinghe, 2017; Rand et al., 2011), long-term satisfaction can be eroded by a complex interplay of physical, environmental, and socio-economic challenges (Manatunge & Abeysinghe, 2017). Inappropriate site selection and design, substandard construction, and inadequate access to social infrastructure are key issues requiring attention in resettlement planning (Manatunge & Abeysinghe, 2017). Demographic characteristics also play a role in shaping long-term housing satisfaction (Oo et al., 2018). Factors such as the integration of cultural activities, availability of health infrastructure, and membership in associations positively influence satisfaction, while infrastructural defects and distance from the city center negatively impact it (Pormon et al., 2023). Similarly, other studies have highlighted critical factors influencing residential satisfaction, including housing design and layout, space for modifications, provision of kitchen gardens and cattle sheds, thermal comfort, completeness of the house, and spaces for rituals and cultural events (Leh et al., 2018; Shrestha et al., 2023). Furthermore, a study on flood victims' satisfaction with housing relocation revealed significant dissatisfaction with relocated buildings, particularly regarding housing design, indoor air quality, waste management, public amenities, public transportation, safety, and public areas (Tharim et al., 2021).

In the Turkish context, several studies conducted after earthquakes have examined the factors that influence resident satisfaction with post-disaster permanent housing. One study in Bingöl found that the housing environment, design, economic recovery, cooperation, and social influences all played a positive role in increasing satisfaction with permanent housing (Kürüm Varolgüneş, 2021). However, a study in Yalova showed that residents had negative perceptions about dwelling size, privacy, heating, transportation to the city center, relationships with relatives and neighbors, and inadequate municipal services (Bodur, 2020). Bodur's analysis of the Yalova study concluded that the permanent housing did not adequately meet the needs of the affected households because they were not included in the planning process (Bodur, 2020). Similarly, a study in Van by Kamacı-Karahan and Kemeç (2022) found that beneficiary status, pre-disaster neighborhood experiences, and social ties all significantly impacted resident satisfaction with permanent housing.

In Turkey, the permanent housing constructed after a disaster is built with the cooperation of the Housing Development Administration (HDA) and the Disaster and Emergency Management Presidency (DEMP). While these organizations aim to produce a sufficient number of earthquake-resistant houses as quickly as possible, a crucial aspect is often overlooked: user participation in the planning process. This oversight can lead to dissatisfaction among residents whose needs and preferences may not be adequately addressed. The primary focus of these organizations is on swiftly providing a sufficient number of earthquake-resistant houses. However, as highlighted in previous studies, the absence of user involvement can lead to dissatisfaction among residents as their needs and preferences may not be adequately addressed.

Despite increasing attention to housing satisfaction, there remains a notable gap in research specifically examining its link with life satisfaction in Turkey. While previous studies have examined factors influencing housing satisfaction (Aktaş et al., 2012; Berköz et al., 2009; Berköz & Kellekçi, 2007; Dinç et al., 2014; Erdoğan et al., 2020; Gür & Şenkal-Sezer, 2018; İslamoğlu & Usta, 2014; Kamacı-Karahan & Kemeç, 2022; Kazaz & Birgönül, 2005; Murat et al., 2023; Şahin & Tereci, 2021; Taş et al., 2014; Türkoğlu, 1997; Türkoğlu et al., 2019; Ulusoy et al., 2012), research specifically investigating the link between housing satisfaction and life satisfaction is limited. For example, one study explored factors influencing life satisfaction in urban areas, concluding that city size, education level, and income were associated with higher satisfaction levels (Aktaş et al., 2012). However, this study did not consider housing or neighborhood characteristics. Another study focusing on residents with higher economic status found that housing, housing area, and neighborhood satisfaction significantly contributed to life satisfaction (Murat et al., 2023). Existing research in Turkey has primarily focused on identifying predictors of housing satisfaction, including age (Şahin & Tereci, 2021; Ulusoy et al., 2012), education level (Şahin & Tereci, 2021), working status (Şahin & Tereci, 2021), physical housing characteristics (Berköz & Kellekçi, 2007; Dinç et al., 2014; Erdoğan et al., 2020; Gür & Şenkal-Sezer, 2018; İslamoğlu & Usta, 2014; Kazaz & Birgönül, 2005; Şahin & Tereci, 2021; Taş et al., 2014; Türkoğlu, 1997), housing size (İslamoğlu & Usta, 2014; Türkoğlu, 1997), beneficiary status (Kamacı-Karahan & Kemeç, 2022), number of rooms (İslamoğlu & Usta, 2014; Taş et al., 2014), access to social and educational services (Dinç et al., 2014; Erdoğan et al., 2020; İslamoğlu & Usta, 2014; Şahin & Tereci, 2021; Taş et al., 2014; Türkoğlu, 1997; Türkoğlu et al., 2019), physical environmental conditions (Berköz et al., 2009; Berköz & Kellekçi, 2007; Dinç et al., 2014; Erdoğan et al., 2020; Gür & Şenkal-Sezer, 2018; İslamoğlu & Usta, 2014; Kazaz & Birgönül, 2005; Şahin & Tereci, 2021; Taş et al., 2014; Türkoğlu, 1997), and residence in a planned neighborhood (Türkoğlu et al., 2019).

This study aims to investigate the factors influencing housing satisfaction among individuals residing in Housing Development Administration (HDA)-constructed post-disaster permanent housing in Van, Turkey, and to examine how these factors predict overall life satisfaction. In this regard, the study is among the few that explore the determinants of life satisfaction among households living in permanent housing built following the 2011 Van earthquake. By employing multiple regression analysis to examine the relationships between housing satisfaction, environmental satisfaction, and economic sustainability, the study makes a significant contribution to the fields of post-disaster resettlement and social housing policy in developing countries such as Turkey. The originality of this research lies in its multidimensional approach, which considers not only the physical attributes of housing but also the social environment and economic conditions in order to better understand the impact of post-disaster resettlement on life satisfaction and, indirectly, on overall quality of life. Globally, it is increasingly recognized that in the context of housing crises triggered by large-scale disasters, addressing the quantitative housing need alone is insufficient; quality, social cohesion, and economic sustainability are equally critical. In this context, the study offers both theoretical and practical insights for the planning and evaluation of similar resettlement programs worldwide. Furthermore, by addressing issues specific to Turkey—such as long-term financial burdens, informal ownership arrangements, and social vulnerability—that are also relevant in broader international contexts, the study contributes to the development of innovative approaches in disaster management and social policy.

2. Data and methodology

2.1. The case

Turkey, a country highly prone to earthquakes, experienced a devastating event in 2011 when the city of Van in the Eastern Anatolia Region was struck by two major earthquakes (7.2 and 5.6 magnitudes). Van, ranked 77th out of 81 provinces in Turkey's socio-economic development index and located in one of the country's least developed regions, suffered severe damage as a result of this disaster. This disaster resulted in significant economic, social, and physical transformations, underscoring the urgent need for both quantitative and qualitative improvements in housing. The 2011 earthquakes in Van, Turkey, brought to light a multifaceted housing crisis, encompassing both the urgent need for new housing units (quantitative need) and the imperative to enhance the quality and resilience of existing housing stock (qualitative need).

In Turkey, the Housing Development Administration (HDA) plays a significant role in providing affordable housing for low- and middle-income households. The institution offers state-subsidized housing units with mortgage-like monthly payments spread over 20 years,

aiming to enable homeownership for those excluded from the formal housing market. This model functions as a form of social housing finance in which the state acts both as a housing provider and a facilitator of long-term credit. Similar payment conditions also apply to post-disaster housing, where disaster victims are likewise required to undertake long-term payment obligations in order to gain ownership rights. Following the 2011 earthquakes the Housing Development Administration (HDA) constructed 17,489 permanent housing units for eligible earthquake victims whose homes were destroyed in various districts, including Erciş, Akköprü, Bostaniçi, Edremit, Kalecik, and Kevenli, with a significant portion (70 %) concentrated in the central districts of Edremit, İpekyolu, and Tuşba within the Van Metropolitan Municipality. By 2012, the Housing Development Administration (HDA) had completed the construction of approximately 15,000 permanent housing units—whose foundations were laid on the 39th day after the earthquake—and delivered them to the affected households (beneficiaries) within just 10 months. Most of these units are situated on the outskirts of the city. This extensive construction and relocation initiative, influenced by the decisions of official institutions, has significantly reshaped the urban landscape of Van, essentially reshaping its macroform. The 2011 earthquakes, therefore, acted as a catalyst for a substantial restructuring process in terms of urban planning (Fig. 1).

2.2. Methodology

This study investigates the level of life satisfaction among households residing in post-disaster housing in Van, examining the relationship between housing satisfaction and overall life satisfaction. Specifically, the study analyzes the contribution of housing satisfaction to overall life satisfaction and examines the relationship between housing satisfaction and respondents' housing, environmental, and socio-demographic characteristics. To achieve these objectives, a regression analysis was performed using data collected through a survey conducted with households living in post-disaster permanent housing units in five districts of Van: Kevenli, Bostaniçi, Edremit, Akköprü, and Kalecik (see Fig. 2). As seen in Fig. 2, taken during the 2018 field study, the permanent post-disaster housing settlements built after the 2011 earthquake share similar features and design characteristics with other mass housing developments constructed by HDA in Turkey.

Fig. 1. Map showing the geographical location of Van, Turkey.
Source: Google (2025). [Geographical location of Van]. Retrieved July 2020, from https://www.google.com.tr/maps.


Figure 2a. Edremit Permanet Housing Settlement


Figure 2b. Akköprü Permanent Housing Settlement


Figure 2c. Bostaniçi Permanent Housing Settlement


Figure 2d. Kevenli Permanent Housing Settlement


Figure 2e. Kalecik Permanent Housing Settlement

Fig. 2. Permanent post-disaster housing in Van.
Source: Own Work, 2018.

The survey, conducted between January and March 2018, involved 382 participants residing in the five districts, with 53 % being earthquake victims. The sample was selected using a convenience sampling method. Table 2 presents the distribution of housing units within the study population and the corresponding sample sizes for each post-disaster permanent housing district.

The survey explored a range of factors, including respondents' socioeconomic variables, life satisfaction, and housing satisfaction. It also examined the characteristics of their living environment and post-disaster housing units, as well as the services and facilities provided in post-disaster housing projects. To gather comprehensive data, the survey employed diverse question formats, including closed-format, Likert-type, and open-format questions, allowing for both structured and

Table 2
Distribution of housing units in the study population and sample.

Post-disaster permanent housing district	Population housing units *N*	Sample housing units *N*
Akköprü-Sıhke	530	60
Bostaniçi	1088	72
Edremit	7830	99
Kalecik	2456	76
Kevenli	480	75
Total	12,384	382

detailed responses.

Table 3 presents the basic descriptive statistics of the respondents. The sample includes information on 382 households distributed across five districts in Van. Among respondents, 25.9 % lived in Edremit, while 15.7 % resided in Akköprü. Female respondents accounted for 69.4 % of the sample, and the average age was 38.21 years. Additionally, 86.6 % of respondents were married. Regarding income, 67.5 % of respondents reported having a permanent income, whereas 32.5 % did not. Home-ownership was reported by 63.4 % of the respondents, while tenants made up 32.5 % of the sample.

Following the 2011 Van earthquake, permanent disaster housing was built by HDA in just 10 months for earthquake victims. Legally, only earthquake victims are entitled to live in these homes, but 53.4 % are actual earthquake victims, 9.9 % are people who took over the homes, 35.9 % are tenants, and 0.8 % are living there for free. This situation indicates that approximately 46.6 % of the housing units have been transferred through unofficial means, and HDA's rule that 'the housing units cannot be transferred until the debt is paid off (20-year monthly installments)' has not been enforced. On the other hand, 53.4 % of current household users have incomes at or below the minimum wage, and both property owners and tenants allocate approximately half of their income to housing expenses. 88.6 % of homeowners and 52.6 % of tenants reported experiencing payment difficulties. Additionally, maintenance fees and heating costs are also factors contributing to payment difficulties (Table 4). This situation reveals that post-disaster housing deviates from formal usage conditions, thereby increasing social vulnerability and threatening economic sustainability. The widespread informal changes in ownership and use observed in the early years of these permanent disaster housing units constructed by HDA indirectly provide important insights into housing policies and disaster response mechanisms.

This study first adopts a multidimensional theoretical framework to analyze the determinants of housing satisfaction in the context of post-disaster resettlement. Drawing on Housing-Needs Theory (Hulse & Saugeres, 2008; Rossi, 1955), physical housing quality (e.g., size, layout) is operationalized through resident evaluations of dwelling attributes (h_sum). Environmental-Behavioral Theory (Michelson, 1977) and Social-Cultural Theory (Liu et al., 2017) inform the analysis of neighborhood social dynamics, measured via satisfaction with communal activities (s_sum) and local belonging. Economic Theory (Galster, 1987) underpins the critical role of housing affordability, captured through payment difficulties (Payment_diff). Finally, Dissatisfaction Theory (Hirschman, 1970) contextualizes cultural-emotional adaptation challenges in relocation, reflected in residents' relocation intentions (Move). The variables derived from these discussions provide the basis for the regression model addressed in the subsequent sections of the study.

Table 3
Basic descriptive statistics.

		Frequency	Percent
District	Kevenli	75	19.6
	Bostaniçi	72	18.8
	Edremit	99	25.9
	Akköprü	60	15.7
	Kalecik	76	19.9
Ownership_Status	Owners (Total)	242	63.3
	Tenants	137	35.9
	Other	3	0.8
Sex	Female	265	69.4
	Male	117	30.6
P_Income	Yes	258	67.5
	No	124	32.5
Marital_Status	Single	51	13.4
	Married	331	86.6

	Min.	Max.	Mean	Std. deviation
Age	18	78	38.21	12.260

Note: Minimum wage (1603 TL, 2018 baseline).

Table 4
Socioeconomic characteristics and financial burdens of households in post-disaster HDA resettlements.

Variable	Categories	Frequency	Percentage (%)/monthly amount (TL)
Monthly Household Income	Below minimum wage	91	23.8 %
	Equal to minimum wage	113	29.6 %
	Above minimum wage	178	46.6 %
Housing Tenure Type	Owner via HAD installments (victims)	204	53.4 %
	Owner purchased from the first owner/ victim	38	9.9 %
	Tenant	137	35.9 %
	Living without paying rent (rent-free)	3	0.8 %
Monthly Installments to HDA (Owners)	250–300 TL for 2 + 1 units	23	9.7
	382–480 TL for 3 + 1 units	214	90.3
Reported Difficulty in Making Payments	Owners experiencing payment difficulty	209	88.6
	Tenants experiencing payment difficulty	72	52.6
Monthly Common Charges (Heating + Fees)	230 TL for 2 + 1 units	35	9.2
	285 TL for 3 + 1 units	347	90.8

Note: Minimum wage (1603 TL, 2018 baseline). The table summarizes the economic vulnerability and housing-related financial burdens of disaster-affected households in HDA developments. Data are derived from survey responses collected in [Van/Eastern Anatolia Region], following the [2011] earthquake.

To assess the contribution of housing and environmental satisfaction to overall life satisfaction, a multiple regression analysis was conducted. Table 5 describes the variables used in the regression analysis. In this analysis, *Owner* and *Victims* were included as dummy variables indicating the presence or absence of these characteristics. Likert-type questions were used to measure respondents' satisfaction levels. Satisfaction was evaluated across specific housing attributes (e.g., number of rooms, size, number of bathrooms), environmental attributes (e.g., site landscaping, security, building management), neighborhood characteristics (e.g., traffic, air pollution), social activities (e.g., neighborhood relationships, social facilities), and accessibility to services (e.g., proximity to schools, shopping centers, transportation facilities) using a five-point Likert scale. A Likert scale measures attitudes by summing Likert-type responses to related questions (Batterton & Hale, 2017). To operationalize the Likert scale in Table 3, multiple Likert-type responses reflecting satisfaction with each characteristic were aggregated. Another variable, *Period*, indicates the years of residence in the current dwelling unit. According to conventional economics, a causal relationship exists between money and happiness, as money can be exchanged for goods that enhance an individual's utility (Boyce et al., 2010). Since actual income data were unavailable in the survey, a dummy variable was used to indicate the presence of permanent income (*P_Income*), while a dichotomous variable (*Min_wage*) categorized respondents' income, takes the value 1 if the respondent's monthly income is equal to or below the minimum wage and the value 2 if the income exceeds the minimum wage.

As previously mentioned, 53 % of respondents were earthquake victims who became the first homeowners of this post-disaster housing stock. The remaining respondents were either private tenants paying

Table 5
Description of variables.

Variable	Description
Age	Age of respondents
P_Income	1 = If they have a permanent income 2 = If they do not have a permanent income
Car_Ownership	1 = If they have a car 2 = If they do not have a car
Payment_diff	1 = If they do not have difficulties to pay housing expenditure like rent or credit 2 = If they have difficulties to pay housing expenditure like rent or credit
h_sum	Likert scale on housing attributes
e_sum	Likert scale on housing environmental attributes
n_sum	Likert scale on neighborhood characteristics
s_sum	Likert scale on social activities
a_sum	Likert scale on accessibility to services
Sex	1 = Female, 2 = Male
Floor_Area	Floor area of the dwelling (m^2)
Period	Years of residence
Owner	Dummy equal to 1 if they are owners of the dwelling unit
Min_wage	1 = If monthly income is equal or lower than minimum wage 2 = If monthly income is higher than minimum wage
Children	Number of children
Room	Number of rooms in the dwelling unit
Victims	Dummy equal to 1 if they were earthquake victims
Heating	1 = heating system is based on coal 2 = heating system is based on natural gas
Marital_Status	1 = Not Married 2 = Married
Move	1 = If they wish to leave residence 2 = If they wish to stay in the residence
Prev_house	1 = Respondents' previous housing type was an apartment unit 2 = Respondents' previous housing type was a detached house
LS_sum	Likert scale on life satisfaction

rent to earthquake victims in the sample or homeowners who purchased their homes from one of the earthquake victims. The variable *Victims* is defined as a dummy variable equal to 1 if the respondents were earthquake victims. What distinguishes the Turkish case from other post-disaster housing examples is the notably rapid transfer of ownership of the dwellings constructed for disaster victims. While such housing initiatives are primarily designed to mitigate the hardship experienced by those who have lost their homes, in Turkey, the prolonged implementation process and widespread dissatisfaction among beneficiaries have led to these units being commodified and circulated within the housing market. Consequently, the inclusion of the variable "victim" in the regression analysis serves to examine the differential impact on life satisfaction between original disaster victims and subsequent occupants who were not directly affected by the disaster.

Respondents were also asked whether they wished to leave their current residence, with the variable Move taking the value 1 if they expressed such a preference. Another independent variable, *Prev_house*, reflects the characteristics of respondents' previous housing units. Finally, the variable *LS_sum*, shown in Table 4, represents the total life satisfaction score of respondents, measured by Satisfaction with Life Scale developed by Diener, Emmons, et al. (1985), using five 7-point-Likert items.

Table 6
ANOVA.

Model	Sum of squares	*df*	Mean square	*F*	Sig.
Regression	2469.941	21	117.616	4.418	0.000
Residual	7427.038	279	26.620		
Total	9896.979	300			

3. Results

To analyze the satisfaction levels of different households regarding various aspects of post-disaster permanent housing in Van, a multiple regression analysis was conducted. The dependent variable in this analysis is life satisfaction (*LS_sum*), with 21 independent variables included in the model. The ANOVA table (Table 6) assesses the overall significance of the linear regression model (Chan, 2004). A *p*-value of the *F*-statistic less than the level of significance ($\alpha = 0.05$) indicates that the model is statistically significant.

In regression analysis, a small degree of multicollinearity is not necessarily problematic; however, severe multicollinearity can be a significant issue, as it theoretically inflates the variance of the regression coefficients, rendering them unstable (Akinwande et al., 2015). One method for assessing multicollinearity is the Variance Inflation Factor (VIF), which measures how much the variance of an estimated regression coefficient increases due to correlation among predictors. A VIF value between 5 and 10 indicates a potentially problematic level of correlation (Akinwande et al., 2015). According to Burns and Burns (2008) and Akinwande et al. (2015), if the VIF exceeds 10, it suggests that the regression coefficients may be poorly estimated due to multicollinearity. However, Khan et al. (2020) contend that a more conservative benchmark is that each individual VIF should not exceed 5. In our case, none of the variables breach these thresholds, as all VIF values are below 5 (Table 7), indicating that multicollinearity is not a concern in our estimation.

Table 7 shows that the *R*-Square value is 0.250, meaning that 25 % of the variation in life satisfaction is explained by the 21 independent variables.

Significant regression coefficients were observed for the variables age, permanent income (*P_Income*), car ownership (*Car_Ownership*), payment difficulties (*Payment_diff*), satisfaction with housing attributes (*h_sum*), satisfaction with neighborhood characteristics (*n_sum*), and satisfaction with social activities (*s_sum*), as their *p*-values were less than or equal to the significance level ($\alpha = 0.05$). Table 8 also provides the basis for determining the regression equation. The regression coefficients are obtained from the column Unstandardized Coefficients, specifically from the sub-column 'B' (Kafle, 2019). The regression equation is as follows:

Regression Equation:

$$\begin{aligned}\text{LS\_sum} = {} & 13.458 - 0.078(\text{Age}) - 2.243(\text{P\_Income}) - 1.691(\text{Car\_Ownership}) - 1.658\left(\text{Payment\_diff}\right) + 0.088(\text{h\_sum}) - 0.083(\text{c\_sum}) \\ & + 0.214(\text{n\_sum}) + 0.261(\text{s\_sum}) + 0.042(\text{a\_sum}) - 0.471(\text{Sex}) + 0.077(\text{Floor\_Area}) + 0.100(\text{Period}) - 0.597(\text{Owners}) + 0.355(\text{Min\_wage}) \\ & - 0.088(\text{Children}) - 1.064(\text{Room}) + 0.045(\text{Victims}) - 0.721(\text{Heating}) - 0.203(\text{Marital\_Status}) - 0.150(\text{Move}) + 0.126(\text{Prev\_house})\end{aligned}$$

Table 7
Model summary.

Model	*R*	*R* Square	Adjusted *R* square	Std. error of the estimate
1	0.500	0.250	0.193	5.159

Table 8
Regression analysis.

	Unstandardized coefficients		Standardized coefficients	*t*	Sig.	Collinearity statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	13.458	6.793		1.981	0.049		
Age	−0.078	0.029	−0.166	−2.695	0.007	0.710	1.409
P_Income	−2.243	0.761	−0.183	−2.950	0.003	0.698	1.433
Car_Ownership	−1.691	0.712	−0.137	−2.376	0.018	0.815	1.228
Payment_diff	−1.658	0.837	−0.126	−1.982	0.048	0.660	1.515
h_sum	0.088	0.045	0.142	1.968	0.050	0.520	1.923
e_sum	−0.083	0.094	−0.064	−0.887	0.376	0.520	1.924
n_sum	0.214	0.106	0.136	2.015	0.045	0.586	1.706
s_sum	0.261	0.127	0.129	2.053	0.041	0.685	1.460
a_sum	0.042	0.082	0.037	0.513	0.608	0.528	1.893
Sex	−0.471	0.700	−0.038	−0.673	0.501	0.849	1.177
Floor_Area	0.077	0.063	0.079	1.219	0.224	0.637	1.571
Period	0.100	0.230	0.029	0.433	0.665	0.606	1.651
Owners	−0.597	1.131	−0.050	−0.528	0.598	0.298	3.355
Min_wage	0.355	0.765	0.031	0.464	0.643	0.607	1.646
Children	−0.088	0.187	−0.028	−0.470	0.639	0.769	1.300
Room	−1.064	1.248	−0.054	−0.852	0.395	0.683	1.465
Victims	0.045	1.085	0.004	0.041	0.967	0.302	3.308
Heating	−0.721	0.657	−0.061	−1.098	0.273	0.858	1.165
Marital_Status	−0.203	0.921	−0.012	−0.220	0.826	0.902	1.109
Move	−0.150	0.660	−0.013	−0.227	0.821	0.840	1.190
Prev_house	0.126	0.738	0.010	0.171	0.865	0.787	1.270

While previous research suggests minimal age-related differences in life satisfaction overall (George et al., 1985), some studies indicate a slight decline in later life (Schilling, 2006). Aligned with this observation, our analysis (Table 8) reveals a negative and significant association between age and life satisfaction, with each additional year of age corresponding to a 0.078-point reduction in life satisfaction.

Our analysis also reveals a negative and significant relationship between permanent income and life satisfaction. Respondents without permanent income reported 2.243 points lower life satisfaction scores compared to those with permanent income. This finding differs from the general trend of income and happiness, where happiness tends to increase with income until basic needs are met (Mogilner & Norton, 2016). However, our study used a dichotomous variable for permanent income (*P_Income*) due to the lack of actual income data. Therefore, we cannot conclusively determine the relationship between life satisfaction and income levels. Similarly, car ownership, often associated with higher socioeconomic status, also showed a positive association with life satisfaction. Households without a car reported 1.691 points lower life satisfaction than those with a car.

The proportion of household income allocated to housing expenditures has been increasing across various countries, particularly among lower-income households (Ibem & Amole, 2013). In Turkey, house prices have consistently increased over time, resulting in a high house price-to-income ratio nationwide (Alkan Gökler, 2022). In recent years, there has also been a significant rise in house rents, making both house prices and rents increasingly unaffordable, particularly for low-income households. In theory, the proportion of income spent on housing may reflect variations in household preferences for housing consumption. However, for low-income households, high housing costs are more indicative of financial constraints, forcing these households to make tradeoffs between housing and other essential expenditures, which in turn negatively impacts their overall life satisfaction (Ibem & Amole, 2013). Consistent with expectations, the regression analysis revealed that households reported higher life satisfaction scores when they did not experience difficulties paying for housing expenditures, such as rent or credit.

The regression analysis reveals a positive and significant relationship between life satisfaction and satisfaction levels derived from housing attributes, neighborhood characteristics, and social activities. These findings align with prior research, which also concludes that both household and neighborhood characteristics influence individuals' overall life satisfaction (Huang & Du, 2015; Ibem & Amole, 2013; Møller, 2001; Peck & Kay Stewart, 1985; Westaway, 2006). Furthermore, social activities available within the living environment are identified as significant predictors of life satisfaction (Huang & Du, 2015; Ma et al., 2018; Westaway, 2006).

4. Discussions

Numerous studies have shown a strong positive link between housing satisfaction and overall life satisfaction. Demographic factors, such as age, income, and relationship status, and neighborhood satisfaction, which encompasses aspects like safety, amenities, and social connections, play a vital role in this relationship. However, a review of post-disaster permanent housing satisfaction studies in Turkey reveals a research gap. While these studies assess housing satisfaction and acknowledge its connection to life satisfaction, they lack a comprehensive evaluation of life satisfaction itself. Therefore, this study makes a significant and original contribution to the existing literature by addressing this gap. Specifically, this study provides valuable insights by examining the relationship between housing satisfaction and life satisfaction in Van's post-disaster permanent housing settlements.

The regression analysis conducted in Van, Turkey, provides valuable insights into the factors influencing housing satisfaction and life satisfaction among residents. The analysis revealed that several key variables—including income levels, housing attributes, neighborhood characteristics, social activities, and demographic factors—significantly influence residents' overall satisfaction with their living conditions. These findings are consistent with existing literature, further confirming the positive correlation between housing satisfaction and life satisfaction.

This study identifies a positive association between income levels and housing satisfaction, consistent with findings from prior research. For example, Oo et al. (2018) emphasize the critical role of income in shaping housing satisfaction following post-disaster reconstruction, as higher income levels enable better housing choices and improvements, ultimately enhancing satisfaction. Additionally, some studies confirm that income positively influences both housing and life satisfaction (Han, 2015; Ma et al., 2018; Park et al., 2019). Moreover, mortgage ownership and higher debt-to-income (DTI) levels are associated with lower emotional well-being, life satisfaction, and income satisfaction

(Will & Renz, 2023). Not all beneficiaries of the permanent post-disaster housing in Van are earthquake victims; many units have changed hands informally, sold or rented out by the original right holders. While these beneficiaries had no prior housing expenses before the disaster, they are now burdened with long-term debt. Relocation intention rises when housing expectations are unmet (Westaway, 2006). The current residents, mostly from low- and middle-income groups, report dissatisfaction with housing expenses and face significant payment difficulties. This has created a negative relationship between housing costs and life satisfaction. Galster's **Economic Theory** explains that when low-income households cannot afford housing costs (*Payment_diff* = 1), satisfaction decreases significantly ($\beta = -1.658$) (Galster, 1987). Meanwhile, Hirschman's **Dissatisfaction Theory** (1970) predicts these groups' tendency to "exit" (relocation), as captured by the *Move* variable. The findings reveal a structural mismatch between the target beneficiaries of post-disaster public housing policies and their actual financial obligations. The findings suggest that post-disaster housing policies should not only aim to increase homeownership rates but also consider the sustainability of household debt.

Several studies (Chen et al., 2013; Hu et al., 2022; Ma et al., 2018) underscore that improvements in housing quality—such as construction standards, comfort, and amenities—substantially enhance subjective well-being. These findings reinforce the importance of housing conditions in improving residents' life satisfaction. Similarly, this study confirms a positive correlation between better housing conditions and increased life satisfaction. Furthermore, this research aligns with Woo's (2023) findings, which identify housing quality, safety, infrastructure services, and social facilities as significant determinants of life satisfaction, with housing quality being particularly influential. This study also reveals that in Van, both objective and subjective indicators of housing satisfaction significantly impact overall life satisfaction, consistent with findings by Oswald et al. (2003). These results suggest that effective housing policies should address not only the physical aspects of housing but also social and environmental factors to enhance residents' quality of life. According to Sirgy and Cornwell (2002), satisfaction with household income and the social characteristics of the neighborhood directly affects life satisfaction, while the factor that significantly influences life satisfaction is not satisfaction with the neighborhood's physical characteristics, but the overall housing satisfaction mediated through satisfaction with the home.

To effectively measure and enhance neighborhood quality, comprehensive criteria addressing social, economic, and physical dimensions must be adopted (Sirgy & Cornwell, 2002). This data-driven approach is vital for improving residents' quality of life, particularly in post-disaster resettlement areas in developing countries. Local governments and NGOs can leverage these three dimensions to implement targeted projects that boost community well-being.

As an alternative explanation, the findings can be clarified through psychological adaptation mechanisms, which explain why residents express satisfaction despite insufficient conditions. Galster (1985) asserts in his Psychological Construct Theory that individuals create cognitive reference points for housing quality. When their current situations do not meet these standards, they can reduce dissonance by modifying their expectations or reassessing their surroundings. Emami and Sadeghlou (2020) support this notion by emphasizing the significance of interdisciplinary frameworks, including cognitive dissonance theory and aspiration-gap models, in the study of residential satisfaction. Jansen's (2014) empirical research indicates that residents experiencing a discrepancy between their actual and preferred housing conditions—particularly those desiring less space—may report high satisfaction levels. This finding suggests that subjective evaluation plays a mediating role in the effects of objective deficiencies. Amérigo and Aragonés (1997) highlight the dynamic interplay among environmental attributes, personal expectations, and adaptive behaviors. In the case of Van, it is likely that post-disaster residents have adjusted their expectations or cognitively adapted to their environment, thus preserving a sense of satisfaction despite constrained physical conditions. The adaptive processes provide a significant explanation for the findings and highlight the necessity of integrating psychological theories into the analysis of residential satisfaction outcomes.

In other words successful post-disaster permanent housing reconstruction requires a holistic approach that extends beyond the mere construction of physical structures. While immediate humanitarian relief is crucial in the aftermath of a disaster, the subsequent recovery and reconstruction phases must prioritize long-term community well-being. Sadiqi et al. (2012) highlight the frequent failures of post-disaster housing projects due to inadequate community involvement, relocation challenges, misuse of funds, and a lack of consideration for local needs and cultural contexts. Studies investigating housing satisfaction and its impact on life satisfaction suggest that, in a world with an increasing frequency of disasters, post-disaster reconstruction extends beyond merely rebuilding houses. Understanding local needs and cultural contexts, enhancing professional capacity in housing, and employing sensitive construction technology can transform post-disaster reconstruction into a tool for long-term protection of people and property, while fostering prosperous and resilient communities (Ahmed & Charlesworth, 2014). Nursamsir et al. (2022) investigate the social and political aspects of permanent housing policies for victims of earthquakes, tsunamis, and liquefaction in Palu City, Central Sulawesi. The study suggests that local governments should prioritize social aspects in housing policies, ensuring security, comfort, and land ownership status for relocated residents (Nursamsir et al., 2022).

In post-disaster resettlement, understanding residents' needs and satisfaction is essential for ensuring successful recovery and long-term sustainability. Shrestha et al. (2023) emphasize the significance of prioritizing residents' comfort, cultural sensitivity, and construction quality in resettlement decisions to promote long-term satisfaction and acceptance of new housing. Our findings support this perspective, emphasizing that the urgency to deliver permanent housing must not overshadow these critical considerations.

5. Conclusion

This study examines the level of life satisfaction among households residing in post-disaster housing in Van, focusing on the relationship between housing satisfaction and overall life satisfaction through regression analysis. The regression analysis findings from Van, Turkey, highlight the critical role of income, housing conditions, and demographic factors in shaping housing satisfaction and overall life satisfaction. These results align with existing literature, underscoring the necessity of comprehensive planning that prioritizes residents' needs in both regular and post-disaster housing contexts. Research consistently demonstrates that residents' satisfaction plays a significant role in their overall well-being. Furthermore, homeownership and housing improvements positively influence subjective well-being. Post-disaster resettlement studies should prioritize understanding user perceptions and needs to ensure long-term residential satisfaction. The urgent provision of permanent housing frequently overlooks key factors affecting household satisfaction, including comfort, construction quality, and cultural sensitivity. This oversight often results in the rejection or modification of provided housing. Successful resettlement is vital for the sustainable recovery of disaster-affected communities, highlighting the importance of resettled households' satisfaction in resettlement decisions and long-term sustainability. Unlike most studies in the literature, this research focuses on Van, a less developed city in developing country. Although post-disaster HDA settlements have played a key role in meeting basic housing needs, the economic burdens associated with these areas pose a threat to the long-term sustainability of housing. In this regard, the findings underline that post-disaster housing policies should address not only spatial issues but also socioeconomic resilience. In addition to models that promote homeownership, there is a clear need for alternative social housing finance mechanisms that do not push

vulnerable groups into long-term debt cycles. This study reveals that post-disaster housing affects not only "shelter" but also components of quality of life such as physical health, psychological well-being, and social welfare, as well as overall life satisfaction. Based on this, policymakers in developing countries like Turkey should take these factors into account when designing post-disaster housing policies. This study contributes to the literature on post-disaster recovery by highlighting how permanent housing and neighborhood conditions affect life satisfaction in a developing country context. The case of Van offers useful insights for other developing countries engaged in post-disaster reconstruction, especially those undertaking rapid housing production with limited public resources and operating within strong informal market dynamics. These findings point to the need for more integrated and context-sensitive housing strategies in similar settings. By considering the factors identified in this study, policymakers and planners can create housing solutions that enhance residents' satisfaction and contribute to their overall well-being.

CRediT authorship contribution statement

Aysu Uğurlar: Writing – review & editing, Writing – original draft, Methodology, Funding acquisition, Data curation, Conceptualization. **Leyla Alkan Gökler:** Writing – review & editing, Writing – original draft, Methodology, Conceptualization. **Gaye Zeynep Çenesiz:** Writing – review & editing, Writing – original draft, Methodology.

Declaration of competing interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:

Aysu Ugurlar reports financial support was provided by Van Yuzuncu Yil University. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

The data that has been used is confidential.

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