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The gap between housing satisfaction and preferences among low-income residents: the role of personality and social cohesion

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ABSTRACT

Housing planning is an important urban issue, particularly for low-income communities, as it must address occupant satisfaction and preferences. This study aimed to analyze occupants' satisfaction with 12 aspects of housing and personality traits. It also explored how satisfaction and future housing preferences could inform affordable housing design priorities. A quantitative descriptive method was employed involving 196 low-income residents who completed Likert-scale satisfaction questionnaires. The results indicated general satisfaction with most aspects of housing (mean scores of 3.31–3.75), while wall and ceiling materials and room quantity received neutral ratings. However, satisfaction differences across personality types could not be reliably analyzed; therefore, their role in differentiating housing satisfaction remains unconfirmed. Respondents also expressed a preference for housing that supports independent development and adaptation to future needs. The findings highlight a gap between current satisfaction with housing conditions and residents' future expectations, emphasizing the importance of flexible, adaptable, and occupant-responsive approaches to affordable housing planning.

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Introduction

Challenges regarding housing for low-income populations (Badan Pusat Statistik 2025) include: 1) Dwelling dimensions. According to Decree No. 403/KPTS/M/2002 of the Minister of Settlements and Regional Infrastructure on Technical Guidelines for Simple, Healthy Homes, a dwelling is considered habitable if it meets a minimum floor area of 7.2 m² per person. When analyzed by welfare level and disaggregated by expenditure quintiles, a significant proportion of households in the first quintile (the lowest expenditure group) occupy homes with a floor area of less than 7.2 m² per capita (specifically, 6.41 percent). Households in the first quintile require government attention regarding the development of healthy housing, particularly concerning floor area per capita. 2) Building quality. A residence should provide maximum benefit to its occupants. The Decree of the Minister of Health of the Republic of Indonesia Number 829/Menkes/SK/VII/1999 on Housing Health Requirements outlines three categories for assessment: the physical components of the house, sanitation facilities, and occupant behaviors. The physical components include ceilings, walls, floors, and ventilation. The flooring materials are also a key factor in evaluating whether a home is healthy and of good quality. Given these issues, this research is essential for assessing the satisfaction and housing preferences of low-income residents and for translating these insights into design priorities for affordable housing.

Housing planning is important because housing is a basic human need. The quality of the living environment is also considered significant for individuals' well-being, leading to the identification of factors that contribute to occupant satisfaction as inputs for monitoring the success of government housing policies. Moreover, measuring the dimensions and attributes of the environment in low-income communities can help assess occupants' satisfaction with housing units and the community's economic vitality. The concept is also useful for understanding when occupants are dissatisfied with the surrounding environmental facilities, lack social interaction, or have safety concerns. Iyanda adopted a similar approach to low-income housing, using a questionnaire as the research instrument. This questionnaire comprised six sections, and the first addressed the socio-economic characteristics of respondents, while the remaining five focused on dimensions of livability with a specific emphasis on economic vitality, housing unit characteristics, the social environment, neighborhood facilities, and neighborhood safety (Iyanda and Mohit 2016). This research was motivated by the importance of housing as a means of daily physical life for occupants. The purpose was to provide a sense of security and comfort, both biologically and psychologically. According to Sluchocka, architecture is an integral component of daily context, which accompanies humans in physical, biological, and psychological aspects of life while fulfilling needs for security, a sense of belonging, and luxury or prestige on certain occasions (Słuchocka 2022). This was necessary because differences in the perceptions of housing occupants as consumers and planners could influence stakeholders' decisions. The process could also reduce occupants' satisfaction. The issue of satisfaction preferences for residential clients is considered a significant matter for architects. The gap is expected to be addressed to ensure the expectations in this category are fully met, thereby ensuring clients have higher levels of satisfaction in the residential design services (Adedapo 2013). Furthermore, frequent changes in the housing development process can lead occupants to renovate out of dissatisfaction.

The literature on housing preferences and individual psychological factors reveals how sociodemographic, psychological, and spatial dimensions intertwine to shape residential decisions. (Syafrina et al. 2018) expands upon this understanding by identifying five aspects of residential environment preferences (5PLP) encompassing environmental comfort, facilities, infrastructure, location and accessibility, and the design of buildings and the surrounding environment. Meanwhile, (Sakina 2025) finds that housing preference scores tend to exceed satisfaction levels, with acoustic and visual comfort, along with daily activities (FoA daily), emerging as the most influential factors. These spatial dynamics are further explored by (Frisky and Pramitasari 2021) in the context of "type 36" housing, highlighting shifts in spatial requirements and typological transformations. This finding aligns with (Olanrewaju et al. 2024) research that identifies a 23% discrepancy between housing demand and supply, driven by factors such as price, income, ethnicity, race, and location. From a sociodemographic and economic perspective, (Wang et al. 2026) examines how ownership of rural assets influences migrants' residential choices, while (Lai et al. 2025) emphasizes that marital status, ethnicity, income level, generation, and gender are significant predictors of diversity in homebuyers' preferences. The complexity of contemporary housing systems is underscored by (Emekci et al. 2025) to assist policymakers in addressing the needs of a diverse population; this is further supported by (Larasati Z.R., Primasetra, and Suhendri 2017) study, which evaluates traditional prefabrication systems as a low-cost housing solution in Indonesia, and by (Agustian, Haidir, and Al Kholiq 2024) analysis of the availability of facilities and infrastructure for low-income households (MBR) in Palembang. Furthermore, the formation of human preferences and behavior is inextricably linked to psychological dimensions described by (Sanyal 2020) and (Nilugonda and Madhavi 2020) through the Five-Factor Model (FFM), or "Big Five" personality traits (Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness) which remain consistent over time. These personality traits have been shown to influence various aspects of behavior, ranging from the promotion of pro-environmental actions (as examined by (Hakim and Endangsih 2019)And the role of socio-psychological profiles in occupational preferences (Yamashita et al. 2024) to the integration of EEG signals with personality for emotion recognition (Hosseini et al. 2023) and the optimization of individual adaptation (as suggested by (McCrae and Sutin 2018).

Research on housing planning has been widely conducted, including assessments of affordability levels and prices across districts in Kelantan (Osman et al. 2020). The results showed the housing affordability level and the price-to-income ratio, also known as the median multiple. Moreover, Osman provided an overview of affordable housing policies and outlined the affordability index (Osman et al. 2017). The discussion on the influence of housing arrangements and ideal designs was used to shape a good and superior society in terms of behavior, life values, and daily lifestyles. It also emphasized the importance of practicing cultural norms and values as the basis of lifestyle and subsequent consideration in settlement design (Samsudin and Idid 2016). Previous research showed that factors contributing to the housing affordability index included housing prices, consumer spending, and transportation costs. The trend showed the importance of the location and affordability index in serving as a reference for policymakers (Hassan et al. 2021). Meanwhile, Kamal explored the challenges in housing policy and its implementation. The opinions of four main stakeholders in the housing sector were identified, and four alternatives to address the emerging problems (Kamal, Lai, and Yusof 2020). The provision of affordable housing for every income category, including low-, middle-, and high-income, was associated with

community perceptions of house characteristics and their relationship to affordability. The results showed that house size was not significant in influencing housing prices, but location, infrastructure, and house design were significant positive factors (Kamal et al. 2020)(Lim et al. 2018)(Ismail, Haja Bava Mohidin, and Daud 2017).

This research is important because of the urgency of avoiding trial and error in housing planning by applying a method that better accommodates occupants' personality traits, particularly in low-income communities. The trend aligns with architects' roles as reported by Tenbrink. The primary goal of architectural design is to accommodate the individual aspirations of the three affected parties, including architects, clients, and users, along with their diverse concepts and ideals (Tenbrink et al. 2014). Personality types can be determined through different psychological theories, such as Personality traits theory, which is considered relevant and widely used (Strohmaier 2024). The theory was also believed to be useful for research that focused on other comfort preferences. This complements existing research from other perspectives, such as Kistelegdi's focus on sensitivity analysis of building comfort and energy design variables (Kistelegdi et al. 2023).

Residential satisfaction and overall well-being are deeply intertwined with the physical quality of both individual living spaces and the broader neighborhood environment. At the foundational level, Fritz notes that "poor housing quality may be an important and modifiable social determinant of health." Addressing these conditions is vital for vulnerable populations (Fritz et al. 2026) as (Kilawe, Liu, and Li 2026) demonstrates, there is an urgent "need for more effective strategies and practical policies to improve housing conditions, thereby enhancing life satisfaction," and "regional planning and housing policies must prioritize addressing disparities in vulnerability and the hardships the elderly face in housing." Within the home itself, specific environmental metrics play a critical role in how residents experience their dwellings. (Bardey et al. 2027) emphasizes "the relevance of satisfaction with various aspects of IEQ (indoor environmental quality) to overall satisfaction with a space," providing "practical guidance on how different IEQ factors contribute to individual satisfaction within smaller residential spaces" an insight that "could indirectly foster greater acceptance of more resource-efficient housing typologies."

However, housing satisfaction extends well beyond indoor parameters to encompass neighborhood-level dynamics and resilience. Yuehui An reveals that while "housing conditions are positively and indirectly associated with residential satisfaction through higher livability and resilience," poor "locational conditions are negatively and indirectly associated with residential satisfaction through lower resilience." Furthermore, "livability shows the strongest positive association with residential satisfaction and is positively associated with sense of place, while resilience is also positively associated with both sense of place and residential satisfaction," with "sense of place" ultimately acting as a crucial mediating pathway between these factors (An et al. 2027).

Finally, these neighborhood dynamics are experienced unevenly across socioeconomic lines. Parvin found that "residential satisfaction with neighborhood livability varied between the neighborhoods, with contrasting patterns across income groups," driven by factors such as "commuting-related attributes, natural elements, social space, sense of place, and crime rates." Ultimately, "by integrating physical-spatial evidence with residents' priorities and satisfaction," urban planners can advance "multidimensional housing affordability assessment" and establish "an empirical basis for context-sensitive neighborhood design and planning guidelines that promote neighborhood livability and sustainable residential development" (Parvin, Mostafa, and Tisha 2027).

Given the background, this research aims to answer the question: "What are the levels of satisfaction and housing preferences among low-income residents, and can personality traits be used to differentiate them?" How satisfied are low-income residents with 12 aspects of their current housing? What kind of homes do they desire for the future? And what are the implications of the gap between the two for the planning of affordable housing? The novelty lies in the specific focus on the low-income population, and the implications of these research findings namely, the gap between satisfaction with 12 aspects of a dwelling and residents' future desires are significant for planning affordable housing.

Method

A quantitative descriptive method was used in this research to describe, summarize, and analyze data. The selection was due to the ability of the quantitative method to measure the satisfaction of end-users with a building during the early stages of the design process (Sherif, Asadi, and Karan 2018). This study examines occupant personality type and satisfaction-level preferences and analyzes them descriptively using frequency distributions, percentages, and mean scores. This was achieved in two stages, with the first focused on asking occupants to complete a questionnaire by scoring each statement. The Cochran formula utilized in this study $n = \frac{z^2 \cdot p \cdot q}{e^2}$ is specifically designed for unknown or infinitely large populations (where the population size $N$is sufficiently large that the finite population correction factor is unnecessary. This was clarified in the methodology section by

explicitly stating that an unknown/infinite population approach was assumed, utilizing standard parameters ($z = 1.96$ for a 95% confidence level, $p = 0.5$ for maximum variability, and $e = 0.07$ margin of error), which yielded the required sample size of $n = 196$. (Alternatively, if a finite population size N was known and used, insert that specific figure and the adjusted formula here). Respondents were 196 individuals aged 25-50 years.

$$n = \frac{(1{,}96)^2 \cdot 0{,}25}{(0{,}07)^2} = \frac{3{,}8416 \cdot 0{,}25}{0{,}0049} = 196$$

The data collection instrument consisted of a questionnaire, supplemented by demonstrations or residential models created using visual displays. A similar method was previously applied by Petikam to investigate the relationship between real-world depth fidelity and visual quality in mixed-reality rendering (Petikam, Chalmers, and Rhee 2018). The protocol for implementing adoption aimed to ensure data validity and subject comfort. The steps included a) image preparation by rendering architectural models with due consideration for the perception of ceiling, wall, and floor materials, as well as spatial dimensions and the number of spaces. The next steps were: b) the prevention of visual discomfort through appropriate lighting, and c) respondent preparation by providing information about the model and obtaining consent, while verifying that respondents had no history of visual impairments. The last step was d) providing respondents with a brief explanation of the model. Each question in the questionnaire was scored based on the respondent's level of satisfaction and assessed using a five-point Likert scale (Cai, Lin, and Zhang 2016). Resident satisfaction was measured across 12 housing aspects: location, strategic positioning, quality of wall, floor, and ceiling materials, house dimensions, number of rooms, clean water supply, electricity, roads and transportation, environmental cleanliness, and neighborhood security [18][19]. The mean score for each aspect was calculated as $\bar{X} = \Sigma(fi \cdot Xi)/n$ where fi represents the number of responses for Likert score Xi and n = 196 and interpreted as very dissatisfied (1.00–1.80), dissatisfied (1.81–2.60), neutral (2.61–3.40), satisfied (3.41–4.20), or very satisfied (4.21–5.00).

Results and Discussions

Figures 1, 2, and 3 present the characteristics of the 196 respondents. The extraversion type was the most frequent (28,91%), followed by agreeableness (24,23%), neuroticism (23,52%), conscientiousness (13,99%), and openness (9,35%). Most respondents owned their house through a credit scheme (62.69%), followed by inheritance (19.17%), renting (11.92%), and direct purchase (6.22%). The majority lived in a housing complex (72.54%), while 19.17% lived in suburban areas and 8.29% in the city center.

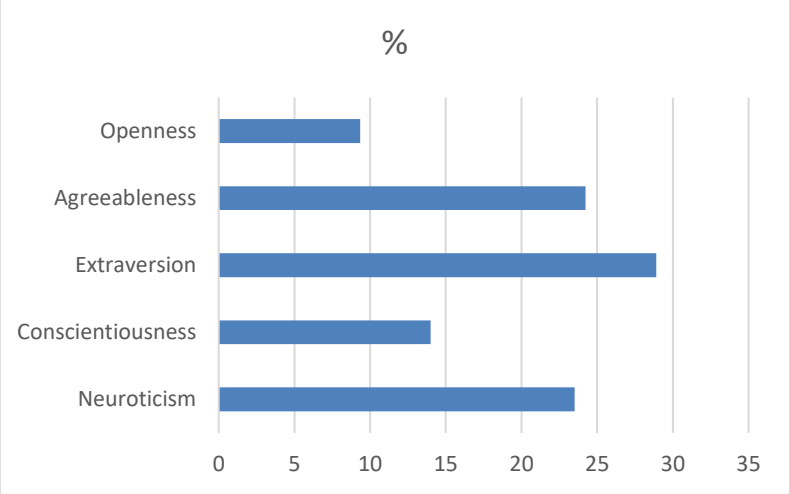


Figure 1. Personality type (% of respondents)

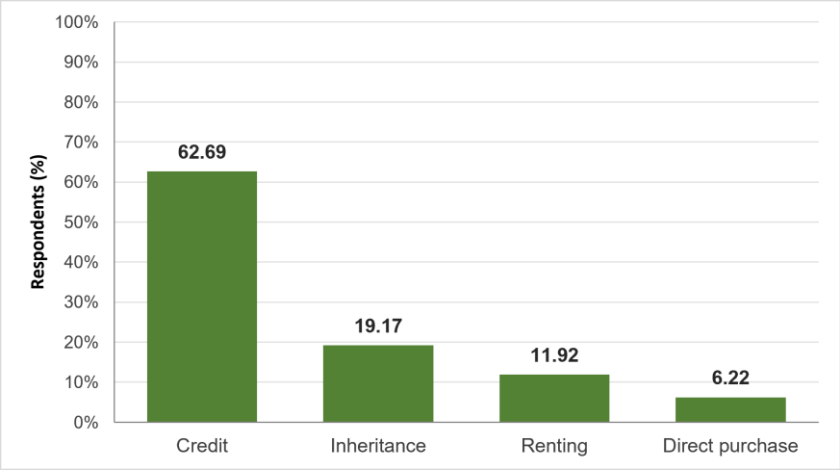


Figure 2. House ownership status (% of respondents)

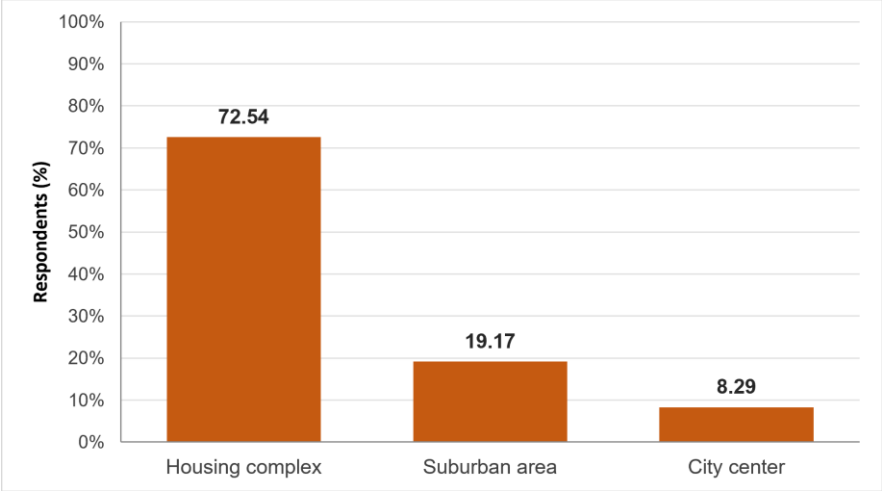


Figure 3. House Location (% of respondents)

The following are the results regarding respondent satisfaction levels across 12 housing aspects, summarized in Figure 4. Figure 4 presents the average scores, categories, and the proportions of respondents who were dissatisfied, neutral, or satisfied for each aspect.

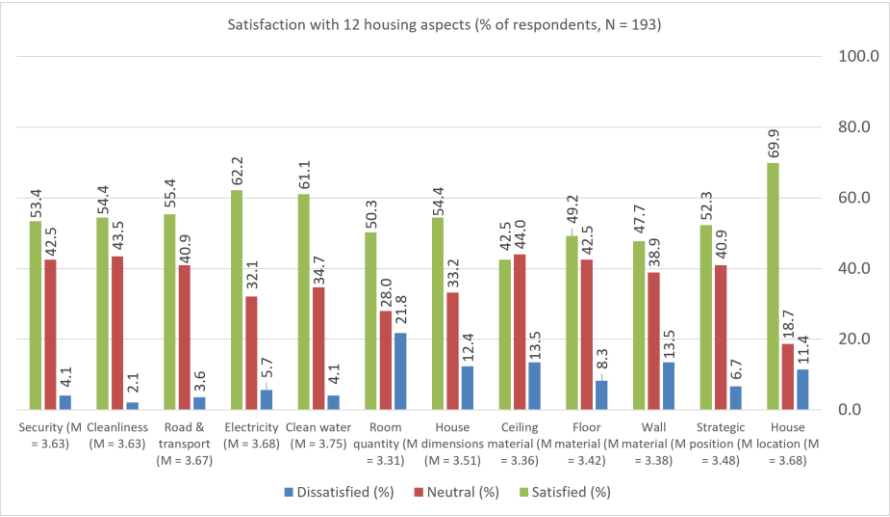


Figure 4. Satisfaction with 12 housing aspects (% of respondents, N = 196)

Dissat. = scores 1–2; Neu. = score 3; Sat. = scores 4–5. Category: 2.61–3.40 neutral; 3.41–4.20 satisfied.

Respondents were satisfied with nine of the 12 aspects, with mean scores ranging from 3.42 to 3.75. The highest satisfaction was found for clean water (3.75), followed by house location (3.68), electricity (3.68), and road and transportation (3.67). The house location also had the largest proportion of satisfied respondents (69.9%). All infrastructure and environmental aspects, namely clean water, electricity, road and transportation, environmental cleanliness, and environmental security, fell into the satisfied category, with no more than 5.7% of respondents expressing dissatisfaction.

In contrast, aspects related to the house itself received lower ratings (3.31–3.51) than infrastructure and environmental aspects (3.63–3.75). Three aspects fell into the neutral category: wall material (3.38), ceiling material (3.36), and room quantity (3.31). Ceiling material was the only aspect for which neutral responses (44.0%) outnumbered satisfied responses (42.5%), while room quantity had the largest proportion of dissatisfied respondents (21.8%). The relatively high proportion of neutral responses across all aspects (18.7–44.0%) also indicates that many respondents held a moderate rather than a strong opinion of their housing conditions. The satisfaction response details by personality type presented in Figures 1, 2, and 3 were analyzed as a single group, and comparisons between personality types were conducted in subsequent research. Dissatisfaction with the number of rooms was reflected in respondents' preferences for their future housing, as shown in Table 2.

Table 2. Future housing preferences of respondents (N = 196)

Aspect	Most preferred option	%
Housing preferences		
Location	City center	39.90
Location consideration	Near workplace & transport	24.35
Number of bedrooms	Three bedrooms	48.70
Living room size	Medium	52.85
Additional rooms	Family room and garden	27.46
Wall material	Brick	50.26
Floor material	Marble or granite	49.22
Ceiling material	Gypsum	50.78
Garage	Closed garage	32.12
Garden	Small front garden	34.72
Neighborhood aspects rated "very important"		
Road & public transport	Very important	93.78
Clean water	Very important	80.31
Security	Very important	74.61
Cleanliness & waste	Very important	70.98
Green open space	Very important	67.88

% = proportion of respondents selecting the option.

Most respondents preferred to live in the city center (39.90%), with proximity to the workplace and transportation as the main consideration (24.35%). A house with three bedrooms (48.70%), a medium-sized living room (52.85%), and an additional family room with a garden (27.46%) was the most preferred layout. For building materials, brick walls (50.26%), marble or granite floors (49.22%), and gypsum ceilings (50.78%) were the most frequently selected options, while a closed garage (32.12%) and a small front garden (34.72%) were the most frequently selected options for outdoor facilities. Among neighborhood aspects, road conditions and public transportation were most frequently rated as very important (93.78%), followed by clean water (80.31%), security (74.61%), cleanliness and waste management (70.98%), and green open space (67.88%). These preferences reflect the aspects with which respondents were least satisfied. The preference for three bedrooms is consistent with the neutral rating and the highest dissatisfaction for room quantity (Figure 4), and the preference for brick, granite, and gypsum suggests a desire for more durable finishes than the current wall and ceiling materials, which were also rated neutral. Although most respondents currently lived in housing complexes (72.54%), the city center was the most preferred future location, indicating that access to work and transportation was valued more than the type of residential environment. The high priority placed on road access, clean water, and security further confirms that basic infrastructure is a primary concern for low-income residents. Overall, housing satisfaction among low-income communities is influenced more by basic infrastructure and location than by the house's physical components. High satisfaction levels regarding clean water, electricity, and location contrasting with neutral assessments of the number of rooms and finishing materials align with previous findings that location, infrastructure, and house design are key determinants of housing demand and satisfaction among

low- and middle-income groups (Kamal et al. 2020)(Lim et al. 2018)(Ismail et al. 2017). Across the 12 aspects surveyed, the percentage distribution of each personality type among the 196 respondents was inconsistent; no single personality type emerged as dominant across all 12 aspects. Given that the number of rooms and the quality of finishing materials are the primary unmet needs, a "growing model" approach allowing residents to expand their homes and upgrade the quality of finishing materials over time as their needs and financial circumstances evolve serves as an appropriate planning strategy.

In this study, the preference for social facilities in residential areas helps strengthen social cohesion among residents of low-income housing. The analysis indicates that: a) Dual Function of Space: Neighborhood streets serve not only as infrastructure for circulation and mobility but also as informal social spaces extensions of the domestic realm that facilitate spontaneous and flexible interaction. b) Mechanisms of Social Cohesion: Social cohesion develops through a gradual process, beginning with spatial characteristics and opportunities for interaction whether spontaneous or planned that lead to the formation of social relationships, trust, reciprocity, and shared norms. c) Spatial Adaptation: The mere provision of physical facilities does not automatically foster cohesion; rather, the residents' ability to adapt space creatively such as utilizing streets for play areas or communal work activities or using the verandas of places of worship serves as a decisive factor. (Table 4).

Table 4. Social cohesion among residents

Key Aspects / Variables	Spatial Characteristics & Activities	Indicators of Response & Interaction	Social Mechanisms & Cohesion Indicators	Duration & Intensity of Activities
Kinship & Fellowship	Open neighborhood streets, high visibility, and spaces for interaction with itinerant vendors.	Spontaneous encounters, casual conversation, sharing stories, and daily informal commercial transactions.	Familiarity & Spontaneous Contact Sense of togetherness, openness, and spatial flexibility.	Variable duration (<60 to >120 minutes); Frequent/daily intensity
Togetherness & Mutual Cooperation	Sports fields, neighborhood streets, and community halls	Collective neighborhood cleanup activities, Independence Day competitions, and community meetings	Reciprocity & Trust. Solidarity, a sense of unity, shared norms, and minimal conflict	Relatively long duration (60–120 minutes); periodic to monthly intensity
Need for Proximity & Oversight	Neighborhood security posts (semi-private spaces) and other community facilities	Monitoring the use of facilities, night patrols, and collective supervision	Mutual Support & Social Bonding. A sense of security, mutual trust, and a sense of belonging	Relatively long duration (60–120 minutes); irregular intensity
Recreation & Play Activities	Parks, open fields, and play areas	Children's play and family recreation daily intensity	Social Bonding. Emotional attachment to the residential environment	Relatively long duration (60–120 minutes
Synthesis of Supporting	Accessibility, visibility, connectivity, flexibility, and the availability of facilities.	Opportunities for spontaneous, routine, planned, and cross-group interaction.	Family, Communication, Trust. Solidarity, participation, and collective problem-solving.	Adaptive and sustainable use of space.

Based on Table 4, housing planning for low-income individuals needs to take into account preferences that foster social cohesion. Planning Implications: Future planning for affordable housing must evaluate both the physical functions of spaces and their capacity to support social interaction, spatial flexibility, and connectivity between communal areas.

Conclusions

The research findings reveal a clear dichotomy. Respondents expressed a high level of satisfaction, particularly regarding external aspects and infrastructure specifically the supply of clean air, strategic location, availability of electricity, and access to roads and transportation. Conversely, assessments of the physical dwellings

themselves tended to be lower, with scores falling into the neutral category for aspects such as wall materials, ceiling materials, and the number of rooms. The number of rooms, in particular, emerged as a primary source of dissatisfaction. This aligns with future preferences, as nearly half of the respondents desired homes with three bedrooms, durable construction materials (such as brick walls, marble or granite flooring, and gypsum ceilings), and a location in the city center, close to workplaces and transportation hubs.

Descriptive analysis indicates that satisfaction levels and preferences cannot be reliably distinguished or explained solely by personality type. Therefore, the planning of affordable housing should adopt a two-pronged framework that addresses both physical shortcomings and socio-spatial needs: a) Flexible and Adaptable Design: Given that the number of rooms and building materials represent key unmet needs, housing development should adopt an "expandable housing model." This approach allows residents of low-cost housing to gradually expand and improve the quality of their homes as their economic circumstances and family size evolve thereby minimizing the risk of post-occupancy dissatisfaction and avoiding costly future renovations. b) Infrastructure Integration for Social Cohesion: Beyond structural components, the study confirms that neighborhood streets, open spaces, and communal semi-private areas serve as vital social catalysts. Because residents value safety, cleanliness, and social interaction, the affordable housing master plan should include spatial infrastructure versatile circulation areas and communal facilities that help residents feel at home, build mutual trust, and support one another. Ultimately, successfully providing affordable housing for low-income populations requires a balanced strategy that bridges the gap between satisfaction with basic infrastructure and the residents' aspirations for adequate space and social connectivity.

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